Networks, Attributes and Director Elections

Yerzhan Tokbolat, Philip T. Fliers, Moldir Mukan

Queen's University Belfast

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Abstract

This study examines how director networks and personal attributes influence shareholder voting in director elections. Using a comprehensive dataset of director election votes, we analyse the impact of interlocking board connections on shareholder dissent. Our results reveal that directors with extensive networks face higher dissent rates, particularly at the upper end of connectedness. We also find that individual characteristics matter. Older and male directors receive more dissent, whereas Generation X directors tend to garner stronger support. Together, these findings underscore the dual role of social capital and personal attributes in shaping shareholder voting behavior, offering new insights into corporate governance and boardroom power dynamics.

1. Introduction

The election of corporate directors serves as a fundamental mechanism through which shareholders influence firm governance. Prior research has extensively examined firm-level determinants of shareholder voting behaviour (Cai et al. 2009; Fischer et al. 2009; Ertimur et al. 2017), while more recent work has focused on factors such as corporate social responsibility (Cullinan et al. 2017), board diversity (Gow et al. 2023), and climate-related disclosures (Garel et al. 2025). These studies show that shareholders increasingly value diverse boards, with evidence that gender and racial diversity positively influence director election outcomes (Gow et al. 2023; Sulaeman & Ye 2023). Similarly, firms with strong environmental and social performance tend to receive greater shareholder support, reflecting the growing emphasis on ESG factors in corporate governance (Dikolli et al. 2022).

While these studies offer valuable insights into the evolving expectations of investors, there remains a gap in understanding how director networks and personal attributes such as gender, age, status, and professional affiliations shape voting outcomes. Highly connected directors may become overextended and distracted, rendering them unable to monitor and advise effectively across all their boards, and might inadvertently propagate poor management practices or pursue self-serving decisions at shareholders' expense (Bakke et al. 2024). Director networks also serve as channels for governance diffusion and reputation effects (Nili, 2022), warranting further research to determine whether well-connected directors attract stronger shareholder support or face greater scrutiny for potential conflicts of interest.

First, our findings reveal that directors with stronger corporate networks in the year prior to the election face more dissent. We show that one standard deviation increase in network strength leads to approximately 15% more dissent (against a mean of 1.4%), demonstrating the economic significance of this effect. We also find that the effect of director networks is largely driven by those in the top 20% of network density. Using this as our treatment identification, we demonstrate that the effect is robust to alternative specifications. Second, we find that gender and age significantly influence shareholder voting outcomes. Male older directors experience higher levels of dissent, indicating that shareholders may scrutinise them more closely, possibly due to concerns over entrenchment or outdated governance approaches. Lastly, we examine whether the influence of director networks varies by firm type and director status characteristics.

Our study contributes to multiple strands of literature. First, within the voting literature, we extend prior research on the determinants of shareholder dissent by demonstrating that director networks beyond firm-level characteristics play a significant role in election outcomes. While previous studies have largely focused on firm performance, governance structures, and investor preferences (Cai et al., 2009; Ertimur et al., 2017), we highlight how interpersonal ties shape investor perceptions and voting behaviour. Second, within the network literature, our findings offer novel insights into how the structure and quality of a director's network affect governance outcomes. Unlike traditional studies that examine networks in terms of information diffusion, board interlocks, or resource access (Mizruchi, 1996; Larcker et al., 2013; Nili, 2021), we show that networks also serve as signals of credibility and competence in shareholder elections. Together, these contributions deepen our understanding of the mechanisms shaping shareholder democracy and the evolving role of networks in corporate oversight.

2. Data and institutional setting

We manually collect detailed voting outcome data from Regulatory News Services and company websites for FTSE 350 firms between 1997 and 2022. Firms remain in our sample even if they subsequently exit the index, until they are either acquired or cease to exist. Before 2007, publishing voting results was not legally required but was already a core requirement of the UK's best-practice guidelines (FRC, 2006). Firms that initially withheld their voting results, particularly in the early years of our sample, did so until the year they first published them, then disclosed results every subsequent year. This is consistent with random timing rather than selection bias and indicates that our voting data are free from disclosure bias.

Director elections in the UK are conducted through an ordinary resolution, requiring a simple majority to pass (Companies Act, 2006). Our main proxy for shareholder confidence in directors is a measure of dissent, the proportion of votes cast against the election or re-election excluding abstentions, which are not considered votes under UK law (FRC, 2016). Director-level attributes and network statistics are sourced or calculated from BoardEx. To measure director networks, we incorporate multiple dimensions of professional ties, such as various measures of centrality and authority. Firm-level variables, such as firm size and profitability, are obtained from Eikon/Datastream.

