

## **Governance Diversity: Its impact on Strategic Variation and Results**

### **Abstract**

This paper investigates the impact of four drivers of Governance diversity, namely gender, tenure, age, and educational attainment, on strategic direction and variation. It then incorporates corporate financial results as a moderating variable, testing how it impacts the links between board diversity and strategic variation. Strategic variation or change is assessed based on measuring deviation from past strategies. Our sample consists of 5011 firm-year observations from 930 firms in the United States between 2010 and 2018. The findings indicate that the four drivers of Governance diversity show a positive relationship between the corporate board of directors and strategic variation/change. However, the strength of the effect depends on overall firm results/performance.

**Keywords:** Governance Diversity, Strategic Change, Firm results, Resource Dependence Theory

**J.E.L. Classification Codes:** M10, M14.

- *Examines how the four drivers of governance diversity, namely, gender, tenure, age, and education, impact the strategic variation.*
- *Assesses the moderating effect of firm financial performance on this relationship.*
- *The findings indicate that board diversity increases strategic variation.*
- *High firm performance levels reduce governance's positive impact on strategic variation.*
- *Following the upper-echelon theory, we show that multiple aspects of board diversity play a role in corporate policy concerning strategic direction.*

## **Introduction**

The unprecedented corporate failures witnessed in recent years have significantly emphasised team diversity in corporate governance, especially concerning the role of corporate boards of directors (Ararat et al., 2015). The suggestion that board effectiveness might be improved by increasing director diversity has become common (Ferrero-Ferrero et al., 2015), with both regulators and investors calling for improvements in this regard. A key finding in corporate governance research is that an organisation can enhance its viability and competitiveness by improving its ability to anticipate and respond to opportunities within a changing environment and strategic direction, variation and change (Goodstein and Boeker, 1991; Brunninge et al., 2007). However, despite recent emphasis on the corporate board director's role in developing firm strategy and key organisational results, few studies have thus far connected the board of directors with an organisational outcome such as strategic variation (Müller and Kunisch, 2018).

Hofer and Schendal (1978: 25) describe a corporate strategy as being derived from the present and future resource allocations trends, with strategic variation implying deviation from these allocation trends, particularly the firm's historical practices. Many researchers consider

strategic variation as a major driver of organisational survival and ongoing competitive advantage. Furthermore, it is suggested that the decisions made by directors and executives regarding strategic variation are, at least in part, a function of the demographic composition of the team, given that individual characteristics often play a role in a person's perceptions, expertise and acumen, all of which are integral to corporate governance and how decisions are made in the boardroom.

According to previous research, the board of 'directors' membership and diversity can influence the quality of its resource monitoring and providing functions (Ayman et al., 2019). Differences in 'directors' cognitive ability have been related to increased decision-making effectiveness. (Marcel et al., 2010). It is thought that finding an optimal board composition can ultimately reduce uncertainty, enhance the exchange of information between the firm and external players, improve resource access, and assist the process of strategy formulation (Hillman and Dalziel, 2003). Notwithstanding this, the impact of governance diversity on strategic change has been largely overlooked, and the degree to which board characteristics might influence firm strategy remains a question that warrants further exploration. Therefore, this study investigates how board diversity can affect a firm's level of strategic variation.

Governance diversity remains a relatively under-researched topic compared to other governance characteristics such as the degree of board independence, the board size, and the CEO's role as Chair of the Board (Ayman et al., 2019). Moreover, relatively few studies have assessed the possibility that board diversity, in general, can impact firm commitments to strategic variation. Most research has focused instead on the influence of a particular characteristic, such as gender, expertise, or race. Therefore, the results are difficult to generalise without considering other diversity metrics (Midavaine et al., 2016; Harjoto et al., 2018). Therefore, this paper measures corporate governance diversity based on four drivers (gender,

tenure, age, and education). Our analysis then evaluates how these four drivers impact corporate strategic variations and change. We then incorporate firm performance as a moderating variable to assess its impact on the relationship between governance diversity and strategic variation and change.

We consider three theoretical perspectives to be of equal importance in developing a comprehensive and realistic model of how board diversity can impact strategic change: agency theory from Jensen and Meckling, (1976), resource dependence theory developed by Pfeffer and Salancik, (1978), and finally upper echelon theory developed by Hambrick and Mason, (1984). Thus, we reflect on all three of these perspectives in our assessment of how governance diversity impacts strategic variation and change.

The findings indicate that strategic variation increases with board diversity, and the advantages of diverse points-of-view outweigh the costs. Specifically, our results suggest that the typical board composition represents a constrained maximisation that would benefit from improving diversity. However, our findings also reveal that when organisations are high-performing, the positive impact of governance on strategic variation is weakened, indicating that solid firm results reduce the need for and extent of strategic variation. In addition, we conclude that the drivers of governance diversity, such as gender, time with the company, tenure, age, and educational attainment, correlate positively to strategic variation. Our results imply that boards with these drivers of governance diversity may be more successful than homogenous boards at overseeing strategy development.

For shareholders, executives, and governance committees, the impact of governance diversity on corporate strategy development and deployment is critical. This importance is increased in light of recent regulations concerning disclosure requirements. In the U.S., for example, the SEC has since 2016 placed greater emphasis on diversity, forcing publicly traded

companies to give more comprehensive board diversity information. This study can inform these essential and ongoing discussions by helping to discover which types of diversity most enhance strategy development.

This paper adds to the extant literature base; First, by expanding the indicators and corporate outcomes under investigation, our results add to the analysis of previous research on the links between corporate governance and diversity. Following the upper echelon theory, we show that multiple aspects of board diversity play a role in corporate policy with respect to strategic direction. Second, while prior research focused on one industry domain, this article analyses a sample of companies from various industries over several years. This inclusion of multiple industries necessarily yields a richer data set than that based on one industry domain. While sampling a single industry implies a ‘correctness’ or generalizability of that industry, which is often chosen based on convenience alone, the advantage of sampling multiple industries is that it allows a more complex, informative, composite evaluation of strategic change. Third, as noted above, and in contrast with studies focusing on a single aspect of diversity, we assess diversity in terms of four important drivers, namely gender, tenure, age, and educational attainment.

