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Insider Ownership and the Performance Effects of Firm Diversification in Nigeria

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Abstract

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Despite the preponderance of diversified firms, the diversification–performance (D–P) relationship and how insider ownership moderates it in Nigeria remains unclear and a concern for decision makers interested in the survival of firms and their contributions to society. This quantitative study was conducted to examine the D–P relationship and how it is associated with insider ownership in Nigeria. Agency theory and institution-based theory formed the theoretical foundation of this study. Four research questions that focused on how diversification is related to firm performance and how insider ownership moderates this relationship were answered using the panel design variant of correlational research. Data were collected from the annual reports of companies (n=109) listed on the Nigerian Stock Exchange, and the linear mixed model procedure in SPSS 25 was used to test the four hypotheses that were stated. No significant difference in performance between diversified and focused firms was found and there was no significant relationship between level of diversification and firm performance. Insider ownership did not distinguish underperforming from outperforming diversified firms and did not significantly moderate the D–P relationship in Nigeria. These findings are inconsistent with the predictions of institution-based theory and agency theory regarding the performance effects of diversification in emerging markets. The social change implication of these findings is that firms can improve their sustainability and capacity to provide jobs, products, and services society depends on by deemphasizing the diversification decision and insider ownership as a governance mechanism.

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Dedication

I dedicate this work to the memory of my late brother, Chibuzor. I started this program to help take my mind off the huge loss and cope with the shock. The tedious work served as the therapy I needed to save my mind, a place you will always be. May your soul continue to rest in peace, Chib. And to my late dad and uncle who, early in my life, impressed the value of education. I am sure I have made you proud. Rest in peace.

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Table of Contents

List of Tables

Chapter 1: Introduction to the Study

Businesses generate economic growth and development by creating jobs and innovative products and services that society depends on (Banks, 2016; Carroll, 2016; Kritikos, 2014; Ucbasaran et al., 2013). Corporate social responsibility (CSR) could be detrimental to firm performance. The damaging effects may arise from disingenuous motivations, such as when CEOs perform CSR activities to attract attention and praise (Cheng et al., 2020; Petrenko et a., 2016). However, there is increasing expectation that businesses respond to various social issues through forms of CSR (Banks, 2016; Blowfield & Dolan, 2014; Carroll, 2016; Hsieh, 2017; Jose, 2016; Kaplan, 2020; Martinez et al., 2017; Santos et al., 2015; Terziev, 2019).

Businesses contribute to positive social change when they act as development agents (Blowfield & Dolan, 2014; Likoko & Kin, 2017). Therefore, their survival and growth are essential for them to continue contributing to society (Carroll, 2016). The survival and growth of businesses require improvement in firm performance and continuous adaptation to face the challenges of an increasingly competitive and dynamic environment (Burgelman, 2014; Carroll, 2016; Piao, 2014).

However, evidence points to a low long-term corporate survival rate (Bakker & Josefy, 2018; Burgelman, 2014; Daepp et al., 2015; Govindarajan & Srivastava, 2016; Josefy et al., 2017; Murthy, 2014; Reeves et al., 2016). The corporate rate of persistent high performance has also been low (Burgelman, 2014; Innosight, 2018; Murthy, 2014; Reeves et al., 2020). It is harder today than in the past to persistently rank among the most prominent and best-performing companies (Innosight, 2018; Reeves et al., 2020).

The low corporate survival and the low persistent high-performance rate are also the case in Nigeria (Nnabuife & Onwuzuligbo, 2015; Sam, 2007).

Some failed firms were high performers and industry leaders (Chen, 2017; Wessel & Christensen, 2012; Murthy, 2014; Reeves et al., 2020). The cost of business failures is enormous: loss of jobs, loss of investment value, emotional cost, and social stigma (Josefy et al., 2017; Napolitano et al., 2015; Nnabuife & Onwuzuligbo, 2015). The costs also come in the form of loss of government revenue and scarcity of essential goods and services society has come to depend on (Burgelman, 2014; Carroll, 2016; Eckbo et al., 2016; Josefy et al., 2017; Napolitano et al., 2015; Ucbasaran et al., 2013).

Whereas many companies have failed or experienced declining growth and performance, few have survived long term (Josefy et al., 2017; Murthy, 2014; Napolitano et al., 2015; Piao, 2014). As of 2015, only 13 of the Fortune 500 companies were over 150 years old (Roberts, 2015). These companies have evolved over the years in their activities, business models, and technological capabilities to adapt to a changing environment and avoid disruption (Burgleman, 2015; Chen, 2017; Josefy et al., 2017; Kaulio et al., 2017; Murthy, 2014; Napolitano et al., 2015; Piao, 2014; Reeves et al., 2016; Sulphey & Alkahtani, 2017). Adaptation may require a change of strategy (Innosight, 2018; Khan, 2015a, 2015b; Reeves et al., 2016), and firms are continually seeking effective strategies to ensure their survival (Kaulio et al., 2017; Koryak et al., 2018; Parida et al., 2016; Reeves et al., 2016; Sulphey & Alkahtani, 2017)

In this study, I looked at diversification, a corporate strategy that has been proposed as a survival and growth strategy (Innosight, 2018; Sharma & Dixit, 2017).

Many firms in Nigeria and worldwide use the diversification strategy for survival, growth, and sustainable performance (Altieri & Nicodano, 2021; Guerras-Martín et al., 2020; Jeong et al., 2017; Nigam & Gupta, 2018; Setianto, 2020; Oyedijo, 2012). I examined the performance effect of this strategy and its relation to firms' insider ownership in Nigeria. This study is urgent given the historically low corporate survival rate, low persistent high-performance rate, and the high cost of corporate failure. Corporate survival, growth, and profitability are issues of great concern to policymakers both at the corporate and government levels (Guerras-Martín et al., 2020; Panza et al., 2018; Reeves et al., 2016; Verma et al., 2017).

I organized this chapter into 11 sections. Following this introduction, I give a background to the problem and formally state the study's problem and purpose. Subsequently, I present the research questions and hypotheses that I tested to answer them. I follow this with the theoretical foundation, nature of the study, definition of significant terms, and the assumptions I made in this study. I also delineate the scope of this work and its limitations. Finally, I identify the significance of the study to theory, practice, and social change.

Background of the Study

Diversification is one of the strategies that many firms have adopted as a means of ensuring survival, growth, and improved performance (Benito-Osorio et al., 2015; Guerras-Martín et al., 2020; Nigam & Gupta, 2018; Sahni & Juhari, 2019; Setianto, 2020; Verma et al., 2017). Potential benefits of this strategy include the creation of efficient internal markets and productive use of excess capacity in resources (Brahmana et al., 2019; Cheng, 2017; Erdorf et al., 2013; De Figueiredo et al., 2019; Khanna & Yafeh, 2015; Lohwasser et al., 2019; Picone & Dagnino, 2016; Yamoah & Kanyandekwe, 2014). Another benefit is the coinsurance effect of multiple lines of business, which lowers risk, attracts a lower cost of capital, and increases debt capacity (Aivazian et al., 2015; Bielstein et al., 2018; Borah et al., 2018; Demirci et al., 2020; De Figueiredo et al., 2019; Franco et al., 2016; Hann et al., 2013; Lewellen, 1971).

Some authors have questioned the possibility of realizing some of these benefits (Wentland, 2020). For instance, some researchers have argued that internal capital markets (ICM) are not efficient in allocating resources and would not benefit firms (see Cheng & Wu, 2018; Glaser et al., 2013; Klein & Wuebker, 2020; Ozbas & Scharfstein, 2010). There are still questions whether diversification reduces a firm's risk in all cases (Haug et al., 2018; Jafarinejad et al., 2018; Wu & Chiang, 2019).

Moreover, as some authors have argued, in developed financial markets and with investment instruments such as mutual funds, investors can efficiently achieve the desired risk diversification on their own (Amihud & Lev, 1981; Castañer & Kavadis, 2013; Erdorf et al., 2013). Consequently, firm diversification aimed at shareholder risk reduction might not create value for shareholders (Amihud & Lev, 1981; Castañer & Kavadis, 2013; Erdorf et al., 2013; Lacoste et al., 2010). Firms can hardly create value for shareholders by doing what the shareholders can efficiently do on their own (Castañer & Kavadis, 2013; Erdorf et al., 2013; Lacoste et al., 2010). There is no consensus on capital markets efficiency, especially in developing countries (Ayodele et al., 2017; Gyamfi et al., 2017; Lawal et al., 2017). However, following this reasoning, some authors have argued that agency problems in corporations cause managers to engage in corporate diversification (Castañer & Kavadis, 2013; Denis et al., 1997).

The agency problem explanation for firm diversification is that managers derive greater personal benefits than costs from diversification and are motivated by these private benefits to diversify or maintain a diversification strategy even if it is destroying shareholder value (Denis et al., 1997). These benefits include increased compensation (Wang et al., 2019), power and prestige from managing large corporations, and reduced managers' largely undiversified unemployment risk (Amihud & Lev, 1981; Denis et al., 1997; Montgomery, 1994). Managers may also become entrenched due to the diversification strategy implemented (Amihud & Lev, 1981; Denis et al., 1997; Montgomery, 1994). Given the questions about the benefits of diversification, many researchers have examined the performance effects of firm diversification (see Andreou et al., 2016; Brahmana et al., 2019; Hoechle et al., 2012; Lohwasser et al., 2019; Sturm & Nüesch, 2019; Zechser, 2019).

The evidence from these studies has not been consistent (Ahuja & Novelli, 2017; Andreou et al., 2019; Benito-Osorio et al., 2012; Erdorf et al., 2013; Guerras-Martín et al., 2020; Jouida et al., 2017; Lawrey & Morris, 2019; Picone & Dagnino, 2016). However, since the 1980s and mostly in the developed markets, many researchers have found that relative to undiversified firms, diversified firms have underperformed and traded at a discount (see Andreou et al., 2016; Berger & Ofek, 1995; Borah et al., 2018; Hoechle et al., 2012; Lang & Stulz, 1994). This discount has been estimated at up to 15.5% (see, Hoechle et al., 2012). Mitton (2012) estimated an average loss in annual sales of $3.3 million for an average-sized firm worldwide by adding one more segment. Therefore, on the basis of these findings, the dominant view has been that diversification is shareholder value destroying and that diversified firms are inefficient (Erdorf et al., 2013; Gopal et al., 2021; Pidun et al., 2019).

Despite the value destruction attributed to diversification, many firms continue to employ the diversification strategy (D'Aveni, 2017; Gopal et al., 2021; Hirt et al., 2013; Kurtović et al., 2013; Mackey et al., 2017; Pidun et al., 2019; Schommer et al., 2019). The result is that diversified firms continue to account for significant economic activity, output, and employment in many countries (Basu, 2010; Matvos & Seru, 2014; Matvos et al., 2018). For instance, in the United States, diversified firms accounted for about half of total sales (Matvos & Seru, 2014) and controlled more than $32 trillion worth of assets in 2011 (Sambasivan & Asrarhaghighi, 2016). In Germany, diversified firms constituted 60% of all manufacturing enterprises employing 20 or more people and accounted for 81% and 85% of total sales and exports, respectively (Braakmann & Wagner, 2011).

According to Kurtović et al. (2013), diversified firms represent 70% of companies in emerging markets. They constitute about 95%, 90%, and 80% of businesses in three major emerging markets of India, China, and Brazil, respectively (Kurtović et al., 2013). In the decade up to 2010, diversified firms grew by 23% in China and India and 11% in South Korea (Hirt et al., 2013; Kurtović et al., 2013; Ramachandran et al., 2013). In terms of revenue, these firms constitute 80% of the largest 50 companies in South Korea, 90% in India, and 40% in China, with the exclusion of state-owned companies (Hirt et al., 2013). In Nigeria, Oyedijo (2012) classified 68.76% of the firms surveyed as diversified. Ugwuanyi (2012) classified 82.35% of banks surveyed in Nigeria as diversified.

Diversification continues to be a preferred growth strategy for many firms worldwide (Credit Suisse Research Institute, 2012; Pidun et al., 2019; Ramachandran et al., 2013; Schommer et al., 2019) and in Nigeria (Oyedijo, 2012). Seventy-five percent of firms surveyed by Credit Suisse Research Institute (2012) indicated that they planned to add new products and services. Forty percent planned to diversify into related industries, while 20% of the large firms planned to expand into unrelated industries. Many companies in Nigeria still indicate their intention to diversify in their annual reports (e.g., GlaxoSmithKline Consumer Nigeria Plc, 2014; Transcorp, 2019, p. 6). D'Aveni (2017) envisaged increased corporate diversification through "pan-industrial companies" (p. 23) as new technologies enable firms to manage complexities and optimize operations at different levels along the value chain across multiple product lines. This trend, according to D'Aveni (2017), will be to the disadvantage of companies that remain focused.

The continued diversification of firms all over the world and in Nigeria raises two issues. One is whether diversification is value destroying in all countries, at all times, as the diversification discount literature has suggested (De la Fuente & Velasco, 2015; Lien & Li, 2013; Pidun et al., 2019). The other issue is why firms continue to diversify if diversification is value destroying (Hyland & Diltz, 2002; Pidun et al., 2019; Thakur & Bhatia, 2021). No consensus has emerged on both these issues (Andreou et al., 2019; Bressan & Weissensteiner, 2021; Picone & Dagnino, 2016; Sturm & Nüesch, 2019).

Some authors have explained the continued diversification of firms with evidence that diversification is or could be a value-creating strategy (e.g., Akbulut & Matsusaka, 2010; Bhatia & Thakur, 2018; Hoberg & Phillips, 2014; Haug et al., 2018; Hund et al, 2013; Lawrey & Morris, 2019). Others have explained diversification and the underperformance of diversified firms by agency problems from low insider ownership and other governance structures assumed to be poor (e.g., Denis et al., 1997; Hoechle et al., 2012; Jara-Bertin et al., 2015a). Denis et al. (1997) found that diversified firms are valued lower than their focused counterparts and tend to have significantly lower insider equity ownership. Dennis et al. interpreted the lower insider ownership as an indication of severe agency problems. On the basis of this, the researchers hypothesized that if value-reducing diversification is due to agency problems, on average then, adverse performance effects of diversification would be expected in lower insider ownership firms and positive impact in higher insider ownership ones.

Nevertheless, this hypothesis's empirical investigation has not produced consistent results (Benito-Osorio et al., 2012; Erdorf et al., 2013; Picone & Dagnino, 2016). Zechser (2019) has suggested that the influence of ownership on the diversification–performance (D–P) relationship is an exciting area for future research (see also Picone & Dagnino, 2016). A few researchers have used data on firms in Nigeria to investigate the performance effects of diversification (e.g., Adamu et al, 2011; Gunu & Gunu, 2019; Mac-Ozigbo & Daniel, 2020; Oyedijo, 2012; Patrick, 2012; Ugwuanyi, 2012). However, no researchers have studied the relationship between insider ownership and the performance effects of firm diversification. As I indicate in the literature review, some methodological issues limit these few studies and the understanding of this relationship in the Nigerian context.

The studies based on developed economies' data do not shed much light on emerging markets such as Nigeria (Ahuja & Novelli, 2017; Manyuru et al., 2017; Picone & Dagnino, 2016; Sambasivan & Asrarhaghighi, 2016). This failure is due to institutional differences that researchers have found to influence the performance effects of firm diversification and corporate governance mechanisms (Benito-Osorio et al., 2012; Berry-Stölzle, et al., 2013; Erdorf et al., 2013; Lee et al, 2008; Picone & Dagnino, 2016; Selçuk, 2015). The few studies in emerging markets have concentrated on Asia (Jara-Bertin et al., 2015a), and little is known about the D–P relationship in the emerging markets of Africa (Manyuru et al., 2017).

These studies conducted in developed countries have also proceeded mainly on the wrong premise that diversification is ex ante wrong and value destroying (Ahn, 2009; Matsusaka, 2001). The researchers conducting these studies have ignored the finding that, in many cases, some diversified firms have outperformed even the best-focused organizations (Ahn, 2009; Akbulut & Matsusaka, 2010; Chen & Yu, 2012; Erdorf et al., 2013; Hund et al., 2013; Villalonga, 2004). Consequently, researchers have largely neglected the need to examine the differences between diversified firms that have outperformed and the ones that have underperformed their focused counterparts (Basu, 2010; Erdorf et al., 2013; Hund et al., 2019; Picone & Dagnino, 2016). Because of this gap, scholars do not know much about how diversification affects firm performance in Nigeria and how insider ownership is related to it. I addressed this gap in this study.

There is a consensus that the D–P relationship remains a puzzle that requires further studies to resolve (Benito-Osorio et al., 2012; Bressan & Weissensteiner, 2021; Erdorf et al., 2013; Grigorieva, 2020; Jara-Bertin et al., 2015b; Manyuru et al., 2017; Picone & Dagnino, 2016; Schommer et al., 2019). There is also a consensus that a study of the D–P relationship in different institutional contexts is a way forward (e.g., Benito-Osorio et al., 2012; Erdorf et al., 2013; Picone & Dagnino, 2016; Qiu, 2014; Sun et al., 2017; Zechser, 2019). Some authors have suggested analyzing factors that moderate the D–P relationship (Andreou et al., 2019; De la Fuente & Velasco, 2015; Picone & Dagnino, 2016). Others have suggested the study of factors that differentiate between diversified firms that have outperformed and those that have underperformed as a way to better understand the D–P relationship (e.g., Andreou et al., 2016; Erdorf et al., 2013; Hund et al., 2019; Picone & Dagnino, 2016). One of these factors is the agency problem arising from the insider ownership level (Selçuk, 2015). As Jara-Bertin et al. (2015a, 2015b) have posited, whether diversification discount exists and whether it is related to agency problems remains a puzzle (see Brahmana et al., 2019; Picone & Dagnino, 2016; Zechser, 2019).

This study was necessary because of its contributions to the literature on diversification's performance effects in developing countries. Developing countries are institutionally different from developed countries, where researchers have concentrated their efforts (Chen & Yu, 2012; Lee et al., 2008). This study also contributes to better policies in corporate strategy and insider ownership as a corporate governance mechanism. These factors are essential for the survival, growth, and improved performance of firms that contribute to positive social change by creating employment and innovative products society depends on.

Problem Statement

Many researchers have found that, on average, diversified firms underperform undiversified ones (Borah et al., 2018; Lee & Hooy, 2018a; Liu et al., 2018; Sturm & Nüesch, 2019). Borah et al. (2018) estimated a diversification discount that is higher for high-technology firms (26.59%) than low-technology firms (7.46%). Mitton (2012) estimated an average loss in annual sales of $3.3 million for an average-sized firm by adding one more segment. Despite the diversification discount, many firms continue to diversify (Gopal et al., 2021).

The general problem is that the D–P relationship, which remains unclear, is a primary managerial and public policy concern (Ahuja & Novelli, 2017; Altieri & Nicodano, 2019; Aivazian et al., 2019; Gopal et al., 2021; Grigorieva, 2020; Guerras-Martín et al., 2020; Schommer et al., 2019; Shen et al., 2018; Sturm & Nüesch, 2019). The specific problem is how insider ownership is related to the performance effects of diversification in Nigeria. Hoechle et al. (2012) explained the underperformance of diversified firms by inadequate corporate governance mechanisms such as low insider ownership. Because of the dearth of studies in which researchers have used Nigerian firms' data to address these problems, little is known about these relationships in the Nigerian context.

Purpose of the Study

The purpose of this quantitative study was to examine the relationship between firm diversification and firm performance and the relationship between insider ownership and the performance effects of diversification in Nigeria. I used the panel/longitudinal design variant of correlational design to capture these relationships' variations over time. The independent variables were diversification status, level of diversification, and insider ownership in the firm, whereas firm performance measured by return on equity and approximate Q was the dependent variable. The control variables were firm size, leverage, blockholding, and board independence. I explain these variables and how I operationalized and measured them further in Chapter 3. The population for this study was companies quoted on the Nigerian Stock Exchange (NSE). Because these companies are required to publish audited annual reports, data are more reliable and accessible. The study contributes to positive social change by providing information that firms could use to improve corporate strategy and governance to ensure that firms continue to offer innovative products and jobs society depends on.

Research Questions and Hypotheses

Because of the dearth of research and the deficiencies of the few studies that have addressed the D–P puzzle using data on Nigerian firms, some questions remain inadequately answered. I addressed these questions in this study by testing hypotheses. Below are the research questions, the corresponding hypotheses, and the variables I used to test them.

RQ1: How is the performance of diversified firms different from that of focused firms in Nigeria?

$H_0$1: There is no significant difference between the performance of diversified firms and focused firms in Nigeria.

$H_1$1: There is a significant difference between the performance of diversified firms and focused firms in Nigeria.

For this hypothesis, the independent variable was diversification status. I defined it as the diversification category in which a firm fell when I classified them as focused/undiversified firms or diversified firms. I classified firms on the basis of the number of industries/segments defined at the 2-digit SIC level in which they operate. Firm performance was the dependent variable, and I operationalized it by ROE and ATQ. I sourced the data for these variables from the annual and financial reports of companies.

RQ2: What is the relationship between the level of diversification and firm performance in Nigeria?

$H_0$2: There is no significant relationship between the level of diversification and firm performance in Nigeria.

$H_1$2: There is a significant relationship between the level of diversification and firm performance in Nigeria.

The independent variable in this case was the level of diversification measured by the number of industries a firm is operating in, with industry measured at the 2-digit SIC code level. The dependent variable was firm performance measured by ROE and ATQ.

The control variables were firm size, leverage, board independence, and blockholding or ownership concentration.

RQ3: How is the insider ownership level of diversified firms that outperform focused firms different from the insider ownership of diversified firms that underperform focused firms in Nigeria?

$H_0$3: There is no significant difference in insider ownership level between diversified firms that outperform focused firms and diversified firms that underperform focused firms.

$H_1$3: There is a significant difference in insider ownership level between diversified firms that outperform focused firms and those that underperform focused firms.

To test this hypothesis, I classified diversified firms on the basis of their performance as outperforming diversified firms (OPDF) and underperforming diversified firms (UPDF). I defined an OPDF as a diversified firm whose performance (measured by ROE and ATQ) is greater than focused firms' mean performance. I defined a UPDF as a diversified firm whose performance is lower than focused firms' average performance.

RQ4: What is the relationship between insider ownership and the performance effects of level of diversification in Nigeria?

$H_0$4: There is no significant relationship between insider ownership and the performance effects of level of diversification.

$H_1$4: There is a significant relationship between insider ownership and the performance effects of level of diversification.

For this hypothesis, I introduced insider ownership and an interaction term of level of diversification and insider ownership (level of diversification*insider ownership) as predictors in the model estimating the relationship between diversification and firm performance. The independent variables here were the level of diversification, insider ownership, and the interaction term of level of diversification and insider ownership. The variables were measured as defined in the section on research methodology. The dependent variable was firm performance measured by ROE and ATQ, as I described earlier. I also introduced the control variables here.

Theoretical Foundation

Researchers have used many theories to explain firm diversification's performance effects and the relationship between insider ownership and diversified firms' performance (George & Kabir, 2012). Two of these theories formed the theoretical foundation of this research to understand how diversification may affect firm performance and how insider ownership relates to diversified firms' performance. These are agency theory and institution-based view theory. In this section, I provide a concise explanation of the theoretical propositions of these theories, and a more detailed discussion follows in Chapter 2.

Agency Theory

Many authors credit the development of agency theory to Michael Jensen and William Meckling with their 1976 paper "Theory of the Firm: Managerial Behavior, Agency Cost, and Ownership Structure" (Bendickson et al., 2016; Connelly et al., 2010). Mitnick (2019a; 2019b) has disputed the idea that Jensen and Meckling (1976) are the original papers on agency theory but has acknowledged that it is the most widely cited paper on agency theory. The basic idea in agency theory related to the firm is that in modern corporations characterized by separation of ownership from control, the managers (agents) interests and motivations may diverge from those of the owners—principals (Yusuf et al., 2018). This divergence results in a conflict of interest in decision making between the owners and the managers (Bendickson et al., 2016; Connelly et al., 2010; Jensen & Meckling, 1976). Agency theory suggests that when there is such a conflict of interest, the managers are more likely to pursue their interests at the expense of shareholders (Connelly et al., 2010; Jensen & Meckling, 1976). Agency theory also suggests that some monitoring and interest alignment mechanisms can prevent managerial self-seeking behavior (Connelly et al., 2010; Jensen & Meckling, 1976; Yusuf et al., 2018).

Agency theory is related to this study and the research questions because it provides a possible explanation for diversification's performance effects. As some authors have pointed out, the reason that dominates the diversification decision influences diversification's performance effects (Basu, 2010; Dey & Banerjee, 2019). If agency considerations dominate, diversification will more likely produce negative results (Dey & Banerjee, 2019). RQ3 and RQ4 deal with how insider ownership relates to the performance effects of diversification. These questions stemmed from agency theory. The theory would suggest that increased insider ownership will result in the alignment of managers' interests with that of shareholders and lead to decisions that are likely to be more value-creating (Yusuf et al., 2018).

Institution-Based Theory

Peng et al. (2009) credited the introduction of institutionalism—the idea that institutions matter—into the economic realm to economists such as North (1990). However, researchers have credited the label of *the institution-based view* and its introduction into the business strategy field to Mike Peng (see Peng, 2014; Peng et al., 2009). The basic idea of this theory is that the institutional framework in countries influences the strategic choices made by firms and their outcomes (Cuervo-Cazurra et al., 2019; Duran et al., 2019; Elango et al., 2019; Elango & Dhandapani, 2020; Finchelstein, 2017; Meyer & Peng, 2016; Murithi et al., 2020). This theory is related to this study because it may explain why diversified firms in Nigeria may outperform their focused counterparts, contrary to evidence in developed countries. I based RQ1 and RQ2 on this theory.

Nature of the Study

I used the quantitative research approach in this study because it is most appropriate for examining the relationship between variables (Bloomfield & Fisher, 2019; Field, 2017; Queiros et al., 2017; Rutberg & Bouikidis, 2018; Seeram, 2019). Many similar studies have used this approach (Hoechle et al., 2012; Tsai et al., 2011). Researchers have identified some research designs, each with variants: experimental designs, quasi-experimental, and nonexperimental or correlational design (Asenahabi et al., 2019; Bloomfield & Fisher, 2019; Queiros et al., 2017). For this research, I employed the panel (longitudinal) design variant of the nonexperimental (correlational) design (Seeram, 2019; Wang et al., 2017; Field, 2017).

Three factors informed my choice of this design. First, firms (the unit of analysis) are naturally formed groups (Field, 2017), which rules out randomization and experimental designs that require the random assignment of the units of analysis into experimental and control groups as a way of controlling for other variables that may confound the observed relationship (Bloomfield & Fisher, 2019; Field, 2017; Wang et al., 2017). Second, pretesting was not possible as I had no control over the independent variables—regarding when and to whom to introduce them—to test before and after their introduction to the groups. The nonexperimental design is suitable where the researcher lacks control over the independent variables (Bloomfield & Fisher, 2019; Field, 2017; Queiros et al., 2017). Third, because the variables in this study and the relationship between them change over time, I needed a design that captured these variations. Panel design enabled me to capture these changes by examining these variables from 2008 to 2018 (Field, 2017; Ployhart & Vandenberg, 2010; Wang et al., 2017; West, 2009).

The independent variables were diversification status, level of diversification, and insider ownership; the dependent variable was firm performance. The control variables were firm size, leverage, blockholding, and board independence. Researchers have found these variables to be multidimensional constructs. Consequently, as has been proposed by some authors (e.g., Hoskisson et al., 1993; Sambharya, 2000), I employed multiple measures of firm performance. The data I had did not permit me to operationalize multiple constructs of the other variables.

For this study, I collected data on companies listed on the NSE. I did this by reviewing and extracting the data necessary to operationalize the variables from these companies' annual reports and financial statements. I also collected data from NSE publications, such as the NSE FactBook. These sources of data were publicly available. I used the Statistical Package for the Social Sciences (SPSS), Version 25, to analyze the data. Specifically, I used the linear mixed model (LMM) to test the hypotheses.

Definitions

I operationalized four main variables in this study. These were level of diversification, diversification status, insider ownership, and firm performance. Level of diversification, diversification status, and insider ownership were the independent variables; firm performance was the dependent variable. Below, I define these variables and other constructs and unique terminologies in this study. A more detailed explanation of the variables is presented in the literature review section and Chapter 3.

Approximate Tobin's q (ATQ): An approximation of Tobin's Q that Chung and Pruitt (1994) and measured as the market value of common shares plus total liabilities divided by total assets (Hyland & Diltz, 2002; Villalonga, 2004).

Blockholding: The shareholding in which people own a significant percentage of a firm's shares (Edmans & Holderness, 2017).