The Combined Code on Corporate Governance, first introduced in 1998, recommended that all directors should "submit themselves for re-election at regular intervals, and at least every three years" (Combined Code, 1998). This provision was later strengthened in 2010 when

the Financial Reporting Council amended the Code to recommend annual re-elections for all FTSE 350 companies (FRC, 2010). By 2018, the Combined Code further recommended annual re-elections as a best practice for all listed companies (FRC, 2018).

These regulatory developments underscore the growing emphasis on director accountability and provide a compelling setting for examining the impact of director networks and personal attributes on shareholder voting behaviour. The study period captures the transition to annual director re-elections and mandated disclosure of voting outcomes. This enables us to compare the effects of director networks before and after regulatory changes, distinguishing periodic from annual re-election environments. By doing so, we can assess whether networks play a different role when shareholders have more frequent opportunities to express dissent.

3. Empirical results

3.1. Network centrality and shareholder dissent

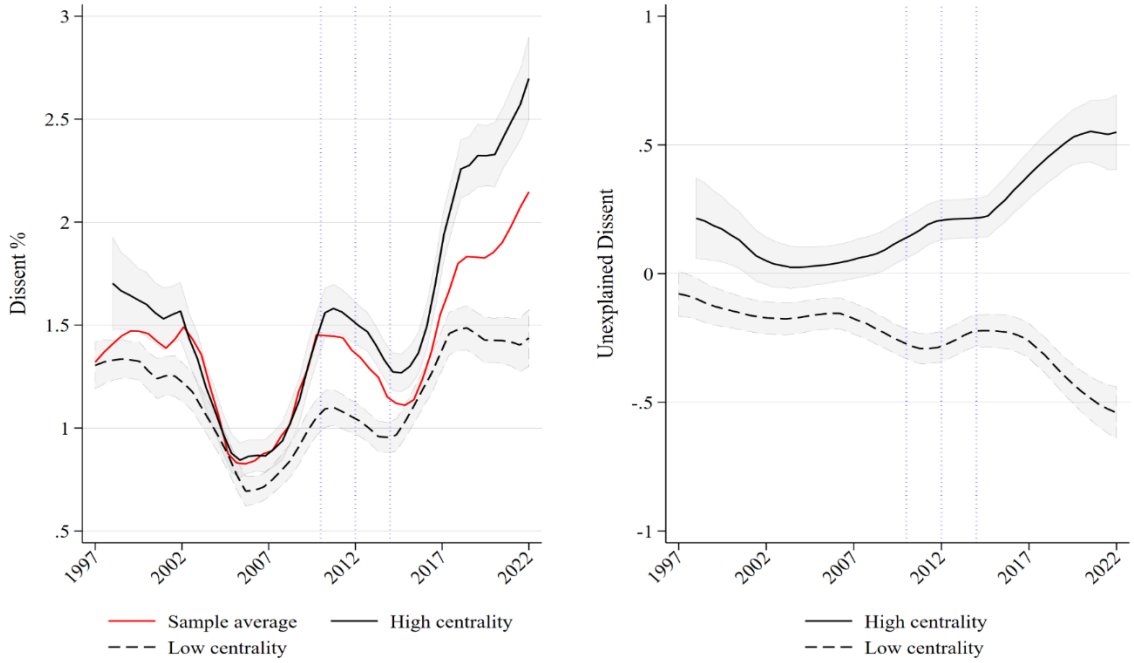
Table 1 presents summary statistics for the variables. Although average dissent levels are low at 1.4 percent, they align with those reported elsewhere. A mean degree centrality of 1.7992 indicates that, on average, each director is directly connected to about 1.8 other directors through shared board memberships.