The remainder of this paper is structured by firstly, the backdrop to the formulation of our study’s assumptions, and a theoretical discussion of board diversity and strategic variation is provided. We then state the hypotheses related to the direct and interaction effects of several board variables on strategic variation. Next, we discuss the study’s methodology and present our data analysis, followed by a discussion of our results. To conclude, we outline the relevance of our results for both theoretical and practitioner perspectives.

## **Hypothesis Development**

The corporate board of directors can be defined as a workgroup devoted to complex tasks involving monitoring, advising, information processing, and decision making (Harjoto, 2018). Firm strategy is often shaped by key decisions made by the corporate board, which is the key strategic resource with an important role in managing firms' resource dependence (Selma et al., 2020; Haynes and Hillman, 2010). As noted above, diversity in such groups entails recourse to a greater variety of perspectives and is thus thought to correlate with positive cognitive outcomes, such as the consideration and implementation of innovative solutions. This, in turn, can bring diverse and innovative alternatives to the table (Selma et al., 2020). Furthermore, the types of decisions debated by boards may benefit from a wider variety of input from multifarious backgrounds and perspectives.

However, there is nevertheless an opposing viewpoint in this regard, which supposes that the costs of diversity might exceed the advantages. Milliken and Martins (1996) have thus used the term "double-edged sword" to refer to the issue of intra-group diversity. While it can, on the one hand, increase the number and kinds of resources available to a group, diversity can be linked to greater instances of disagreement, lower levels of working as a team often compounded by communication obstacles. Furthermore, it has been asserted that such consequences may be especially pronounced considering corporate governance as outlined by Forbes and Milliken, (1999).

However, a dominant perspective, in terms of both theory and empirical evidence, seems to be that diversity should be considered positive. Resource dependence theory stipulates that diversity among board members should lead to the effective allocation of resources (Pfeffer and Salancik, 1978). Hambrick and Mason (1984) contend that from an upper echelon model, that the psychological attributes and cognitive capacities that can reliably be linked with

observable demographic characteristics are one of the main drivers of how a group operates and makes decisions. In other words, this model implies that demographic traits like values, talents, and experiences might be effective indicators of other relevant aspects (Jehn, Northcraft, and Neale, 1999), and this perspective thus advocates analysing these attributes in order to arrive at a better description of strategy results and decisions (Ferrero-Ferrero et al., 2015). There is also evidence in the literature that diverse teams experience improved capacity to both recognise and take advantage of new opportunities that can arise from environmental changes see Alexiev et al., 2010).

Higher levels of diversity almost inevitably entail a broad array of perspectives that enhance corporate decisions (Sawyer et al., 2006). It can also facilitate access to sources of information as well as enhance creative discussion (Wiersema and Bantel, 1992; Milliken and Martins, 1996). Demographic diversity tends to correspond to cognitive diversity and taken together on a board of directors, and as contended by Finkelstein and Hambrick, (1996), it is likely that they promote the assessment of a wider range of strategic alternatives. Accordingly, it can be argued that corporate diversity is linked to a better discussion of strategic problems in general.

In terms of strategic variation, it is thought that homogeneity corresponds with a tendency to favor the status quo, while heterogeneity increases recourse to new directions and tactics (Wiersema and Bantel, 1992). While consensus may be reached more easily within a group of like-minded individuals, such a situation, arguably, entails a weaker tolerance to new ideas or policies (Wiersema and Bantel, 1992). In other words, less diverse boards are likely to be less amenable to considering the possibility of strategic variation.

Strategic variation refers to the process by which an organisation responds to external environment changes by responding to recognised needs or challenges (Oehmichen et al.,

2017). Failure to respond to the changing operating environment often leads to an erosion of its competitive advantage. Oehmichen et al. (2017) argue that organisations can adapt and align themselves to changing external circumstances and thus develop a competitive advantage by actively encouraging strategic variations. If an optimum balance is not maintained, strategic variation could lead to undesirable consequences.

Firm actions which result in strategic variation generally reflect the qualities and values of the 'organisation's corporate governance leaders, who govern based on previous experience and their own best judgement (Wiersema and Bantel, 1992; Golden and Zajac, 2001; Westphal and Fredrickson, 2001). Each individual sees the world and specific situations in it in ways that vary to greater or lesser extents, according to their own practices and paradigms. However, the considerations necessary in corporate decision-making need to also include the operating environment. This means that strategic change is stimulated by the interplay between pre-existing environmental conditions, change agents, and organisational constraints. In addition to responding to external changes, managers may make preemptive alterations to help ensure the best possible firm–environment fit and thus secure every possible competitive advantage (e.g., Child, 1972).

It is well-documented that Corporate Governance is a key driver of an 'organisation's strategic intent (Pearce and Zahra, 1992; Westphal and Fredrickson, 2001). Examining variations in strategy allows researchers to investigate the impact of corporate governance from a perspective other than firm results alone (Oehmichen et al., 2017). The board's role in firm governance is crucial, especially during challenging times (Goodstein and Boeker, 1991; Daily and Dalton 2003). Demographically heterogenous boards will have the means to provide more diverse knowledge and insight to the company (Goodstein et al., 1994). According to resource dependency theory, increasing diversity on the board provides stronger links between



organisations and their external environments that can help them to secure crucial resources (Pearce and Zahra, 1992; Pfeffer, 1972, 1973). Pfeffer's (1972, 1973) seminal studies have demonstrated that an organisation's responsiveness to regulatory pressures and resource dependencies leads to more diverse board compositions in terms of occupations and professions.

The purpose of this article is to build on the assertion that the composition of corporate governance boards impact on any proposals for strategic variation. Strategic variation can be seen as a means of responding to the organisations operating environment and attaining/retaining or regaining competitive advantage. Based on the extant literature, this research is expected to find that diverse corporate governance boards engaged in the development and deployment of strategic variation change will share specific traits. This paper focuses on the correlation between four key drivers of corporate governance and strategic variation, namely, gender, tenure, age, and educational attainment. The study hypothesises that these four drivers play a critical role in strategic variation initiatives at the corporate governance level of the firm.