Board independence: The board members' ability to exercise independent judgment (Bradley & Chen, 2015).

Diversification discount: The loss of value arising from the act of diversification (Berger & Ofek, 1995; Feldman & McGrath, 2016; Kuppuswamy et al., 2014; Lang & Stulz, 1994).

Diversification premium: The gain in value arising from the act of diversification (Berger & Ofek, 1995; Lang & Stulz, 1994).

Diversification status: The category in which a firm falls when classified as undiversified or as diversified. I classified a firm as undiversified if it operates in only one industry measured at the 2-digit SIC code level (Basu, 2010) and as diversified firms if they operate in two or more industries measured at the 2-digit SIC code level (Basu, 2010; Pratyaksa et al., 2015; Servaes, 1996). I used *undiversified firm (UDF), focused firm, single segment firm, single business firm, single industry firm,* and *standalone firm* interchangeably in this study. Likewise, I used *diversified firm (DF), multisegment firm, multibusiness firm, multi-industry firm, multiproduct firm,* and *conglomerate* interchangeably (see Wentland, 2020).

Emerging markets: Countries with features such as lower levels of development measured by such indexes as the gross domestic product (GDP) and gross national income (GNI), the transition toward free-market systems, and weak exchange facilitating institutions (Gao et al., 2017; Khanna & Palepu, 1997; Rottig, 2016). In this study, I used the terms *developing country, less developed country,* and *underdeveloped country* interchangeably with *emerging market*.

Excess value (EV): A measure of performance developed by Berger and Ofek (1995) and Lang and Stulz (1994) used to measure the difference between the value of the DFs and an estimate of what its value would have been had its segments operated as standalone firms.

Firm diversification: Classified generally into *industrial* and *geographical*. Industrial or product diversification is the act of a business entering into or having operations in two or more different product or service industries at the same time (Jafarinejad et al., 2018; Lohwasser et al., 2019; Maksimovic & Philips, 2013; Patrisia et al., 2019; Ramanujam & Varadarajan, 1989; Schommer et al., 2019; Su & Tsang, 2015). Geographical diversification is the act of a firm entering or operating in geographically separated regions such as beyond the borders of a country, with the same or different products (Eukeria & Favourate, 2014; Jafarinejad et al., 2018; Subramaniam & Wasiuzzaman, 2019). I used *firm diversification*, *corporate diversification*, *conglomeration*, and *business or corporate groups* interchangeably (Cheng, 2017). I also used *product*, *industrial*, or *activity* diversification interchangeably.

Firm performance: How well a firm does over a period, given its goals and objectives (Richard et al., 2009). I operationalized firm performance by ROE and ATQ (Chung & Pruitt, 1994).

Firm size: The magnitude of a firm's resources and output (Niresh & Velnampy, 2014).

Industry: Researchers have usually defined industry at the 1-digit, 2-digit, 3-digit, 4-digit, or 5-digit SIC code levels. I used industry, segment, industry segment, line of business, and activity interchangeably in this study. If industry is defined at the 2-digit SIC code level, all products with the same 2-digit SIC codes belong to the same industry (Villalonga, 2004)

Insider ownership: Ownership in which people have access to firm-specific information that is not available to other investors and that can influence firm decisions (Connelly et al., 2010; Kim & Lu, 2011). Such people include the directors (both executive and nonexecutive directors) and the firm's top officers (Muller-Kahle, 2015).

Level/degree of diversification: The extent to which the firm is engaged in different activities and the distribution of the firm's output (measured, for example, by sales, assets, or profit) across the various activities/industries/businesses/segments in which the company is operating (Wiersema & Beck, 2017).

Leverage: The use of debt in a firm's capital structure (Dao & Ta, 2020; Li et al., 2019).

Related and *unrelated diversification*: *Related diversification* refers to operating in two or more industries that are related; *unrelated diversification* refers to operations in two or more industries that are not related (Chen & Keung, 2018; Li et al., 2020; Neffke & Henning, 2013; Nguyen, 2018; Patrisia et al., 2019; Wiersema & Beck, 2017). The measure of relatedness is usually subjective (Neffke & Henning, 2013) but reflects such factors as product knowledge, manufacturing, and marketing capabilities (Lohwasser et al., 2019; Nguyen, 2018; Wiersema & Beck, 2017). However, diversification into a 4-digit industry within a 2-digit industry would be more related than diversification into another 2-digit industry (Aivazian et al., 2019; Chen & Yu, 2012; Pangboonyanon & Kalasin, 2018). In this research, I used *unrelated diversification* interchangeably with *conglomerate diversification* (see also Nguyen, 2018).

Return on equity (ROE): Earnings after tax divided by total equity. Previous researchers have also used this measure (e.g., Adamu et al., 2011).

Standard industrial classification (SIC) codes: Internationally accepted codes prescribed by the Department of International Economic and Social Affairs of the United Nations for classifying all economic activities (United Nations, 2008). The code consists of five digits with the first, second, third, fourth, and fifth digits signifying the major division, the division, major group, group, and subgroup, respectively. For example, according to the United Nations (2008), the SIC code 30141 would have the following meaning: the first digit is major division, and 3 is manufacturing; the second digit is division, and 0 is manufacturer of food products, beverages, and tobacco products; the third digit is major group, and 1 is production, processing, and preservation of meat, fish, fruit, vegetables, oils, and fats; the fourth digit is group, and 4 is manufacturer of vegetables and animal oils and fats; and the fifth digit is subgroup, and 5 is manufacturer of crude oil and oilseed cake.

Assumptions

I made the following assumptions in this study. The secondary data I used were accurate and measured what I intended. I made this assumption because I had no control over the financial reporting of firms and could not guarantee their accuracy. I assumed the firms used in the analysis were representative of the firms in the market. It was not possible to include all the companies in the country, but I would like to generalize the results as much as possible. An assumption was made that SIC codes correctly allocate different economic activities into different industries. This assumption arises because some researchers have raised concern with the ability of SIC codes to adequately capture the relatedness between activities (see Nigam & Gupta, 2018, 2020). I assumed the theoretical framework was appropriate to examine the performance effects of diversification and its relationship with insider equity ownership. There are other theoretical explanations of the performance effects of diversification, which I identify in Chapter 2.

The assumption was made that the control variables I introduced in the analysis captured the effect of variables other than the independent variables on the estimated relationships in this study. This assumption arises because there could be other confounding variables that I could not include in this research. Although there are multiple stakeholders with conflicting interests measured differently in a firm, the performance measures that I used in this study assumed that the shareholders are the most critical stakeholders in a firm and that their interests should be primary. Shareholders are key but not the only stakeholders in a firm (Barney, 2020). The performance measures I used in this study were assumed to have measured what the firm aimed at achieving as related to the shareholders. Shareholders may have other goals that these measures did not capture.

Scope and Delimitations

In this study, I was interested in comparing the performance of DFs with that of focused firms and examining how the level of insider ownership can explain the D–P relationship in Nigeria. I chose Nigeria for this study because, as I explain in Chapter 2, the country provides an emerging market context for verifying some of the results on the

D–P relationship that researchers have obtained in developed countries. This choice was necessary because researchers increasingly recognize that diversification's performance effect is context-specific (Benito-Osorio et al., 2012; Erdorf et al., 2013).

In this study, I covered only firms listed on the NSE between 2008 and 2018. This decision was to ensure the availability of reliable data. Listed companies in Nigeria are required to publish their audited annual reports and financial statements. Obtaining reliable data from unlisted companies in Nigeria is difficult (Adamu et al., 2011). I chose the period covered in this study to ensure the results would reflect the country's current situation because segment reporting requirements took effect in 2008.

Many theories have been used to explain firm diversification and the performance consequences of diversification (Erdorf et al., 2013; Fox & Hamilton, 1994; Montgomery, 1994). In this study, my focus was on agency theory and institution-based theory (IBT). Even with agency theory, my focus was on the use of insider ownership to mitigate agency problems in corporations and how this affects diversification's performance consequences. With IBT, my focus was on how the results obtained in Nigeria—an institutionally weak country—differ from those obtained in developed countries with better-developed institutions.

Diversification is a multidimensional construct (Ahuja & Novelli, 2017; Pitts & Hopkins, 1982; Varadarajan & Ramanujam, 1987); firm performance is as well (Butler et al., 2012; Richard et al., 2009). Covering all their dimensions in this study was impossible. Therefore, I was not concerned with geographical diversification. The focus was on product/industry/activity diversification and, more specifically, on unrelated diversification. For firm performance, I focused on financial measures of performance and specifically on ROE, ATQ, and EV. Before generalizing the results of the study, it is necessary to take cognizance of its scope.

Limitations

As I detail in Chapter 5, this study was limited in some ways. In the first place, the study imbibed the biases and shortcomings of its secondary data sources. I tried to ensure data reliability by restricting the study to companies listed on the NSE. These companies are legally required to publish annual reports and financial statements that give an accurate and fair view of the company's operations for the reporting period.

Because of noncompliance with reporting requirements, data to operationalize some variables for some years were missing for some companies. I tried to mitigate the problem of missing data by searching widely for publicly available and reliable information. This strategy reduced the cases of missing data. I also employed the LMM analytical technique that accommodated missing data cases better than conventional methods such as analysis of variance (ANOVA) or standard regression procedures.

Segment reporting in Nigeria is still in its initial stages. Levels of aggregation of activities varied from company to company and were, in many cases, less informative. This problem limited the value of interfirm comparison of reported segment information (Hund et al., 2019). It made it impossible for me to operationalize some of the diversification and performance constructs I would have used for construct validity. I addressed this limitation by narrowing down the study to specific constructs as some authors have suggested (Hoskisson et al., 1993; Sambharya, 2000)—constructs the validity of which has been attested to by some experts (Hoskisson et al., 1993).

I excluded nonfinancial firms and private firms from this study. Therefore, the results are generalizable to these firms only to the extent that the sample firms are representative of them. I also did not use randomization to control for competing explanations of the observed relationships. This limitation makes causal inferences less convincing. However, I employed statistical techniques and controlled some variables to capture the confounding effects of other variables that offer competing explanations.

Significance of the Study

I conducted this study against the background that there has been no consensus on the performance effects of diversification and how this is related to insider ownership. In Nigeria's case, little is known about these issues due to the dearth of research in this area that has used data on firms operating in Nigeria with its peculiar institutional issues. This study, therefore, makes valuable contributions to theory, practice, and positive social change.

Significance to Theory

This study contributes to the literature on the performance effects of diversification in developing countries whose institutional contexts are different from those of developed countries (Lee et al., 2008; Khanna & Palepu, 1997). The performance effects of diversification have been underresearched in developing countries (Chen & Yu, 2012; Grigorieva, 2020; Grigorieva & Gorbatov, 2015). This study is the first in which the relationship between insider ownership and the performance effects of diversification in Nigeria was examined. Being the most populous and largest economy in Africa, Nigeria is essential for understanding Africa's corporate diversification issues.

In this study, I investigated insider ownership of DFs that have outperformed UDFs and those that have underperformed. This investigation was to see if the level of insider ownership or any other factors account for the difference in the performance of DFs, as some authors have suggested (e.g., Basu, 2010; Erdorf et al., 2013; Guerras-Martín et al., 2020; Hund et al., 2019). This approach was in recognition of the fact that diversification could either create or destroy value (Ahn, 2009; Andrés et al., 2017a; Basu, 2010; Hund et al., 2019). The approach is unlike previous researchers, such as Denis et al. (1997), who proceeded from the wrong premise that diversification is ex ante value destroying (Singh et al., 2004).

My approach is similar to that of Singh et al. (2004). However, Singh et al. focused on U.S. firms, whereas my focus in this study was on Nigeria, which has an institutional context different from that of the United States. Moreover, Singh et al. looked at the difference in the number of diversification gainers and losers in low and high insider ownership firms and not the difference in the diversification gains and losses among these groups of low and high insider ownership firms. I extended the analysis by examining the difference in diversification gains and losses among these low and high insider ownership firms and how insider ownership is related to the diversification gains and losses. The approach is also different from others that have treated DFs as a homogenous group, overlooking some significant differences within the group of DFs that explain their performance (Ahn, 2009; Basu, 2010; Hund et al., 2019; Kuppuswany

& Villalonga, 2016). None of the previous authors in Nigeria has done this kind of analysis.

I also took into consideration the fact that the variables that affect firm performance change over time and between firms. This approach is unlike that of previous authors who have used data on Nigerian firms but assumed a static firm diversification status, level of diversification, ownership structure, and institutions (e.g., Adamu et al., 2011; Mac-Ozigbo & Daniel, 2020; Oladimeji & Udosen, 2019; Oyedijo, 2012). These authors relied on cross-sectional or pooled panel data (e.g., Mac-Ozigbo & Daniel, 2020; Oladimeji & Udosen, 2019; Oyedijo, 2012; Patrick, 2012). These analytical techniques ignore the within- and between-group variations in these variables over time (Benito-Osorio et al., 2012; Erdorf et al., 2013).

This study is the first D–P relationship study in Nigeria in which a researcher used SIC codes to classify firm activities and identify firms as diversified or undiversified. Previous authors who have used Nigerian firm data relied on responses to questionnaires to classify firms (e.g., Mac-Ozigbo & Daniel, 2020; Oladimeji & Udosen, 2019; Oyedijo, 2012; Patrick, 2012). Such responses are highly idiosyncratic (Papadakis & Thanos, 2010) and make interfirm comparison unreliable.

Significance to Practice

The results of this study will be helpful to corporate managers who may be considering various growth strategies to adopt in their dynamic environment. The results may point to the extent to which corporate diversification is a beneficial strategy in

Nigeria. Benito-Osorio et al. (2012) noted that appropriate strategic action in a particular country or period may not be suitable for another (see also Selçuk, 2015).

The results of this study are also helpful to policymakers concerned with corporate governance issues. The results may point to the extent to which insider ownership is useful as a corporate governance mechanism. As some authors have noted, researchers and practitioners increasingly recognize ownership as a form of corporate governance (Connelly et al., 2010; Muller-Kahle, 2015). Two central regulatory authorities in Nigeria—the Central Bank of Nigeria and the Securities and Exchange Commission (SEC)—encourage insider ownership as a suitable corporate governance mechanism in their codes of corporate governance (see Central Bank of Nigeria, 2006, para. 5.1.1; SEC, 2011).

This study is also relevant for corporate governance policies aimed at increasing the quality of financial reporting. Chakrabarty (2015) found that unrelated diversification increases the probability of fraudulent reporting. Although I did not examine the probability of fraudulent reporting, I found that most of my sample firms were DFs. Given Chakrabarty's finding and my finding of a preponderance of DFs, there is the need to be alert to the increased possibilities of higher rates of fraudulent reporting to develop timely and adequate control measures.

From an institution-based view of diversification, a prevalence of highly DFs might signal failures in market-supporting institutions. These failures require various forms of reform that will improve markets' functioning, thereby improving social welfare (Benito-Osorio et al., 2015; Benito-Osorio et al., 2012; Elango & Lahiri, 2014; Staglianò et al., 2013). My finding that more firms in the sample were diversified points to the possibility of some institutional failures in the Nigerian system that managers who adopt the diversification strategy hope to overcome within a DF structure. Identifying these failures and appropriate reforms to fix them will lead to an overall improvement in the economy.

The results of the study also point to the need for improved segment reporting by firms in Nigeria. Presently, reported segment data reflect the chief decision maker's discretion on levels of activity aggregation. It is not based on any standard aggregation parameter that will make an interfirm comparison of reported segment data more informative. Regulatory bodies need to provide standard codes for activity aggregation and segment reporting and enforce compliance.

Significance to Social Change

This study also has some implications for positive social change because of its relevance for economic growth. Suppose it is found that a particular strategy contributes to sustainable performance improvement. In that case it may be a suitable policy objective to encourage such for the greater good of society regarding jobs and innovative products and services (Kritikos, 2014). Various authors have shown how firm diversification can improve economic efficiency and productivity of countries and translate to improved social well-being (e.g., Aivazian et al., 2019; Cincera & Ravet, 2014; Cole & Karl, 2016; Lichtenberg, 1992). This study contributes to positive social change by providing information that managers and policymakers could use to improve corporate strategy and governance, contributing to improved firm performance, growth, and survival into the future. Firm survival, improved performance, and growth will ensure that firms continue to create jobs and innovative products and services on which the society depends.

In this study, contrary to the predictions of institution-based and agency theories, I found that in Nigeria, diversification is not associated with better firm performance, and insider ownership is not significantly related to the performance effects of diversification. Therefore, companies in Nigeria may improve performance by not focusing on whether to diversify or not. It does not make any significant difference in performance. They could improve performance by focusing on monitoring mechanisms such as blockholding and leverage, which I found to be significantly associated with firm performance. With improved performance, firms can better attract resources and investors to guarantee their survival in the future and contribute to society in various ways.

Investors can increase their returns and economic well-being by investing in firms that have significant blockholding and leverage. I found these monitoring governance mechanisms to be positively associated with ATQ. On the other hand, investors can also improve their returns by selling their holdings in firms with no significant blockholding and leverage. The pressure on such firms’ stock prices may force the managers to take corrective actions to improve resource allocation efficiency.

Summary and Transition

In this chapter, I argued that firms contribute meaningfully to society in various ways. This contribution points to the need for strategies and policies that would ensure their survival, growth, and improved performance, especially considering the evidence of low survival and persistent high-performance rates. I showed that despite the importance and preponderance of DFs worldwide, the D–P relationship and how it is moderated by insider ownership remain a puzzle. I also indicated that little is known about the D–P relationship in Nigeria and how it is affected by insider ownership. This problem is partly due to the dearth of research conducted using data on Nigerian firms to address this puzzle. Due to institutional differences, the studies conducted elsewhere have not shed much light on the puzzle in Nigeria’s case. This gap necessitated this quantitative study that contributes to the literature on the D–P relationship in developing countries and to the formulation of effective corporate strategies and governance policies. This study also has implications for positive social change.

To elaborate on the need for this study, I present a more detailed review of the D–P literature in Chapter 2. The aim was to further highlight the gap that still exists. In Chapter 3, I discuss the methodology used to collect and analyze data to test the hypotheses stated in this chapter.

Chapter 2: Literature Review

Many researchers have found that, on average, DFs underperform UDFs (Borah et al., 2018; Lee & Hooy, 2018a; Liu et al., 2018; Sturm & Nüesch, 2019). Borah et al. (2018) estimated a diversification discount that is higher for high-technology firms (26.59%) than low-technology firms (7.46%). Mitton (2012) estimated an average loss in annual sales of $3.3 million for an average-sized firm by adding one more segment. Despite the diversification discount, many firms continue to diversify (Gopal et al., 2021).

The general problem addressed in this study is that the D–P relationship, which remains a puzzle, is a primary managerial and public policy concern (Ahuja & Novelli, 2017; Altieri & Nicodano, 2019; Bhatia & Thakur, 2018; Erdorf et al., 2013; Grigorieva, 2020; Jara-Bertin et al., 2015b; Schommer et al., 2019). The specific problem is how insider ownership is related to the performance effects of diversification in Nigeria. Hoechle et al. (2012) explained the underperformance of DFs by inadequate corporate governance mechanisms such as low insider ownership. Because of the dearth of studies in which researchers have used Nigerian firm data to address these problems, little is known about these relationships in the Nigerian context.

The purpose of this quantitative study was to examine the relationship between firm diversification and firm performance and the relationship between insider ownership and the performance effects of diversification in Nigeria. There is a consensus that the D–P relationship remains a puzzle that requires further studies to resolve (Ahuja & Novelli, 2017; Altieri & Nicodano, 2019; Benito-Osorio et al., 2012; Bhatia & Thakur, 2018;

Erdorf et al., 2013; Jara-Bertin et al., 2015b; Schommer et al., 2019). There is also a consensus that examination of the D–P relationship in different institutional contexts is a way forward to resolving the puzzle (e.g., Ahuja & Novelli, 2017; Benito-Osorio et al., 2012; Erdorf et al., 2013; Grigorieva, 2020; Qiu, 2014).

Some authors have suggested moving beyond the relationship to examining the factors it depends on (Ahuja & Novelli, 2017; Martinez-Campillo, 2016; Schommer et al., 2019). Erdorf et al. (2013) suggested the analysis of factors that differentiate between DFs that have outperformed and those that have underperformed as a way to better understand the D–P relationship. One of these factors is the agency problem arising from the insider ownership level (Selçuk, 2015). As Jara-Bertin et al. (2015a, 2015b) have posited, whether diversification discount exists and whether it is related to agency problems remains unclear.

In this chapter, I present the strategy used to search the literature for this study and the theoretical foundation that guided the study. After these, I review the literature on the variables I used in this study and their relationship. I also review Nigeria's institutional context and the Nigeria-specific literature. Finally, I summarize the chapter.

Literature Search Strategy

I searched the literature on the D–P relationship using the Walden University Library research databases and other libraries I have access to. Databases searched included EBSCOhost Business Source Complete, ProQuest ABI/INFORM Complete, ProQuest Central, Elsevier SD Business Management and Accounting, LexisNexis Academic, Gale Cengage Expanded Academic ASAP, Sage Premier 2013, Emerald

Management 200, Annual Reviews, DOAJ Directory of Open Access Journals, and Free E-Journals. I also searched the Social Science Research Network (SSRN) and Google Scholar.

The keywords I used to search were *diversification, conglomeration, firm performance, ownership structure, corporate governance, leverage, blockholding,* and *ownership concentration*. However, given that there are articles that would use words like *diversified*, I followed Schommer et al. (2019) and searched for *diversif**, *conglomerat**, and *perform**. Using *diversif** turned out more articles than *diversification*. Some of the articles dealt with workforce diversity and portfolio diversification. These were not of interest in this study and, therefore, not considered.

When I started the literature search in preparation for this study in February 2014, I specified the period 2009 to 2014. However, I set up a Google Scholar alert with the above keywords, which alerted me to any new scholarly article on these keywords and enabled me to update my reading list with the most current literature in the area. I also looked at the articles' reference lists for relevant works that my search strategy may not have picked up, especially the seminal works in the area.

Theoretical Foundation

Two theories formed the theoretical foundation of this research: agency theory and IBT. These theories help understand how diversification could affect firm performance and how insider ownership may relate to diversification's performance effects.

Agency Theory

Some authors credit the development of agency theory to Jensen and Meckling (1976). However, Mitnick (2019a, 2019b) has argued that despite Jensen and Meckling (1976) having been widely cited and greatly influential in this area, its citation as the original paper on this theory is inaccurate. According to Mitnick, this is because there had been published works on agency theory by such scholars as Stephen Ross and Barry Mitnick (see also Panda & Leepsa, 2017)

Agency theory is based on the assumption that the principal economic participants in a corporation (the owners and managers) are risk-averse individuals who aim at maximizing their utilities (Connelly et al., 2010; Castañer & Kavadis, 2013; Lacoste et al., 2010; Schillemans & Bjurstrøm, 2020; Yusuf et al., 2018). The managers of these corporations are usually not the owners or, at best, own only a proportion of the shares; have motivations that are different from those of the owners; and do not bear the total cost of their decisions (Connelly et al., 2010; Jensen & Meckling, 1976; Lacoste et al., 2010; Pande & Ansari, 2014; Rashid, 2015; Yusuf et al., 2018). The owners' and managers' divergent motivations may lead to a conflict of interest in decision making (Bendickson et al., 2016; Jensen & Meckling, 1976; Rashid, 2015; Schillemans & Bjurstrøm, 2020; Yusuf et al., 2018).

Agency theory predicts that when there is such conflict of interest, the managers will likely pursue their interests even when shareholder value destroying (Bendickson et al., 2016; Jensen & Meckling, 1976; Schillemans & Bjurstrøm, 2020; Yusuf et al., 2018). Agency theorists, therefore, prescribe two types of corporate governance mechanisms to prevent managers from such opportunistic behavior: interest alignment and controlling/monitoring mechanisms (Davis et al., 1997; Panda & Leepsa, 2017; Pande & Ansari, 2014; Rashid, 2015; Schillemans & Bjurstrøm, 2020; Yusuf et al., 2018). Interest alignment mechanisms are aimed at aligning managerial interest with that of the shareholders and include managerial equity ownership and performance-based executive compensation schemes (Davis et al., 1997; Panda & Leepsa, 2017; Pande & Ansari, 2014; Schillemans & Bjurstrøm, 2020; Yusuf et al., 2018). Controlling (monitoring) mechanisms such as independent boards, blockholding, and increased leverage aim to control managers' self-serving behavior (Davis et al., 1997; Panda & Leepsa, 2017; Pande & Ansari, 2014; Rashid, 2015; Yusuf et al., 2018).

Denis et al. (1997) used this theory to explain firms' continued diversification even in the face of underperformance of DFs relative to their focused counterparts. Denis et al. (1997) put forward an "agency cost hypothesis" (p. 135) of firm diversification and argued that managers derive personal benefits that are greater than their costs from the diversification strategy. Managers, therefore, have the incentive to continue diversifying, even if it is shareholder value destroying, except if checked by such control mechanisms as block share purchases.

On the basis of agency theory, Denis et al. (1997) predicted that as managers' ownership in a firm increases, they bear more of the costs of their value-destroying diversification decisions. Therefore, managers would be less likely to make such decisions (see also Lin et al., 2014). Denis et al. (1997) also predicted that managers would reduce value-destroying diversification only if pressured by some governance structures. Agency theory was also the theoretical basis of studies conducted by Anderson et al. (2000), Hoechle et al. (2012), and Lien and Li (2013).

Agency theory suggests that diversification is a strategy motivated by managerial self-interest and will not likely create value. Consequently, DFs would be expected to underperform focused firms. DFs with inadequate corporate governance structures would also be expected to underperform those with adequate corporate governance structures. Some authors consider low managerial equity ownership, less block/concentrated shareholding, less independent boards, and low leverage as inadequate corporate governance structures (Denis et al., 1997; Hoechle et al., 2012).

Institution-Based Theory

The idea that institutions matter has been rooted in economics and sociology since the last decades of the 19th century (Garrido et al., 2014; Meyer & Peng, 2016; Peng et al., 2009; Puffer et al., 2015; Rottig, 2016). Douglas North pioneered the theory's recent development in the broader economic realm with his 1990 work "Institutions, Institutional Change, and Economic Performance" (Peng, 2014; Peng et al., 2009). However, Peng et al. (2009) has credited the institution-based view's label and its introduction into the business strategy realm to Mike Peng (Garrido et al., 2014; Peng, 2014). Many other authors, such as Tarun Khanna and Krishna Palepu, have also made valuable contributions in this area, especially with their 1997 work titled "Why Focused Strategy May Be Wrong for Emerging Markets" (Khanna & Palepu, 1997, p. 41).

The basic assumption in IBT is that different countries and stages of development present different formal and informal institutional contexts, and firms dynamically interact with these institutions (Elango & Lahiri, 2014; Garrido et al., 2014; Meyer & Peng, 2016; Murithi et al., 2020; Peng, 2014; Peng et al., 2009; Rottig, 2016). The theory makes two predictions. The first is that the dynamic interaction of firms with these institutions shape the strategic choices managers and firms make and the outcomes of such choices (Cuervo-Cazurra et al., 2019; Duran et al., 2019; Elango et al., 2019; Elango & Dhandapani, 2020; Elango & Lahiri, 2014; Finchelstein, 2017; Garrido et al., 2014; Peng et al., 2009; Meyer & Peng, 2016; Murithi et al., 2020; Rottig, 2016). Therefore, a strategy would not be expected to perform similarly in all contexts and periods. The second prediction is that the lack of clarity or failure of formal institutions make the informal institutions play a more significant role in reducing uncertainty, providing direction, determining legitimacy, and how managers and firms are rewarded (Chowdhury et al., 2019; Meyer & Peng, 2016; Murithi et al., 2020; Peng et al., 2009).

Lee et al. (2008), Kuppuswamy et al. (2014), Lien and Li (2013), Lohwasser et al. (2019), and Berry-Stölzle et al. (2013), among others, have used this theory to explain performance differences in DFs across countries and over time. Kuppuswamy et al. and Berry-Stölzle et al. found that DFs performed better in institutionally weak environments. Lee et al. (2008) found that as the economy and its institutions developed, a diversification strategy tended to move from a value-creating strategy to a value-destroying one. On the basis of this theory, a diversification strategy in developing countries such as Nigeria would be expected to be a value-creating strategy, and DFs in Nigeria would be expected to outperform their focused counterparts (Khanna & Palepu, 1997; Kuppuswamy et al., 2014).