Table 1. Descriptive statistics

Variables	Mean	p50	SD	p25	p75	N
Dissent	0.0144	0.0047	0.0227	0.0014	0.0156	42,908
Degree centrality	1.7992	2.0794	1.1202	1.0986	2.6391	42,908
Transitivity	0.4057	0.3959	0.2814	0.1627	0.6931	42,908
Closeness	0.0020	0.0000	0.0145	0.0000	0.0000	42,908
Page rank	5.2429	6.5653	3.1883	2.6741	7.7671	42,908
Indegree	1.7992	2.0794	1.1202	1.0986	2.6391	42,908
Eigenvector	0.0038	0.0000	0.0150	0.0000	0.0008	42,908
Bonacich	0.0001	0.0001	0.0002	0.0001	0.0002	42,908
Betweenness	3.4871	0.0000	5.0084	0.0000	10.0328	42,908
Authority	0.0038	0.0000	0.0150	0.0000	0.0008	42,908
University education	0.4974	0.0000	0.5000	0.0000	1.0000	42,908
Professional qualification	0.1536	0.0000	0.3606	0.0000	0.0000	42,908
MBA	0.1197	0.0000	0.3246	0.0000	0.0000	42,908
Foreign director	0.1080	0.0000	0.3104	0.0000	0.0000	42,908
Gender	1.8350	2.0000	0.3712	2.0000	2.0000	42,908
Elite	0.0687	0.0000	0.2529	0.0000	0.0000	42,908
Academic	0.0439	0.0000	0.2049	0.0000	0.0000	42,908
Honorary academic	0.0531	0.0000	0.2243	0.0000	0.0000	42,908
Business elite	0.2915	0.0000	0.4545	0.0000	1.0000	42,908
Bestowed honours	0.0782	0.0000	0.2685	0.0000	0.0000	42,908
Firm size (ln)	14.6825	14.4413	1.8045	13.3446	15.7344	42,908
Profitability	0.0488	0.0438	0.0679	0.0089	0.0867	42,908
Leverage	0.2257	0.2110	0.1690	0.0807	0.3352	42,908

Figure 1 illustrates dissent levels by director degree centrality, showing a marked increase after 2012. This rise coincides with the 2012 and 2014 Code reforms, which heightened board accountability by requiring formal responses to significant shareholder opposition and transparent disclosure of how shareholder concerns are addressed. Importantly, the difference in dissent between directors with high centrality (the top 20 percent of connected directors) and those with low centrality (the bottom 20 percent) is statistically significant. Moreover, this significance persists even when considering only the unexplained portion of dissent. This suggests that factors beyond those captured by our model contribute to dissent levels.

Figure 1. Shareholder dissent and degree centrality



In Table 2, we report the results of our regression analysis, in which the dependent variable is *Dissent* and the key independent variable is *Degree centrality*. Degree centrality, the most used network centrality measure, is defined as the total number of direct connections that node *i* has in the network. In our context, it equals the number of other directors with whom director *i* shares board service. We find that degree centrality exerts a positive and highly significant effect on dissent. Also, the interaction between degree centrality and the post-2010 dummy variable has a statistically significant effect on dissent. This relationship remains robust after controlling for both firm-level and director-level characteristics. Additionally, we observe that directors with university degrees and professional qualifications receive less dissent, whereas non-British directors, male directors, and those considered elite experience more dissent.

Table 2. Shareholder voting dissent and degree centrality

Variables						
Degree centrality	0.002***	0.001***	0.001***	0.001***	0.001***	0.001***
	(15.789)	(6.742)	(6.363)	(6.432)	(6.395)	(6.051)
Degree centrality x post-2010		0.001***	0.002***	0.002***	0.002***	0.002***
		(6.434)	(6.609)	(6.818)	(7.460)	(7.544)
Firm size (ln)			-0.003	-0.003	-0.003	-0.003
			(-1.393)	(-1.368)	(-1.365)	(-1.396)
Profitability			0.002***	0.002***	0.002***	0.002***
			(7.408)	(7.441)	(7.522)	(7.461)
Leverage			-0.002	-0.002	-0.003	-0.003
			(-1.535)	(-1.547)	(-1.615)	(-1.628)
University education				-0.001*	-0.000	-0.001*
				(-1.846)	(-0.747)	(-1.799)
Professional qualification				-0.001**	-0.001***	-0.001***
				(-2.192)	(-2.728)	(-3.087)
MBA				-0.000	-0.001	-0.001
				(-0.693)	(-1.160)	(-1.430)
Non-British					0.002**	0.001*
					(2.394)	(1.936)
Gender (M)					0.003***	0.003***
					(7.719)	(7.032)
Elite title						0.001*
						(1.828)
Academic title						-0.000
						(-0.652)
Academic honour						0.000
						(0.134)
Business elite						0.002***
						(5.768)
Bestowed honour						0.000
						(0.376)
Observations	42,908	42,908	42,908	42,908	42,908	42,908
R-squared	15.5%	15.6%	15.8%	15.9%	16.1%	16.3%
Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Dissent mean			1.4%			
SD(Network)			1.12			
Effect size (1SD increase)	15.5%	7.8%	15.5%	15.5%	15.5%	15.5%

In Table 3, we use alternative network centrality measures to explore which types of connections matter in director elections. See Appendix A for definitions of these variables. Across all measures, we observe a positive relationship with dissent. In the post-2010 period, this relationship remains statistically significant for Page rank, Betweenness, Indegree and Bonacich, although the effect size is substantively meaningful only for Indegree and Bonacich centrality.

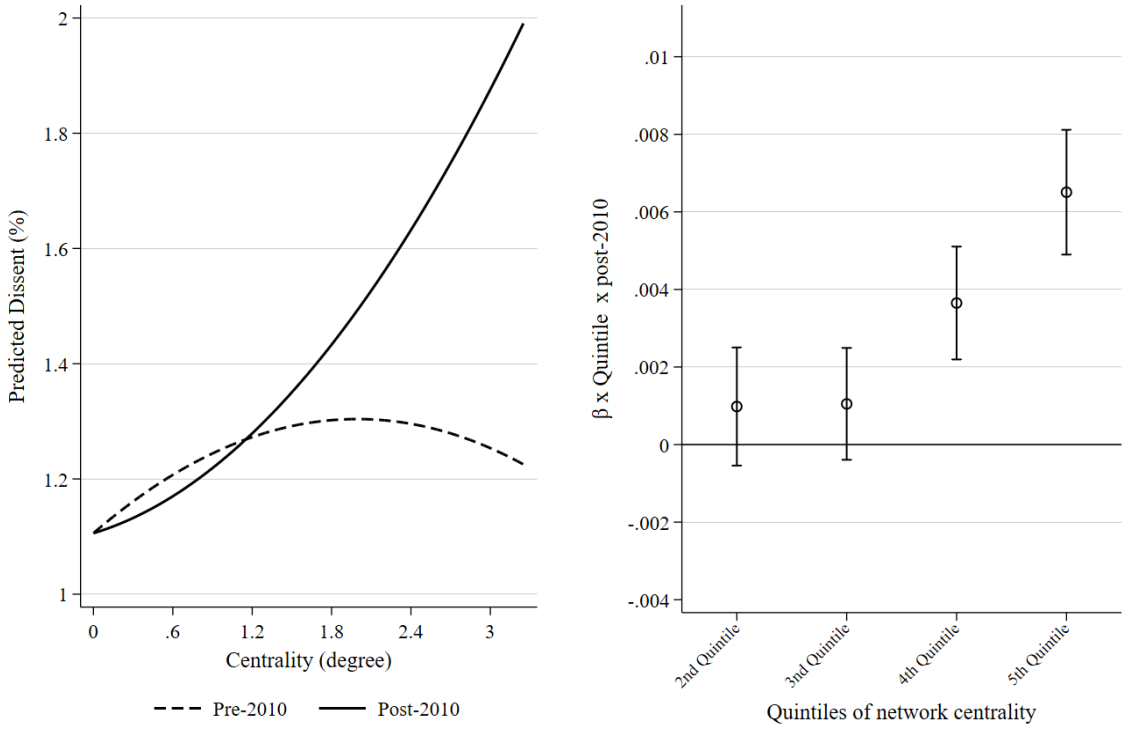
Table 3. Alternative measures of network centrality

Variables	Transitivity	Closeness	Page rank	Indegree	Eigenvector	Bonacich	Betweenness	Authority
Network centrality	0.004***	0.007	0.000***	0.001***	0.004	3.095***	0.000**	0.004
	(6.156)	(0.826)	(6.986)	(6.051)	(0.771)	(4.638)	(2.087)	(0.771)
Network centrality x post-2010	-0.001	0.033	0.000*	0.002***	0.028	17.769***	0.000***	0.028
	(-1.558)	(0.882)	(1.689)	(7.544)	(0.960)	(6.536)	(6.927)	(0.960)
Observations	42,908	42,908	42,908	42,908	42,908	42,908	42,908	42,908
R-squared	16%	15%	16%	16%	15%	16%	16%	15%
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Dissent mean					1.4%			
SD(Network)	0.27	0.01	3.15	1.12	0.01	0.00	5.15	0.01
Effect size (1SD increase)	0.00%	3.16%	0.00%	15.48%	2.76%	20.18%	0.00%	2.76%

Because high indegree reflects the number of peers who endorse or defer to a director and high Bonacich centrality captures a director's embeddedness within a core of well-connected, influential peers, both serve as complementary measures of network-derived power. The strong impact of these two variables on shareholder dissent therefore suggests that shareholders are more likely to oppose the most powerful directors, particularly in the post-2010 period.

In Figure 2 we show that before 2010, the relationship between degree centrality of directors and shareholder dissent is non-linear. Degree centrality positively affected dissent when centrality fell below 1.8 but turned negative above that threshold. This suggests that prior to the 2010 reforms that increased director scrutiny and shareholder power, directors with above-average network centrality enjoyed greater support, perhaps because shareholders had limited influence. In the post-2010 period the effect of degree centrality on dissent is both positive and statistically significant, reflecting heightened scrutiny by empowered, more informed shareholders. The right panel illustrates that after 2010 dissent rises sharply for the most highly connected directors.

Figure 2. Shareholder dissent and degree centrality



3.2. Director attributes and shareholder dissent

We next examine how directors' personal attributes affect election outcomes. We find that, among highly connected directors, dissent rates are higher for male directors (Figure 3) and for older directors (Figure 4). Although older elite and high-status directors also show higher dissent rates, these effects are not statistically significant.

Figure 3. Director attributes and shareholder dissent

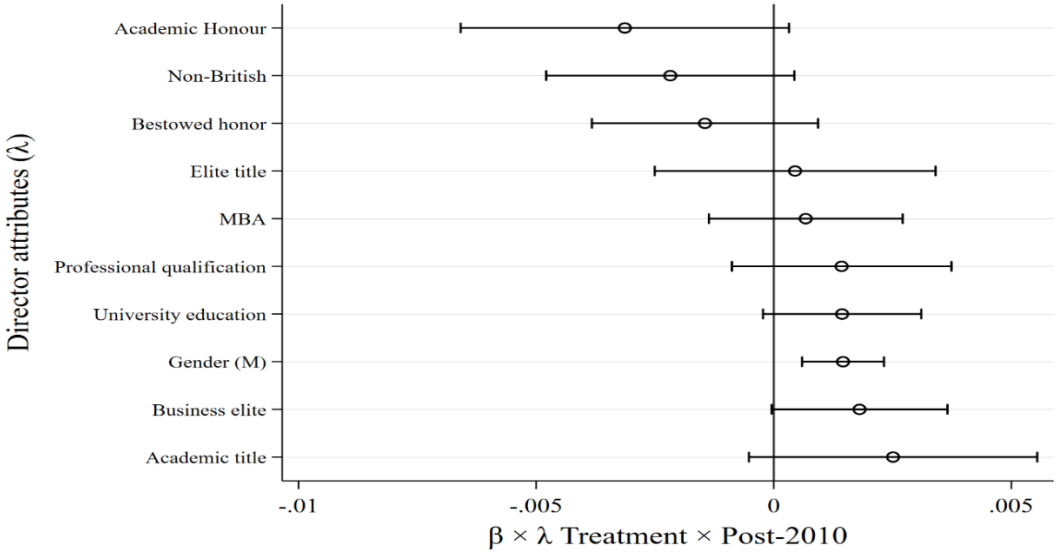
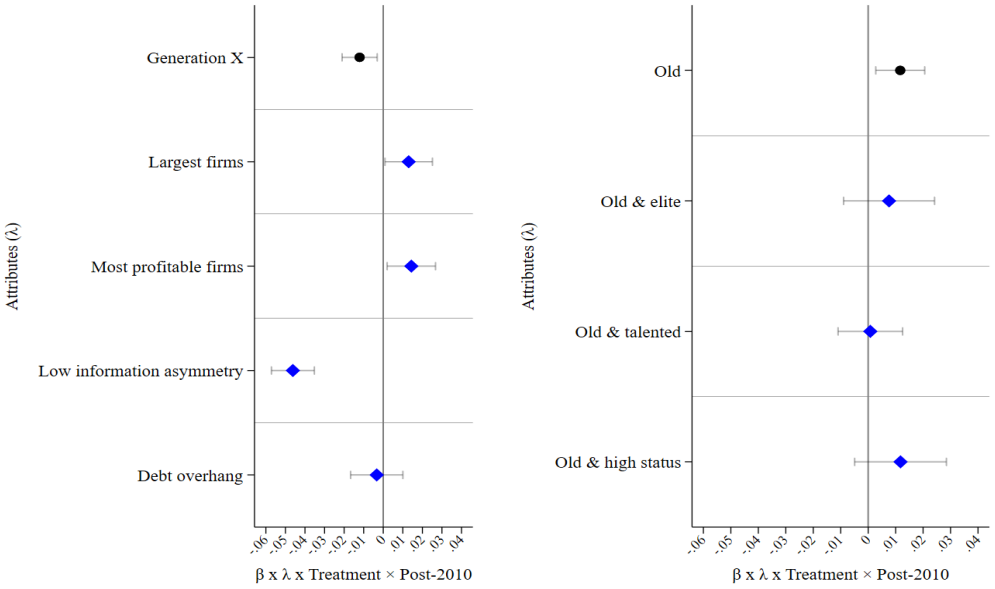


Figure 4. Director attributes and shareholder dissent



We also find that Generation X directors are favoured by shareholders: those serving at larger, more profitable firms tend to attract greater opposition, while those at companies with low information asymmetry enjoy stronger support. Larger, highly profitable firms face heightened scrutiny from institutional investors, proxy advisors and the media, which raises expectations around performance, governance and executive pay, so Generation X directors there often receive more dissent. By contrast, firms with low information asymmetry offer greater transparency and trust, reduce fears of hidden agency costs and align management with shareholders, which in turn boosts director support.

4. Conclusion

The regulatory developments discussed in this paper underscore the growing emphasis on director accountability and provide a compelling setting for examining the impact of director networks and personal attributes on shareholder voting behaviour. The results also highlight the nuanced role of director characteristics in shaping investor decisions and contribute to a broader understanding of the determinants of shareholder voting behaviour beyond firm-level determinants.

Methodologically, we plan to refine our identification strategy by leveraging external shocks to director networks, such as corporate mergers and financial crises. These events may provide quasi-experimental settings that help isolate the causal impact of network strength on shareholder voting. Additionally, we will explore the use of dynamic panel models and difference-in-differences (DiD) designs to better capture how changes in a director's network position affect their likelihood of re-election.

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Appendix A Definition of variables

Dissent	Number of votes cast against divided by the number of votes cast against and for
Degree centrality	Total number of connections a node has in the network: $D_i = \sum_j A_{ij} + \sum_j A_{ji}$
University	1 if and only if director attended university
Professional	1 if and only if director has a professional qualification or is a chartered accountant
MBA	1 if and only if director has an MBA
Foreign director	1 if and only if director is a non-British national
Gender	1 if director is female, 2 f director is Male
Elite	1 if director has an elite title, academic title, honorary academic title, high business status or royal honour bestowed
Academic	1 if director is a doctor or Professor
Honorary academic	1 if director has an honorary degree, honorary doctorate or honorary fellowship
Business elite	1 if director is a billionaire, listed in Britain's 500 most influential people, listed as very (or ultra) high net worth individual
Bestowed honors	1 if director has been awarded an COBE or OBE
Firm size (ln)	log of total assets
Profitability	Net income to total assets
Leverage	Total debt to total assets

Alternative measures of network centrality:

- Transitivity
  - $C_i = \frac{2*T_i}{D_i*(D_i-1)}$
  - Clustering coefficient: likelihood your friends are also friends.
  - How cliquey your neighbourhood is.
- Closeness
  - Reciprocal of the sum of shortest path lengths from this node to all others.
  - $C_i = \frac{1}{\sum_j d_{ij}}$
  - A measure of "central access" in the network.
- Indegree
  - $D_i = \sum_j A_{ji}$
  - Number of incoming edges to a node.
  - How many nodes are pointing to this one? Like counting how many people follow you.
- Page rank
  - Probability a random walker lands on a node.
  - $PR_i = \frac{1-d}{N} + \sum_{j \in M_i} \frac{PR_j}{L_j}$
  - Where d = damping factor, M is the set of nodes linking to I, L is the number of links from j, N is the number of nodes
- Bonacich Power Centrality
  - $x_i = \sum_j (\alpha + \beta x_j) A_{ij}$
  - Centrality based on connections to other central nodes, scaled by a decay factor.
  - You're powerful if your friends are powerful.
- Eigenvector centrality
  - A node is important if connected to other important nodes.
  - $x_i = \frac{1}{\lambda} \sum_j A_{ij} x_j$
  - Prestige by association.

- Betweenness
  - Number of shortest paths passing through the node.
  - How often does this node act as a bridge between others?
  - $B_i = \sum_{s \neq i \neq t} \left(\frac{\sigma_{st}(i)}{\sigma_{st}} \right)$
- Authority
  - $a_i = \sum_{j:j \to i} A_{ji} h_j$
  - A node is a good authority if it is pointed to by good hubs (i.e., nodes that themselves point to many good authorities). This is especially relevant in citation networks, web search, or knowledge graphs.