### *Gender and Strategic Variation*

Gender at the corporate governance level refers to the ratio of male to female directors (Perrault, 2015). Much of the research on the potential for this type of diversity to impact on the board as a whole, draws on agency theory (Jensen and Meckling, 1976), and resource dependence theory (Pfeffer and Salancik, 1978). From the former perspective, female directors may think differently from male directors. On the other hand, agency theory postulates that female board members enhance decision-making, insofar as they tend to remain independent of potential "old boys' cliques that may have formed amongst male directors. From both

perspectives, therefore, gender-diverse boards are thought to be more effective at promoting positive organisational outcomes (Kirsch, 2018).

A substantial amount of research has revealed important differences with respect to the gender values and attitudes (Eagly, 2005). Letendre (2004) argues that female board members bring new perspectives to enhance discussion of new and potentially fruitful courses of action. It has also been noted that gender-diverse boards may demonstrate a greater willingness to consider counterarguments, question conventional actions, and voice concerns (Huse and Solberg, 2006). Such characteristics enhance the corporate governance process and may thus improve both creativity and the overall quality of decision outcomes (Finkelstein and Mooney, 2003).

Research on the significance of diversity in corporate governance has increased in recent years (Saggese et al., 2020), with a particular emphasis on communication and decision-making. Studies have demonstrated that women typically have very different skills, education, and experiences in both the community and the workplace (Ayman et al., 2019; Baalouch et al., 2019), and it is thought that gender diversity can affect the communication and information flows in corporate strategic actions (Post and Byron, 2015). Research by Torchia et al (2011) and Levi et al (2014) show that more female involvement in corporate governance enhanced innovation in terms of strategic activities, and significantly influenced a firm's likelihood of making acquisitions. Other researchers have found that female directors lean towards more risk-averse, ethical, and long-term points of view, and such differences impact board processes and business outcomes (Kirsch, 2018).

It has also been noted that gender-diverse boards may demonstrate an enhanced capacity to signal their appreciation of the firm's operating environment (Triana et al., 2014)

and consider the concerns of a wider array of stakeholders. In addition, female career paths often diverge from those of their male counterparts (Barculescu and Bidwell, 2013), which can lead to a more functionally diverse background on the board as a whole (Abdullah et al., 2016). Other research refers to the female cognitive schemata which tends to favour wider and more broad ranging debate and leading to increased creativity and the enhanced quality of solutions provided (Midavaine et al., 2016).

Saggese et al. (2020) found that female director contributions in corporate decision making led to greater levels of spending on research and subsequently enhanced levels of innovation. Because one aspect of strategic change measurements involves a change in R&D spending, these positive findings with respect to female directors and R&D spending may be similar with respect to strategic variation. Findings such as these contend that more diversified corporate governance may be less prone to strategic inertia or persistence. Therefore, the first hypothesis tested in this study is stated as follows:

*Hypothesis 1: Gender diversity of the corporate board of directors will have a significant positive impact on corporate strategic variation.*

#### *Tenure Diversity and Strategic Change*

Another board characteristic with the potential to impact inclination or resistance to strategic variation is that of board tenure. Many studies have analysed the variable of tenure with respect to the management team as a whole (Li and Wahid, 2018; Livnat et al., 2021), but most of the key arguments on which such research is based are equally relevant to the board of the directors alone (Rutherford and Buchholtz, 2007). A study by Katz (1982) exemplifies the traditional perspective by noting that longer board tenures typically correspond to inflexible commitment to established procedures and a lack of engagement with new initiatives. Katz (1982) also

asserts that the longer a group has worked together, the more homogenous and standardised its perspectives and communication tend to be. However, some researchers have noted that longer tenures can lead to rigid adherence to the status quo and a lack of sensitivity to important developing social issues (Selma et al., 2020). Furthermore, it is thought that longer-tenured members of the corporate governance board are more likely to have close relationships with operational directors that can impact their capacity to make unbiased decisions (Selma et al., 2020).

Another strand of research demonstrates that the increased knowledge about a company's operations that comes with longer tenures makes these board members better advisors (Sun and Bhuiyan, 2020; Livnat et al., 2021). In addition, they have more experience to enable them to ask the right questions and request further information, if needed. This information is often shared with other corporate governance board members (Rutherford et al. 2007). However, several studies have shown that the longer a member is on the corporate board, the less likely they are to being influenced by fellow corporate board members and operational directors and thus more likely to have an objective mind-set in decision-making (Donoher et al., 2007; Sharma and Iselin, 2012).

For change to occur, Pfeffer (1983) argues that it may be necessary to inject new blood into the organisational context, a suggestion that finds corroboration in Finkelstein and Hambrick's (1990) analysis of 100 computer, chemical, and natural gas companies between 1978 and 1982. This study uncovered a positive correlation between strategic persistence and the tenure of top management teams. The field of psychology also provides important insight in the observation that once individuals have publicly committed to an idea or a course of action, they become much more reluctant to deviate from it (Staw, 1976). Other researchers have noted that further symptoms of lengthy tenure include risk-aversiveness and group

conformity (Kor, 2006; Donoher et al, 2007). Finkelstein and Hambrick (1990) also assert that when strategic variation is embraced by entrenched teams, its effect is usually only to align a company more closely with industry norms, while teams with shorter tenure typically exhibit greater openness to taking risks which may lead a firm away from industry standards.

These findings all suggest that a corporate governance board with varying tenure lengths may be more effective during times when strategic variation is needed. This is a point also stressed by Wiersema and Bantel (1992), who contend that corporate governance diversity brings a range of knowledge, experience and expertise during strategic decision-making. This led to the formulation of the following hypothesis:

*Hypothesis 2: Tenure diversity in the corporate governance board will impact significantly on corporate strategic variation.*

#### *Age and Strategic Diversity*

An individual's age constitutes a general indicator of overall life experience and is thought to relate to one's attitudes towards change and risk. Therefore, in the corporate context, a person's age may play a role in their views regarding strategic choices (Wiersema and Bantel, 1992). In an earlier study by Hambrick and Mason (1984), results indicate that younger corporate board members have a greater propensity for change. Child (1972) argues that the energy, drive, and willingness that characterise younger individuals to initiate change corresponds to an increased capacity for the mental and physical effort required for the promotion of organisational change. Bantel and Jackson (1989) note that the recent completion of younger people's education and training, and the corresponding freshness of the relevant material in their minds, may be valuable in decisions regarding strategic direction.

As in the case of the tenure variable, researchers have noted that flexibility is also likely to decrease with age while resistance to change increases (Wiersema and Bantel, 1992). In their studies, Herrmann and Datta (2005) and Rivas (2012) contend that younger corporate board members are likely to favor increased levels of business diversification, especially at an international level. Datta et al. (2003) found that younger directors engage in more risk-taking activities, with highly-educated, younger CEOs demonstrating increased willingness to challenge the status quo and pursue new strategic directions. It is also thought that younger individuals tend to have an enhanced understanding of new concepts and technologies.

Older managers, in contrast, have been associated with a lack of openness to innovation and new ways of operating (Bantel and Jackson, 1989). This may be due to the increased importance given to financial security by individuals at more advanced stages of their careers (Wiersema and Bantel, 1992). Aversion to change on the part of older executives may also relate to their involvement in the development of current policy (Hambrick and Mason, 1984). Taylor (1975) notes that older managers who do express a degree of openness to change, tend to seek more data, information and advice and engage in greater debate than their younger colleagues.

These findings imply that a board composed primarily of older members will likely be more cautious than a more diverse board in their propensity for strategic variation. Similarly, however, younger directors may tend to engage in too much risk-taking behavior, while older directors may engage in too little, and it, therefore, seems that the optimal board composition may involve a higher degree of age diversity as a means of negotiating successful levels of strategic change. Diversity in age can bring together a wide array of experiences, perspectives, assumptions, and cognitive styles (Hambrick et al., 1993), and such variety is thought to be beneficial for the outcomes of strategic decisions. Older board members provide wisdom and

experience, while their younger counterparts offer energy, drive, ambition, and innovation. However, research has also found that expert input on specific issues is often required to develop a successful strategic direction (Rossignoli, 2021). The third hypothesis developed for this study can thus be stated as follows:

*Hypothesis 3: Age diversity in the corporate governance board will impact significantly on corporate strategic variation.*

#### *Educational Attainment and Variation*

A person's education often serves as a proxy for their general level of knowledge and ability to understand and use information. In the corporate context, the educational backgrounds of managers often reflect a broad range of skills and information resources, that feed into the corporate strategic direction (Joshi et al., 2011). Educational programs are therefore valued based on their ability to confer the cognitive, leadership, and innovation skills necessary to excel in business management (Tseng, 2016). Upper echelon theory states that a company's strategic actions reflect the experience, values, and personalities of the member of the corporate board, and these characteristics are partially shaped by a person's educational background (Tseng, 2016). According to Hambrick and Mason (1984), variations in education backgrounds can significantly influence an individual's cognitive development, and a person's formal educational background can thus provide complex insight into that person's values.

In the current study, we therefore propose that an 'organisation's strategic direction will be influenced by the educational backgrounds of its corporate board. Wiersema and Bantel (1992) observe a strong correlation between the educational attainment of corporate governance board members and corporate strategic variation while Carpenter (2002) found that

such diversity leads to enhanced results and performance. Darmadi (2013) also concludes that the presence of managers with higher levels of education and degrees from prestigious institutions correlated to improved firm performance. Gottesman and Morey (2010) assert that the education of top managers can be an important indicator of the 'organisation's intellectual capital. Mahadeo et al (2012), also stress the role of corporate governance diversity and its propensity to enhance performance. Triana (2019) observes that representation from a variety of educational backgrounds at the top management level should improve the team's capacity to access and process information from a wide range of perspectives and that this factor may also help the team to navigate other types of diversity within the group. Diverse educational backgrounds may also help a team to develop strategic thinking routines which permit the knowledge held by senior management to be better utilised (Finkelstein and Hambrick, 1996).

Other research has shown that educational diversity at the corporate board level can benefit organisational success in complex environments. Carpenter and Fredrickson (2001) found that top management educational diversity could predict the global strategic attitude of a firm, particularly in situations characterised by environmental uncertainty. It has also been observed that educational diversity places a team in a better position to try out new ideas, facilitating the filtering and assimilation of information (Wiersema and Bantel, 1992; Triana, 2019).

In the current study, we extend this previous literature on the links between educational attainment and strategic variation. Based on the idea that educational variety can help a team to be more receptive to a wider variety of ideas and perspectives, we developed the following hypothesis:

*Hypothesis 4: Educational diversity of the corporate governance board will impact significantly corporate strategic variation.*



### *The Moderating Role of Firm Results/Performance*

Corporate financial performance has long been considered one of the most significant determinants of strategic change (Tarus, and Aime, 2014; Triana et al., 2014; Zhang and Rajagopalan, 2010; Zhang, 2006), and since this variable is thought to have an independent impact on a firm's likelihood of deviating from the status quo, most existing strategic variation research includes financial performance as a control variable (Wiersema and Bantel, 1992). However, relatively few studies have thus far studied how overall firm results moderate the connection between strategic variation and corporate board diversity. Overall performance is likely to influence the correlation between corporate governance board diversity and strategic variation because companies performing well do not have the same urgency for strategic variation (Zhang, 2006). This study, therefore, includes firm performance as a moderating variable.

According to organisational adaptation theory, underperforming companies are more likely to attempt to reverse negative performance trends by engaging in strategic change (Zhang, 2006). In other words, poor performance acts as a signal to corporate boards that current practices are outdated or inadequate, warranting a change of strategic direction (Boeker, 1997). On the other hand, when financial performance is strong, companies tend to eschew strategic variation (Kimberly and Quinn, 1984; Hambrick et al., 1993; Zhang 2006) by persisting in the strategies that are perceived to have led to past success (Lant, Milliken, and Batra, 1992).

Weak firm performance results are more often a cause for concern to corporate boards. Diverse boards, therefore, may be likely to attribute performance issues to errors in corporate strategy. This line of reasoning produces an initial hypothesis regarding the impact of overall corporate performance on the correlation between the corporate board and strategic variation.

Specifically, if board members receive negative reports about firm performance (e.g., that the company is performing below historical levels or worse than competitors), these may be interpreted as grounds for concern about the appropriateness of the firm's current strategy, and we can expect that directors will underestimate the extent to which a more diverse board would share this concern. Boards with higher levels of diversity are better able to interpret this kind of information when firm performance is low. Therefore, we believe that demographically heterogeneous boards will be more likely to undertake strategic change during periods of poor performance because increasing board diversity corresponds to a greater variety of ideas, perspectives, and network access. Thus, we assume a negative correlation between firm performance and directorial influence on strategic change. The level of this impact will remain low when firm performance is high.

We, therefore, propose that strong firm performance will lessen the impact of corporate governance board diversity on strategic variation, leading to the formulation of the following four hypotheses:

*H5a. Overall corporate performance moderates the relationship between corporate board gender diversity and strategic variation, such that with stronger corporate performance, the influence of corporate governance gender diversity on strategic variation is reduced.*

*H5b. Overall corporate performance moderates the relationship between the corporate governance tenure diversity and strategic variation, as higher corporate performance, reduces the impact of tenure diversity on strategic variation.*

*H5c. Overall corporate performance moderates the relationship between age diversity of the corporate governance board and strategic variation, as higher corporate performance reduces the impact of age diversity on strategic variation.*

*H5d. Overall corporate performance moderates the relationship between the corporate governance board's educational attainment, as higher corporate performance reduces the impact of educational attainment on strategic variation.*

## **Methodology**

### *Sample Selection*

We began the sample selection process by isolating all firms in the BoardEx database with director data available from 2010 to 2018. The director data were then matched with financial data gathered from Compustat-Capital IQ and from Standard & Poor's. The director data provided were used to construct diversity indices, discussed further in the following section. Our final sample of study comprises 930 large public companies operating in various industries in the United States. More specifically, the requirements for consideration in this study are as follows:

***Size.*** Consistent with previous research of this type (Haynes and Hillman, 2010; Zhang and Rajagopalan, 2010), this study focuses on large American listed firms with annual sales revenues greater than USD \$100 million. This criterion ensures that the sample includes only the most financially influential firms.

***Diversification.*** Since diversified companies are thought more likely to be undergoing a period of change (Markides and Williamson, 1996), these firms were excluded from our sample. Another reason for excluding diversified organisations is the complexity of the resource combinations they use, which often function at business level rather than a strictly corporate one (Wang and Zajac, 2007). This distinction is an important one in strategy research. Business level strategy relates to competitiveness within a specific industry, while corporate strategy reflects various aspects of a firm's portfolio, including potential divestments, downsizings,

restructurings, mergers and acquisitions, and the internal development of new business units. The present study explores variations in a firm's level of resource allocation, which comprises an aspect of corporate rather than business strategy.

Therefore, the sample for our study was confined to non-diversified US companies that generate a minimum of 75% of their overall revenue from a specific 4-digit Standard Industrial Classification (SIC) business segment. This method for defining diversification follows several previous studies (Zhang and Rajagopalan, 2010). It should also be noted that we only used primary SIC codes from the Compustat Business Segment Tapes since these are the most commonly referred to codes in the strategic variation literature (e.g., Zhang and Rajagopalan, 2010).

***Ownership.*** All the companies included in our sample are publicly owned. This guarantees that adequate and comparable data on all relevant variables (i.e., firm strategy, board, and CEO characteristics) are published and readily available.

***Competition.*** We also excluded all firms with low levels of competition (i.e., fewer than three competitors). This is because conditions of low competition inhibit the process of distinguishing the impact of industry membership. Competitors are defined as those contained in the same industry SIC codes. The sample in this study came from a wide variety of industries. A complete list can be obtained from the authors.

***Data provision.*** We require that the firms included in our sample report at least four consecutive years of data during our period of study, i.e. 2010 to 2018 (e.g., McNamara et al., 2005). Based on these criteria, our final sample included only large, mature, non-diversified market capitalisation firms with a minimum of three competitors who had provided a minimum of four consecutive years of data to the Compustat database between 2010 to 2018.

Our sample included 5011 firm-year observations of strategic variation data from 930 organisations. Table 1 below presents a detailed breakdown of the sample's data distributions based on our requirements for inclusion.

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### *Dependent Variables*

The definition of the corporate strategy adopted for this study comes from Hofer and Schendel (1978), who refer to it in terms of present and planned resource deployments. Strategic variation therefore, could be used as a surrogate measure of a company's financial resource allocation profile varies over time. Any reallocation of resources amongst strategic components may be interpreted as engagement in strategic variation. It has further been noted that strategic variation entails the careful evaluation of various strategic alternatives (Oehmichen et al., 2017).

More specifically, we use a composite measure covering four dimensions reflecting the key drivers of a firm's profile, that are closely monitored by the corporate board. The four dimensions are (1) Net P&E after including plant/machinery purchases; (2) Overheads such as sales and general administration; (3) inventory levels; and (4) Total debt/equity).

First, we calculate the value of the changes from the previous year to the current year. Second, the absolute values are standardised to a mean of 0 and a standard deviation of 1 (mean = 0, standard deviation = 1) (Oehmichen et al., 2017; Quigley and Hambrick, 2012). This is necessary because each of the four drivers of resources has a unique unit of measurement with all four drivers needing to be amalgamated into a single strategic variation metric. The resulting z scores thus prevent any one driver from having greater weight than any of the others (Triana

et al., 2014). Third, the four standardised values are averaged to generate a measure of strategic variation. Therefore, if a company is adhering to its status quo, these ratios will exhibit little variation across all years studied. Similarly, a change in these ratios over time will indicate a departure from the status quo and suggest engagement in strategic change (Oehmichen et al., 2017).

### *Independent Variables*

The primary independent variable is the level of corporate board diversity. We focus on four traits (gender, age, tenure, and educational attainment), based on both previous research in this vein and the availability of data. This section discusses each of these variables in turn.

We measure corporate governance board gender diversity using the commonly used Blau's (1977) index of heterogeneity ( $1 - \sum p_i^2$ ), where  $p_i$  is the percentage of group members in each of the  $i$  numbers of categories. This measure is a common choice for measuring diversity (Bantel and Jackson, 1989; Harrison and Klein, 2007). Using Blau's index means that one gender is not skewed in favor of the other.

Our age diversity variable considered the age of every corporate board member at the time of data provision. We calculated age diversity by the co-efficient of variation – see Bedeian and Mossholder, (2000). This is a widely used measure of age diversity (Boeker, 1997). A higher coefficient of variation value indicates higher age diversity.

Our tenure variable refers to the duration of corporate governance board membership (Westphal and Fredrickson, 2001), with tenure diversity being calculated using the coefficient of variation (Allison, 1978). Several studies provide a precedent for using this metric (e.g., Boeker, 1997).

Finally, we used the Herfindahl Index to measure levels of educational attainment diversity. We classified educational attainment diversity into one of the five levels: no formal college qualification; limited college qualification such as certificate or diploma; primary degree (bachelor's level), second level degree (master's level), and doctorate.

#### *Moderating Variable*

The moderating variable of overall firm results is operationalised as financial performance, and the specific measure used is ROI (return on investment). This metric is widely used to measure corporate performance (Daily and Dalton 2003; Erhardt et al., 2003).

#### *Control Variables*

Following the extant literature, we used firm size, firm slack, firm age, and board size as controls at the firm level. Firm size is computed as the logarithm of total assets. Prior strategic variation is measured as (t-1). Previous research has demonstrated that companies with prior involvement in strategic variation may have a higher propensity to undertake a future strategic variations of a similar type (Müller and Kunisch, 2018). Firm age dates from its incorporation, from the initial public offering until the end of the period of data collection. Governance variables that influence strategic change were also controlled via consideration of the size of the corporate governance board.

**Industry.** The impact of industry dynamics on strategic variation were controlled for by using dummy variables. Two-digit SIC codes were used to categorise the industry. Coefficients are not reported due to the huge number of industry dummy factors.

## Statistical Analysis

The principle relationship between board diversity and the moderating effect of firm performance on strategic variation was tested by linear regression using pooled cross-section and time series data. This procedure explicitly corrects for autocorrelation and heteroscedasticity. We corrected for panel-specific autocorrelation and recoded outliers as the highest values of non-outliers, based on the normal distribution.

In every model, predictor and control variables lagged behind dependent variables by one year (Zhang, 2006; Haynes and Hillman, 2010; Zhang and Rajagopakan, 2010; Triana, 2014). This lag safeguards against the possibility of reverse causality (Brunninge et al., 2007), and is necessary to include as any strategic variation needs time to take effect. Variables were centered to avoid multicollinearity when testing interactions, (Aiken and West, 1991).

## *Results*

Table 2 depicts presents descriptive statistics and correlations for the full dataset s (excluding the prior strategic variation variable).

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Insert Table 2 about here  
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There were some significantly high correlations between firm control variables (e.g., firm size, age, and slack). There is no correlation value higher than 0.60 among the variables, indicating the low likelihood of multicollinearity. Variance inflation factors (VIF) were calculated to further analyse multicollinearity. VIF levels of less than 10 are considered acceptable in the literature (Triana et al., 2019) (e.g., Wooldridge, 2013). The values of VIFs in our main models for our explanatory variables are all below 2. Multicollinearity concerns are, therefore, low.



Table 3 depicts strategic variation scenarios. Scenario 1 included controls; Scenario 2 includes the influence of board age, gender, education, and tenure; and Scenario 3 added “board diversity’ interactions with firm performance. Chi-squares analysis for these scenarios show significant explanatory power.

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Insert Table 3 about here  
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We have taken some measures to ensure that the results of our study are not affected by endogeneity such as one-year lag as outlined above. As a further precaution, we employed instrumental variables to address reverse causality. Thus, we ran two-stage least-squares instrumental variable (2SLS-IV) regressions to correct potential endogeneity and estimate the relationships among board diversity, firm performance, and strategic variation as shown in Table 4

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Insert Table 4 about here  
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Hypothesis 1 postulates that corporate board gender diversity is positively related to strategic variation. As shown in Scenario 2, the coefficients for board gender diversity are both and significant and positive (0.788,  $p < 0.001$ ), therefore we can conclude that strategic variation is influenced by corporate board gender diversity.

For board tenure diversity, the coefficients in Scenario 2 are both significant and positive (0.099,  $p < 0.001$ ), and we can conclude that hypothesis 2 is supported. In Scenario 3, board age diversity has positive and significant relationship with strategic change (0.098,  $p < 0.05$ ), and we can conclude that hypothesis 3 is supported. The final hypothesis proposing on board educational attainment diversity indicates a positive relationship with strategic variation is also both positive and significant (0.201,  $p < 0.001$ ) and we can conclude that hypothesis 4 is supported.

We tested the moderating effect of financial performance on the relationship of board diversity on strategic variation by examining the interactions of corporate board gender diversity with overall organisational performance (Hypothesis 5a), tenure with financial performance (Hypothesis 5b), age diversity with financial performance (Hypothesis 5c), and educational diversity with financial performance (Hypothesis 5d). In this case, results were significant and negative, as we expected, and as shown in Scenario 3. We can, therefore, conclude that hypotheses 5a, 5b, 5c, 5d are supported. These results suggest that companies with diverse boards demonstrate less strategic change when organisational performance is high.

### **Discussion and Conclusion**

In recent years, the evolution of corporate governance has transferred the 'board's responsibilities to strategic concerns. The board, on the other hand, is in charge of establishing and monitoring its strategic objectives. Resource dependence theory [RDT] emphasises the latter role. The board oversees management on behalf of the shareholders and is responsible for strategic decision-making. The importance of RDT in understanding the impact of corporate governance board diversity on company performance and choices is highlighted in this paper.

Almost every organisation in the United States now encourages diversity. Diverse workforces, management teams, educators, representatives, and student bodies are all goals for private, government, and educational institutions. There is, however, plenty of evidence that diversity has both costs and advantages. We explored the impact of diversity in corporate boards, an area where several countries have increasingly enacted diversity mandates. We explore the impact of board diversity on the level of strategic variation that these boards oversee and assist.

To explore in what ways, the make-up of the corporate board impacts on firm strategies (strategic variation), this research focuses on four aspects of diversity. We show that the composition of a firm's corporate board influences the level of strategic variation.

We analysed a sample of 930 Capital IQ firms listed on Standard & Poor's to explore how overall firm performance impacted on the links between strategic variation and diversity according to corporate board gender, age, tenure, and educational attainment. Resource dependence theory and upper echelon theory provided the theoretical underpinning for our research questions. We can conclude based on the analysis that corporate governance board gender, tenure, age, and educational attainment diversity relate to levels of strategic variation. Firm performance as a moderator between corporate board diversity and strategic variation was also supported.

The study considers several theoretical and practical perspectives. From a theoretical perspective, the findings provide support for greater diversity on corporate boards and provides evidence on the importance of various types of board diversity in effecting corporate strategy. Thus, the findings in this paper indicate the role of the corporate board in strategic variation – this has implications for the chief executive officer and the firm's operational directors (cf. Metz et al., 2016). Moreover, we demonstrate how board diversity can help corporate boards execute their strategic goals. Secondly, most previous research studies carried out in the US examined a single sector when looking at the impact of corporate board diversity and strategic variation. This research sets itself apart by integrating a diverse range of sectors into a single study. Third, this study evaluated corporate board diversity from the perspectives of four drivers (gender, age, tenure, and educational attainment), while previous research examined just one driver of diversity.

Our research findings have significant practitioner implications for corporate governance practices helping executives understand what types of boards encourage strategic variation. Knowing what forms of diversity will influence the expected results of decision processes in corporate governance boards is thus crucial from a managerial standpoint. With more certainty, the structure of management teams may now be examined. The corporate governance board has a significant role and impact on organisational success, thus implying that consideration needs to be given to the composition of the entire board.

Overall, our research shows that in the realm of corporate governance, the idea that “one size fits all” is incorrect, as commonly implied by regulators and advisers. When appointing or assessing board members, it is critical to consider the directors' qualities, expertise and educational attainment. If necessary, the views of corporate governance experts should be taken into account. Finding the most effective corporate governance board is vital. According to our findings, future studies should concentrate on determining why and how boards influence business strategy. Researchers should attempt to unlock this “black box” to determine qualities that influence strategic variation and how it might be achieved.

However, our fundamental empirical conceptualisation of strategic change fails to consider the necessity of change under specific circumstances. Depending on specific contextual factors, companies will benefit more from either strategic stability or change, and ongoing strategic change will not be necessary for all businesses at all times. Accordingly, further research may draw on the findings of this paper to create a collection of contingencies for evaluating strategic change quality.

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**Table 1: Sample selection criteria**

<b>Criteria for inclusion</b>	<b>No. Firms</b>	<b>Firm-Year Observations</b>
1. Listed firms without missing strategic change measurement data	4877	27381
2. Data available for 4 years continuously	3360	24517
3. Sales of more than 100 \$ Million per year	2438	18178
4. Non-diversified firms	1336	11678
5. Merging strategic change data with board characteristics	930	5011

**Table 2. Means, standard deviations, and correlations**

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>1 Strategic Variation</b>	<b>0.00</b>	<b>2.20</b>	<b>1.00</b>													
<b>2 Firm Size</b>	<b>6.96</b>	<b>1.48</b>	<b>-0.21***</b>	<b>1.00</b>												
<b>3 Firm Age</b>	<b>20.45</b>	<b>20.48</b>	<b>-0.12***</b>	<b>0.21***</b>	<b>1.00</b>											
<b>4 Firm Slack</b>	<b>2.52</b>	<b>1.78</b>	<b>0.10***</b>	<b>-0.28***</b>	<b>-0.01</b>	<b>1.00</b>										
<b>5 Board Size</b>	<b>8.36</b>	<b>1.94</b>	<b>-0.09***</b>	<b>0.55***</b>	<b>0.21***</b>	<b>-0.18***</b>	<b>1.00</b>									
<b>6 Tenure Diversity</b>	<b>0.66</b>	<b>0.30</b>	<b>0.02*</b>	<b>0.13***</b>	<b>0.28***</b>	<b>-0.01</b>	<b>0.15***</b>	<b>1.00</b>								
<b>7 Age Diversity</b>	<b>0.10</b>	<b>0.07</b>	<b>0.05***</b>	<b>-0.02**</b>	<b>-0.01</b>	<b>0.03***</b>	<b>0.10***</b>	<b>-0.00</b>	<b>1.00</b>							
<b>8 Educational Diversity</b>	<b>2.06</b>	<b>0.51</b>	<b>0.06***</b>	<b>0.11***</b>	<b>-0.06***</b>	<b>-0.01</b>	<b>0.16***</b>	<b>0.02</b>	<b>0.00</b>	<b>1.00</b>						
<b>9 Gender Diversity</b>	<b>0.88</b>	<b>0.11</b>	<b>0.10***</b>	<b>-0.29***</b>	<b>-0.14***</b>	<b>0.15***</b>	<b>-0.31***</b>	<b>-0.14***</b>	<b>0.03**</b>	<b>-0.13***</b>	<b>1.00</b>					
<b>10 Firm Performance</b>	<b>0.04</b>	<b>0.10</b>	<b>-0.22***</b>	<b>0.22***</b>	<b>0.13***</b>	<b>0.15***</b>	<b>0.08***</b>	<b>0.05***</b>	<b>-0.05***</b>	<b>-0.06***</b>	<b>-0.04***</b>	<b>1.00</b>				
<b>11 Tenure Diversity * Firm Performance</b>	<b>0.05</b>	<b>1.09</b>	<b>0.01*</b>	<b>-0.02**</b>	<b>-0.03***</b>	<b>-0.00</b>	<b>-0.01</b>	<b>-0.08***</b>	<b>0.03**</b>	<b>0.00</b>	<b>0.00</b>	<b>-0.08***</b>	<b>1.00</b>			
<b>12 Age Diversity * Firm Performance</b>	<b>-0.05</b>	<b>1.03</b>	<b>-0.02*</b>	<b>0.03***</b>	<b>0.04***</b>	<b>-0.02</b>	<b>0.02</b>	<b>0.03***</b>	<b>-0.05***</b>	<b>-0.02</b>	<b>0.01</b>	<b>0.02</b>	<b>-0.03***</b>	<b>1.00</b>		
<b>13 Educational Diversity * Firm Performance</b>	<b>-0.06</b>	<b>0.99</b>	<b>-0.04***</b>	<b>0.07***</b>	<b>0.02**</b>	<b>-0.01</b>	<b>0.05***</b>	<b>0.01</b>	<b>-0.02</b>	<b>-0.02</b>	<b>-0.05***</b>	<b>0.11***</b>	<b>-0.00</b>	<b>0.04***</b>	<b>1.00</b>	
<b>14 Gender Diversity * Firm Performance</b>	<b>-0.04</b>	<b>0.97</b>	<b>-0.03**</b>	<b>-0.04***</b>	<b>0.00</b>	<b>0.06***</b>	<b>-0.06***</b>	<b>0.00</b>	<b>0.01</b>	<b>-0.05***</b>	<b>0.00</b>	<b>0.07***</b>	<b>-0.18***</b>	<b>-0.01</b>	<b>-0.06***</b>	<b>1.00</b>

\*\*\* p < 0.001, \*\* p < 0.05, \* p < 0.10

**Table 3. Results of moderated regression of board diversity on Strategic Variation**

Variable	Scenario 1	Scenario 2	Scenario 3
	$\beta / Z$	$\beta / Z$	$\beta / Z$
(Constant)	0.913*** (-23.273)	-0.402*** (-6.071)	-0.384*** (-5.373)
<b><u>Controls</u></b>			
Firm Size	-0.175*** (-30.696)	-0.147*** (-26.975)	-0.149*** (-26.459)
Board Size	0.035*** (17.892)	0.031*** (11.674)	0.032*** (8.789)
Firm Slack	0.036*** (12.633)	0.062*** (22.452)	0.065*** (20.825)
Firm Age	-0.006*** (-22.760)	-0.004*** (-13.832)	-0.004*** (-14.234)
Previous Strategic change	0.385*** (97.370)	0.344*** (75.003)	0.339*** (74.945)
<b><u>Predictors</u></b>			
Gender Diversity		0.788*** (21.087)	0.800*** (15.448)
Tenure Diversity		0.099*** (8.081)	0.087** (4.961)
Age Diversity		0.087** (2.52)	0.169** (2.555)
Educational Diversity		0.201*** (15.560)	0.196*** (12.992)
<b><u>Interactions</u></b>			
Firm Performance		-2.440*** (-85.750)	-2.392*** (-55.809)
Gender Diversity * Firm Performance			-0.042*** (-8.217)
Tenure Diversity * Firm Performance			-0.023*** (-4.968)
Age Diversity * Firm Performance			-0.015*** (-3.831)
Educational diversity * Firm Performance			-0.043*** (-8.266)
Wald $\chi^2$	99293.156***	1.23e+06***	90434.977***
$\Delta\chi^2$ from the prior model		1004.74***	9119.51***
Pseudo R <sup>2</sup>	0.20866624***	0.22667121***	0.22743361***

\*\*\* p < 0.001, \*\* p < 0.05, \* p < 0.10

**Table 4. Instrumental variables (2SLS) regression**

Variable	Scenario 1	Scenario 2	Scenario 3
	$\beta / Z$	$\beta / Z$	$\beta / Z$
(Constant)	<b>0.705***</b> (5.725)	<b>-0.066</b> (-0.201)	<b>-0.046</b> (-0.138)
<b><u>Controls</u></b>			
Firm Size	<b>-0.121***</b> (-6.943)	<b>-0.116***</b> (-6.657)	<b>-0.115***</b> (-6.550)
Board Size	<b>0.010</b> (0.806)	<b>0.012</b> (0.914)	<b>0.010</b> (0.816)
Firm Slack	<b>0.063***</b> (5.222)	<b>0.060***</b> (4.930)	<b>0.061***</b> (5.008)
Firm Age	<b>-0.004***</b> (-4.076)	<b>-0.003**</b> (-2.480)	<b>-0.003**</b> (-2.410)
Previous Strategic change	<b>0.380***</b> (28.639)	<b>0.370***</b> (27.718)	<b>0.368***</b> (27.317)
<b><u>Predictors</u></b>			
Gender Diversity		<b>0.882***</b> (4.007)	<b>0.879***</b> (3.982)
Tenure Diversity		<b>-0.077</b> (-0.779)	<b>0.081*</b> (0.816)
Age Diversity		<b>-0.007**</b> (-2.096)	<b>0.008**</b> (2.214)
Educational Diversity		<b>0.219***</b> (5.071)	<b>0.217***</b> (5.016)
<b><u>Interactions</u></b>			
Firm Performance		<b>-1.753***</b> (-8.121)	<b>-1.615***</b> (-7.221)
Gender Diversity * Firm Performance			<b>-0.076**</b> (-1.971)
Tenure Diversity * Firm Performance			<b>-0.054*</b> (-1.216)
Age Diversity * Firm Performance			<b>-0.030*</b> (-0.894)
Educational diversity * Firm Performance			<b>-0.076**</b> (-2.310)
Number of observations	<b>5011.000</b>	<b>5011.000</b>	<b>5011.000</b>
Wald chi2(11) statistic	<b>1636.075</b>	<b>1682.560</b>	<b>1683.699</b>

\*\*\* p < 0.001, \*\* p < 0.05, \* p < 0.10