Literature Review

In this section, I review the literature as it relates to the variables in this study. I review the literature relating to the conceptualization and measurement of firm diversification, and some of the theories researchers have used to explain it. I also review the literature on the conceptualization and measurement of firm performance, insider ownership in the context of agency theory and corporate governance, and on the control variables—namely, firm size, leverage, blockholding, and board independence. Following these, I review the literature on the relationship between diversification and firm performance, insider ownership and the performance effects of firm diversification, and Nigeria as an emerging market. I also review the literature on the D–P relationship specific to Nigerian firms and finally summarize the chapter.

Meaning and Measurement of Firm Diversification

The conceptualization, definition, and measurement of *diversification* seem to have varied a great deal (Garcia et al., 2013; Ramanujam & Varadarajan, 1989; Wiersema & Beck, 2017). Various definitions have emphasized different things (Zechser, 2019). These include operating in or entry into new/different industries or markets (with or without new products) and the extent of involvement in each industry or market (Lahiri & Purkayastha, 2017; Lee & Hooy, 2018a; Ramanujam & Varadarajan, 1989; Santarelli & Tran, 2016; Sun & Govind, 2017; Wiersema & Beck, 2017; Zechser, 2019).

However, irrespective of the perspective adopted, the idea of dissimilarities in the activities, businesses/industries, or markets in which a firm is engaged seems to run through the definitions (Gort, 1962; Pitts & Hopkins, 1982; Santarelli & Tran, 2016;

Wiersema & Beck, 2017). Given the various conceptualizations of diversification, it becomes necessary that the measurement of diversification in any study should be clarified. The measurement should allow the use of available data and make interfirm comparison possible by ensuring consistency across firms (Zechser, 2019).

Depending on how researchers conceptualized and defined diversification, several approaches, varying in strengths and weaknesses, have been developed in the literature to measure diversification. According to Gort (1962), the measure will depend on the problem of interest. Researchers have measured diversification recognizing the different activities a firm is engaged in, each activity's contribution to the firm's output, the primary activity's contribution, and the extent to which the different activities of the firm are related (Gort, 1962; Pitts & Hopkins, 1982; Wiersema & Beck, 2017). Pitts and Hopkins (1982) identified two main approaches to measuring diversification, each with several variants. These include the business count approach and the strategic approach (Pitts & Hopkins, 1982; Wiersema & Beck, 2017).

Business Count Measures

Concerning the business count measure, researchers have identified several variants. These include the simple numerical count approach, comprehensive or composite indexes approaches (Pitts & Hopkins, 1982; Wiersema & Beck, 2017), and the discrete two-dimensional categorical diversification measure (Varadarajan & Ramanujam, 1987). The business count measures could also be discrete or continuous.

Simple Numerical Count. The simple numerical count approach is a discrete measure where the number of different industries in which a firm operates is employed to define diversification (Pitts & Hopkins, 1982; Ramanujam & Varadarajan, 1989; Wiersema & Beck, 2017). One system for defining industry is the SIC code system to define industry (Pitts & Hopkins, 1982; Ramanujam & Varadarajan, 1989). This measure has two variants. In one variant, researchers measure diversification as a dummy (categorical) variable to indicate the firm's diversification status. It may be measured to classify firms as diversified or undiversified, moderately diversified, or highly diversified (Oweis, 2012; Shen et al., 2018)

In the case of DF and UDF status, diversification may be measured as a dummy variable equal to 1 or 0. In this case, firms that operate in two or more industries are diversified and take the value of 1; those that operate in one industry are undiversified and take the value of 0 (Lee & Hooy, 2018a, 2018b; Mackey, Barney, & Dotson, 2017; Oweis, 2012; Shen et al., 2018). The industry may be defined at different levels using SIC codes – say at 2-digit, 3-digit, or 4-digit SIC code levels. Many authors have employed this measure (see Brahmana et al., 2019; Custódio, 2014; Kuppuswamy et al., 2014; Lawrey & Morris, 2019; Lee & Hooy, 2018a, 2018b; Liebenberg & Lin, 2019; Mackey et al., 2017; Nguyen et al., 2017; Sener & Akben-Selcuk, 2020; Sturm & Nüesch, 2019; Villalonga, 2004).

The second variant of the simple numerical count approach is to count the number of industries in which a firm is operating using industry classification codes such as SIC codes. Many authors have used this measure (see for instance Berger & Ofek, 1995; Custódio, 2014; Giachetti, 2012; Lang & Stulz, 1994; Lawrey & Morris, 2019; Lee & Hooy, 2018a, 2018b; Liebenberg & Lin, 2019; Murphy & Tocher, 2017; Shen et al., 2018; Sun & Govind, 2017). While the dummy variable (diversification status) measure does not consider the degree of diversification but only identifies whether diversification exists or not, the count of the number of industries identifies the degree/level of diversification (Oweis, 2012). The more the number of industries in which a firm operates, the higher its diversification (Wiersema & Beck, 2017). For the diversification dummy approach, there is no distinction between a firm that operates in two industries and another that operates in five industries.

Consequently, the diversification dummy is only appropriate if one is interested in assessing the effect of being diversified. It is not applicable when the interest is in the effect of being more or less diversified (Mackey et al., 2017; Oweis, 2012). If the interest is in the latter, the number of industries will be more appropriate (Gort, 1962; Oweis, 2012).

The simple business count approach has the advantage of reflecting the full extent of dissimilarity in the activity, businesses, or industries in which a firm is engaged (Pitts & Hopkins, 1982). The data for this measure are also more readily available (Pitts & Hopkins, 1982), and it does not require segment/business-level data (Lubatkin et al., 1993). However, it does not recognize the size differences of these activities and their contribution to the firm's total output (Berry, 1971; García et al., 2013; Lawrey & Morris, 2019; Pitts & Hopkins, 1982). It also says little about the relatedness of the various activities – relatedness of activities being at the heart of diversification definition (Nigam & Gupta, 2018, 2020). However, as Gort (1962) suggested, the number of industries is an appropriate measure if the interest is on the extent to which the firm is engaged in unrelated activities.

Comprehensive Index/Weighted Business Count Measure. This is a continuous measure of diversification. The approach calculates an index of diversification by weighting the contributions of each of the firm's activities with an assigned weight (Pitts & Hopkins, 1982), as follows:

$$D = \sum_{i=1}^{n} P_i W_i \tag{1}$$

Where D is the diversification index, P_i is the contribution of activity *i* to the firm output, W_i is the weight assigned to activity *i*, and *n* is the number of activities in which the firm is engaged.

In the comprehensive index measure, researchers typically assign weights in two ways. The first is to apply the Herfindahl Index of industrial concentration modified to represent the distribution of the firm's activities or businesses. A firm's activities are usually differentiated with SIC codes (García et al., 2013; Wiersema & Beck, 2017). The index is modified to increase with increasing diversification. The higher the index, the higher the diversification (Berry, 1971; De la Fuente & Velasco, 2015; Lawrey & Morris, 2019; Lee & Hooy, 2018b). This approach weights each activity's share by itself. Thus,

$$D_H = 1 - \sum_{i=1}^{n} P_i^2 \tag{2}$$

Where D_H is the diversification Herfindahl Index, P_i is the contribution of activity *i* to total firm output and *n* is the total number of activities. This approach has been employed in many studies (e.g., Berger &Ofek, 1995; Lang & Stulz, 1994; Lawrey & Morris, 2019; Lee, 2017; Liebenberg & Lin, 2019; Setianto, 2020; Villalonga, 2004; Wu & Chiang, 2019).

The Herfindahl Index approach has the advantage of reflecting all the activities of the firm and their contributions to the firm's output. It is also relatively easy to compute (García et al., 2013; Sambharya, 2000). However, has some limitations. It cannot be decomposed to indicate related and unrelated diversification (García et al., 2013; Sambharya, 2000). It also does not capture the relatedness of activities very well because it is based on the SIC codes. By using SIC codes, the researcher assumes that activities in the same SIC code have the same degree of relatedness. This assumption is not always realistic (Nigam & Gupta, 2018, 2020; Wiersema & Beck, 2017). Moreover, relatedness between two activities may come from factors other than common SIC codes, such as resources and markets (Nigam & Gupta, 2018, 2020).

The second weight assignment approach is the Entropy Index, D_E, in which researchers weight each activity's contribution, P_i, by the natural logarithm of its inverse, i.e., the natural logarithm of $1/P_i$. Thus,

$$D_E = 1 - \sum_{i=1}^{n} P_i log \frac{1}{P_i} \tag{3}$$

By using $log \frac{1}{P_i}$, larger activities get proportionally lesser weight (Pitts & Hopkins, 1982). As D_E approaches zero, the more focused the firm becomes. The advantage of the Entropy Index over the Herfindahl index is that it can be decomposed into an index for measuring related and unrelated diversification (García et al., 2013; Sambharya, 2000).

However, like the Herfindahl Index approach, the Entropy Index is also based on SIC codes which, as Nigam and Gupta (2018, 2020) have identified, does not capture activity relatedness adequately. Authors such as Custódio (2014), Ramaswamy et al. (2017), Sturm and Nüesch (2019), Sener and Akben-Selcuk (2020), Wu and Chiang (2019), and Zúñiga-Vicente et al., (2019), among others, have employed Entropy Index.

The problem with measures that are based on the contribution of different activities is that they are data-intensive, requiring data at the segment level. Therefore, it will be challenging to apply such measures in situations where segment reporting is not well-developed (Varadarajan & Ramanujam,1987). In many developing countries, segment reporting is still in its rudimentary stages, and there is hardly reliable information at the segment level (García et al., 2013; Jouida et al., 2017; Sambharya, 2000). Where segment information exists, interfirm segment data are hardly comparable due to differences in the definition and levels of aggregation of activities. However, as Gort (1962) suggested, the weighted business count measure is appropriate if the purpose is to determine the extent the firm depends on each of the activities.

Two-Dimensional Categorical Diversification Measure. Varadarajan and Ramanujam (1987) developed this measure to mitigate the data requirements of the comprehensive index measures and the strategic approach while still capturing the relatedness concerns of Rumelt (1982). In this approach, Varadarajan and Ramanujam distinguished two patterns of diversification: broad-spectrum diversification (BSD) and narrow spectrum diversification (NSD). BSD refers to the number of 2-digit SIC code industries that a firm operates in; NSD is the number of 4-digit SIC code industries that the firm is active.in.

The mean NSD (MNSD) is the average number of 4-digit SIC code industries in every 2-digit SIC industry that a firm operates in (García et al., 2013; Sambharya, 2000; Varadarajan & Ramanujam, 1987). In this approach, Varadarajan and Ramanujam (1987) conceived NSD as related diversification and BSD as unrelated diversification. Varadarajan and Ramanujam pointed out that this approach leads to a categorization of firms as High BSD-High MNSD, High BSD-Low MNSD, Low BSD-High-MNSD, and Low BSD-Low MNSD, similar to Rumelt's (1982) classification.

Chao et al. (2012) used the measure. The advantage of this measure is that it does not require extensive segment data that are usually not available, especially in developing countries. It also provides insights into the degree of diversification that is of concern to the proponents of the weighted business count approach and indicates the direction of diversification (related or unrelated) that is of interest to proponents of the strategic approaches (Chao et al., 2012; Varadarajan and Ramanujam, 1987). However, it relies on industry classification codes, with all its limitations, as identified by Rumelt (1982) and Nigam and Gupta (2018, 2020). Its validity and reliability are still questionable (García et al., 2013; Sambharya, 2000).

Strategic Approach

With this approach, researchers operationalize diversification by the logic underlying its development (Pitts & Hopkins, 1982). Rumelt (1982) criticized the business count measures on the ground of their failure to recognize the variations in the breadth of the SIC classes that are often used (see also Hauschild & zu Knyphausen-Aufseß, 2013; Nigam & Gupta, 2018, 2020). Another criticism is the implicit assumption that the dissimilarities between different SIC classes are equal (Nigam & Gupta, 2018, 2020). There are two major measures under the strategic approach: Rumelt's measure and the correlation-based diversification measure.

Rumelt's Measure. Against the criticisms, of the business count measures, Rumelt (1982) developed six major diversification categories, namely, single business, dominant vertical, dominant linked unrelated, related constrained, related linked, and unrelated business (p. 360). Rumelt based these classifications on specialization and relatedness ratios. The specialization ratio measures the contribution of a firm's largest activity to the total firm output; the relatedness ratio measures the extent to which activities are related in one form or the other, such as in the sharing of resources, technologies, or markets (Adamu et al., 2011; Varadarajan & Ramanujam, 1987). Adamu et al. (2011) and Yigit and Behram (2013), among others, used this approach

The weakness of the Rumelt's measure is that it is data-intensive, and data are not readily available in many countries. It is also highly subjective because it depends on a qualitative assessment of patterns of diversification and degree of relatedness (García et al., 2013; Nigam & Gupta, 2018, 2020; Sambharya, 2000; Varadarajan & Ramanujam, 1987). Consequently, there may be an almost unmanageable number of classes.

Correlation-Based Diversification (CBD) Measure. Because of the limitations of the business count measures, Nigam and Gupta (2018, 2020) developed the CBD measure of diversification. Nigam and Gupta argued that the measure captures the relatedness of activities more objectively than other measures such as Rumelt's. The measure allows researchers to decompose diversification into related and unrelated and further dividing related diversification into positively related diversification (PRD) and negatively related diversification (Nigam & Gupta, 2018, 2020). The idea behind PRD and negatively related diversification (NRD) is that two activities may be related based on a particular factor whose impact on the activities is not always in the same direction but could be positive or negative (Nigam & Gupta, 2018, 2020). Consequently, PRD and NRD could have divergent relationships with firm performance (Nigam & Gupta, 2018, 2020).

On the basis of the CBD measure, the total diversification (D_T) measure is calculated as follows (Nigam & Gupta, 2018, p. 5):

$$D_T = 1 - \left[\sum_{i=1}^{N} P_i^{\,2} + \sum_{\substack{i,j=1 \\ i<j}}^{N} 2 * P_i * P_j * cor_{ij} \right] \tag{4}$$

Where,

cor_{ij} = the correlation coefficient between the sales of a pair of the firm's products *i* and *j*, where $i \neq j$;

P_i = the proportion of total firm sale accounted for by product *i;*

N = total number of products of the firm.

To calculate PRD and NRD, the related diversification (D_R) needs to be calculated first (Nigam & Gupta, 2020). Doing so requires calculating the correlation between each pair of the firm's products first and then using this correlation as input for the diversification score (D_{ij}) for the pair of the firm's products (Nigam & Gupta, 2020). The diversification score is calculated as

$$D_{ij} = \{1 - [{P_i}^2 + {P_j}^2 + (2 * P_i * P_j * cor_{ij})]\}(P_i + P_j)^2 \quad (5)$$

Where,

cor_{ij} is the correlation coefficient between the sales of products i and j;

P_i and P_j are the proportions of sales of the pair of *i* and *j* that are accounted by products *i* and *j*, respectively.

Related diversification (D_R) is then calculated by summing the diversification score (D_{ij}) of each pair of the firm's products as follows:

$$\sum_{\substack{i=1\\j=1}}^{n} D_{ij} \quad (6)$$

where n is the number of pairs of products of the firm

PRD and NRD are calculated as the sum of D_{ij}'s of all pairs of products with positive and negative correlation coefficients, respectively. In contrast, unrelated diversification (D_U) is computed as the sum of D_{ij}'s of all pairs of products with no correlation (Nigam & Gupta, 2020). D_T is calculated by summing PRD, NRD, and D_U. Nigam and Gupta (2018, 2020) pointed out that D_T will range from 0 to 1; if the correlation coefficient between all products is 1, D_T = 0; if the correlation is negative, D_T will be higher, and the higher the D_T, the higher the level of diversification.

No researcher other than the developers (Nigam & Gupta, 2018, 2020) has employed the CBD measure. Researcher do not yet know much about the usefulness of this measure. However, the measure suffers from the same subjective judgment the developers accused the other measures of suffering because the definition of product and product groups is subjective. The measure also seems more tedious and data-intensive; it requires data at the product level to compute correlation coefficients and the diversification scores for each pair of products. This can run into many hundreds for multiple product firms. It is also impossible for new firms without history of sales to compute correlation coefficients for pairs of products.

In summary, the way researchers measure diversification depends on how they conceptualize it (Ramanujam & Varadarajan, 1989) and the purpose of its measurement (Gort, 1962; Pitts & Hopkins, 1982). Pitts and Hopkins (1982) recommend the use of business count when considering differences between groups of diversified and focused firms (see also Gort, 1962). They also recommended strategic approaches when the consideration is intergroup differences. On the basis of the finding of little support for the construct validity of the different diversification measures, Sambharya (2000) recommended the use of more than one measure of diversification to avoid spurious results.

It appears that the application of any measure will also depend on the availability of data. Rumelt (1982) acknowledged this when he pointed out that firms rarely give detailed reports that can permit some precision in measuring their specialization and related ratios (see also Pitts & Hopkins, 1982). Chao et al. (2012) cited the lack of most of the information necessary to operationalize the other diversification measures as their reason for using the BSD-MNSD approach.

Theories of Firm Diversification

Researchers proposed several theories explaining the motives for firm diversification (García et al., 2013; Lahiri & Purkayastha, 2017; Ljubownikow & Ang, 2020; Picone & Dagnino, 2016). However, Fox and Hamilton (1994) identified two major groups of these theories: the stewardship theory and agency theory. Whereas agency theories assume that managers pursue diversification strategy for personal benefits (Fox & Hamilton, 1994; García et al., 2013; Montgomery, 1994), the stewardship theories see diversification as an initiative with which managers aim at improving organizational performance (Fox & Hamilton, 1994).

Fox and Hamilton (1994) included under the stewardship theory such positive reasons as the achievement of economies of scale, growth, preservation of market power (García et al., 2013; Montgomery, 1994), risk reduction, and creation of ICMs. Fox and Hamilton classified negative reasons for diversification under agency theory. These reasons include increased managerial compensation, empire-building for power and prestige, entrenchment, and manager unemployment risk reduction (see also García et al., 2013; Montgomery, 1994). By integrating the Montgomery (1994), García et al. (2013), and the Fox and Hamilton’s views, I summarize the motives for firm diversification into six theories: market power theory, defensive diversification theory, debt coinsurance theory, excess capacity in resource theory, internal markets theory, and agency theory.

The question of why firms diversify is of interest for the D–P relationship. The reason is that, to some extent, the result from the diversification initiative will depend on the motive that dominates the diversification decision (Ahuja & Novelli, 2017; Basu, 2010; Dey & Banerjee, 2019; López-Zapata et al., 2019). If agency considerations dominate, diversification will more likely produce negative results (Dey & Banerjee, 2019; López-Zapata et al., 2019; Staglianò et al., 2013; Taĝ, 2017). The results will be more positive if stewardship motives are dominant (Dey & Banerjee, 2019). Given the lack of consensus on effects, of diversification on performance, it is hard to say which motive dominates the diversification decision. I address these hypotheses in the following sections.

Market Power Hypothesis

This hypothesis posits that the conglomerate's size is a source of power that enables the DFs to withstand and suppress competition through predatory pricing practices (Cheng, 2017; Khanna & Yafeh, 2015). The cross-subsidization of different businesses with profits from more profitable units facilitates predatory pricing (Montgomery, 1994). For big firms as diversified companies (Hund et al., 2013), another source of market power is that the practices of such firms tend to be cooperative rather than competitive with each other but aimed at squeezing out smaller firms (Cheng, 2017; Khanna & Yafeh, 2015; Montgomery, 1994).

The collaborative practices (mutual forbearance) that reduce competition and improve firm performance is the case for firms with multimarket contacts such as DFs (Degl'Innocenti et al., 2014). However, Chuang et al. (2018) found evidence supporting an inverted U-shaped relationship between multimarket contacts and firm performance in their analysis of 233 global semiconductor firms competing in 52 market segments in the period 2000 to 2009. Chuang et al.'s explanation for this relationship is that the development of mutual forbearance between rival firms with multimarket contacts depends on the level of multimarket contacts. According to Chuang et al., the development of mutual forbearance is complex at low levels of multimarket contacts. This complexity stems from the lack of opportunities for competing firms to learn and monitor each other's behaviors to determine the credibility of their threat for cross-market retaliation (Chuang et al., 2018). Nevertheless, as multimarket contact increases to moderate levels, the opportunities for developing mutual forbearance also increases, thereby, lowering competition and increasing firm performance (Chuang et al., 2018).

Chuang et al. (2018) also argued, that at high levels of multimarket contact, the difficulties of monitoring and coordinating across multiple markets to prevent unintended competition with rivals make it harder to develop and maintain mutual forbearance between the firm and its rivals. The difficulties of developing and maintaining mutual forbearance at low and high levels of multimarket contact results in the inverted U-shaped multimarket contact-firm performance relationship (Chuang et al., 2018). However, it is questionable whether Chuang et al.'s findings can be replicated in other settings. Chuang et al. also premised their work on the assumption that multimarket contact leads to mutual forbearance that affects firm performance. However, Chuang et al. failed to test this assumption by empirically measuring mutual forbearance.

Generally, proponents of the market power theory expect increased market power and reduced competition to lead to a linear improvement in firm performance as the level of diversification increases (Montgomery, 1994; Palich et al., 2000). However, Palich et al., (2000) pointed out that empirical evidence does not seem to support the relationship between the level of diversification and the anticompetitive practices hypothesized by the market power theory (see also Güth et al., 2016). Palich et al. also indicated that the evidence relating to collaborative practices (mutual forbearance) between firms with multimarket contacts, is at best, inconclusive (see also Chuang et al., 2018; Degl'Innocenti et al., 2014).

Defensive Diversification Hypothesis

The defensive diversification hypothesis essentially says that firms diversify to defend themselves against adverse developments in the marketplace (Bhatia & Thakur, 2018; Yamoah & Kanyandekwe, 2014). These adverse developments include sales and profit instability, unfavorable competitive shifts, and antitrust regulations (Bhatia & Thakur, 2018; Yamoah & Kanyandekwe, 2014). Consistent with this hypothesis, Mangani and Tarrini (2017) found that diversification increases the probability of survival in recession among Italian firms in the digital publishing industry. Murphy and Tocher (2017) argued that diversification is a survival strategy for small firms given their greater vulnerability to changes in one product market.

Mendoza-Abarca and Gras (2019) found that although diversification in newly founded nonprofit organizations reduces organizational efficiency, it increases their survival chances. Altieri and Nicodano (2016) found that the average default probability of DFs is 3.20% to 7% lower than that of focused firms. According to Altieri and Nicodano, this result is supportive of the idea that diversification increases firm survival rate. Many other authors also found evidence supporting the defensive diversification hypothesis (e.g., Arikan & Stulz, 2016; Gatzer et al., 2015; Holder & Zhao, 2015; King et al., 2015).

Debt Coinsurance/Pure Financial Rationale Hypothesis

The argument here is that the less dependence of the DFs on one or few activities and the imperfect correlation between these activities and their cash flows create a kind of coinsurance that portfolio theorists expect to reduce the firm's overall risk (Haug et al., 2018; Lewellen, 1971). Ibekwe (2017) found that the attitude of bank credit managers and analysts in Mozambique to corporate diversification is generally positive; a significant majority of the bank managers and analysts agreed that the probability of loan default is lower amongst DFs than UDFs. The respondents attributed this lower probability of default to reasons related to the coinsurance effect of diversification. This is also the case with group-affiliated firms in times of crisis, as Avramidis et al. (2017) and Santioni et al. (2020) found in Greece and Italy cases respectively. Consistent with the coinsurance effect hypothesis, Nußmann (2018) found that diversification leads to more predictable earnings, and DFs with less correlated segment earnings have higher earnings quality.

The coinsurance tends to reduce a DF's bankruptcy risk and attract lower cost of capital that enables it to accommodate more debt (Aivazian et al., 2015; Demirci et al., 2020; Franco et al., 2016; Hann et al., 2013; Haug et al., 2019; Lewellen, 1971; Mooney & Shim, 2015). Chief finance officers and credit analysts cited these as the essential financial effects of diversification (Gatzer et al., 2014; Ibekwe, 2017). Greater debt capacity increases the capability to fund positive net present value projects, that are expected to improve firm performance (Erdorf et al., 2013; Franco et al., 2016). If used efficiently, the increased debt capacity also yields tax benefits because interest on debt is tax-deductible (Lewellen, 1971; Wentland, 2020). Indeed, Wentland (2020) found that DFs have lower tax liabilities than focused firms. This finding may not be due to DFs engaging in more tax avoidance practices; as Zheng (2017) found, DFs engage in fewer tax avoidance practices than focused firms.

Whether firms diversify for coinsurance and to increase debt capacity is still not firmly established. For instance, Haug et al. (2018) found that DFs are associated with lower bankruptcy risk than focused firms. However, contrary to the coinsurance effect of diversification on the cost of capital (lower cost of debt), Altieri (2020) found that compared to focused firms that continued to report single segments following the introduction of SFAS 131 in 1997, the firms that started reporting multiple segments suffered an increase in the cost of debt. Altieri explained this finding by investors' perception of inefficiency in ICMs following perceived diversification. On the basis of the diversification discount literature, Altieri assumed that DFs suffer from inefficient capital allocation in ICMs and that bondholders perceive this to exacerbate default risk. However, Altieri did not consider the diversification premium literature that shows many DFs are more efficient in capital allocation than focused firms.

Banal-Estañol et al. (2013) criticized the coinsurance hypothesis for not addressing what they called "risk contamination losses" (p. 3143). Risk contamination loss arises when a project's failure drags down other successful projects (Banal-Estañol et al., 2013, p. 3143). This situation increases the probability of default and bankruptcy cost as the combined returns of the jointly financed projects may no longer be sufficient to meet the obligations arising from the joint financing (Banal-Estañol et al., 2013). The increased probability of default results in negative financial synergy and makes conglomeration bad. Consequently, diversification's ability to lower the cost of capital and increase debt capacity seems to depend on whether it is coinsurance or risk contamination that dominates (Banal-Estañol et al., 2013). This conjecture has not been tested empirically, but bank credit managers surveyed by Ibekwe (2017) expressed concerns for this risk associated with diversification. The respondents also showed a more positive attitude towards DFs than focused ones.

Excess Capacity in Resource Hypothesis

The view here is that firms diversify to gain a competitive advantage by using the excess capacity they have in some productive resources. Due to transaction costs and imperfect mobility, it is hard to efficiently trade excess capacity in the market (Hauschild & zu Knyphausen-Aufseß, 2013; Montgomery, 1994; Neffke & Henning, 2013). Some of these resources include managerial skills, financial resources, brand name, proprietary information, technologies, customer loyalty, and political connections (Deng et al.,2012; Li et al., 2012). Many researchers have explained some successful diversification initiatives by this hypothesis (e.g., Dutta & Bhawsar, 2019; Kim et al.; Srinivasan, 2015) and others found empirical support for this explanation (e.g., Bowen et al., 2015; Gatzer et al., 2015; Sakhartov & Folta, 2014).

Institution-Based/Internal Market Hypothesis

This hypothesis posits that firms diversify to create internal capital, labor, and product markets. Internal markets enable firms to mitigate the failures in the external markets and other institutions of many countries (Benito-Osorio et al., 2012; Bhatia & Thakur, 2018; Erdorf et al., 2013; George & Kabir, 2012). For instance, efficient ICMs, enable DFs to finance positive net present value projects in their cash-deficit but growth segments with funds from cash-surplus segments (Cheng & Wu, 2018). By so doing, DFs avoid the external capital markets and the associated costs (Cheng & Wu, 2018; Erdorf et al., 2013; Maksimovic & Philips, 2013). Due to the lower likelihood of loan default in DFs, lending institutions tend to perceive and value DFs more positively (Avramidis et al., 2017; Ibekwe, 2017). The extent to which firms benefit from internal markets will largely depend on the efficiency of these markets. However, there is no consensus among scholars on the efficiency of internal markets in the allocation of productive resources (Glaser et al., 2013; Cheng & Wu, 2018; Kuppuswamy & Villalonga, 2016; Maksimovic & Phillips, 2013; Ozbas & Scharfstein, 2010; Tate & Yang, 2015).

Agency Cost Hypothesis

Denis et al. (1997) put forward the agency cost hypothesis of corporate diversification. The hypothesis is that managers derive from diversification some personal benefits that exceed private costs and diversify for such private benefits even if doing so destroys shareholder value (see also Nguyen, 2018). Such benefits include increased compensation which some scholars found to be related to firm size (Wang et al., 2019). Other private benefits include power and the prestige associated with managing larger firms, managerial entrenchment, and reduction of the manager's highly undiversified unemployment risk (Amihud & Lev, 1981; Denis et al., 1997; Feldman & McGrath, 2016). As I show later, researchers have obtained mixed results from testing the agency cost hypothesis of diversification (e.g., Alessandri & Seth, 2014; Amihud & Lev, 1981; Anderson et al., 2000; Denis et al., 1997; Castañer & Kavadis, 2013; Chen & Yu, 2012; Nguyen, 2018). Matvos et al. (2018) found that firms tend to diversify more in periods of external capital market friction. On the basis of this finding, they concluded that agency problems might not be the only explanation for corporate diversification.

Meaning and Measurement of Firm Performance

Performance is the outcome of interest in all areas of an organization (Singh et al., 2016). Despite its relevance, there is disagreement regarding its conceptualization and measurement (Butler et al., 2012; Hamann et al., 2013; Richard et al., 2009; Ştefanescu & Logofatu,2018; Wach et al., 2020). However, performance has usually been conceptualized in terms of the extent of goal accomplishment (Richard et al., 2009; Singh et al., 2016; Wach et al., 2020).

Organizational performance has been identified as a multidimensional construct (Butler et al., 2012; Hamann et al., 2013; Miller et al., 2013; Richard et al., 2009; Singh et al., 2016; Ştefanescu & Logofatu, 2018; Vij & Bedi, 2016; Wach et al., 2020). The multidimensionality of the performance construct stems from three primary sources. These include the multiplicity of stakeholders with conflicting interests and claims that a firm must deal with (Barney, 2020a, 2020b; Kaplan, 2020; McGahan, 2020; Ştefanescu & Logofatu, 2018; Vij & Bedi, 2016) and differences in organizational resources, environment, and strategic choices that are based on them (Miller et al., 2013; Richard et al., 2009). The multidimensionality also stems from the timeframe over which performance is measured and the variation in performance over time (Richard et al., 2009). Given these differences, it seems that a single measure of performance will hardly capture the interests of all the competing stakeholders of the organization (Barney, 2020a, 2020b; Kaplan, 2020; McGahan, 2020; Richard et al., 2009; Ştefanescu & Logofatu, 2018).

Although scholars do not seem to disagree that firm performance is a multidimensional construct, there is, however, a disagreement as to its dimensions (Hamann et al., 2013). Consistent with the multidimensionality of the performance construct, researchers have measured and classified performance in different ways such as objective and subjective measures (Richard et al., 2009; Ştefanescu & Logofatu, 2018; Williams, 2018). In the following section, I will explore some of the measures of performance that researchers frequently used in the D–P literature.

Measurement of Firm Performance in the Diversification Literature

Researchers have used both objective and subjective measures of performance in the diversification literature. The objectives measures include accounting measures, financial market measures, and hybrid measures (Carini et al., 2017; Wach et al., 2020; Williams, 2018) Each of these measures has its strengths and limitations as it relates to the D–P studies.

Accounting Measures

Accounting measures involve computing some measures of performance based on accounting information. The most frequently used accounting measures in the literature are the return on assets (ROA), the ROE, and the return on sale (Williams, 2018). These measures have been criticized as not valuable measures of the performance of an investment strategy such as diversification because they do not consider risk and timing of cash flows that are essential factors in valuation (Aliabadi et al., 2013; El-Sayed Ebaid, 2012). Accounting measures also focus on shareholders and hardly capture the interest of other stakeholders in the business (Barney, 2020a, 2020b).

Other criticisms of accounting measures include the fact that they do not adequately consider intangible assets (Aliabadi et al., 2013) that have become essential components of firms' balance sheets (Frey & Oehler, 2014). The difference in accounting practices and regulations and the ease of manipulating accounting data make comparison across countries, regions, and even firms less informative (Aliabadi et al., 2013; Richard et al., 2009; Singh et al., 2016; Singh et al., 2018). Accounting measures are also backward looking and therefore of limited importance for planning in a highly dynamic environment (Aliabadi et al., 2013; Butler et al., 2012; Carini et al., 2017; Richard et al., 2009; Vij & Bedi, 2016).

Early studies on the D–P relationship predominantly used accounting profitability measures (see Gort, 1962). The use of accounting profitability measures has also persisted despite their shortcomings. This is because, relative to financial market measures, data to operationalize accounting measures are available for all firms, and the metrics are easy to compute and understand. For the D–P studies and especially for countries with well–developed segment reporting systems, accounting measures are helpful in assessing segment performance since segment accounting items are observable. In contrast, except in tracking stocks, the market value of segments is not observable (Richards et al., 2009). Accounting measures are also objective measures of performance to the extent that they are not affected by the market's inefficiencies and perceptions (Wach et al., 2020; Williams, 2018). In the following sessions, I discuss some of the accounting measures—ROA, ROE, and return on sales—in more details.

Return on Assets. This measure of performance is an indicator of the effectiveness in the use of a firm's assets. It indicates the returns to the suppliers of the capital used to acquire the assets, namely lenders and shareholders (Butler et al., 2012; Williams, 2018). There are three versions of the ROA that researchers have used in the D–P literature. Some researchers defined ROA as the ratio of earnings before interest and after taxes to total assets (e.g., Chen & Yu, 2012; Patrick, 2012). Others defined it as the ratio of earnings before interest and taxes to total assets (Giachetti, 2012). The other definition is earnings before interest, taxes, and depreciation to total assets (George & Kabir, 2012; Nigam & Gupta, 2018). Because profitability—the numerator in the computation of ROA—is measured over a period, the total assets, which is the denominator, may also be based on the average of the beginning and ending book values of total assets (e.g., Deng et al., 2012).

In addition to the general advantages of the accounting measures, ROA is not affected by the firm's financial strategies and thus, avoids the distortions introduced by the management's manipulation of financial strategies to arrive at artificially impressive results (Williams, 2018). However, added to the limitations associated with accounting measures of performance (Butler et al., 2013), it does not indicate the returns to the shareholders who are the residual claimants to the firm's profits.

Return on Equity (ROE). Researchers' focus in this measure is the return to the shareholders who are the residual claimants to the firm's profits. ROE is computed as the ratio of earnings after taxes (net income) to the book value of equity that comprises paid-up capital, share premium, and reserves (Richard et al., 2009). Chen and Chu (2012), Oyedijo (2012), and Berry-Stölzle et al. (2013), among others researchers, used the ROE. As other accounting measures, ROE is easy to compute and understand and also indicates the returns to shareholders who are the residual claimants to the firm's profits.

However, managers who want to show good performance, even when operating profitability is being eroded, can more easily manipulate the ROE (at least in the short run) to achieve this (Williams, 2018). The ease in manipulation is because the ROE is affected by the firm's financial strategies (Williams, 2018; Zúñiga-Vicente et al., 2019). Management might use accumulated cash to buy back shares and engage in excess leverage that reduces relative equity in the firm—the denominator in the ROE formula—thereby artificially increasing the ROE (Williams, 2018). By looking at just the ROE, the greater financial risk resulting from this financial strategy is obscured (Williams, 2018). Competitive pressure to show high performance provides incentives for managers to engage in this kind of practice (Williams, 2018).

Return on Sales. The return on sales is a measure that indicates the profit made per unit of sales by the firm. It is computed as the ratio of net operating profit to sales (Richard et al., 2009). Among other authors, George and Kabir (2012), Giachetti (2013), and Yigit and Behram (2013) used this measure. Although it is easy to compute and understand, it does not show the profit due to the providers of capital. Butler et al. (2012) found that this measure did not load into any of their two factors of the financial performance construct (see also Aliabadi et al., 2013). Therefore, Butler et al. suggested that this threatens the construct validity of return on sales as a measure of financial performance.

Financial Market Measures and Event Studies Approach

In financial market measures, researchers use the financial market information to assess firms' performance (Richards et al., 2009). These measures include the beta coefficient that measures the firm's systematic risk and Jensen's alpha that measures a firm's excess return over the firm's expected return given its systematic risk (Carini et al., 2017; Richard et al., 2009). Nigam and Gupta (2018) used the Jensen's alpha. Other financial market measures are the market value and cumulative abnormal returns (CAR). The market value indicates the value stock market investors place on the firm's common stock as reflected in the stock price; CAR measures the changes in the stock price over a period as a result of an event (Carini et al., 2017; Richard et al., 2009).

The strengths of the financial market measures of performance include the fact that they are forward looking and incorporate the market's valuation of a firm's future (Aliabadi et al., 2013; Carini et al., 2017). They reflect both the market's valuation of the firm’s tangible and intangibles assets. Financial market measures are also less prone to manipulation and therefore, more objective (Aliabadi et al., 2013). However, these measures assume that the firm exists as an instrument for the shareholders and capital providers (Richard et al., 2009). As resource dependency theorists argued, in cases where other stakeholders dominate the shareholders regarding resource criticality, such dominant stakeholders’ performance criteria should be given primacy (Barney, 2020a, 2020b). Moreover, financial market measures assume that the markets are efficient in incorporating all relevant information into prices. This assumption is far fetched, at least for emerging markets (Ayodele et al., 2017; Gyamfi et al., 2017; Lawal et al., 2017).

The financial market measure that has been used more frequently in the D–P literature is CAR. In an event study, researchers attempt to assess the impact of an event on the firm’s performance (Dionysiou, 2015; De Jong & Naumovska, 2016; Bergmann et al., 2015). They estimate the effect of the event by computing the difference between the expected return on the stock without the event and the actual return around the time of the event (Dionysiou, 2015; Li et al., 2020; De Jong & Naumovska, 2016; Bergmann et al., 2015). Some versions of the asset pricing model are used to estimate the expected return.

The difference between the actual return on the stock on a particular day and the expected return for that day is the abnormal return or excess return for that day (Dionysiou, 2015; Li et al., 2020; De Jong & Naumovska, 2016; Bergmann et al., 2015). The sum of the abnormal returns for the announcement window chosen is called the CAR (Li et al., 2020; Dionysiou, 2015; Bergmann et al., 2015). For a D–P relationship study, the event could be the announcement of a diversifying mergers and acquisitions, diversification through internal development, or refocusing.

The event study approach and CAR measure have been used in many studies such as Hyland and Diltz (2002), Akbulut and Matsusaka (2010), and Hoechle et al. (2012), among others. According to Akbulut and Matsusaka (2010), this approach provides reasonable estimates of the changes in values expected from the diversification event. This is because the confounding effects of other variables are better isolated from those of the diversification event (see also De Jong & Naumovska, 2016). Unlike the accounting profitability measures, CAR is less prone to manipulations, and for listed companies, it is easier to measure (De Jong & Naumovska, 2016). Richard et al. (2009) classified CAR as an objective measure of performance (Richard et al., 2009).

Apart from the shortcomings of financial markets measures, such as the assumption of market efficiency, one of the issues with the event study approach using CAR is that it does not capture and measure the actual value effect of diversification beyond the announcement window. Papadakis and Thanos (2010) pointed out that for events such as the announcement of a new strategy, CAR do not show the strategy's value, but only short-term market expectations of the strategy that reflect on the price of shares. CAR is not able to predict future performance. As such, a strategy that will create value for shareholders may be discounted (or overvalued) if the value falls short of (or exceeds) market expectations (Papadakis, & Thanos, 2010). Also, CAR cannot be used for firms that are not listed since they do not have share prices (Papadakis & Thanos, 2010). The choice of the announcement window to measure the announcement effects is arbitrary and may bias the results (Papadakis & Thanos, 2010), and bias exacerbates as the window increases (Dionysiou, 2015).

Hybrid Measures

These are measures with which researchers attempt to leverage the strengths of accounting data and financial market data by combining them (Carini et al., 2017; Hamann et al., 2013; Richard et al., 2009). These measures capture the risk consideration that is lost when accounting measures are used while also capturing operational performance issues lost in financial market measures (Richard et al., 2009). Some of the hybrid measures are Tobin's q (and its approximation, the ATQ), market-to-book value, EV, economic value added, etc. There are also variants of these approaches that have been used in many studies. In the following section, I will review Tobin's q, ATQ, and the EV measures that are the most frequently used hybrid measures in the D–P literature.

Tobin's q is the "ratio of the firm's market value to the replacement cost of its assets" (Chung & Pruitt, 1994, p. 70). Linderberg and Ross (1981) were the first to use the q ratio to measure performance. According to them, while the price data on securities issued by the firm provides information on the market's valuation of the firm, the accounting data give information on the resources the firm has used. They noted that comparing the financial market valuation data and the accounting data offers a performance measure, performance being the difference between output and input. The output, in this case, is the market valuation, and the input is the replacement cost (Linderberg & Ross, 1981).

Lang and Stulz (1994), Lien and Li (2013), and Thakur and Bhatia (2021) among others, used Tobin's q. Tobin's q has the advantage over accounting measures and stock returns of not requiring risk adjustment to compare value across firms (Lang & Stulz, 1994). The numerator in the Tobin's q ratio—the present value of future cash flow—implicitly captures the appropriate risk-adjusted capitalization rate (Lang & Stulz, 1994). By combining financial market data and accounting data, q minimizes the distortions arising from accounting conventions, tax laws, and managerial discretions (Montgomery, 1994). Tobin's q is also a point in time measure of performance. Unlike accounting measures and stock market measures that assess performance over a period, the sample period does not influence Tobin's q (Lang & Stulz, 1994).

However, some issues limit Tobin's q and its use as a measure of performance. In using Tobin's q, an implicit assumption is that the capital market is efficient and can appropriately capitalize and reflect the expected cash flows and other information on share prices (Berger & Ofek, 1994; Lang & Stulz, 1994). However, many authors have shown that the markets are less efficient, especially in developing countries (Ayodele et al., 2017; Gyamfi et al., 2017; Lawal et al., 2017).

Chung and Pruitt (1994) also pointed out that despite the potentials of Tobin's q in many aspects of corporate finance and management, many financial managers do not rely on it due to its unavailability. Chung and Pruitt further pointed out that although Tobin's q can be computed, the computational procedure is complicated and cumbersome (see also Berger & Ofek, 1995). The replacement cost of assets, that is denominator in the Tobin's q formula, is not readily available. Using the Lindenberg and Ross (1981) approach to compute Tobin's q, requires lengthy calculations and arbitrary assumptions about depreciation and inflation rates (Berger & Ofek, 1995; Chung & Pruitt, 1994). Berger and Ofek (1995) also noted that despite the significant variations in Tobin's q across industries, researchers using Tobin's q do not usually adjust q for industry effects.

Dybvig and Warachka (2015) have questioned whether Tobin's q is a measure of firm performance. Their perspective is that shareholder wealth maximization requires optimal increases in investment. Therefore, they argued that Tobin's q does not measure firm performance because Tobin's q does not translate to firm value maximization. The reason for Dybvig and Warachka's argument is that underinvestment—which they argued is suboptimal—increases rather than decreases Tobin's Q.

Because of the unavailability of many of the data required to compute Tobin's q and the computational difficulties, Chung and Pruitt (1994) developed a simple approximation of Tobin's q (called *ATQ*). Readily available information such as accounting and stock market information are used to compute ATQ. The ATQ is calculated as

$$Approximate\ q\ (ATQ) = \frac{MVE + D}{TA} \tag{7}$$

Where, MVE = the market value of equity, D = debt, and TA = total assets. Chung and Pruitt found that the ATQ explained 96.6% of the variability in Tobin's q. Many researchers such as Hyland and Diltz (2002), Villalonga (2004), Lien and Li (2013), Custódio (2014), and Singh et al. (2018) have employed this approach and its variants. However, whereas the ATQ simplifies the computation of Tobin's q and makes it more relevant, it still, on its own, does not adjust q for industry effects.

D–P researchers have predominantly used the EV measure, especially since the 1990s (Oweis, 2012). This measure quantifies the difference between the DF's actual value and the sum of value of its segments operated or traded as standalone firms. According to Lang and Stulz (1994), LeBaron and Speidell pioneered this approach in 1987. Two approaches to the measure of EV have come to dominate in the literature: Lang and Stulz (1994) approach and the Berger and Ofek (1995) approach (Oweis, 2012).

In the Lang and Stulz approach, EV is the difference between a DF's actual value measured by Tobin's q and its imputed value (its imputed q) or what Lang and Stulz called "pure-play or the industry–adjusted q" (p. 1263). If diversification adds value, EV is supposed to be positive, and if it destroys value, EV is supposed to be negative. A zero EV indicates that diversification has no impact on firm value (Lang & Stulz, 1994). A firm's imputed q is the weighted average of the firm's segments' qs. The weight is the proportion of the firm's total asset, sales, earnings (or any other measure of output being used) in each segment. Since the qs of a DF's segments are not observable, the average q of standalone firms in the same industry is the proxy for the segment's q (Lang & Stulz, 1994).

Using the Lang and Stulz (1994) approach, EV of a firm is expressed mathematically as:

$$EV = q_a - \sum_{i=1}^{n} a_i q_i \tag{8}$$

Where EV is the firm's excess value, q_a is the firm's actual q, a_i is the proportion of the firm's total asset (sales or revenue) in segment *i*, q_i is segment *i*'s imputed q, and n is the number of segments in the firm.

A segment's imputed q could be expressed as follows:

$$q_i = \frac{1}{m}\sum_{k=1}^{m} q_k \qquad (9)$$

Where q_i is the inputed q of segment *i* of the DF, q_k is the q of standalone (single-segment) firm k operating in the same industry as segment *i*, *m* is the number of single-segment firms in that industry.

Villaonga (2004) and Custódio (2014), among others, have used this approach and its variants. In computing q, Lang and Stulz (1994) used a modified version of the Lindenberg and Ross (1981) algorithm. However, researchers are increasingly using the ATQ (Chung & Pruitt, 1994) and its variants in place of the more complicated and cumbersome Lindenberg and Ross approach (e.g., Custodio, 2014; Villalonga, 2004).

Berger and Ofek (1995) developed their approach against the criticisms of Tobin's q and Tobin's q-based measures. These criticisms include the cumbersome process of computing Tobin's q using the Lindenberg and Ross (1981) algorithm and especially its reliance on assumptions about depreciation rates and inflation to estimate the replacement value of assets, one of its data requirements (Berger & Ofek, 1995). Berger and Ofek further pointed out that valuation studies that are based on Tobin's q do not adequately industry-adjust q. Berger and Ofek's reason is that available data do not allow for the direct computation of segment market values and replacement costs since segment market values are not observable except for tracking stocks. However, with the development of less cumbersome and less data-intensive ATQ, the criticism of computational difficulties of Tobin’s q is no longer tenable.

Unlike the Lang and Stulz (1994) approach where researchers rely on q to calculate the EV, in the Berger and Ofek (1995) approach, researchers use sales-, earnings-, and asset-based multipliers. These multipliers are accounting information that are more readily available. With Berger and Ofek (1995) method, the EV is the natural logarithm of the ratio of the firm’s total value to its imputed value. The procedure is to compute the single-segment firms’ median valuation ratios in each of the industries that the DF’s segments operate. Each segment of the DF is then assigned the median valuation ratio of its industry. For example, if a sales multiple is used, a value equal to the segment’s sales multiplied by its median industry capital to sales ratio is assigned to the segment. The result is the segment’s imputed value (Berger & Ofek, 1995)

By summing up all its segments’ imputed values, the DF’s imputed value is obtained. Berger and Ofek (1995) referred to the natural logarithm of the ratio of the DF’s actual value to its imputed value as the firm’s EV. Therefore, if the EV is negative, the firm is trading at a discount and destroying value. If the EV is positive, the firm is trading at a premium and creating value. Many authors used this approach to EV (e.g., Denis et al., 1997; George & Kabir, 2012; He, 2012; Hoechle et al., 2012; Kuppuswamy et al., 2014; Lee et al., 2008; Villalonga, 2004).

The Berger and Ofek (1995) approach has the advantage of industry-adjusting for differences in value on the basis of observable segment information. However, it relies on a highly developed segment reporting system to efficiently allocate the sales, assets, and earnings of the DF to its segments. For many emerging markets, segment reporting is nonexistent, or at best, in their initial stages. Therefore, it is impossible in many cases to determine a firm's sales, assets, or earnings attributable to each segment.

Apart from the issues with segment reporting in developing countries, accounting items which it relies on are prone to manipulation. Therefore, assessing firm value based on accounting information will be valid only because the information disclosed by management reflects the firm's economic reality (Berger & Ofek, 1995). Berger and Ofek (1995) pointed out the strengths and limitations of each of the accounting multipliers used in computing EV. On the basis of these strengths and limitations, Berger and Ofek recommended the use of the three to give a comprehensive picture.

All the variants of the EV measure assume that single-segment firms exist in all industries in which a DF operates. As Berger and Ofek (1995) pointed out, many industries exist without single segment firms in their study (see also Lee & Hooy, 2018a). In the nonexistence of single-segment firms, the approached researchers have used to imput values to segments of DFs has been to redefine industries at different SIC code levels (e.g., Berger & Ofek, 1995). This approach makes the basis for imputing values less consistent. Researcher who use this approach also assume that the value of standalone firms operating in a DF segment's industry reflects the segment's value. This assumption is despite unobservable differences that may exist between standalone firms and segments of DFs and, therefore, unrealistic (Boguth et al., 2021; Hund et al., 2019; Lee & Hooy, 2018a)

For other reasons, some authors have raised doubts about EV's appropriateness as a measure of value. Some researchers have shown that EV is weakly correlated with actual value (Ahn, 2015; Matsusaka &Wang, 2015). For instance, Matsusaka and Wang (2015) estimated a correlation of only 13% between EV and actual value. There is also the tendency to overestimate conglomerate values if the researcher does not adjust for intersegment transfer of profits (You, 2014). According to You (2014), the need for adjustment for intersegment transfer of profits stems from the fact that this method depends on sum-of-the-parts valuation. This valuation method provides incentives for managers—whose compensation depends on stock price performance—to manipulate segment earnings to achieve an artificially higher valuation of the conglomerate (You, 2014). Managers do this by transferring earnings from segments with low industry multiples to ones with high industry multiples (You, 2014). Despite these criticisms, the EV measure and, in particular, the Berger and Ofek (1995) variant has remained probably the most used measure of performance in the D–P literature since the 1990s.

Subjective Measures

The subjective measures of performance are based on the subjective assessment of people who are supposedly well informed about the performance of the firm, such as its managers and financial analysts (Meier & O'Toole, 2013; Richard et al., 2009; Singh et al., 2016; Vij & Bedi, 2016; Wach et al., 2020; Williams, 2018). Subjective measures are helpful when it is impossible to access objective measures of performance. This situation includes privately held firms and business units in a DF (Meier & O'Toole, 2013; Richard et al., 2009; Singh et al., 2016; Vij & Bedi, 2016; Williams, 2018).

Moreover, with the multiplicity of organizational stakeholders with different performance criteria, dimensions of performance that cannot be objectively measured are increasing (Meier & O'Toole, 2013; Richards et al., 2009; Vij & Bedi, 2016; Williams, 2018). Examples of subjective measures include the Kinder, Lydenberg, and Domini index and scores on Fortune's America's Most Admired Companies (Richard et al., 2009).

Some researchers have employed subjective measures in the diversification literature. For instance, Lee and Gaur (2013) used subjective measures to compare the performance of divisions of Korean business groups with those of U.S. DFs, while Bowen et al. (2015) used it in the study of managerial perspectives of the antecedents and performance effects of diversification in the United States.

However, subjective measures have some limitations. These include the fact that the assessment is idiosyncratic to the person making it, which increases bias and error (Meier & O'Toole, 2013; Richard et al., 2009; Singh et al., 2016; Vij & Bedi, 2016). It also relies on the respondent's recollections of the firm's operations and decision objectives to assess its performance accurately after a period. Despite the various techniques to ensure reliability, it is evident that the manager can hardly recollect vividly everything that happened in the past (Meier & O'Toole, 2013; Richard et al., 2009; Singh et al., 2016; Vij & Bedi, 2016).

Some authors have found a strong positive correlation between subjective and objective performance measures (e.g., Singh et al., 2016; Vij & Bedi, 2016). However, many authors suggested that subjective measures are not preferable to or substitute for objective measures when objective measures are available (e.g., Meier & O'Toole, 2013).

William (2018) found that researchers employed the subjective measures in only 16.77% of articles surveyed in the family business literature.

To summarize this section, there is a need for any performance measure to capture the short-term value effects of diversification and its long-term effects. It is also necessary to consider the data requirements of each measure. Because of the multiplicity of performance measures, some authors have recommended using multiple measures (e.g., Ahuja & Novelli, 2017; Aliabadi et al., 2013). However, Krishnakumar and Sethi (2012) proposed that researchers should consider the aspects of the performance of interest and the availability of data in deciding the measures to employ.

Insider Ownership

Insider ownership refers to the equity holding of people who have access to firm-specific information that is not available to other people and can influence firm decisions (Chen & Yu, 2012; Connelly et al., 2010; Kim & Lu, 2011; Rose & Sharfman, 2015). These include the CEO, the directors (executive and nonexecutive), and the firm's employees (Connelly et al., 2010). However, there is the question of the extent to which some of these people could be considered insiders regarding possession of adequate information about the firm and their ability to use such information (Brickley & Zimmerman, 2010; Connelly et al., 2010).

The terms insider ownership and managerial ownership have been used interchangeably in the literature (e.g., Berķe-Berga et al., 2017; Chen & Yu, 2012; Denis et al., 1997; Im & Chung, 2017; Lin & Servaes, 1999; Muller-Kahle, 2015). Researchers have measured insider ownership in different ways, including as the equity holding of

CEOs, directors and officers, and board members (Ali et al., 2018; Boyd & Solarino, 2016; Fabisik et al., 2021; Im & Chung, 2017). For instance, Kim and Lu (2011) measured it as the proportion of the outstanding shares of the firm held by the officers and directors of the firm (see also Anderson et al., 2000; Chen & Yu, 2012; Chou, 2015; Denis et al., 1997; Hoechle et al., 2012).

Kim and Lu (2011) argued that to define insider ownership in terms of influence on decision making and, if insider ownership has any identifiable impact, then it is the CEO ownership that should have the most visible impact. Kim and Lu, therefore, measured insider ownership as the proportion of the firm's outstanding shares held by the CEO (see also Anderson et al., 2000; Castañer & Kavadis, 2013; Hoechle et al., 2012; Lacoste et al., 2010). Kim and Lu also measured insider ownership by the proportion of the top five executives' combined ownership (see also Anderson et al., 2000; Castañer & Kavadis, 2013; Hoechle et al., 2012).

It appears that the measure of insider ownership used will depend on the available data. For instance, many of the authors in Nigeria measured managerial ownership by the proportion of outstanding shares held by members of the Board of directors (e.g., Akpan & Amran, 2014; Usman & Yakubu, 2019). The reason is that it is the only insider ownership information disclosed in the annual report as required by law. Other researchers have also measured it similarly (e.g., Ali et al., 2018; Al-Matari et al., 2017; Berķe-Berga et al., 2017; Marimuthu, 2017; Mukaria, 2020; Rashid, 2020).

Insider Ownership in the Context of Corporate Governance and Agency Theory

The agency theory argument for insider ownership as an effective corporate governance mechanism is that as the insiders' shareholding increases, they bear more of the cost of their value-destroying decisions. Therefore, they will more likely make value-enhancing decisions (Boateng et al., 2017; Hoechle et al., 2012; Im & Chung, 2017; Shan, 2019). Proponents of agency theory, therefore, expect firm performance to increase with insider ownership.

There is, however, a counter-argument that increasing insider ownership give the insider enough votes that facilitate managerial/insider entrenchment. Entrenchment makes the insider immune to any disciplinary measures for poor performance and expropriation of minority shareholders (Chou, 2015; Im & Chung, 2017; Muller-Kahle, 2015; Shan, 2019; Tsai et al., 2011). Also, as the managers' ownership in the firm increases, their wealth and risk—both financial and human capital—become tied to the company's fate. This undiversified risk increases the manager's risk aversion and motivates him to take a suboptimal risk that will not benefit the minority shareholders (Amihud & Lev, 1981; Castañer & Kavadis, 2013; Kim & Lu, 2011; Lacoste et al., 2010). The entrenchment hypothesis reflects another form of agency problem between the majority shareholders and the minority shareholders (Shan, 2019; Tsai et al., 2011).

Given the interest alignment and entrenchment hypotheses, it is plausible to expect an inverted U-shaped insider ownership–performance relationship. Some researchers have found support for both sides of the argument. Consistent with the interest alignment hypothesis, Boateng et al. (2017) in the case of firms in China, Gugong et al. (2014) in the case of Nigeria, and Rashid (2020) in the case of Bangladesh, amongst others, found that insider ownership has a significant positive relationship with firm performance. Other researchers found a negative insider ownership–performance relationship (e.g., Adamu & Haruna, 2020; Fabisik et al., 2021; Marimuthu, 2017; Mukaria, 2020; Shan, 2019).

The negative insider ownership–performance relationship seems to support the entrenchment hypothesis (Shan, 2019). Fabisik et al. (2021) also found a negative insider ownership–performance relationship. However, Fabisik et al. did not link the negative relationship to the entrenchment hypothesis. Instead, they interpreted the findings in terms of the firm’s past performance that reflects on the stock’s liquidity. According to Fabisik et al., better–performing firms have more liquid stock, enabling insider shareholders—who would want to diversify their risk by reducing their holding in the firm— to sell their shares quickly. In contrast, poorly performing firms have less liquid stock, making it difficult for insiders to sell shares. Consequently, high–q firms tend to have lower managerial shareholding, whereas low–q firms tend to have a higher managerial stake. The question, however, remains as to what causes poor performance in the first place and how managerial ownership is related to that.

Apart from the positive and negative insider ownership–performance relationship strands of the literature, some researchers have found a nonsignificant relationship between insider ownership and firm performance (e.g., Al-Matari et al., 2017; Usman & Yakubu, 2019). According to Basu (2014), the results of the studies on insider ownership–performance relationships remain inconclusive. However, Basu also noted that recent literature in this area has been more consistent that the relationship is a curvilinear inverted U one (e.g., Kim & Lu, 2011).

Some authors have argued that the insider ownership–performance relationship depends on factors such as the external governance environment (Kim & Lu, 2011) and the industrial context. Other factors would be whether it is a large complexity–large scale industrial setting or low complexity–small scale contexts (Chou, 2015). For instance, on the basis of their findings, Kim and Lu (2011) concluded that insider ownership measured by CEO equity holding and external governance are substitutes for corporate governance purposes. They measured external governance by institutional ownership concentration and by industry concentration that indicates the level of product market competition (Kim & Lu, 2011). Overall, it appears that there is yet no consensus on the relationship between insider ownership and firm performance.

Some authors have examined the relationship between insider ownership and the performance effects of firm diversification. As in the broader insider ownership–firm performance literature, the results, however, have also not been consistent. I review these studies in a later section of this chapter.

Control Variables

Researchers have found some variables to be related to firm performance. These include firm size, leverage, blockholding/concentrated ownership, and board independence. If not controlled, the effects of these variables may confound the D–P relationship. Therefore, I controlled for their effects in this study. In the following sections, I explore the literature on the measurement of these variables and their relationship with firm performance.

Firm Size

Researchers have measured firm size differently, including by total assets, turnover, the market value of equity, and employees (C. Dang et al., 2018; Ha et al., 2020; Hashmi et al., 2020; Wakil, 2020). Various arguments suggest different directions of the possible relationship between firm size and firm performance. One of the arguments is that larger firms have the advantage of economies of scale and market power (Bolarinwa & Obembe, 2019; Hashmi et al., 2020; Khatun & Siddiqui, 2016; Nakatani, 2019; Olaniyi et al., 2017; Olawale et al., 2017; Pangboonyanon & Kalasin, 2018; Yadav et al., 2019). They have advantages in such areas as negotiating with clients and suppliers of resources, including material, human, and financial (Hashmi et al., 2020; Mule et al., 2015; Pangboonyanon & Kalasin, 2018). They can also engage in division of labor and reduce unit fixed costs by spreading costs across different firm divisions (Khatun & Siddiqui, 2016). These benefits are likely to improve firm performance.

However, larger firms also exhibit characteristics that tend to limit the benefits of economies of scale. For instance, some scholars argued that complexity, agency, and coordination costs increase with size because management and control become increasingly separated from ownership (Hashmi et al., 2020; Isik et al., 2017; Khatun & Siddiqui, 2016; Olaniyi et al., 2017). Larger firms also tend to be more hierarchical and bureaucratic, making them less flexible and inefficient in adapting to changing business environments (Isik et al., 2017). These shortcomings limit firm profitability and value.

Empirical studies on the firm size–firm performance relationship have produced mixed results. Some researchers found a positive firm size–firm performance relationship (e.g., Hashmi et al., 2020; Isik et al., 2017; Mule et al., 2015; Pangboonyanon & Kalasin, 2018). Bolarinwa and Obembe (2019) and Olaniyi et al. (2017) found a positive but bidirectional causal relationship between size and profitability among listed companies in Nigeria. Other researchers showed a relationship that is either negative (Mertzanis et al., 2019; Olawale et al., 2017) or not significant (e.g., Khatun & Siddiqui, 2016; Mule et al., 2015). Differences in the sample, variable proxy, industry sector, time horizon, the business environment, and the analytical technique employed could explain the inconsistent results (Bolarinwa & Obembe, 2019; Hashmi et al., 2020; C. Dang et al., 2018; Mule et al., 2015; Olaniyi et al., 2017).

Although there is still no consensus on the direction of the relationship, what is clear is that firm size impacts firm performance (C. Dang et al., 2018). It is, therefore, necessary to control for its confounding effect on the relationship between diversification and firm performance (Mitra & Pattanayak, 2013). Many authors have controlled firm size in their studies on the D–P relationship (e.g., Brahmana et al., 2019; Custódio, 2014; Hoechle et al., 2012; Kuppuswamy et al., 2014; Ljubownikow & Ang, 2020; Sturm & Nüesch, 2019).

Leverage

Leverage refers to the extent of debt in a firm's capital structure (Dao & Ta, 2020; Li et al., 2019). Authors have measured it in many ways. These include the total debt to total assets (total debt) ratio (Dalci, 2018; Ihejirika et al., 2020) and long-term debt to total assets (long-term debt) ratio (Ihejirika et al., 2020; Li et al., 2019; Yazdanfar & Öhman, 2015). Other measures include the short-term debt to total assets (short-term debt) ratio (Dalci, 2018; Yazdanfar & Öhman, 2015) and the debt-equity ratio (Ihejirika et al., 2020). Firms employ leverage for various reasons such as the avoidance of dilution of ownership and control that arises from the issue of new equity and the shielding of corporate revenue from tax since interest payments on debt are tax-deductible expenses (Chandra et al., 2019; Dalci, 2018; Li et al., 2019).

Debt can act as a suitable corporate governance mechanism to mitigate manager–shareholder agency costs. For instance, dependence on debt rather than retained earnings necessitates managers returning to the capital market for funding, thereby, facing the scrutiny and discipline of the markets (Dalci, 2018; Dao & Ta, 2020; Li et al., 2019; Jensen & Meckling, 1976). The required interest payments on debt mitigate the agency cost of free cash flow and force managers to become more prudent and efficient in picking projects so as to improve firm performance and protect their jobs (Dalci, 2018; Dao & Ta, 2020; Li et al., 2019).

However, leverage also comes with some costs. The obligatory interest payment on debt increases the probability of bankruptcy with the associated direct and indirect costs, especially in periods of cash flow problems (Chandra et al., 2019; Dalci, 2018; Li et al., 2019). The use of leverage also leads to loss of flexibility due to restrictive bond covenants that bondholders use to protect their interests (Dalci, 2018). Given these arguments, the leverage–firm performance relationship will depend on which of these effects dominate.

There is mixed empirical evidence on the leverage–firm performance relationship. Whereas some evidence point to a negative relationship (e.g., Dao & Ta, 2020; Li et al., 2019; Yazdanfar & Öhman, 2015), others point to a positive one (e.g., Chandra et al., 2019). There is also evidence of a curvilinear, inverted U-shaped leverage–performance relationship (Dalci, 2018) and U-shaped one (Bae et al., 2017).

Some researchers point to differences in the measure of leverage and performance used (Ihejirika et al., 2020; Yazdanfar & Öhman, 2015). The results also differed on the analytical approach used. For instance, in their study of a sample of Nigerian firms, Ihejirika et al. (2020) used total debt to asset ratio and ROA as measures of leverage and performance respectively. They employed the fixed effects analytical approach and found a negative leverage–performance relationship. In contrast, Ganiyu et al. (2019) employed the two-step system generalized method of moments (GMM) and found an inverted U-shaped relationship. Other authors have argued that the leverage–firm performance relationship depends on the institutional context (Dalci, 2018; Yazdanfar & Öhman, 2015) and the credit risk status of firms (Li et al., 2019).

Although the direction of the leverage–performance relationship has not been consistent across studies, there is substantial evidence that leverage is significantly related to firm performance. Therefore, it is necessary to control for its confounding effects on the D–P relationship. Previous researchers of the D–P relationship have controlled for leverage (see Hoechle et al., 2012; Lee, 2017; Ljubownikow & Ang, 2020; Ramaswamy et al., 2017; Sener & Akben-Selcuk, 2020), whereas O'Brien et al. (2014) have studied how leverage shapes the performance effects of diversification.

Blockholding/Ownership Concentration

Ownership concentration is used interchangeably with blockholding (Edmans & Holderness, 2017). A blockholder usually refers to a shareholder that owns a significant percentage of a firm's shares (Boyd & Solarino, 2016; Edmans & Holderness, 2017). However, what is considered significant may vary from country to country. In the United States, for instance, a blockholder in a firm is typically defined as a shareholder who holds at least 5% of the firm's shares (Connelly et al., 2010; Edmans & Holderness, 2017). As Edmans and Holderness (2017) noted, this definition is not motivated by theory but by the fact that shareholders who happen to acquire 5% or more of a firm's shares are required to disclose this by filing a prescribed form (see also Holderness, 2017).

Researchers have measured blockholding in different ways. These include the existence of a blockholder, the number of blockholders, the percentage of shares held by all blockholders, the proportion of shares owned by the largest blockholder (Edmans & Holderness, 2017; Holderness, 2017, Yasser & Al Mamun, 2017), and by a concentration ratio of blockholding measured by the Herfindahl index of blockholders (Machek & Kubíček, 2018; Sautner & Villalonga, 2010). Holderness (2017) adopted the 5% threshold and measured blockholding as the percentage of shares held by all shareholders owning at least 5% of the shares of a company (see also Benamraoui et al., 2019; Hadlock & Schwartz-Ziv, 2019; Fattoum-Guedri et al., 2018; Kao et al., 2019; Nguyen et al., 2015; Odewale & Kamardin, 2015). Some authors have measured blockholding as the percentage of a firm's shares held by the largest shareholders. These could be the largest, three largest, five largest, and ten largest shareholders, as the case may be (Ali et al., 2018; Boateng et al., 2017; Crisóstomo et al., 2020; Kao et al., 2019; Yasser & Al Mamun, 2017). The problem with this approach is that they do not establish a threshold for determining largeness. Overall, it appears that the measure used in various studies has depended on the availability of relevant data.

Blockholding impacts the two types of agency problems that many authors have identified (Iwasaki & Mizobata, 2020; Sautner & Villalonga, 2010; Wang & Shailer, 2015). In some settings, such as weak investor right protection environments, stakeholders rely on blockholders to provide the monitoring that is necessary to check self-seeking behavior of managers (Iwasaki & Mizobata, 2020; Machek & Kubíček, 2018; Nguyen et al., 2015; Yasser & Al Mamun, 2017). As Basu (2014) noted, the general assumption is that blockholders have the incentive and power to monitor managerial actions and positively influence firm performance (Edmans & Holderness, 2017; Iwasaki & Mizobata, 2020; Yasser & Al Mamun, 2017). In contrast, at high levels of blockholding, blockholders may become entrenched and use their positions to extract private benefits at the expense of firm performance and minority shareholders (Edmans & Holderness, 2017; Iwasaki & Mizobata, 2020; Machek & Kubíček, 2018; Nguyen et al., 2015; Yasser & Al Mamun, 2017). Given the two possible effects of blockholding, there is the possibility of an inverted U-shaped blockholding–performance relationship where performance improves with blockholding up to a point and starts to decline afterward (Machek & Kubíček, 2018).

There is empirical support for both arguments (van Essen et al., 2020; Yasser & Al Mamun, 2017). In a meta-analysis of the effect of blockholding on firm performance in the emerging markets of Eastern Europe and the former Societ Union, Iwasaki and Mizobata (2020) found a significant positive effect of blockholding on firm performance. Other researchers have also found support for the positive blockholding–performance relationship (e.g., Benamroui et al., 2019; Nguyen et al., 2015; Ozili & Uadiale, 2017; Singh et al., 2018; Yasser & Al Mamun, 2017; van Essen et al., 2020). Thraya (2015) and Wang and Shailer (2015) found adverse effects. In contrast, ElGhouty and El-Masry (2017) and Nobanee et al. (2017) found no significant blockholding–performance relationship in Egypt and Saudi Arabia, respectively. Machek and Kubíček (2018), Altaf and Shah (2018), and Guerrero-Villegas et al. (2018) in the cases of Czech Republic, Indian, and European firms respectively found an inverted U-shaped relationship.

Some researchers found that the institutional contexts such as investor right protection quality, the judicial system (Altaf & Shah, 2018; Balsmeier and Czarnitzki, 2015; Lepore et al., 2017; Nguyen et al., 2015), and egalitarianism (Holderness, 2017) determine the extent of blockholding and moderates the blockholder–performance relationship. However, researchers have indicated that the relationship in each context also depends on other factors. These include whether the blockholder is an insiders or outsiders (Benamraoui et al., 2019), domestic or foreign (Lee et al., 2020; Liu et al., 2018; Odewale & Kamardin, 2015; van Essen et al., 2020), and institutional or individual (Hadlock & Schwartz-Ziv, 2019; van Essen et al., 2020). Researchers have found that blockholding characteristics such as the number of blockholders and the contest for power among the blockholders affect the blockholding–performance relationship (Benamraoui et al., 2019; Boateng & Huang, 2017; Fattoum-Guedri et al., 2018; Wang, 2017). The mechanism employed to influence management—voice/shareholder activism or exit and threat of exit—is another moderating factor (Basu, 2014; Filatotchev & Dotsenko, 2015; Hope et al., 2017; Rose & Sharfman, 2015).

The empirical evidence on all these issues is conflicting (Basu, 2014). There is, however, increasing consensus that the blockholder–performance relationship depends on the identity and motivation of the blockholder (Edmans & Holderness, 2017; Hautz et al., 2013; Wang & Shailer, 2018) and the skills and experience of the blockholder (Saghi-Zedek, 2016). As Hautz et al. (2013) argued, blockholders are heterogeneous, and the assumption of a homogenous expectation of different block ownership groups is misleading (see also Edmans & Holderness, 2017; Hadlock & Schwartz-Ziv, 2019; Hautz et al., 2013; van Essen et al., 2020; Wang & Shailer, 2018). This heterogeneity reflects divergently on blockholders' motivation, tactics, and performance outcomes (Edmans & Holderness, 2017; van Essen et al., 2020). Therefore, as Sautner and Villalonga (2010) contended, it is not appropriate to work on the premise that ownership concentration is or is not a suitable corporate governance mechanism as many authors have done.

Some authors have either directly or indirectly examined the relationship between blockholding and the performance effects of diversification (e.g., Brahmana et al., 2019; Lee & Hooy, 2018b; Lin & Servaes, 1999, Sautner & Villalonga, 2010; Tsai et al., 2011). However, the results are mixed. Whereas some researchers found positive effects due to effective monitoring by blockholders (e.g., Lin & Servaes, 1999; Pratyaksa et al., 2015;

Sautner & Villalonga, 2010), others found an adverse effect due to entrenchment (e.g., Brahmana et al., 2019; Lee & Hooy, 2018a, 2018b; Tsai et al., 2011). Saghi-Zedek (2016) found that the effect depends on the skills and experience of the blockholder. Saghi-Zedek showed that controlling shareholding involving banks, institutional investors, and industrial companies is associated with a positive performance. In contrast, family and state ownership associate negatively with performance (see also Hernández-Trasobares & Galve-Górriz, 2017). These results are consistent with studies that show that corporate governance is related to the performance of DFs (e.g., Boumosleh et al., 2012; Gleason et al., 2012; Hoechle et al., 2012).

Board Independence

Corporate governance scholars have usually conceptualized board independence as the degree to which the directors are outsiders to the firm in the sense of having a limited relationship with the company that enables them to exercise independent and objective judgment (Bradley & Chen, 2015; Grosman et al., 2019; Koerniadi & Tourani-Rad, 2012). Authors have measured board independence in various ways (Rutledge et al., 2016). However, the proportion of independent directors on the Board has been the dominant measure (Al-Saidi, 2021; Altuwaijri & Kalyanaraman, 2016; Jiraporn et al., 2018; Rahman & Saima, 2018; Rutledge et al., 2016; Sarkar & Sarkar, 2018; Sener & Akben-Selcuk, 2020).

There have been variations based on different regulatory regimes on how independence is defined. Rashid (2015, 2018) defined independent directors as outside directors and measured board independence as the proportion of outside directors on the

Board (see also Akpan & Amran, 2014; Boumosleh et al., 2012; Gleason et al., 2012). However, Rashid did not indicate what qualifies a director as an outsider. Muller-Kahle (2015) measured board independence principally by the proportion of nonexecutive directors on the Board of directors (see also To et al., 2020; Khosa, 2017; Nguyen et al., 2015; Singh et al., 2018; Yasser & Al Mamun, 2017). Koerniadi and Tourani-Rad (2012) extended this definition by establishing maximum ownership of less than 5% by the nonexecutive director. Brickley and Zimmerman (2010) pointed out that researchers have commonly viewed outside directors as independent and have often measured board independence as the proportion of outside directors on the Board. They have generally defined outside directors as nonexecutive directors (Brickley & Zimmerman, 2010; To et al., 2020; Koerniadi & Tourani-Rad, 2012; Muller-Kahle, 2015; Terjesen et al., 2016; Zattoni et al., 2017).

The agency, resource dependency, and institution-based theories are three critical theoretical perspectives for conceptualizing how independent directors can positively impact firm performance (Grosman et al., 2019; Terjesen et al., 2016; Uribe-Bohorquez et al., 2018; Zattoni et al., 2017). The agency theory-based argument is that independent directors can provide effective monitoring that prevents managers' and controlling shareholders' opportunistic behavior (Jiraporn et al., 2018; Pan et al., 2018; Rashid, 2018; Terjesen et al., 2016; Uribe-Bohorquez et al., 2018; Yusuf et al., 2018; Zattoni et al., 2017). Agency theorists assume that independent directors have their reputation to protect and therefore, motivated to provide performance-enhancing monitoring (Uribe-Bohorquez et al., 2018; Yusuf et al., 2018; Zattoni et al., 2017).

The resource dependency perspective is that outside directors bring valuable knowledge, experience, and connections that are not readily available to insiders (Lai et al., 2019; Terjesen et al., 2016). The institution-based view suggests that the effectiveness of independent directors is context-specific, influenced by such institutional factors as the financial system, legal system, the extent of state intervention, trust levels, and the type of blockholders the directors face (Grosman et al., 2019; Uribe-Bohorquez et al., 2018; Zattani et al., 2017). Influenced by these perspectives, many countries have incorporated independent directorship in their corporate governance codes (Al-Saidi, 2021; Brickley & Zimmerman, 2010; Rashid, 2018; Zattoni et al., 2017).

However, the assumption that outsiders provide effective monitoring and advice is flawed on some grounds. It assumes away the outside director's incentives that may diverge from those of the shareholders, thus, compounding the agency problems they were supposed to mitigate (Brickley & Zimmerman, 2010). It also assumes that the outside directors are always sufficiently independent from the managers or controlling shareholders to offer objective opinions (Brickley & Zimmerman, 2010; To et al., 2020; Khosa, 2017; Rashid, 2018; Yusuf et al., 2018).

The proponents of independent directorship also assumed that the directors have the expertise and access to the necessary information to monitor and advise the management effectively (Brickley & Zimmerman, 2010; To et al., 2020; Khosa, 2017; Rashid, 2018; Yusuf et al., 2018). These assumptions are hardly realistic. Consequently, the appointment of independent directors may end up as mere formality to comply with regulatory requirements and one that drains resources (Brickley & Zimmerman, 2010).

Stewardship theorists have also suggested that supervision could become excessive with independent directors' monitoring and result in demotivation, suboptimal managerial risk-taking, and poor performance (Davis et al., 1997; Nguyen et al., 2017; Shan, 2019).

Consistent with these opposing views, researchers on this relationship have produced conflicting results (Nguyen et al., 2017; Rashid, 2018; Uribe-Bohorquez et al., 2018). Zattoni et al. (2017) and Uribe-Bohorquez et al. (2018) conducted cross-country studies and found a significant positive relationship between board independence and firm performance. Others have also found a positive board independence–performance relationship in country-specific studies (e.g., Boateng et al., 2017; Kao et al., 2019; Pan et al., 2018).

There are other indications of the value of independent directorship. For instance, Fahlenbrach et al. (2017) found that a significantly higher probability of worse stock and operating performance following an independent director's surprise departure. Balsmeier et al. (2017) found that the strengthening of board independence improves innovation performance. Jiraporn et al. (2018) showed that board independence is a substitute for a high-quality external audit required for monitoring and reducing opportunistic managerial behavior. Jiraporn et al. based this substitution argument on their finding that firms with more robust board independence have more effective governance than those with less robust governance, reducing the propensity to hire a Big-4 external auditor.

In contrast, there is also evidence that board independence impacts firm performance negatively. Nguyen et al. (2017) sampled 217 nonfinancial firms in Vietnam over 2010–2014 and found a negative board independence–performance relationship.

Other researchers have also found a negative board independence–performance relationship in different countries and periods (e.g., Al-Saidi, 2021; R. A. Dang et al., 2018; Shan, 2019; Singh et al., 2018).

Apart from the positive and negative board independence–performance strands of the literature, there is also evidence that board independence is not significantly related to firm performance (e.g., Akpan and Amran, 2014; Rahman & Saima, 2018; Rashid, 2018; Rutledge et al., 2016). Terjesen et al. (2016) showed that board independence has no significant impact on firm performance except if the Board is gender diversified. Rashid (2015) argued that the curtailment of agency costs should impact performance positively. Rashid measured agency cost in three ways and found that board independence does not reduce all facets of agency cost in Bangladesh. These results show the lack of consensus on the direction of the Board independence–performance relationship.

Researchers have identified some factors that moderate the Board independence–performance relationship. One such factor is differences in the institutional context (e.g., Koerniadi & Tourani-Rad, 2012; Uribe-Bohorquez et al., 2018; Yusuf et al., 2018; Zattoni et al., 2017). Zattoni et al. (2017) and Uribe-Bohorquez et al. (2018) found that institutional context positively moderated the positive board independence–performance relationship they found in their study. However, whereas Uribe-Bohorquez et al. found that the legal and judicial protection positively moderated the relationship, Zattoni et al. found that the legal system showed no significant effect. Zattoni et al.'s measures of the national business system—financial system, trust, skills development, and state intervention—positively moderated the board independence– performance relationship.

Zattoni et al. (2017) and Uribe-Bohorquez et al. (2018) differ in the performance and board independence measures used. Whereas Zattoni et al. measured performance by the buy-hold abnormal return over the market return, Uribe-Bohorquez et al. measured it by technical efficiency. Also, whereas Zattoni et al. measured board independence by the ratio of nonexecutive directors to the total number of directors, Uribe-Bohorquez et al.'s measure captured more of board diversity in terms of race, gender, experience, and ethnicity. These differences could account for the divergent results relating to the moderation effect of the legal system.

Koerniadi and Tourani-Rad (2012) pointed out that countries may differ regarding ownership concentration and firms' size. They argued that in countries with high ownership concentration and weak investor protection, ownership concentration could substitute interest alignment governance mechanisms, making independent directors' monitoring irrelevant. Koerniadi and Tourani-Rad argued that there is usually a strong network connection in small-sized firms that makes it difficult for directors to be truly independent. In the view of Akpan and Amran (2014) the impact of independent directors on performance depends on the purpose of appointing the directors. The purpose could be to improve performance (in which case they are appointed voluntarily) or to meet a regulatory requirement (Akpan & Amran, 2014; Grosman et al., 2019). In the later case, the firm will hardly experience any positive impact of the director (Akpan & Amran, 2014; Grosman et al., 2019).

Some researchers have shown that factors such as the presence and type of blockholding moderate the board independence–performance relationship. For instance, Khosa (2017) found a significant negative relationship between board independence and market value per share in India’s group-affiliated firms. Khosa interpreted this result as evidence that the market discounts independent directors’ presence since such directors often have allegiance to the controlling family. This allegiance might impair the directors’ monitoring function. Nguyen et al. (2017) found that the negative board independence–performance relationship in their study worsens where the state is the controlling shareholder.

Contrary to Nguyen et al. (2017), Grosman et al. (2019) found that in Russia, independent directors are less effective in mitigating blockholder expropriation in private firms than in state-owned enterprises where the state is usually the blockholder. As Grosman et al. argued, in Russian private firms, the blockholders are oligarchs who use independent directors’ appointments to put on a semblance of credibility that enables them to access more resources. Consequently, these so-called independent directors serve the interest of the blockholder who appoints them (Grosman et al., 2019). In contrast to private firms in Russia, Grosman et al. pointed out that independent directors in state-owned enterprises are usually professionally appointed to address performance and governance challenges in the firms. These independent directors in state-owned enterprises exert effort to perform well because such performance could provide more lucrative opportunities in Russian politics (Grosman et al., 2019). On the basis of these differences in the performance effects of board independence and the moderating factors, Bradley and Chen (2015) argued that there is no monotonic impact of board independence that would justify a one-size-fits-all proposal for board independence.

Some authors have examined the relationship between board independence and the performance effects of diversification. Boumosleh et al. (2012) found a positive relationship between board independence and Tobin's Q and EV, pre and post-Sarbanes-Oxley (SOX) Act of 2002. Gleason et al. (2012) found that board independence positively moderates the performance effects of diversification. They, therefore, concluded that firms with high-quality governance represented by such mechanisms as strong independent boards and outside blockholding make better diversification decisions.

In summary, researchers have found many variables related to firm performance other than diversification and insider ownership. These include firm size, leverage, block shareholding, and board independence. Although there is no consensus on the direction of the relationships, these variables are likely to confound the relationship between firm diversification and firm performance. Therefore, there is a need to control for their effects to arrive at meaningful statements about the D–P relationship.

Performance Effects of Firm Diversification

Researchers have studied the D–P relationship a great deal. However, there is still no consensus on the performance effects of diversification (Ahuja & Novelli, 2017; Aivazian et al., 2019; Borah et al., 2018; Erdorf et al., 2013; Gopal et al., 2021; Guerras-Martín et al., 2020; Ljubownikow & Ang, 2020; Schommer et al., 2019). The lack of consensus is due to differences in the theoretical frameworks, samples, variables, sources of data, analytical techniques, and differences in institutional settings (Benito-Osorio et al., 2015; Benito-Osorio et al., 2012; Borah et al., 2018; Grigorieva & Gorbatov, 2015;

Ljubownikow & Ang, 2020; Rojahn & Zechser, 2019). Despite the lack of consensus, researchers have identified six principal strands of the literature (Benito-Osorio et al., 2012; Dey & Banerjee, 2019; Erdorf et al., 2013).

One strand of the literature finds diversification as a value-destroying strategy that results in diversification discount (see Ammann et al., 2012; Berger & Ofek, 1995; Borah et al., 2018; Hoechle et al., 2012; Lang & Stulz, 1994). A second strand finds diversification a value-creating strategy that results in a diversification premium (He, 2009; Villalonga, 2004), while another strand finds no relationship (see Hoberg & Phillips, 2014; Mansi & Reeb, 2002). Another strand accepts the existence of a diversification discount but argues that it is either magnified or not wholly attributable to diversification per se (e.g., Andrés et al., 2017a; Custódio, 2014; Glaser & Mueller, 2010; Klein & Saidenberg, 2010; Rudolf & Schwetzler, 2014; Ushijima, 2016). One other strand of the literature finds that diversification has a curvilinear relationship with firm performance (Palich et al., 2000). Finally, an emerging strand of the literature is that the D–P relationship is context-specific (Benito-Osorio et al., 2012; Berry-Stölzle et al., 2013; Kuppuswamy et al., 2014; Kuppuswamy & Villalonga, 2016).

Diversification Discount Literature

The favorable view of diversification held during the conglomerate merger wave of the 1960s and early 1970s was replaced in the late 1980s and 1990s with a more negative view of diversification as a value-destroying strategy view (Benito-Osorio et al., 2012; Nazarova, 2015). This view followed many researchers' finding that DFs trade at a discount relative to their focused counterparts and their value had they been operated as standalone firms (e.g., Berger & Ofek, 1995; Lang & Stulz, 1994). The 1980s and 1990s witnessed a trend towards increased refocusing that Comment and Jarrell (1995) found to be associated with significant positive announcement effects.

For instance, Lang and Stulz (1994) used Tobin's q and their version of the EV as measures of value to examine the effect of corporate diversification on performance during the period 1978 to 1990. They employed the Compustat database and three diversification measures, namely, sales-based Herfindahl index, asset-based Herfindahl index, and the number of segments. Using yearly cross-sectional OLS regression for all the years in their sample period, they found that in the 1970s and 1980s, DFs were valued lower than their focused counterparts or their imputed values. Imputed value is an estimate of the value of a DF assuming its segments operated as standalone firms (Berger & Ofek, 1995; Lang & Stulz, 1994).

Lang and Stulz (1994) also found that the discount does not significantly increase with the level of diversification. They concluded that it is the act of diversifying (from one to more industries) and not increasing diversification from two or more segments that causes the diversification discount (see also Andreou et al., 2016; Hoechle et al., 2012). Lang and Stulz also concluded that their results support the view that diversification does not lead to higher performance but is less definitive about the extent to which diversification reduces performance. They based this conclusion on their finding that DFs appeared to be poor performers before they diversified.

Consistent with Lang and Stulz (1994), Berger and Ofek (1995) found that DFs traded at a discount of 13% to 15% during their sample period. Berger and Ofek used the

EV measure of performance and Compustat database of nonfinancial firms in the United States from 1986 to 1991. They found that the discount was smaller when firms engaged in related diversification, which they defined as diversification within the same 2-digit SIC code industries. They attributed the value loss to overinvestment and inefficient cross-subsidization in ICMs of diversified firms.

The evidence of a diversification discount is not limited to the studies conducted in the 1990s. It extends to more recent ones and cuts across countries, methodologies, and measures of variables (see Borah et al., 2018; Espinosa et al., 2018; Gleason et al., 2012; Jouida et al., 2017; Lee & Hooy, 2018b; Liu et al., 2018; Mazur & Zhang, 2015; Ushijima, 2015). However, this evidence is by no means consistent across studies, as I show in the section on the diversification premium.

Researchers have explained the diversification discount by some factors and their combinations. For instance, some researchers have presented evidence that the ICMs created by DFs are inefficient in the allocation of capital (e.g., Berger & Ofek, 1995; Glaser et al., 2013; Klein & Wuebker, 2020; Ozbas & Scharfstein, 2010). Cline et al. (2014) found that when DFs that operate inefficient ICMs issue bonds, the market charges them considerably higher than those that operate efficient ICMs. They also found that these firms experience seasoned equity offering announcement return significantly more negative than those operating efficient ICMs. Bielstein et al. (2018) showed that inefficiency of firms' ICMs leads to a seven basis points increase in the cost of capital, while Klein and Wuebker (2020) showed that it reduces innovation by discouraging investment in research and development.

Some authors have attributed the inefficiency of investments within ICMs to capital allocation that favors powerful and connected segment CEOs rather than segments with better projects (Duchin & Sosura, 2013; Glaser et al., 2013). Glaser et al. (2013) found that the ex-post performance and productivity of the investments by more powerful managers were lower than comparable ones. This finding is consistent with Boumosleh et al. (2012), who found that of all the corporate governance variables examined, CEO power influenced inefficient resource allocation and the diversification discount most. This power of divisional managers and CEOs emerges from the fact that CEOs possess critical information and the decision rights (Graham et al., 2015; Schneider & Spalt, 2016).

However, the efficiency or inefficiency of ICMs is still a contentious issue. Some have argued or found that ICMs are efficient (see Giroud & Mueller, 2015; Maksimovic & Philips, 2014; Saeed & Sameer, 2015). Others argued that ICMs' efficiency depends on the external capital market condition (Hovakimian, 2011; Kuppuswamy & Villalonga, 2016). I review some of these studies in the section on institution-based view of diversification.

However, some other authors do not subscribe to the idea of efficient or inefficient ICMs. Gugler et al. (2013) argued that a priori, ICMs are neither good nor bad, but their efficiency and impact on performance are dependent on some factors. Gugler et al. identified the size of the parent company's ownership in the subsidiary and the institutional context in which the subsidiary operates as some of the factors. The factors also include the level of internal information asymmetry (Duchin & Sosyura, 2013) and the amount of business-relevant information flowing into the firm (Anjos & Fracassi, 2015). Cheng and Wu (2018) argued that financial statement comparability is a form of corporate governance that enhances information flow and monitoring that improves the efficiency of ICMs. Consistent with this argument, Cheng and Wu found that financial statement comparability is associated with greater ICM efficiency and lower diversification discount. These factors cast doubt on the inefficient ICM explanation. This doubt stems from the evidence that the assumption inefficiency of ICMs is not always validated.

Mitton (2012) has explained the diversification discount by lower labor productivity in DFs. Mitton based this explanation on finding that DFs have lower labor productivity compared to focused firms. He found that the lower labor productivity is due to misallocation of capital in the ICMs of DFs and agency problems (Hoechle et al., 2012; Jara-Bertin et al., 2015a). However, the lower productivity explanation of the diversification discount is questionable in the light of Gyan (2017). In a sample of Malaysian firms for the 2009 to 2014 period, Gyan found no significant moderating effect of productivity on the D–P relationship with Tobin's q as the measure of performance.

Another explanation for the diversification discount is the refocusing costs that force firms to persist with the diversification strategy even when it is no longer value maximizing (Anderson et al., 2000; Smith & Coy, 2018). This persistence compounds the diversification discount (Anderson et al., 2000). These costs include those of breaking and rewriting contracts—some implicit—with various stakeholders (Anderson et al., 2000; De Figueiredo et al., 2019). These costs also increase with the number of stakeholders, which is a function of the extent of the firm's diversification (Patrisia & Dastgir, 2017; Patrisia et al., 2019; Su & Tsang, 2015; Xu & Liu, 2017). Refocusing costs also include the high costs of organization adjustment and synergy destruction (De Figueiredo et al., 2019).

Overall, as with the idea that DFs underperform focused firms, there is no consensus about why this could be the case. The explanations that researchers have put forward range from the inefficiency of internal markets, low labor productivity, and agency problems to the cost of refocusing. The lack of consensus indicates the need for further studies to explain the diversification discount if indeed there is one.

Diversification Premium Literature

The conclusion that diversification is value destroying is by no means consistent across studies. There are reasons to expect diversification to be a value-creating strategy. The reasons include the possibility of establishing efficient ICMs, coinsurance effects that reduce firm risk and enhance debt capacity that can increase investment and provide tax shield if efficiently used (Aivazian et al., 2019; García et al., 2013; Lawrey & Morris, 2019). Others are the potential of achieving economies of scale and scope; and the productive use of excess resource capabilities (Aivazian et al., 2019; García et al., 2013; Lawrey & Morris, 2019).

The fact that firms continue to diversify despite the documented diversification discount casts doubt on the conclusion that diversification destroys value (De la Fuente & Velasco, 2015; Hyland & Diltz, 2002). Therefore, many authors have questioned the existence of a diversification discount and whether diversification per se is its cause. The authors raised question related to the methodology in many studies in the diversification discount literature (see Campa & Kedia, 2002; Hyland & Diltz, 2002; Mansi & Reeb, 2002; Villalonga, 2004).

Hyland and Diltz (2002) pointed out that firms' reported segment changes are the basis of Compustat data, and many of the studies in the diversification discount literature use Compustat data. Hyland and Diltz found that only 72% of these reported segment changes were economically meaningful diversification events. This fact suggests that some of the firms that Compustat classified as diversified could have been focused firms, and this could have biased the results. Hyland and Diltz used only economically meaningful diversification events—including diversification through acquisition and internal growth—for a sample of 173 firms that changed their number of segments from one to more than one during the period 1978 to 1992 to analyze the performance effect of diversification. They found evidence that is inconsistent with the view that diversification destroys value.

Villalonga (2004) raised further concerns with the segment data of previous diversification discount studies. One of these concerns segments underreporting because before the Statement of Financial Accounting Standards (SFAS) 131, Financial Accounting Standards Board (FASB) 14 obligated U.S. firms to satisfy the 10% materiality requirement in their segment reporting (Villalonga, 2004). This requirement restricted the maximum reportable segments to 10. Consequently, managers had to decide on the aggregation level and activities they aggregated under the same segment

(Villalonga, 2004; see also He, 2012). Managerial discretion over the aggregation of activities under different segments makes the interfirm comparison of reported segments harder (Hund et al., 2013, 2019; Villalonga, 2004). Villalonga (2004) argued that this might cause misclassification of firms as focused even when they are diversified. This misclassification would bias the mean and median q of focused firms from which researchers input segment values to DFs. It is, therefore, possible that the documented diversification discount may be an artifact of segment reporting bias (Villalonga, 2004).

To overcome the concerns with Compustat segment data, Villalonga (2004) used the Business Information Tracking Series (BITS) of the U.S. Census Bureau as an alternative source of segment data. Villalonga found a statistically significant diversification premium for the period 1989 to 1996. This diversification premium is contrary to a diversification discount she found when she used Compustat segment data. Therefore, Villalonga concluded that the discount found in previous studies might be an artifact of the source of segment data used. According to Villalonga, this result calls to question the received wisdom on the existence of a diversification discount and the adequacy of segment data for research in corporate finance and strategy.

Campa and Kedia (2002) argued that the diversification decision is an endogenous one because firm characteristics that affect firm value also influence diversification decision. Therefore, the diversification discount could be due to the failure to control the endogeneity of the diversification decision. Without controlling for endogeneity, Campa and Kedia (2002) found a diversification discount, consistent with Lang and Stulz (1994) and Berger and Ofek (1995). However, when they controlled for the endogeneity of the diversification decision, they found that the discount always dropped, and in some cases, turned to a premium (see also Bhatia & Thakur, 2018). Campa and Kedia, therefore, concluded that the diversification discount is partly due to the failure to control for the endogeneity of the diversification decision.

Like Villalonga (2004) and Campa and Kedia (2002), He (2009) also concluded that the pre-SFAS 131 (1998) diversification discount is an artifact of the source of data or failure to control for endogeneity. He based this conclusion on the diversification discount in the pre-1998 data, contrary to a diversification premium in the post-1997 data. However, He used a measure of diversification that is different from the measures that researchers have traditionally employed. It is, therefore, an issue whether his study and its results are comparable to others. Ahn (2015) does not entirely support He. Unlike He, Ahn found a diversification discount in both the pre- and post-SFAS 131 segment data but the discount was greater, post SFAS 131. Ahn, however, made the point that the discount was not attributable to diversification per se but to the impact of reporting changes since there were no fundamental changes in firm value or investment efficiency during the period. The difference between Ahn’s result and He’s could lie in differences in the measurement of diversification and the failure of Ahn to control for endogeneity.

Many authors have also found a diversification premium (see Aivazian et al., 2019; Akbulut & Matsusaka, 2010; Bhatia & Thakur, 2018; Cole & Karl, 2016; Hund et al., 2019; Lawrey & Morris, 2019; Qiu, 2014). Against the background of the difficulties and inconsistent results obtained using the EV measure of Berger and Ofek (1995), as an alternative approach to valuation, Akbulut and Matsusaka (2010) conducted an event study of the announcement returns from diversifying mergers and acquisitions for the period 1950 to 2006. They found a significantly positive combined return from diversifying acquisition announcement in the magnitude of 1.6% over a three-day window. The combined returns from diversifying acquisitions were as large as that from related acquisitions and is evidence that investors did not consider diversifying acquisition as value destroying.

In an event study of 98 acquisitions by Turkish firms listed on the Istanbul Stock Exchange between 2000 and 2011, Selcuk and Kiymaz (2015) obtained results consistent with Akbulut and Matsusaka (2010). Chiu et al. (2016) classified Google's 2011 acquisition of Motorola as a conglomerate merger and analyzed the acquisition announcement return. They obtained results that support Akbulut and Matsusaka and Selcuk and Kiymaz. Lawrey and Morris (2019) compared the buy and hold abnormal return of portfolios of DFs and focused ones over 12, 24, and 36-month windows from 1976 to 2009 and found that the DFs portfolios outperformed their focused firm counterparts over the 36-month window. According to Lawrey and Morris, this result indicates that firm diversification benefits accrue over a longer investing horizon. These results cast doubt on the dominant view that diversification is a value-destroying strategy.

No Relationship Literature

Apart from the evidence that diversification is a value-creating strategy, some authors have argued that there is no relationship between diversification and firm performance (see Hoberg & Phillips, 2014; Mackey et al., 2017; Mansi & Reeb, 2002; Schommer et al., 2019). Mansi and Reeb (2002) pointed out that while reducing shareholder value, diversification also reduces firm risk, thereby enhancing bondholder value (see also Mammen, 2020). On the basis of this finding, Mansi and Reeb put forward the wealth transfer hypothesis that diversification does not destroy value but instead transfers value from one supplier of capital to another (from shareholders to bondholders). Therefore, in aggregate, there should be no diversification discount (Mansi and Reeb, 2002). Using a sample of 18,898 firm-year observations, Mansi and Reeb found no significant relationship between diversification and EV.

Hoberg and Phillips (2014) identified three limitations with existing methods for creating benchmarks for evaluating the performance of DFs as used in Lang and Stulz (1994) and Berger and Ofek (1995). One of these limitations is the use of only SIC codes to identify the universe of single-segment firms to create the benchmark despite evidence of inconsistency in segment classification (Hyland & Diltz, 2002; Villalonga, 2004). Another of these limitations is the focus on a single accounting characteristic of the firm (say sales) when firms could differ along other dimensions such as age (see also Hund et al., 2013). Hoberg and Phillips also identified the equal weighting of all single-segment firms in computing segment discount or premium despite additional information that might exist in the nature of the products of each single segment firm (see also Hund et al., 2019).

Hoberg and Phillips (2014) developed a text-based method for identifying peer firms and accounting for the firm’s uniqueness and organizational form to address some of these limitations. Using this new methodology, Hoberg and Phillips addressed whether product uniqueness explains valuation differences between diversified and focused firms.

They found that product uniqueness and other firm characteristics were the factors that explained differences in market valuation for both diversified and focused firms. They also found that the persistence of product uniqueness over time is a function of the firm's patents, branding, research and development intensity, and the entry into the firm's product space by rivals financed by venture capitalists. These findings imply that the market places value on a firm's uniqueness but not on its organizational form, diversified or focused.

Mackey et al. (2017) arrived at a similar conclusion as Hoberg and Philips (2014). Mackey et al. reexamined the relationship between a firm's diversification strategy and its performance using the hierarchical Bayesian modeling approach. Mackey et al. found that any strategy—diversification or focus—could be value-creating depending on a firm's resources and operating context (see also Pidun et al., 2019; Schommer et al., 2019). Garcia-Feijoo and Smith (2017) also found that long-run differences in performance between diversifying and focusing firms were not explained by diversification but by differences in firm characteristics known to impact firm performance. Therefore, the no relationship literature casts down on the relevance of the diversification decision.

Diversification Discount Magnified or Not Caused by Diversification

Some authors have argued that the inconsistent findings stem from reasons such as data-related biases, methodological issues, and the presence of moderating factors (Andrés et al., 2017a). According to Andrés et al. (2017a), moderating factors suggest that the performance effects of diversification will not be the same across firms. These data-related biases, methodological issues, and moderating factors have led some authors to argue that, although there might exist a diversification discount, researchers cannot attribute it to diversification per se. Some authors have posited that inadequate measurement of variables magnify the discount, and other factors reduce the discount. I explore these data-related and methodological issues subsequently.

One methodological issue that some researchers have raised is the use of the book value rather than the market value of debt in computing firm value. Mansi and Reeb (2002) found that the loss of value experienced by shareholders in diversification is a function of firm leverage and that all equity firms do not experience diversification discount. Mansi and Reeb also found that diversification reduces firm risk (see also Franco et al., 2016; Mammen et al., 2021; Wu & Chiang, 2019; Yücel & Önal, 2015) and that the book value of debt does not appropriately proxy its market value. These findings support the wealth transfer hypothesis, implying that using book value rather than the market value of debt in computing firm value and EV systematically undervalues DFs, resulting in the documented diversification discount.

Mansi and Reeb (2002) worked on the premise that diversification reduces firm risk. However, some studies have cast doubt on this premise. There is evidence that diversification either has no significant relationship with firm risk (see Rojahn & Zechser, 2019) or increases firm risk (see Braakmann & Wagner, 2011). Jafarinejad et al. (2018) showed that diversification's risk reduction ability depends on the type of diversification, risk, and external capital market condition. Consistent with Jafarinejad et al., Wu and Chiang (2019) showed that related diversification reduces ROA variability whereas unrelated diversification reduces systematic risk. Haug et al. (2018) showed that corporate diversification significantly reduces bankruptcy risk but does not significantly impact systematic risk. Sun and Govind (2017) found that the level of market turbulence and the firm's market emphasis—in terms of the level of concentration of marketing and sales expenses—moderates the risk effects of diversification. At best, it appears that the evidence on the risk effects of diversification is not conclusive.

However, granting that diversification reduces risk and enhances bondholder value—necessitating the use of market rather than the book value of debt in computing firm value—there is still no consensus on whether the use the market value of debt causes the diversification discount to disappear. Some authors have found that the use of book rather than the market value of debt underestimates the value of DFs relative to UDFs. However, these authors also found that the diversification discount only decreases but does not disappear when they used estimates of debt's market value (see Ammann et al., 2012; Glaser & Mueller, 2010; Hoechle et al., 2012). Therefore, the conclusion is that although important, the use of book value of debt rather than market value is not the only explanation for the diversification discount (Ammann et al., 2012; Glaser & Mueller, 2010; Hoechle et al., 2012). However, given that most of these studies used data from developed countries, the question remains whether researchers would observe the discount in different institutional contexts.

Rudolf and Schwetzler (2014) pointed out that conglomerate EV will be biased downward if researchers do not adjust for the conglomerate's cash holding. Although not all DFs hold less cash than focused firms (Atanasova & Li, 2019), on average, conglomerates in developed markets hold significantly less cash than standalone firms (Bakke & Gu, 2017; Nguyen et al., 2017; Ushijima, 2020). Rudolf and Schwetzler also noted that to average industry multipliers, geometric mean is more reliable than the arithmetic mean or median used by Berger and Offek (1995). On the basis of the differences in cash holding between DFs and UDFs, Rudolf and Schwetzler suggested the use of enterprise value rather than the firm value given that enterprise value treats cash as negative debt and subtracts it from firm value. They also proposed the use of geometric mean rather than arithmetic mean or median of industry multipliers in computing the Berger and Ofek (1995) EV.

In a sample of U.S. firms from 1998 to 2009 and their enterprise value and geometric mean approach to computing EV, Rudolf and Schwetzler (2014) found that the diversification discount decreased significantly by about 16% compared to when they employed the firm value–median industry multiplier model. Therefore, they concluded that the traditional Berger and Ofek (1995) EV measure distorts the value of DFs and argued that this distortion partly explains the documented diversification discount.

Custódio (2014) identified purchase accounting used in mergers and acquisitions as another magnifier of the diversification discount. In purchase accounting, firms report acquired assets at their transaction value that typically exceeds their premerger book values because of the inclusion of goodwill in the firm's postmerger value (Custódio, 2014). By subtracting goodwill, Custódio found a 30% to 76% reduction in the diversification discount. However, Custódio assumed that mergers and acquisitions are the only channels for realizing diversification. Although mergers and acquisitions are the principal vehicle of diversification, firms achieve substantial diversification through internal growth (Ekkayokkaya & Paudyal, 2016; Hyland & Diltz, 2002; Sahni & Juhari, 2019) that does not require purchase accounting. Çolak (2010) identified the nonsimultaneous consideration of the diversification and refocusing decisions in estimating the valuation consequences of corporate restructuring given that firms take these decisions jointly. Çolak found no systematic diversification or refocusing discount or premium when they considered the diversification and refocusing decisions simultaneously.

Altieri and Nicodano (2019) showed that the probability of default is higher for UDFs than for DFs and argued that the chances of survival are higher for DFs than for UDFs. As the authors pointed out, firms delist when they default and go bankrupt. Therefore, on average, the group of DFs will have more underperforming firms than the group of UDFs because more underperforming UDFs delist, leaving only higher-performing UDFs (Altieri & Nicodano, 2019; see also Schommer et al., 2019). The result of the delisting of underperforming UDFs is that, on average, the group of surviving UDFs will tend to have a higher valuation than the group of surviving DFs, which include more underperformers (Altieri & Nicodano, 2019). Altieri and Nicodano found a significant positive relationship between the probability of survival and the diversification discount. Altieri and Nicodano (2021) accounted for the survivorship bias and found that between 25% to 75% of the diversification discount—depending on the bankruptcy prediction model—disappeared. These results are consistent with the view that differential probability of survival is one explanation for the diversification discount (Altieri & Nicodano, 2019, 2021).

Hund et al. (2019) concluded that the diversification discount that researchers who used the Berger and Ofek (1995) EV method documented is an artifact of poor matching of diversified and focused firms on the size and age dimensions. Hund et al. showed that DFs are much larger and older than focused firms and that the market-to-sales ratio in the Berger and Ofek method of EV declines with size and age. According to Hund et al., the result is that comparing larger and older DFs to smaller and younger focused firms—as the Berger and Ofek did—is bound to produce a diversification discount. Given this possibility, Hund et al. developed the strata-matched EV measure that closely matches DFs to focused firms on the size and age dimensions and found that, on average, the valuation difference between DFs and UDFs disappeared. These findings suggest a need to understand what makes the difference between DFs that outperform and those that underperform.

The evidence in the preceding section is that methodological issues related to the computation of the EV measure may have magnified or created the diversification discount documented in many studies. However, granted that the Berger and Ofek (1995) EV measure had been the dominant measure of DF performance, it is by no means the only measure that researchers have employed. These issues do not say much about the underperformance of DFs when researchers used accounting measures such as ROA and ROE (Lang & Stulz, 1994). Some factors moderate the D–P relationship (Ahuja & Novelli, 2017).

Some scholars have examined the effects of some moderating factors. For instance, Andrés et al. (2017a) argued that the outcome of diversification depends on its implementation. Andrés et al. identified two divergent approaches to implementing diversification. The first approach is a one-step (asset-in-place) strategy—that is a now or never approach (exercise now or abandon)—where the firm commits fully now or abandons the option to invest. The second approach is the growth options strategy which is a gradualist method. Here, the firm approaches the diversification investment by making minor investments in selected industries to explore these industries before significant commitments (Andrés et al., 2017a). However, the firm builds-in some flexibility that allows it to adjust (expand further or abandon) with developments and new information.

Andrés et al. (2017a) found that the flexibility built into the growth options approach leads to a more value-enhancing diversification. Deligianni et al. (2017) arrived at similar conclusions as Andrés et al. Deligianni et al. found that the effectuation processes positively moderated the D–P relationship. Deligianni et al. conceptualized effectuation in four dimensions: experimentation, affordable loss, flexibility, and precommitment. Except for affordable loss, all these effectuation measures had a significant positive moderating effect on the D–P relationship.

Andreou et al. (2016) identified firms' diversification profile as another factor that moderates the D–P relationship. According to the authors, firms could be single-time diversifiers or multiple-time diversifiers. Andreou et al. found that without accounting for a firm's diversification profile, diversification reduced firm value, a result that is consistent with the diversification discount literature. However, they also found that one-time diversifiers —from a single-segment to multiple segments—were responsible for the value loss (see also Hoechle et al., 2012; Lang & Stulz, 1994). Andreou et al. also found that multisegment firms that further diversified once experienced insignificant value loss whereas multisegment firms that diversify multiple times experienced diversification premium. Andreou et al. attributed this premium to the experience and knowledge gained from previous diversifications (see also Tran et al., 2015). This conclusion is consistent with the advantages of the growth option diversification strategy, as Andrés et al. (2017a) identified.

Related to Andreou et al. (2016) is Kim and Kim (2015), who showed that the diversification discount is an early stage diversification phenomenon. Kim and Kim argued that as a firm adjusts to its new status in the early stages of diversification, it loses comparative advantage due to increases in adjustment costs. However, as the firm consolidates its diversification, the discount turns to premium (Kim & Kim, 2015). The evidence so far is that many factors moderate the D–P relationship and more moderating factors may also be identified as scholars continue to research the relationship.

Some authors have argued that the diversification discount does not imply that it is diversification per se that the market discounts. Instead, as they argued, the market might be discounting other firm features and its environment (see Andreou et al., 2019; Espinosa-Méndez et al., 2018; Matsusaka & Wang, 2015). Therefore, it would be necessary to distinguish between the effects of diversification from those of the firm's other features in assessing the diversification discount. For instance, Tsai et al. (2011)

and Matsusaka and Wang (2015) found that the market discounted the expropriating tendencies of entrenched controlling shareholders and Espinosa-Méndez et al. (2018) showed that family ownership positively moderated the D–P relationship (see also Espinosa et al., 2018). Wu (2013) found that the market considers demand dynamics and the opportunity cost of reallocating the excess capacity in each firm. Harper et al. (2017) used a rational learning framework and found that investor sentiment explains the diversification discount, with the discount increasing when investor sentiment is high and decreasing when investor sentiment is low.

Andrés et al. (2017b) argued that diversification generates growth options whose values researchers should account for in computing the DF’s total market value. Researchers’ failure to incorporate such growth options’ value might be one explanation for the diversification discount (Andrés et al., 2016, 2017b). Andrés et al. (2016) found that relevant growth opportunity partially mediates the D–P relationship in that part of the effect of diversification on firm value goes through the relevant growth opportunity. Andrés et al. showed that diversification becomes less value destroying when it increases relevant growth opportunity.

Klein and Saidenberg (2010) and Ushijima (2015a) found evidence of “organizational-structure discount” (Klein & Saidenberg, 2010, p. 128), that what the market discounts in DFs is not diversification per se but the organizational structure of the firms. Investors may discount firms’ organizational structure due to information gathering difficulty and cost (Borah et al., 2018). This difficulty increases with organizational complexity (Borah et al., 2018; Chen & Liao 2015; Feldman et al., 2014;

Lai & Liu, 2018; Schaberl, 2014). Complexity increases with diversification (Borah et al., 2018; Hutzschenreuter & Horstkotte, 2013; Kim & Rasheed, 2014; Klein & Saidenberg, 2010). The increased cost of information gathering either reduces analysts' incentive to cover DFs or causes them to produce less quality reports (Feldman et al., 2014; Pattnaik et al., 2013).

In the absence of useful information, investors tend to place less value on DFs, and this partly explains the diversification discount observed (Borah et al., 2018; Lai & Liu, 2018). Consistent with this view, Borah et al. (2018) found that DFs suffer a diversification discount of up to 15.34%. This discount is higher for diversified high-technology firms than low-technology firms (Borah et al., 2018). Borah et al.'s explanation for this difference is the severity of information asymmetry, which is more in technology firms than nontechnology ones due to the higher level of difficult-to-value intangible assets in high-technology firms than low-technology ones.

The need to improve the quality of financial reports and signal credibility to attract higher market valuation from investors may explain why complex organizations such as DFs are more likely to hire high-quality auditors (Lai & Liu, 2018). Lai and Liu (2018) found that DFs that hire quality auditors (Big N auditors) and auditors with longer tenure have higher financial reporting and disclosure quality and are valued more than those that do not. As further evidence of the importance of information quality in the valuation of DFs, Schaberl (2014) found that the change in the United States from FASB 14 to SFAS 131 improved segment reporting, led to reduced analysts' information gathering cost, and improved precision of analysts' forecasts. Chen and Liao (2015) found that compliance with SFAS 131 is negatively and significantly associated with the firm cost of debt.

Because diversification per se is not the explanation for the diversification discount, Andreou et al. (2019) developed a theoretical model that predicts that CEO overconfidence will be associated with value loss in DFs. Consistent with this prediction, Andreou et al. (2019) found an economically significant loss of value of between 12.5% and 14.1% in DFs run by overconfident CEOs relative to those run by rational CEOs. On the basis of these findings, Andreou et al. proposed that CEO overconfidence is the unifying explanation of the pursuit of value-destroying diversification and subsequent refocusing aimed at restoring value.

In summary, the preceding section shows that there are divergent views on the performance effects of diversification. There is no consensus or validation in other settings on many of the issues surrounding D–P relationship. As a result, whether diversification is related to firm performance and the nature of this relationship is yet unsettled. The lack of consensus calls for further studies.

Curvilinear Diversification-Performance Relationship

The diversification premium and diversification discount models leave scholars with some puzzles. Whereas the diversification discount model leaves researchers with the question of why firms continue to diversify (de la Fuente, & Velasco, 2015), the diversification premium model leaves unexplained the increases in firm value following refocusing (Ahn, 2009; Comment & Jarrell, 1995; Huang, 2014). A possible resolution to these puzzles may be that diversification results in premium (discount) up to a point before it turns to a discount (premium). Palich et al. (2000) identified two primary shifts in diversification in the U.S. economy over the three decades up to the 1990s: the increased rate of diversification in the 1960s and the decrease in diversification in the 1980s. Palich et al. argued that these two shifts suggest a tacit rejection of the linear premium/discount models of the D–P relationship. This argument necessitates another explanation of the relationship—one that will account for these shifts in diversification.

Palich et al. (2000) reviewed 55 studies in the D–P literature, and through a meta-analytic approach, derived and tested the curvilinear model of the relationship. This model essentially posits that firm performance increases as a firm moves from focused strategies to related diversification strategy but decreases as the firm moves away from related to unrelated diversification (see also Lohwasser et al., 2019). Palich et al. used various diversification and performance measures and found support for the inverted-U model of the D–P relationship. Nejadmalayeri et al. (2017) showed an optimal level of diversification that is a function of the number of segments and their relative sizes beyond which adding more segments destroys value, a result that is consistent with the inverted-U model.

Many researchers have found support for the inverted-U D–P relationship in various studies (e.g., Benito-Osorio et al., 2015; Ekkayokkaya & Paudyal, 2016; Gálvan et al., 2014; Lien & Li, 2013; Sajid et al., 2016; Santarelli & Tran, 2016). However, Schommer et al. (2019) found that the level of unrelated diversification has decreased over time while related diversification has increased since the 1990s, after an initial decrease in the 1970s and 1980s. Simultaneously, the performance effects of unrelated diversification have improved over time while that of related diversification have remained relatively stable. On the basis of these findings, Schommer et al. challenged the idea of an inverted U-shaped D–P relationship.

Schommer et al. (2019) attributed the inverted-U D–P relationship to a weak selection environment that allowed underperforming unrelated DFs to survive. Schommer et al. argued that with the strengthening of the selection environment over time through increased capital market and shareholder pressures, the market forced out these underperforming unrelated-DFs, leaving unrelated DFs that are average or outstanding performers only. According to Schommer et al., the results indicate an overall improvement in the performance of unrelated diversification such that the right-hand side of the inverted U curve has, at least, flattened over time.

However, the inverted-U relationship is not consistent across studies (see Park & Jang, 2012; Setianto, 2020). The shape of the D–P relationship's curve appears to depend on the type of diversification, related or unrelated (Park & Jang, 2012). Park and Jang (2012) studied 308 U.S. firms in the restaurant industry from 1980 to 2008. They found that, contrary to Palich et al. (2000), profitability decreases as related diversification increases up to a point and starts rising. Park and Jang also found that profitability increases initially with unrelated diversification up to a point before it starts decreasing with further increases in unrelated diversification.

Concerning the risk effects of diversification, Park and Jang (2012) also found a curvilinear relationship: Risk increases with related diversification up to a point before decreasing and decreases as unrelated diversification increases but only up to a point before decreasing with further increases in unrelated diversification (Park & Jang, 2012). According to Park and Jang, the managerial implication is that managers who wish to diversify should start with unrelated diversification as this initially increases profitability and reduces risk. However, to optimize the mix of related and unrelated diversification, Park and Jang suggested that managers should strike a balance of approximately equal ratio of the two.

Andrés et al. (2014), Zahavi and Lavie (2013), La Rocca et al. (2018), Nigam and Gupta (2018), and Setianto (2020) also found a U-shaped relationship that is inconsistent with Palich et al. (2000). However, unlike Park and Jang (2012), Andrés et al., Nigam and Gupta, and Setianto did not distinguish between the effects of related and unrelated diversification. La Rocca et al. (2018) distinguish between the effects of related and unrelated diversification and found that whereas related diversification is negatively associated with firm value, unrelated diversification has a positive relationship with firm value. Smeritschnig et al. (2021) suggested that for related diversification, performance differences may arise from the type and degree of related (intra-industry) diversification. They, therefore, decomposed related diversification further into within-product proliferation and across-product proliferation and found that whereas the within-product proliferation–performance relationship is an inverted-U one, across-product proliferation and performance exhibited a U-shaped relationship.

Nigam and Gupta (2020) used the Herfindahl index and entropy measures of diversification and found no significant impact of diversification—and its types, related and unrelated—on performance and risk in a sample of Indian firms, 2006-2016.

However, Nigam and Gupta (2020) went further and used the CBD measure developed by Nigam and Gupta (2018) to distinguish between two types of related diversification – PRD and NRD. They found that whereas NRD improved returns but had no significant impact on risk, PRD has no significant impact on both return and risk. Therefore, it appears that the way diversification is measured influences the results and accounts partly for the mixed results in the literature (Nigam & Gupta, 2018; 2020

Lower performance in related diversification that may give rise to a U-shaped rather than an inverted-U shaped relationship is plausible for some reasons. One is the possible cannibalization of existing products by new ones produced using existing resources (Smeritschnig et al., 2021; Zahavi & Lavie, 2013). Cannibalization leaves the firm worse off (Smeritschnig et al., 2021; Zahavi & Lavie, 2013). The other reason is the increase in coordination cost. Coordination cost increases with the complexity introduced by the need to coordinate the interdependencies and use of shared resources between new and existing businesses in related diversification (Chen et al., 2019; Lee & Gaur, 2013; Zhou, 2011). This cost may increase faster than the expected synergy usually associated with related diversification and thus limit related diversification (Zhou, 2011; see also Chen et al., 2019; Lee & Gaur, 2013; Morris et al., 2017)

Contrary to the U-shaped or inverted-U shaped relationship, Hashai (2015) hypothesized an S-shaped relationship between within-industry diversification and firm performance, explained not only by coordination cost as Zhou (2011) suggested, but by a combination of coordination cost and adjustment cost. Hashai reasoned that at low levels of intra-industry diversification, coordination cost is negligible, but adjustment costs outweigh the little synergy that arises at this level—resulting in performance decline. Hashai further argued that at moderate levels of intra-industry diversification, the benefits of synergy increase and outweigh the sum of adjustment and coordination costs, resulting in a rise in performance. However, at high intra-industry diversification levels, a combination of an increase in adjustment and coordination costs outweighs the declining synergistic benefits at this stage. The result will be a decline in performance. Hashai tested these hypotheses on a sample of private and publicly traded firms in the high technology industries in Israel for the period 2000-2007 and obtained results that are supportive of the hypotheses, a result that is partly consistent with Zahavi and Lavie (2013), and inconsistent with Palich et al. (2000).

Most of the authors that found a curvilinear within-industry D–P relationship focused on large firms in the developed countries (see Hashai, 2015; Park & Jang, 2012; Zahavi & Lavie, 2013). It is questionable whether this relationship could be generalized to the emerging markets that are characterized by institutional voids and small and medium enterprises (Pangboonyanon & Kalasin, 2018). Against this background, Pangboonyanon and Kalasin (2018) used data on 195 firms in five Southeast Asian countries for the period 2009–2014 to examined how within-industry diversification impacts the performance of SMEs in emerging markets. Rather than the curvilinear relationship, Pangboonyanon and Kalasin (2018) found that within-industry (related) diversification impacts firm performance positively in emerging markets and that the positive impact is stronger in less developed institutional contexts and more efficient firms.

Pangboonyanon and Kalasin's (2018) explanation for this finding is that due to institutional voids and market imperfections, the benefits of within-industry diversification in SMEs in emerging markets result not from economies of scope in production but also in consumption. Pangboonyanon and Kalasin argued that these economies of scope in consumption surpass the adjustment and coordination cost involved in managing the interdependencies in resource sharing in within-industry diversification. Firms realize economies of scope in consumption when consumers prefer to buy multiple products from the same supplier, probably, due to the supplier's reputation for quality products (Pangboonyanon & Kalasin, 2018). However, these results are inconsistent with Setianto (2020), who found a U-shaped diversification-firm value relationship in a study of 270 firm-year observations of Indonesian manufacturing firms over the period 2014-2014. The inconsistency suggests that further studies are still needed.

Other researchers have found that the shape of the D–P relationship curve depends on other factors: (a) combination of firm size, product/service offerings, and industry domain (Dhandapani & Upadhyayula, 2015); (b) top management team (TMT)-diversification fit (Hutzschenreuter & Horstkotte, 2013; Weiss et al., 2015; Zhou, 2018); and the industry (Purkayastha & Lahiri, 2016). Hutzschenreuter and Horstkotte (2013) and Weiss et al. (2015) argued that the performance of firms depends on the ability of the TMT to process information, the complexity of which depends on the number and relatedness of activities into which they entered. The TMT's information processing ability, in turn, depends on its task-related (educational background and organizational tenure) and bio-demographic attributes (Hutzschenreuter & Horstkotte, 2013; Kim & Rasheed, 2014). Therefore, it may be expected that TMT characteristics would moderate the shape of the D–P relationship.

Hutzschenreuter and Horstkotte (2013) found an inverted-U relationship between added product scope (diversification) and performance: At levels of diversification with low scope and complexity (related diversification), performance increases up to a point and starts decreasing with further scope and complexity (unrelated diversification). This finding is consistent with Palich et al. (2000) but inconsistent with Park and Jang (2012) and Zahavi and Lavie (2013). However, Hutzschenreuter and Horstkotte found that TMT task-related attributes positively moderated the D–P relationship (see also Zhou, 2018). Both Hutzschenreuter and Horstkotte and Kim and Rasheed (2014) found that bio-demographic attributes negatively moderated the relationship.

One issue with the Hutzschenreuter and Horstkotte (2013) and Kim and Rasheed (2014) studies is that the authors assumed that complexity and information processing requirements increase with product scope, such that unrelated diversification would add more complexity than related diversification. However, Zhou (2011) suggested that related diversification is more complex given that it involves the sharing of existing resources and, therefore, requires more coordination. The difference in the conceptualization of complexity seems to stem from the approach in both studies. While Hutzschenreuter and Horstkotte, and Kim and Rasheed, approached complexity from the required managerial experience and information processing perspective, Zhou approached it from the coordination cost perspective.

From the preceding section, it appears that the curvilinear model of the D–P relationship has received some support. However, there is yet no consensus on the shape of the curve, and some attempts to find a curvilinear D–P relationship have not been successful (see Chao et al., 2012). On the basis of their study of diversified business groups in Taiwan, Chen and Chu (2012) concluded that a nonlinear D–P relationship does not exist. Apart from the inconsistent results, one of the issues with the studies supporting the curvilinear model of the D–P relationship is that they have not related their results to the organization's institutional environment. Therefore, the curvilinear model does not explain why the performance effect of diversification has varied over time and across countries.

Institution-Based Theory (IBT) and the Diversification-Performance Relationship

The proponents of the diversification discount model, the premium diversification model, and the curvilinear diversification model have implicitly assumed that the home country environment is irrelevant (Benito-Osorio et al., 2012). On the basis of this assumption, these proponents had concentrated on the developed countries, notably the United States. Many also adopted primarily a cross-sectional approach or short sample periods, and by this approach implied that in the same countries and different country environments, the D–P relationship is similar and remains constant over time (Benito-Osorio et al., 2012; Schommer et al., 2019). Insights from the IBT suggest otherwise.

Essentially, the IBT is that countries' institutional contexts inform strategic choices made by firms and the outcomes of such choices (Benito-Osorio et al., 2012; M. Zhang et al., 2015). Consistent with IBT, Qiu (2014) showed that cultural differences and globalization context impact firm diversification decisions and their outcomes. Some researchers have argued and shown that nonmarket institutional factors such as political ties of managers matter for firm diversification strategies and performance in emerging markets (Boschma & Capone, 2015; Shi et al., 2017; Sun et al., 2015). Lohwasser et al. (2019) conducted a meta-analysis of 462 studies covering 1977-2012 in 40 countries and showed that diversification impacted firm performance more negatively in countries with better developed legal systems that offer better shareholder protection. Therefore, Lohwasser et al. concluded that institutions matter for the D–P relationship.

Sun et al. (2017) found that CEO political ties have a significant positive relationship with product diversification in transition and emerging economies (see also Fan et al., 2020). However, as Mahmood et al. (2017) showed, the kind of political connections that benefit firms change as markets open up. In a recent study covering 15 years, Gopal et al. (2021) found that while all firms reduced unrelated diversification following improvements in India's market-supporting institutions, diversified business groups increased focus at the firm-level but continued to increase unrelated diversification at the group-level. In essence, the IBT could explain why a particular type of firm (diversified or focused) may be prevalent in certain countries or certain times in some countries. It could also explain the performance differences that have been recorded for different strategies in different countries and at different times (Benito-Osorio et al., 2012).

There is evidence of variation in diversification and focusing and their valuation effects over time. Diversified pyramidal business groups feature prominently in many developing countries today (Gopal et al., 2021). However, Kandel et al. (2019) have shown that the diversified business group structure was also dominant at certain times in the history of many advanced countries (see also Nakamura, 2015). Many authors have shown that the trend towards diversification or focusing has changed over time (e.g., Basu, 2010; Bhatia & Thakur, 2016, 2017; Comment & Jarrell, 1995; Matvos et al., 2018; Rumelt, 1982; Schmid & Waters, 2014; Schommer et al., 2019). The decision to operate as UDF or DF is not a one-time decision (Basu, 2010; Bhatia & Thakur, 2016, 2017). Firms change their diversification/focus status over time in response to performance challenges, macro competitive environments, capital market conditions, and investor sentiments (Basu, 2010; Bhatia & Thakur, 2016, 2017; Bowen et al., 2015; Hovakimian, 2016; Lord & Saito, 2020; Matvos et al., 2018; Schommer et al., 2019; Smith & Coy, 2018).

The diversification and refocusing strategies of firms have not only changed over time, they have also been valued differently over time (Flickinger & Zschoche, 2018; Schommer et al., 2019). There is evidence, for instance, that the valuation effect of diversification has varied over time (Ahn, 2009; Akbulut & Matsusaka, 2010; Mazur & Zhang, 2015; Pidun et al., 2019; Schommer et al., 2019; Servaes, 1996). The different types of diversification—related and unrelated—have also been valued differently over time. For instance, Ljubownikow & Ang (2020) found that higher competition is associated with more unrelated and less related diversification and that a more unrelated diversification strategy improves performance as competition rises.

There has also not been any consensus on refocusing and the value effects of divestiture (Bergh et al., 2020; Flickinger & Zschoche, 2018; Huang, 2014; King et al., 2015; Matsusaka & Wang, 2015; Teschner & Paul, 2020). However, Comment and Jarrell (1995) found that the markets reacted positively to the refocusing in the 1980s (see also Zenner et al., 2015). Teschner and Paul (2020) found that divestiture is associated with a 1.33% announcement day average abnormal return in Germany, Austria, and Switzerland. Curi and Murgia (2018) found that divestiture (especially intra-industry) generally significantly reduces the diversification discount in financial conglomerates.

However, the effect of refocusing may depend on some factors. For instance, Bergh et al. (2020) found that the market reaction to divestiture is contingent on the changes in blockholding and firm performance pre divestiture. Pham et al. (2021) found that the asset sell-off firms experienced higher long-run post divestiture operating performance and stock return than equity carve-out parents. The positive market reaction to divestiture announcement is lower for firms with high pre divesture R&D expenditure. Akbulut and Matsusaka (2010) explained these variations by changes in the institutional environment and efficiency of external capital markets over time (see also Flickinger & Zschoche, 2018; Schommer et al., 2019).

Although there has not been any consensus on the performance effects of diversification, what is certain is that different periods in individual countries have experienced diversification or refocusing waves with different performance effects (Benito-Osorio et al., 2012; Flickinger & Zschoche, 2018). Firms react to these by changing their strategies to take advantage of the changing performance effects of different strategies (Flickinger & Zschoche, 2018; Harper et al., 2017). The implication of this is that any effort at understanding the performance effects of diversification should incorporate the dynamic nature of firm diversification status (Basu, 2010).

Following the finding that the performance effects of diversification vary over time, some authors have started examining how different economic conditions affect DFs' behavior and, consequently, their performance in such conditions. For instance, Kuppuswamy and Villalonga (2016) examined whether the value of diversification and its determinants changed during the financial crises of 2007-2009, given the financial constraints in the external capital market that it occasioned. Using a sample of 4,370 U.S. firms between 2005 and 2009, Kuppuswamy and Villalonga found a crisis-period diversification premium: The value of diversification increased significantly during the financial crisis period. On the basis of their finding that the crisis's effect was more significant on the value of unrelated DFs than on related DFs, Kuppuswamy and Villalonga attributed the increase in the value of DFs to diversification.

The crisis-period diversification premium hypothesis has received support in many other studies (e.g., Aivazian et al., 2019; Guerry & Wallmeier, 2017; Liu et al., 2018; López-Zapata et al., 2019; Matvos & Seru, 2014; Rudolph & Schwelzler, 2013; Shen et al., 2018; Volkov & Smith, 2015). Kuppuswamy and Villalonga (2016) gave two explanations for this result: the increased debt capacity of DFs based on the coinsurance theory (Lewellen, 1971; Santioni et al., 2020) and the increased efficiency of ICMs during this period (see Mazur & Zhang, 2015; Volkov & Smith, 2015). The increased debt capacity advantage is evident from Kuppuswamy and Villalonga's finding of a significantly higher industry-adjusted leverage of DFs than UDFs (see also Ushijima, 2020). Kuppuswamy and Villalonga also found that the cash ratio was not the driver of the higher leverage.

The coinsurance effect increases the firm's borrowing capacity and reduces the cost of capital (Borah et al., 2018; Hann et al., 2013). Hann et al. (2013) found that, on average, DFs have a lower cost of capital than comparable focused firms (see also Aivazian et al., 2015; Borah et al., 2018; Demirci et al., 2020). Hann et al. attributed DFs' lower cost of capital to the coinsurance effects of the DF's uncorrelated cash flows, which reduce the firm's risk. In a sample of 1,100 firms within their larger sample of 16,000 firms across Western Europe, North America, and Asia Pacific regions between 1998 and 2009, Beckmann et al. (2012) arrived at results that are consistent with Hann et al. and Kuppuswamy and Villalonga (2016).

The second reason for the crisis-period diversification premium that Kuppuswamy and Villalonga (2016) put forward, is the increased efficiency of ICMs. Kuppuswamy and Villalonga's idea is that given the external credit constraints, DFs tapped into their ICMs to fund positive net present value projects. Standalone firms have no ICMs and cannot fund some of their projects at such times in the absence of cash reserves. Increased competition for internal capital also increases headquarters' incentives to choose the most deserving projects. This incentive improves the allocative efficiency of ICMs (Kuppuswamy & Villalonga, 2016; Sturm & Nüesch, 2019). The idea of the improved efficiency of ICM during the crisis period is consistent with many other studies (e.g., Hovakimian, 2011; Matvos & Seru, 2014; Santioni et al., 2020).

The fact that the availability of funds and access to credit were significant determinants of investments during this period highlights the importance of the debt coinsurance effect and the ICM. During the 2007-2009 financial crisis, many firms cut down on planned investment. Many of the firms that cut down on planned investment were those that had little cash reserves, low profits, limited access to external credit, and are generally financially constrained (Nguyen et al., 2015; Smith, 2014). Nguyen et al. (2015) also found that the 2007-2008 financial crisis negatively affected corporate debt issuance and capital expenditure, all of which significantly declined during the period. Aivavian et al. (2019) found that in the aftermath of the 2000-2001 economic downturn caused by the “dot.com bubble,” the capital investment of firms in their sample declined significantly. However, the decline was disproportionately larger for focused firms than diversified ones.

On the basis of their finding, Kuppuswamy and Villalonga (2016) argued that the diversification discount in normal times could be seen as a kind of insurance premium that firms are willing to pay to get some coverage during crisis periods (see also Beckmann et al., 2012; Liu et al., 2018). However, it is questionable whether the diversification premium in crisis times is sufficient enough to compensate for the discount suffered in regular times. Other issues still linger with the Kuppuswamy and Villalonga (2016) study. While the authors showed an increase in the value of DFs (a decline in the pre-crisis diversification discount), it is no evidence that diversification does not destroy value. As the authors reported, DFs still traded at a discount during the crisis period, though at lower discounts than previously (see also Liu et al., 2018). The argument might be that DFs thrive better during such crisis periods and that the longer the crisis, the more valuable they would be. However, the crisis did not last long enough to assess this conjecture.

The limited evidence provided by Kuppuswamy and Villalonga (2016) is that the increase in value during this period had started reversing after the crisis (see also Matvos & Seru, 2014; Volkov & Smith, 2015). It is not certain what the trend would be over the long run. Kuppuswamy and Villalonga also examined only one crisis period. Therefore, their results could be an isolated case. Researchers have continued to address some of the questions related to the crisis period diversification premium hypothesis. For instance, Volkov and Smith (2015) argued that the reasons the value of diversification improved differed from crisis to crisis, depending on the origin and nature of the crisis. Liu et al. (2018) also pointed out that, although Kuppuswamy and Villalonga showed that DFs' ICM efficiency and leverage increased during the crisis, they did not show that it was these factors that were driving the increase in the valuation of DFs during the period. Liu et al. showed that the increased investment and product market performance drive the crisis period diversification premium and not increases ICM efficiency and leverage. Liebenberg and Lin (2019) found that the performance effects of diversification during financial crises are contingent on ownership structure such as group affiliation.

Moreover, given that Kuppuswamy and Villalonga (2016) based their study on U.S. data, the extent to which their results apply to countries with different institutional and legal environments is questionable. Some authors obtained results that are inconsistent with Kuppuswamy and Villalonga (e.g., De la Fuente & Velasco, 2015;

Purkayastha, 2018). For instance, in the case of Spain, De la Fuente and Velasco (2015), found that financial crisis negatively moderates the valuation effects of diversification. In a study of Indian firms during the scarcity period of 1991 to 1997 and the munificent period of 2000 to 2006, Purkayastha (2018) also obtained results that are inconsistent with Kuppuswamy and Villalonga.

Rudolph and Schwetzler (2013) examined how diversification impacted firms' valuation in 21 countries during the 2008-2009 financial crisis and whether the institutional and legal environment explained any differences. They addressed the U.S. centric criticism of Kuppuswamy and Villalonga (2016). Rudolph and Schwetzler selected firms from countries in the developed Asia-Pacific, the British Isles, North America, and Continental Europe regions. They identified the developed Asia-Pacific, the British Isles, and North America regions as having developed capital markets and high investor rights protection. In contrast, Continental Europe has less developed capital markets and the lowest investor rights protection.

Rudolph and Schwetzler (2013) found a prerecession significant diversification discount for the Asia-Pacific, British Isles, and North America and nonsignificant diversification effect for Continental Europe. Consistent with Kuppuswamy and Villalonga (2016) and Volkov and Smith (2015), who used U.S. data, they found that in the regions with developed capital markets and high investor rights protection, the discount significantly declined during the crisis period, and in the case of the Asia-Pacific region tended towards a premium. However, in Continental Europe, with the least-developed capital markets and the least-protected investor rights, the financial crisis had no significant impact on diversification's relative value. Rudolph and Schwetzler attributed this differential effect to differences in the institutional and legal context, a conclusion that is consistent with the IBT (Benito-Osorio et al., 2012).

In a study of conglomerates' performance in Brazil, Russia, India, and China (BRIC countries) pre- and post-2008–2009 financial crisis, Grigorieva and Gorbatov (2015) found that conglomeration creates value in periods of severe financial constraints. Given that the BRIC countries are emerging market countries characterized by less developed capital markets as Continental Europe, it appears that this finding is inconsistent with Rudolph and Schwetzler (2013) in the case of Continental Europe. Also, Rudolph and Schwetzler only addressed the 2008-2009 financial crisis, and therefore, does not indicate how the effect of different types of crises would vary across regions. This criticism would require further studies to clarify.

From the preceding section, there is evidence of shifts in the diversification and refocusing trend and that the valuation effects of each strategy has varied over time. One factor that could account for the shifting trends in the diversification and refocusing strategies may probably be differences in the institutional environment. These differences could also account for why the different strategies have been valued differently over time and in different countries, as Rudolph and Schwetzler (2013) indicated.

Some authors have pointed to the idea that institutional differences influence the performance effects of diversification. For instance, Lins and Servaes (1999) examined the value of corporate diversification in the UK, Germany, and Japan in the 1990s. Lins and Servaes found a diversification discount of about 10 percent and 15% for Japan and the U.K. respectively, a result that is consistent with the U.S. evidence (Berger & Ofek, 1995). However, contrary to the expectation based on the U.S. evidence, Lins and Servaes found no evidence that diversification destroyed value in Germany. The German firms that experienced diversification discounts were those with insider ownership below 5%. Lins and Servaes, therefore, concluded that institutional differences between countries explained the differences in the performance effects of diversification.

There is an increasing consensus that institutional differences affect the performance effects of diversification from country to country (Benito-Osorio et al., 2012). IBT predicts that diversification and especially unrelated diversification is likely to create more value in institutionally weak countries such as emerging markets. The reason is that diversification facilitates the creation of internal markets that mitigate the cost of the imperfections in the external capital, labor, and product markets of such countries (Benito-Osorio et al., 2012; Berry-Stölzle et al., 2013; Khanna & Palepu, 1997; Lee et al., 2008; Pangboonyanon & Kalasin, 2018).

Many authors have tested the predictions of the IBT in various ways. They have compared the performance of DFs with that of UDFs in particular countries (see Jara-Bertin et al., 2015b; Mitra & Pattanayak, 2013; Pratyaksa et al., 2015). They have also compared the performance of DFs and UDFs across countries (see Berry-Stölzle et al., 2013; Lin & Servaes, 2002; Pangboonyanon & Kalasin, 2018; Vestring et al., 2014; Yiğit & Behram, 2013). Other authors examined how the performance effects of diversification have varied over time in particular countries as the institutional context changed (Kuppuswamy et al., 2014; Lee et al., 2008; Ramaswamy et al., 2017). Although there is no consensus on the direction of the D–P relationship in each context, there is substantial empirical evidence that institutional differences impact the performance effects of diversification.

Staglianò et al. (2013) identified Italy as an institutionally weak country and used the IBT to explain their finding that unrelated diversification positively impacted firm performance in samples of listed and unlisted Italian firms over 1980-2007. Chen and Yu (2012) also found that unrelated diversification performed better than related diversification and focused strategy in Taiwan. Selçuk (2014, 2015) and Yücel and Önal (2016) arrived at similar conclusions as Chen and Yu in the case of Turkey. However, these authors did not indicate how the performance effects of diversification varied over time with changes in these countries' institutional context. They also focused only on individual emerging markets and made no comparison with developed markets.

To address the lack of country comparability criticism, Yiğit and Behram (2013) compared the performance of DFs in Turkey which they considered as institutionally weak with those in the Netherlands, a country they classified as institutionally developed. Yiğit and Behram found that unrelated diversification and single businesses performed better in Turkey, while the dominant business firm strategy performed better in the Netherlands. They interpreted this as supportive of the IBT, although institution-based theorist would have expected single businesses (focused firms) to do better in Netherland. The contradiction could stem from the fact that the countries have similar institutional settings. The authors did not indicate how Turkey is different from the Netherlands.

Against the country specificity criticism, Berry-Stölzle et al. (2013) studied the performance effects of diversification using a sample of 2,164 insurance companies across 76 countries—developed and developing—from 2004 to 2007. They found that in countries with developed capital markets, high property rights protection, and high competition levels, the performance of diversified insurance firms was lower than that focused firms, consistent with IBT. However, this study is one industry study, and its generalizability is, therefore, limited.

Vestring et al. (2014) examined how conglomerates in six Southeast Asia fared relative to focused firms in this region and conglomerates in the developed countries over the period 2003 to 2012. Using total shareholder return (TSR) as the measure of value, Vestring et al. found that, on average, these conglomerates achieved a TSR that was 10% greater than that of focused firms in the region. They also found that the TSR was 18% greater than that achieved by conglomerates in the developed countries. However, given the cross-country nature of these studies and the short period covered in Berry-Stölzle et al. (2013), these authors did not capture how the D–P relationship has varied in particular countries given institutional changes over time.

Although many of the studies conducted in the emerging markets tend to support the IBT prediction of a diversification premium for such markets (see Pangboonyanon & Kalasin, 2018), the results are also not consistent across studies. Some authors, Sambasivan and Asrarhaghighi (2016), found a nonsignificant relationship between diversification and performance in emerging markets. Others such as George and Kabir (2012) and Mitra and Pattanayak (2013) in the case of India and Chen and Chu (2012) found a diversification discount in the case of Taiwan. Jara-Bertin et al. (2015b) and Pratyaksa et al. (2015) obtained similar results in Chile and the Philippines, respectively.

Both George and Kabir (2012), Mitra and Pattanayak (2013), and Ravichandran and Baduri (2015) explained these discounts by the institutional improvements that have taken place following various reforms embarked upon by the governments. This result is consistent with the institution-based view. Lee et al. (2008) showed that as countries' institutional framework improves, diversification will tend from a value-creating strategy to a value-destroying one. Noteworthy is that both George and Kabir, Mitra and Pattanayak, and Ravichandran and Bhaduri conducted their studies in India's post-economic liberalization era. In 1991, the Indian government introduced an economic liberalization program that significantly changed the corporate landscape and pattern of economic relationships in India (Mitra & Pattanayak, 2013). The limitation of these studies concerning this explanation is that the authors did not compare with the pre liberalization era.

Scholars might argue that these studies are country-specific and do not distinguish the various institutional reforms that have taken place in these countries, changes that may have impacted the D–P relationship. However, the country-specific argument may not stand in the light of Lins and Servaes (2002), who examined the benefits of corporate diversification in seven emerging markets of Asia in 1995. Lins and Servaes found that, on average, DFs in emerging markets traded at a discount of approximately 7% and are less profitable than their single-segment counterparts. However, they found this discount only in firms that belong to industrial groups and firms with low ownership concentration levels (between 10% and 30%). One issue with the Lin and Servaes' work is that it is a cross-sectional study that does not account for the changes that may have occurred over time.

Many of the studies that support the IBT have not shown how the performance effects of diversification have varied with changes in the institutional context of particular countries (see Lin & Servaes, 2002; George & Kabir, 2012; Mitra & Pattanayak, 2013; Ravichandran & Baduri, 2015). If the theory holds, the expectation would be that the performance consequences of diversification will vary with changes in the institutional framework within a particular country. It would also be expected that diversification will move from a value-creating strategy to a value-destroying one as market-supporting institutions develop (Basu, 2010; Benito-Osorio et al., 2012; Lee et al., 2008) and as technological specialization increases (Anjos & Fracassi, 2018). Some authors have tested this proposition, but the results have been mixed.

Anjos and Fracassi (2018) documented a decline in diversification activity in the United States since the 1970s and explained this by increasing technological specialization that makes diversification less valuable. Lee et al. (2008) examined how diversification's performance effects changed as countries transition from one level of institutional development to another. Lee et al. based their study on data from South Korean firms for the period 1984 to 1996 and found that as South Korea's institutional framework improved, the diversification premium found in the early years of their sample period changed to diversification discount in the later years, a result that is consistent with the IBT. However, given that this study is focused only on South Korea, its generalizability to other countries is questionable.

In a study of conglomerates in Southeast Asia, Vestring et al. (2014) also examined how the diversification premium changed as the economy developed. They classified the countries into three according to their development stages: pioneering economies, emerging economies, and mature economies. Pioneering economies represented the least developed of the three, and mature economies represented the most developed ones. Vestring et al. found that while the conglomerates showed higher TSR than focused firms, the TSR declined as they moved from pioneering to mature economies. For instance, conglomerates in the pioneering economies outperformed nonconglomerates by about 19%, whereas in the emerging economies, they outperformed by only 5%. However, Vestring et al. did not show the changes that have occurred in individual countries.

Kuppuswamy et al. (2014) used data on 10,164 DFs and 21,737 focused firms across 38 countries over a 15-year period (1995-2009) to examine the effects of institutional factors on the value of firm diversification. Kuppuswamy et al.'s study has one notable strength over other studies on cross-country differences in the effect of institutional factors on the value of corporate diversification. They not only examined the performance differences across countries but also within-country variations over time. Kuppuswamy et al. found that compared with focused firms, the value of DFs is higher in countries with less efficient capital and labor markets. They also found that the product market efficiency does not affect the value of diversification. Consistent with Lee et al.

(2008) and Kuppuswamy and Villalonga (2016), Kuppuswamy et al. found that as capital markets' efficiency improved, the value of diversification tended to decrease. In a study of within-industry diversification in South Asia's five emerging markets, Pangboonyanon and Kalasin (2018) found that the positive impact of diversification was more substantial in less developed institutional contexts. This positive impact is consistent with Kuppuswamy et al. (2014).

However, notwithstanding the insights from Kuppuswamy et al. (2014), it fails to explain the contradiction that even as the institutions develop, already diversified business groups in emerging markets continue to diversify further while new ones continue to emerge (Gopal et al., 2021). Institution-based theory predicts that as the institutional framework develops, DFs would stop further diversification due to declining performance (Gopal et al., 2021; Hansoge et al., 2015; Karaevli, 2011; Larrain & Urzúa, 2016; Lee et al., 2008). However, as Karaevli (2011) pointed out, what has happened is that as the institutional context improved, diversified business groups in emerging markets have exited some businesses. At the same time, these business groups have mainly remained diversified and continued to enter new businesses that are unrelated to their existing businesses (see also Hansoge et al., 2015; Larrain & Urzúa, 2016). They have also exhibited improved performance (Hansoge et al., 2015; Purkayastha, 2018; Ramaswamy et al., 2012).

The conventional wisdom is that conglomerates in emerging markets exist because they fill institutional voids (Khanna & Palepu, 1997; Khanna & Yafeh, 2015). However, the fact that conglomerates and group affiliated firms continue to expand and thrive in many countries despite institutional reforms that have improved the functioning of markets challenges this conventional wisdom (Hansoge et al., 2015; Karaevli, 2011; Lee and Gaur, 2013; Manikandan & Ramachandran, 2015; Ramachandran et al., 2013; Ramaswamy et al., 2012). Ramaswamy et al. (2017) argued that this seeming contradiction stems from the fact that previous studies did not account for differences in diversification strategies—related or unrelated—adopted by the firms. Using data on diversified business groups in India from 1988 to 2012, Ramaswamy et al. found that as market supporting institutions develop, unrelated diversification tends to result in more unsatisfactory performance while related diversification strategy is associated with improved performance. This finding is more consistent with Lee et al. (2008) and Kuppuswamy et al. (2014) than Hansoge et al. (2015), Purkayastha (2018), and Ramaswamy et al. (2012).

However, Ramaswamy et al. (2017) explanation may not be all to it. According to Manikandan and Ramachandran (2015), there are two ways to explain the contradiction. One explanation is that the reforms the government instituted may not have eliminated the institutional bottlenecks that made diversification and group affiliation valuable in the first place (see also Holmes et al., 2017; Larrain & Urzúa, 2016; Purkayastha & Lahiri, 2016). The other explanation is that DFs thrive because of reasons other than the filling of institutional voids (see also Hansoge et al., 2015; Holmes et al., 2017; Ramaswamy et al., 2012).

On the basis of their study of Indian firms, Manikandan and Ramachandran (2015) attributed the success of conglomerates in emerging markets compared to the developed economies to two factors. One of the factors is the conglomerates' business group structure (G-Form) that features greater decentralization of operational decision making than the multidivisional company (M-Form) structure in the West. The decentralization explanation is consistent with one of the reasons Thorndike (2014) gave for the exceptional success of Teledyne in the 1960s in the United States in comparison with its other conglomerate peers. Lee and Gaur (2013) explained the continued flourishing of diversified business groups in emerging markets compared with the United States by their finding that sociocultural mechanisms were more remarkable and worked better in divisions of Korean Chaebols than divisions of U.S. conglomerates. These sociocultural mechanisms are the essential components of organizational capabilities necessary for efficient management of DFs (Lee & Gaur, 2013).

According to Karaevli (2011), two factors further help understand why contrary to the predictions of IBT, diversified business groups in emerging markets continue to diversify and show improved performance despite reforms that have improved the institutional context. The first one is that many of the authors have emphasized the lessening of transaction costs resulting from developments in the external markets without considering the opportunities created by these events. Such opportunities include the acquisition of lucrative state-owned enterprises being privatized as governments implement the privatization and deregulation policies in transition economies. Diversified business groups have better chances of exploiting these opportunities and gain the first-mover advantage (Chittoor et al., 2015; Holmes et al., 2017; Karaevli, 2011; Manikandan & Ramachandran, 2015; Singh et al., 2018). This advantage is especially the case in the early stages of the reforms because the privatization process is usually a gradual one, and the old template for doing things subsists and is advantageous to diversified business groups who could still use them (Singh, Pattnaik, et al., 2018).

There is also the opportunity of finding buyers for the businesses that DFs are exiting from due to the developments in the financial markets and an increasing number of foreign investors (Gopal et al., 2021; Karaevli, 2011). According to Karaevli (2011), as long as these opportunities exist, the diversified business groups will not see the need to change their diversification policy (Gopal et al., 2021; Manikandan & Ramachandran, 2015). The transaction cost view of the impact of institutional changes on firm diversification also ignores behavioral reasons for firm diversification, especially in emerging markets where many of the diversified groups are family-controlled. These behavioral reasons include the need to preserve wealth by diversifying risk while retaining control within the family, and firm diversification is one of the best ways of its accomplishment (Gopal et al., 2021; Karaevli, 2011; Masulis et al., 2020; Muñoz-Bullón et al., 2018).

In summary, although there is yet no consensus, many of the recent studies are increasingly concluding that the D–P relationship is institutional context-dependent. This conclusion is consistent with Benito-Osorio et al. (2012) and the IBT. One the basis of the IBT, researchers would expect that diversification in countries with less developed institutions would experience more positive diversification effects that will decline as the institutional framework develops.

Insider Ownership and the Performance Effects of Firm Diversification

In this section, I review some of the studies that used agency theory to explain the diversification decision and the diversification discount. Specifically, I examine some of the studies that attempted to account for DFs' performance by insider ownership level. The difference in insider ownership may be the factor that distinguishes OPDFs from UPDFs.

Based on the idea from portfolio theory that diversification through investing in negatively correlated securities reduces risk, many corporate managers have diversified into unrelated lines of business as a means of reducing corporate risk and improving firm performance (Amihud & Lev, 1981; Castañer & Kavadis, 2013; Park & Jang, 2012). However, some researchers have raised the point that in a well-functioning market, investors can efficiently achieve the required risk diversification on their own (Amihud & Lev, 1981). Consequently, no one should expect firm diversification to create value for shareholders. The reason is that firms can hardly create value for shareholders by doing what the shareholders can efficiently do on their own (Amihud & Lev, 1981; Castañer & Kavadis, 2013; Erdorf et al., 2013; Lacoste et al., 2010). Based on this view and given the many studies that show that DFs underperform their focused counterparts, many researchers have looked towards agency problems resulting from poor corporate governance as the possible explanation for continued diversification and the diversification discount.

The recent high profile corporate failures and bankruptcies have mainly been attributed to corporate governance failures at controlling agency problems and have led to renewed interest in corporate governance (Jiraporn et al., 2018). Consequently, researchers have looked at firms' performance generally and DFs from the corporate governance perspective. There is some evidence that corporate governance variables partly explain the performance effects of diversification (Boumosleh et al., 2012; Hoechle et al., 2012; Gleason et al., 2012; Sautner & Villalonga, 2010). Insider ownership is one of such corporate governance variables that researchers have examined.

Many authors have investigated the relationship between ownership structure—including insider ownership—and firm diversification (e.g., Anderson et al., 2000; Castañer & Kavadis, 2013; Chen & Yu, 2012; Denis et al., 1997; George & Kabir, 2012; Hautz et al., 2013; Lacoste et al., 2010; Sener & Akben-Selcuk, 2020; Tsai et al., 2011). Some researchers have also explained the continued diversification of firms and the underperformance of DFs by agency problems resulting from low insider ownership (Ammann et al., 2012; Hoechle et al., 2012). However, according to Tsai et al. (2011), only a few researchers have directly examined the relationship between insider ownership and the performance effects of diversification (e.g., Anderson et al., 2000; Denis et al., 1997; Hoechle et al., 2012; Hyland & Diltz, 2002; Lin & Servaes, 1999; Singh et al., 2004; Taĝ, 2017; Tsai et al., 2011).

One of the few works in which the authors directly examined the relationship between insider ownership and the performance effects of diversification is Denis et al. (1997). They suggested that agency problems resulting from low managerial equity ownership are partly responsible for firms diversifying and maintaining value-destroying diversification when refocusing would have been a more value-creating strategy.

However, as Erdorf et al. (2013) pointed out, the results in Denis et al. (1997) do not provide convincing evidence that DFs' underperformance is related to insider ownership. The reason is that Denis et al. found that higher managerial ownership level was only associated with lower levels of diversification and not with more valuable diversification.

Lins and Servaes (1999) studied the value of corporate diversification in three developed markets of Germany, Japan, and the United Kingdom. Although they did not find significant evidence that diversification on average destroyed shareholder wealth in Germany, they found that the firms that experienced diversification discount were those with low insider ownership levels (below 5 percent). Anderson et al. (2000) found that although there are differences in CEO equity ownership between focused and DFs, CEO equity ownership was not related to firm performance.

Hyland and Diltz (2002) examined whether the diversification announcement abnormal return was related to managerial ownership. They found that firms with managerial ownership greater than 25% experienced a significantly positive announcement return, while firms with managerial ownership below 25% experienced returns that were not significantly different from zero. Gleason et al. (2012) also found a positive but nonsignificant relationship between director share ownership and the performance effects of diversifying and related M&A announcement of firms over the 1996 to 2003 period. Boumosleh et al. (2012) found a positive correlation between director ownership and Tobin's q of DFs post-Sarbanes-Oxley Act in the United States. Thorndike (2014) credited the high performance of Teledyne over the period Henry Singleton was the CEO partly to the fact that majority of the board members were insiders who collectively owned almost 40% of the outstanding shares of the company. These findings are consistent with the view that the diversification discount could be due to agency problems from low insider ownership.

Contrary to the expectation that insider ownership will be positively related to firm performance, Taĝ (2017) found a negative relationship between executive shareholding and EV in a sample of 119 firm-level observations in the United States for 2002 and 2003. Singh et al. (2004) found evidence that are not consistent with the conclusion that the diversification discount results from low insider ownership-related agency problems. Using a sample of large U.S. firms for the period 1993 to 1998, Singh et al. examined whether there are more underperforming DFs among the group of firms with low-insider ownership than the group of high-insider ownership firms. Singh et al. found no significant difference in the number of underperforming and outperforming firms for both the groups of low and high insider ownership firms. They, therefore, concluded that value-destroying diversification is not attributable to low insider ownership.

There is indirect evidence of a positive relationship between insider ownership and the performance effects of diversification. One of these indirect pieces of evidence is the relationship between ICM efficiency and insider ownership. Some researchers have found that the efficiency/inefficiency of ICMs affects DFs' performance (Berger & Ofek, 1995; Cline et al., 2014; Glaser et al., 2013; Ozbas & Scharfstein, 2010). Therefore, variables responsible for inefficient ICMs may be responsible for the diversification discount (Ozbas & Scharfstein, 2010; Sautner & Villalonga, 2010). Sautner and

Villalonga (2010) found that blockholding of insiders (managers and directors) has a significant positive relationship with the efficiency of ICM (see also Duchin & Sosyura, 2013; Ozbas & Scharfstein, 2010). This relationship is supportive of the positive performance effects of greater insider ownership resulting from interest alignment.

However, both Sautner and Villalonga (2010) and Ozbas and Scharfstein (2010) are not direct tests of the insider ownership–performance effects of diversification relationship. As some authors have shown, efficient ICMs do not automatically translate to improved valuation for the DF. The market may be valuing other things related to the DF, such as the firm’s organizational structure (Klein & Saidenberg, 2010; Ushijima, 2016).

As indicated earlier, the interest alignment and entrenchment hypotheses of insider ownership on performance (Connelly et al., 2010) give rise to the inverted-U shaped relationship (Kim & Lu, 2011). These hypotheses make it plausible to expect an inverted-U shaped relationship between insider ownership and DF performance. There is support for this model of insider ownership–performance effects of firm diversification relationship. For instance, Hoechle et al. (2012) found a curvilinear inverted-U shaped relationship between CEO ownership and firm performance. Hoechle et al. also found that officers’ and directors’ ownership (excluding the CEO) was not significant. However, this study is limited as a test of the relationship between insider ownership and the performance effects of diversification to the extent that the authors did not interact the diversification and insider ownership measures.

Given the inverted-U shaped relationship, the question becomes, which agency conflict dominates in explaining the diversification discount? Based on studies such as Denis et al. (1997), researcher would expect that low insider ownership is responsible for value-destroying diversification. However, contrary to this expectation, evidence points more towards the loss of value due to majority-minority shareholder conflict at high insider ownership levels. One source of this conflict is entrenchment (see Delbufalo et al., 2016; Lien & Li, 2013; Tsai et al., 2011). Another is risk aversion, the need to reduce largely undiversified unemployment risk (Alessandri & Seth, 2014; Castañer & Kavadis, 2013; Lacoste et al., 2010). Lacoste et al. (2010) hypothesized that risk aversion would lead insider owners to embark on risk-reducing strategies such as unrelated diversification, even if such strategies are value destroying (Lacoste et al., 2010).

Alessandri and Seth (2014), Castañer and Kavadis (2013), and Lacoste et al. (2010) found evidence supportive of the hypothesis that risk aversion lead insider owners to embark on risk-reducing strategies such as diversification. However, these studies do not directly test the relationship between insider ownership and diversification's performance effects. These authors also started on the premise that diversification and, especially, unrelated diversification is value destroying, ex ante. This assumption is wrong as it overlooks the fact that in some cases, DFs have created value more than focused firms (e.g., Beckmann et al., 2012).

The premise that diversification is value destroying ex ante runs through many studies that have used agency problems to explain the diversification discount. Based on this premise, on finding that DFs, on average, have lower insider ownership than focused firms, many of these authors concluded that the value destruction should be attributed to agency problems (e.g., Denis et al., 1997). This premise is wrong (García et al., 2013). Hovakimian (2016) has shown that some diversifiers have been successful regarding the EV measure while others have not and that it is the success or failure of diversification in each case that determines the restructuring on which the firm embarks. Whereas DFs with higher EV than focused firms tend to diversify further (which is a value-maximizing strategy), those with lower EVs tend to refocus (Hovakimian, 2016).

Further, as Matsusaka (2001) has argued, firms do not know with certainty ex ante what the result of a new business will be or how it will match their organizational capabilities (see also Coad & Guenther, 2014; Deligianni et al., 2017; O'Brien et al., 2014; Pisano, 2017). They, therefore, approach the search for matching businesses through experimentation, including such experimentations as diversification (Matsusaka, 2001; see also Deligianni et al., 2017; García et al., 2013; Kim et al., 2013; Pisano, 2017; Tran et al., 2015). The ex post result obtained in this process will depend on such factors as the organizational capability and the firm's ability to achieve a strategic fit between its abilities and its environmental opportunities. Firms can exploit these opportunities only through a search process that may involve diversification (García et al., 2013).

The consequence of this premise is that these authors ignored the finding that DFs have, in many cases, created more value than focused firms (Chen & Yu, 2012; Hovakimian, 2016). Therefore, the authors also ignored the need to extend the analysis to examine separately DFs that have outperformed and those that have underperformed focused firms to discover the factors that differentiate high performing and low performing DFs. Rather than diversification per se, these factors could explain the difference in performance between DFs and UDFs (Basu, 2010).

What emerged from some studies is that shareholders with much of their wealth in a firm (such as controlling families) are not only interested in diversifying their risk to ensure corporate survival. They are also interested in having control over their investment and maintaining socioemotional wealth without jeopardizing corporate survival (e.g., Craninckx & Huyghebaert, 2015; Hernández-Trasobares & Galve-Górriz, 2017, 2020; Muñoz-Bullón et al., 2018; Pratyaksa et al., 2015; Shen, 2018). Karaevli (2011) argued that the primary goal of controlling shareholders at the mature stage of a business group is not only the preservation of wealth but also the retention of control within the family (see also Dou et al., 2020; Hernández-Trasobares & Galve-Górriz, 2020). One way of achieving this is through a firm diversification strategy, using pyramidal structures (Dou et al., 2020; Hernández-Trasobares & Galve-Górriz, 2020; Pratyaksa et al., 2015).

Based on the dynamic socioemotional wealth (SEW) model, Shen (2018) proposed that diversification is a strategy to deal with business risk and suggested that family firms that face business risk are more likely to diversify than those that do not. Shen also proposed diversification might be a solution to the socioemotional wealth-destroying conflicts and rivalry among family members, especially when the second generation becomes involved in the management. Diversification for controlling families, therefore, becomes a value-maximizing and not a value-destroying strategy the agency theory of diversification suggests (Craninckx & Huyghebaert, 2015).

Ataullah et al. (2014) questioned whether agency problems dominate corporate diversification decisions, thus causing diversification discount. Ataullah et al. argued that on the one hand, if agency considerations dominate insiders' diversification decisions, such insiders would not be purchasing their firms' shares in the open market since they will suffer the eventual loss from the diversification. The reverse would be the case if insiders diversify to increase the firm's value.

Therefore, the intensity of insider share purchases would signal to the market whether the insiders perceive that the diversification will be a value-increasing strategy or a value-destroying one (Ataullah et al., 2014). Because of problems of information asymmetry in DFs, outside investors would ordinarily tend to discount DFs (Borah et al., 2018; Cai & Zeng, 2011; Feldman et al., 2014; Litov, Moreton, & Zenger, 2012) but would increase their valuation as the intensity of insider purchases increase. Therefore, Ataullah et al. (2014) hypothesized a significant positive relationship between the intensity of insider purchases and the level and valuation of diversification. Ataullah et al. found support for this hypothesis. Based on this finding, they concluded that it is asymmetric information rather than agency problems that cause the diversification discount.

In a survey of managers in the United States relating to their views on how diversification affects firm performance, Bowen et al. (2015) found evidence that tends to support Ataullah et al. (2014) and inconsistent with the agency cost explanation of the diversification discount. They found that the majority (67.7%) of managers disagreed with the proposition that diversification (both product and international) is likely to reduce firm financial performance. The majority (60%) of the managers surveyed agreed that diversification's primary purpose was to exploit excess capacity in firm-specific resources such as proprietary knowledge. This purpose is likely to improve performance, contrary to the agency cost hypothesis (Dey & Banerjee, 2019; Fox & Hamilton, 1994).

Smith and Coy's (2018) evidence supporting the catering hypothesis of diversification also contradicts the agency cost hypothesis of firm diversification. The catering hypothesis is that managers tend to cater to the changing investor perception of diversification in diversifying or refocusing. Smith and Coy found a significant negative relationship between their measure of diversification discount (Diversified Q Differential) and the decision to diversify or remain diversified and a significant positive relationship between Diversified Q Differential and the decision to refocus. This finding implies that managers tend to diversify or remain diversified as the diversification discount decreases and refocus as the discount increases.

Smith and Coy (2018) also found that, on average, DFs exhibit a fundamental diversification premium in the long run. Smith and Coy argued that the diversification discount that some researchers have documented is a systematic short-term firm-level mispricing phenomenon that efficient management is unlikely to respond to with a costly refocusing. According to Smith and Coy, this explains why, although diversification may be a value-maximizing strategy, researchers can still observe discounts, and firms would remain diversified even in the face of such discounts.

In summary, there is yet no consensus on how insider ownership is related to the performance effects of diversification. There is, therefore, the need to reconsider the agency cost explanation of diversification and diversification discount. This need is because while some DFs have traded at a discount, others have traded at a premium. Therefore, there is the need to separate the DFs according to their performance and examine how factors such as insider ownership level as a corporate governance mechanism affect the performance effects of diversification. There is the need for direct tests of the relationship between insider ownership and the performance effects of diversification rather than inferring this from the relationship between insider ownership and diversification based on the wrong assumption that diversification is always value destroying.

Nigeria as an Emerging Market: The Institutional Context

The IBT suggests that firms adapt their strategies to fit their peculiar environment, which impacts their performance (Berry-Stölzle et al., 2013). According to Khanna and Palepu (1997), widespread failures in the capital, labor, and product markets; in the regulatory systems; and mechanisms for enforcing contracts characterize emerging markets (see also Chowdhury et al., 2019; Elango & Dhandapani, 2020; Finchelstein, 2017; Gao et al., 2017). These failures are not common in developed markets (Chowdhury et al., 2019; Elango & Dhandapani, 2020; Finchelstein, 2017; Gao et al., 2017). These failures also characterize the Nigerian business environment (Ikyanyon et al., 2020; Nakpodia & Adegbite, 2018; Tule et al., 2018; World Economic Forum [WEF], 2018; World Bank, 2018; World Bank & International Finance Corporation [IFC], 2015).

In Nigeria, market supporting infrastructure such as electricity is poorly developed, unreliable, and costly (Obokoh & Goldman, 2016; Oseni, 2017; Rentschler et al., 2019; WEF, 2018; World Bank, 2018; World Bank & IFC, 2015). So also is the communication infrastructure (Olatokun & Ojo, 2016; WEF, 2018). Such infrastructure failure increases the difficulty of building a brand (Khanna & Palepu, 1997). In such an environment, DFs with reputable brands gain a competitive advantage as they can lower their unit cost by spreading these costs across many activities (Khanna & Palepu, 1997). They can also leverage their reputation to profitably enter into new lines of business that may even be unrelated to the firms’ current or core businesses (Gao et al., 2017; Khanna & Palepu, 1997).

Compared with developed countries, Nigeria’s capital market is underdeveloped (WEF, 2018; World Bank & IFC, 2015). This underdevelopment limits the availability and affordability of financial services (WEF, 2018). The value of ICMs increases in such environments of external financial constraints (Berry-Stölzle et al., 2013; Bhatia & Thakur, 2018; Kuppuswamy et al., 2014). Some researchers have shown that DFs with efficient ICMs outperform single-industry firms (e.g., Kuppuswamy et al., 2014; Kuppuswamy & Villalonga, 2016).

A shortage of qualified workforce and rigidities are features of Nigeria’s labor market and these increase the cost of employing skilled workers (Ikyanyon et al., 2020; WEF, 2018). Tate and Yang (2015) argued that in such an environment, diversification improves firm productivity and profitability by enabling firms to deploy their human capital more efficiently in an internal labor market (see also Berry-Stölzle et al., 2013; Lohwasser et al., 2019).

In Nigeria, there are various forms of government regulations that are costly and time-consuming to comply with (WEF, 2018; World Bank & IFC, 2015). There is high institutional uncertainty in emerging markets in the form of vagueness, arbitrary interpretation, and enforcement of such regulations (J. Zhang et al., 2015). Navigating these regulations necessitates cultivating and maintaining good political connections, which constitutes a valuable resource that can improve corporate strategy (Khanna & Palepu, 1997; Li et al., 2013; Su & Tsang, 2015; J. Zhang et al., 2015). Firms spend considerable amounts to cultivate and maintain good political connections because of their likely impact on performance (Deng et al., 2012; Khanna & Palepu, 1997, Li et al., 2013; M. Zhang et al., 2015; Zhu & Chung, 2014).

The way the authorities enforce the rules also breeds corruption which becomes a norm for doing business (Khanna & Palepu, 1997). Nigeria ranks poorly in most measures of corruption and institutional development. For instance, in 2018, Nigeria ranked 144 out of 180 countries in the Transparency International corruption perception index and 127 out of 140 in the Global Competitiveness Report index of quality of institutions (Transparency International, 2019; WEF, 2018). Ojeka et al. (2019) found that corruption and weak institutions negatively impact firm value and accounting performance while Elango and Lahiri (2014) showed that corruption also negatively impacts firm performance in Nigeria. However, the consensus seems to be that larger and more DFs are better able to carry the cost of corruption by spreading them across different operations (Khanna & Palepu, 1997; Purkayastha, 2018). Consequently, many scholars would expect that DFs will outperform focused ones in more corrupt and weak institution countries such as Nigeria.

The Nigerian judicial system is highly dysfunctional and inefficient, and Nigeria ranks poorly on various indices of quality of judicial system (U.S. Department of State, 2018; World Bank, 2018; WEF, 2018). Consequently, consumers and firms rarely use the court system to resolve disputes (U.S. Department of State, 2018). Firms limit contact with the inefficient judicial system by increasing intra-firm transactions and working based on established reputation rather than arm’s length contractual arrangements (Gao et al., 2017; Holmes et al., 2017; Kandel et al., 2019; Khanna & Palepu, 1997; Lohwasser et al., 2019; Purkayastha, 2018). The coinsurance effect of different businesses gives conglomerates the desired reputation to attract required resources (Gao et al., 2017; Khanna & Palepu, 1997). More intra-firm transactions are also more tax efficient (Wentland, 2020).

The preceding section shows that institutional voids and failures characterize Nigeria. The institution-based view of the performance effects of firm diversification suggests that diversification would be a value-creating strategy in such environments (Kuppuswamy et al., 2014; Lien & Li, 2013; Lohwasser et al., 2019). Therefore, it is necessary to examine the empirical literature on the performance of DFs in Nigeria to ascertain the extent it is consistent with the IBT.

The Diversification-Performance Literature in Nigeria

Despite the preponderance and importance of DFs, only a few authors have used data on Nigeria firms to study the D–P relationship (see Adamu et al., 2011; Binuyo et al., 2019; Oladimeji & