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Navigating the Nexus of Dual-Class Share Structure and Firm Innovation: A Systematic Literature Review

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Abstract

This systematic literature review aimed to investigate the impact of dual-class share structure on firm innovation. We utilized SLR methods with specific searching strategy to get our samples. 99 articles from Scopus met the predetermined criteria and were considered suitable for inclusion in our research. The review identified emerging research trends, encompassing diverse industries and regions. By synthesizing independent variables, dependent variables, moderators, and mediators, we unveiled patterns in measurement standards and theoretical orientations among researchers. We also observed that DCS remain influential in shaping the innovative motivation of firms. Our analysis revealed a need for more qualitative analyses, innovation in theoretical frameworks, and deeper exploration of governance in emerging economies. This review served as a foundational resource for future research in this field, since we haven't found literatures focusing on the combination of DCS and firm innovation. However, we acknowledged potential limitations in our search strategies and database selection. As DCS and innovation continue to evolve, this review highlights the importance of ongoing inquiry and exploration in this dynamic area of study.

Keywords: Dual-Class Share Structure, Firm Innovation, Ownership Structure, Systematic Literature Review

Introduction

What should company founders do when they are faced with tempting acquirers at their doorstep? Perhaps they could turn to Dual-Class Share structures (DCS) for assistance. DCS is an ownership arrangement that comprises two or more tiers of equity, each endowed with differing voting rights (Amoako-Adu et al., 2011). A principal feature of DCS is the considerable enhancement of voting rights for certain shareholder groups (often the founders) relative to other shareholders (Rock, 2012). Consequently, the DCS structure deviates from the standard "one share-one vote" principle by assigning unequal voting rights among shareholders based

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on share classification, leading to a disconnect between the proportion of equity held and the degree of voting power (Chemmanur & Jiao, 2012). It may seem that this ownership arrangement is unfair, but DCS has existed for a century. In essence, the DCS structure is a mechanism for altering the balance of power in the governance of listed firms, significantly strengthening the influence of the controlling shareholder group. Founder shareholders, who often also hold managerial roles, can thus exercise disproportionate influence over the company's board of directors (DeAngelo & DeAngelo, 1985; Jarrell & Poulsen, 1988; Smart et al., 2008).

Despite the long history and strategic advantages of DCS, the existing literature presents a notable research gap in understanding their broader implications and effectiveness in contemporary corporate governance. Many studies have focused on the immediate benefits of DCS for founders and controlling shareholders, such as the ability to fend off hostile takeovers and retain control over strategic decisions (Cao et al., 2020). However, there is limited research on the long-term performance and sustainability of firms that adopt DCS. One critical area that remains underexplored is the impact of DCS on minority shareholders and overall firm value. While DCS can protect the interests of founders, according to Fan and Zhu (2021), it can also lead to governance issues, such as entrenchment, where controlling shareholders make decisions that benefit themselves at the expense of other shareholders. This can result in conflicts of interest, reduced accountability, and potential adverse effects on the firm's market performance and valuation. Moreover, in the view of Yan (2022), there was a paucity of empirical studies examining how DCS affected innovation, strategic flexibility, and competitive advantage in different industries and market environments. Understanding these dynamics is crucial for assessing whether the advantages of DCS can outweigh their potential drawbacks. Additionally, the role of regulatory frameworks in shaping the effectiveness and perception of DCS across different jurisdictions is another area that requires further investigation. Therefore, a thorough literature review will help clarify the benefits and drawbacks of DCS structures, their long-term impact on firm performance and shareholder value, and the role of regulatory frameworks in different jurisdictions. This approach will enable researchers and practitioners to develop more nuanced insights into the effectiveness of DCS and propose strategies to mitigate potential negative consequences while maximizing their strategic advantages.

This paper is structured with an introduction (Section 1), literature review (Section 2), methodology (Section 3), and results analysis (Section 4) categorizing publication time, regions, research methods, theories, determinants, and consequences. It then synthesizes key findings (Section 5) and concludes by discussing implications and future research (Section 6).

Literature Review

The traditional "one share-one vote" shareholding structure aligns a shareholder's voting power with their share of ownership, adhering to the belief that benefits should match capital contributions, a concept supported by Grossman and Hart (1988). However, this view fails to consider the diversity among shareholders' interests and capabilities, as critiqued by Burkart and Lee (2007). Meanwhile, DCS enables certain shareholders, often founders or early backers, to hold disproportionate voting rights. This arrangement has garnered attention for its potential impact on corporate governance and innovation, areas explored by scholars such

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as Gao and Zagorchev (2020), Gompers et al. (2010), Hossain and Kryzanowski (2019), and Yan (2022), but the intricate relationship between DCS and firm innovation remains elusive.

DCS presents a dichotomy in corporate governance, where control concentration can either bolster long-term innovation by supporting risk-taking (Atanassov, 2013) or lead to agency problems and entrenchment, thus potentially dampening innovation (Gompers et al., 2010). This nuanced area has been the focus of much research, yet comprehensive reviews synthesizing the connection between DCS and innovation specifically are scarce. Our systematic review endeavours to bridge this gap, aiming to consolidate understanding and guide future research through addressing how studies on DCS, governance, and innovation have developed, evaluating existing literature, and identifying paths for future inquiry. We aim to fill this void by offering an understanding of the subject. The following research questions are what we want to address in the study:

- RQ1. How did the studies related to DCS and firm innovation developed?
- RQ2. What is the current evaluation of these studies?
- RQ3. What is the future research agenda on the topic?

Methodology

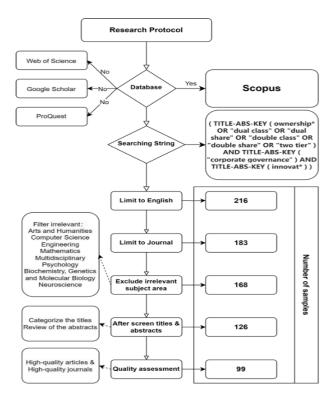


Figure 1. Research Protocol of Sample Selection

To ensure the integrity of our systematic literature review (SLR), we adopted rigorous sample selection procedures informed by prior SLR methodologies (Hazaea et al., 2022; Khatib et al., 2021; Kotb et al., 2020; Massaro et al., 2016). We utilized Scopus as our primary database due to its extensive coverage of relevant journals in Economics, Econometrics and Finance, Business, Management, and Accounting, which aligns with our research focus (Nerantzidis et al., 2020; Yahaya et al., 2020). This approach addresses the challenges of

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navigating multiple databases and ensures comprehensive retrieval of pertinent literature. We use a certain strategy for sample screening:

- (a) We used the "dual class" and "OR"-linked searching strategy, because the focus of our study is a special form of ownership structure (DCS).
- (b) We also used the "dual share", "double class", "double share", "two tier" linked by "OR" and utilized quotation marks to make sure that our sample screening is accurate and complete, in order to prevent omissions caused by different descriptions of DCS.
- (c) We adopt "corporate governance" to ensure that our samples are all in this field.
- (d) At last, we locate innovation-related search terms using asterisk, and we locate any pertinent literature on innovation, innovation, and innovation using innovat*.

After all these steps, we employed a specific search string: "(TITLE-ABS-KEY (ownership* OR "dual class" OR "dual share" OR "double class" OR "double share" OR "two tier") AND TITLE-ABS-KEY ("corporate governance") AND TITLE-ABS-KEY (innovat*))". Using the search string mentioned above, we retrieved a total of 219 articles from Scopus. The whole process is showed in Figure 1.

Descriptive Analysis

Yearly Distribution

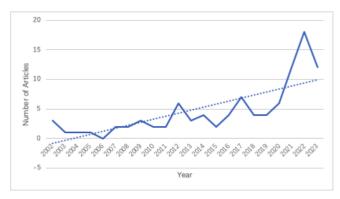


Figure 2. Number of Articles Published by Year

The time trends of research from 2002 to 2023 show an escalating interest in the interplay between DCS and firm innovation, particularly between 2007 and 2023, with substantial growth in studies from 2020 onwards. This growth is linked to shifts in market dynamics and (Nakabayashi, 2019), heightened M&A activities (Keum, 2021), the prevalence of technology firms with DCS (Chatterjee & Bhattacharjee, 2020), increased investor and shareholder focus on governance (Dam & Scholtens, 2012), and updates in regulatory frameworks (Yan, 2022). Enhanced data availability and advanced analytical methods enabling deeper insights have also contributed to this trend, which is expected to persist as the academic community seeks to unravel the nuances of ownership structures and their impact on governance and innovation (Tran & Freel, 2023).

Geographical Distribution

Table 1 highlights a global engagement, with China leading in contributions (21 publications, 21.21%), attributed to its dynamic economy and focus on corporate governance reforms (Choi et al., 2011; Ji & Wong, 2018; Shapiro et al., 2015). The United States follows with 11.11% of

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the total, emphasizing the topic's relevance in its corporate context (Amore & Bennedsen, 2016; Bebchuk & Kastiel, 2017; Tran & Freel, 2023). Significant input also comes from Asian regions like Taiwan, Indonesia, Korea, and Vietnam, making up 15.15%, driven by unique corporate structures and economic growth. European contributions, notably from the UK, Germany, Italy, and Belgium, account for 12.12%, reflecting deep-seated corporate governance practices (García Martínez, 2021). Cross-continental studies and multinational collaborations indicate a widespread interest across Africa, Oceania, South America, and among nations without specific country designations (20.20%), underlining the global scope and comparative nature of the research, as seen in studies like Miozzo and Dewick (2002). Emerging economies, particularly China, are spotlighted for their governmental efforts in promoting innovation through reforms such as the STAR Board and the legalization of DCS in GEM, Shenzhen, underscoring the importance of DCS on firm innovation in these regions.

Table1
Geographical Distribution of Samples

Region	Count of Number	Continent	Percentage
China	21	Asia	21.21%
US	11	North America	11.11%
Taiwan	6	Asia	6.06%
UK	4	Europe	4.04%
Germany	3	Europe	3.03%
Indonesia	3	Asia	3.03%
Italy	3	Europe	3.03%
Korea	3	Asia	3.03%
Vietnam	3	Asia	3.03%
Belgium	2	Europe	2.02%
Cross country	12	-	12.12%
No country	20	-	20.20%

Notes: Tunisia, Poland, Spain, Turkey, Jordan, Australia, Brazil, and Malaysia each contribute 1.01% to their respective continents' totals, covering Africa, Europe, Asia, Oceania, and South America

Theories in Prior Studies

Table 2 reveals that agency theory is the most frequently applied theoretical framework in studies of ownership and governance, cited in 41 papers and highlighting principal-agent dynamics (Morck et al., 2005; Choi et al., 2011; Jensen & Meckling, 1976). The resource-based view (RBV) and shareholder theory follow, with 8 and 6 citations respectively, with Morck et al. (2005) being highly referenced across theories for offering a broad interpretation of phenomena. Less cited but still significant, institutional theory considers the impact of societal and regulatory factors (Chizema, 2008; Chizema & Kim, 2010; Miozzo & Dewick, 2002), while theories like managerial myopia, stewardship theory, and management incentives indicate a more specific focus. The research landscape, although diverse, shows gaps due to sample limitations, suggesting unexplored theories like entrenchment, entrepreneurship, and signalling could enrich understanding of the field.

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Table 2

Main Theories in Prior Studies

Theory	No.	Author	Citation
Agency Theory	41	Morck et al. (2005)	1040
		Choi et al. (2011)	327
		Dam and Scholtens (2012)	170
		Belloc (2012)	150
		Czarnitzki and Kraft (2009)	113
Resource-Based View	8	Morck et al. (2005)	1040
		Choi et al. (2011)	327
		Amore and Bennedsen (2016)	267
		Dam and Scholtens (2012)	170
Shareholder Theory	6	Morck et al. (2005)	1040
		Amore and Bennedsen (2016)	267
		Dam and Scholtens (2012)	170
Institutional Theory	4	Miozzo and Dewick (2002)	108
		Chizema (2008)	60
		Chizema and Kim (2010)	53
Managerial Myopia Theory	3	Belloc (2012)	150
		Tsao and Chen (2012)	39
		Cescon (2002)	11
Stewardship Theory	2	Hernández-Lara et al. (2014)	9
		Dhaouadi (2011)	0
Incentive theory of motivation/	2	Belloc (2012)	150
Behavioral Theory		Czarnitzki and Kraft (2009)	113
Cognitive Theory	1	Wu et al. (2007)	66
Profit-Maximizing Theory	1	Atanassov (2013)	395

Notes: There is also entrenchment theory, principle-agent theory, entrepreneurship and signaling theory, etc. We did not show them in the table because of the small scale

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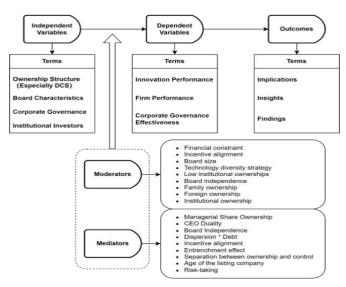


Figure 3. Interrelations of IV, DV, and Outcomes

Thematical Analysis

The relationship between Independent Variables (IV), Dependent Variables (DV), and Outcomes is integral to understanding the complex interplay of our topics. Illustration of board interrelations among ownership, governance and innovation is shown as Figure 3. We also sorted out the specific indicators and summarized prior research following this framework to extract insights that can guide our understanding.

Independent Variables Analysis

We summarized the IV used in our samples, shown as Table 3. Within the context of our subjects, ownership structures emerged as the most prevalent IV (42.42%). Ownership structures play a pivotal role in shaping the corporate landscape, influencing decision-making processes, and impacting firm performance. Pareek and Sahu (2022) studied the impact of ownership structures on corporate social responsibility (CSR) in India. Through an examination of late 19th- to early 20th-century Japanese firms, Nakabayashi (2019) first revealed that the impact of ownership structure on stockholder/manager conflicts. Chen et al. (2016) extensively examined various ownership configurations to understand their implications on innovation. Board characteristics constitute 24.24% of the variables, followed by corporate governance at 18.18%, and institutional investors at 15.15%. Firm characteristics contribute to 10.10% of the variables, while board compensation and regulatory factors each constitute 5.05% and 2.02% respectively. This distribution highlights the significant attention given to DCS, underscoring its significance in the research landscape.

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Table3

IV Distribution

Independent Variables	Count of Number	Percent from Total		
Ownership structure	42	42.42%		
(Especially DCS)	(9)	(21.43%)		
Board characteristics	24	24.24%		
Corporate governance	18	18.18%		
Institutional investors	15	15.15%		
Firm characteristics	10	10.10%		
Board compensation	5	5.05%		
Regulatory factors	2	2.02%		

Dependent Variables Analysis

In our previous analysis of research methodology, we identified 77 articles that employed quantitative methods. Papers often incorporated multiple IVs, but the research objective typically focused on a single aspect. Consequently, the number of DV corresponded to the quantitative samples. Among the 77 samples, DVs can be categorized into three main categories: innovation performance, firm performance, and corporate governance effectiveness (as shown in Table 4). Innovation Performance constituted a substantial portion at 37.37% of the variables. This emphasis is evidenced by metrics such as Patent-based measures (including citation, registered, invention, and application patents) contributing 35.14%, and R&D-related indicators (expenditure, intensity, patent-R&D ratio, and R&D investments) comprising 24.32%. Simultaneously, a small number of articles also employed New Product Sales, Number of Research Projects, and Number of Scientific Publications as their DVs.

Moderator Analysis

In research exploring relationships between variables, moderators are pivotal for determining the context-specific strength and direction of these relationships (Bhandari, 2021). Our examination of 28 articles revealed moderators' crucial roles, with ownership identified as a key moderating factor in 22 studies. These studies used a diverse spectrum of ownership types, demonstrating the varying influences on the relationships between independent and dependent variables (IV and DV). The moderators were methodically classified and numerically coded for analytical clarity, as depicted in Table 5.

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Table 5
Category of Moderators

Code	Moderator	Code	Moderator
Α	Ownership structure	В	Financial constraint
A1	CEO ownership	С	Incentive measures
A2	Board size	D	Entrenchment effect
A3	Institutional ownership	Ε	Ttechnology diversity strategy
A4	Family ownership	F	Intellectual property right protection
A5	Foreign ownership	G	Environmental uncertainty
A6	State-owned ownership		

The tabulated moderator analysis, presented in Table 6, provided a clear visual representation of the articles that employed specific ownership types as moderators. It underscored the extensive empirical attention directed towards ownership-related mechanisms and their influence on the relationship between IVs and DVs. In Table 11, we can clearly find which kind of moderators were used for our samples. From the distribution of "V", many studies conducted multiple moderators to test the robustness of IV when it affected DV. We filtered samples that adopted more than 2 kinds of moderators to continue the systematic analysis.

Table 6
Tabulated Moderator Profiling

Author	Α					- В	С	_			G	
Autnor	A1	A2	А3	A4	A5	A6	В	C	D	E	F	G
Driver and Guedes (2012)							٧					
Tsao and Chen (2012)								٧	٧			
Hernández-Lara et al. (2014)		٧										
Kim and Kim (2015)	٧											
Chen et al. (2016)										٧		
Gu and Zhang (2017)			٧						٧			
Busru and Shanmugasundaram (2017)		٧	٧	٧	٧							
Corsi and Prencipe (2018)			٧	٧	٧							
Xu et al. (2019)			٧									٧
Wang (2021)	٧	٧										
Li and Shen (2021)	٧		٧									
Fan and Wang (2021)		٧										
Wang et al. (2022)	٧	٧										
Ma et al. (2022)						٧						٧
Park and Bolton (2022)				٧								
Roh et al. (2022)								٧				
Gala and Kashmiri (2022)	٧							٧				
Liu et al. (2022)	٧											٧
Pareek and Sahu (2022)		٧										
Yin et al. (2023)						٧						
Zhu and Huang (2023)			٧									٧
Xu et al. (2023)	٧		٧	٧	٧							
Tran and Freel (2023)			٧		٧							
Javaid et al. (2023)						٧	٧					
Ullah et al. (2023)											٧	
Yang et al. (2023)												٧
Li and Liu (2023)			٧								٧	

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Mediator Analysis

In examining how ownership structure affecting financial and innovation performance, research has identified various mediators (Table 7). Studies like Jermias (2007) and Czarnitzki and Kraft (2009) have explored ownership structure's impact on innovation, finding both positive effects of managerial share ownership and advantages of widely held stock. Research by Tsao and Chen (2012) and Bertoni et al. (2014) has looked at board dynamics, including independence and CEO duality, revealing their complex roles in innovation and IPO valuation. Additionally, Zhang et al. (2014) and Cao et al. (2020) have investigated managerial compensation's links with innovation, underscoring the importance of R&D investment and dual-class structures in driving innovation. Recent studies, such as those by Yin et al. (2023) and Zhu and Huang (2023), have brought environmental, social, and governance (ESG) factors into the conversation, examining their positive effects on innovation and corporate social responsibility, indicative of a shift towards integrating sustainability into management strategies. These studies collectively highlight the multifaceted connections between governance, ownership, and innovation, providing a nuanced understanding of the mediating factors at play.

Conclusion

The significance of ownership arrangements in corporate control and capital attraction has grown over decades, with Dual-Class Structures (DCS) emerging as influential in dictating financial and strategic decisions. DCS, particularly, allows for differential voting rights, granting amplified control to certain stakeholders such as founders, while raising questions about the balance between governance and flexibility in decision-making amid market volatilities. However, there's an identified gap in comprehensive reviews analyzing the global impacts of such ownership structures on innovation. This systematic review seeks to bridge that gap by assessing research from various industries and regions to shed light on the complex interplay between ownership concentration, voting rights, and innovation efforts. It highlights where the literature is sparse or unclear, setting the stage for further research.

To compile this review, 219 articles from Scopus were screened for relevance, with 99 making it through detailed analysis, highlighting the recent uptick in interest as of 2020 and an apparent developed-country focus in existing studies. This review points out the predominance of quantitative methods and the need for future studies to integrate qualitative perspectives. It also dissects the common theoretical frameworks and methodologies used in the field, suggesting room for novel theories. While providing a rich analysis, this review acknowledges the limitations of its search criteria and database selection, which could have missed relevant studies not indexed on Scopus or using alternative terminology for DCS. Future research should aim for a broader database range to ensure a comprehensive capture of the literature on DCS and innovation.

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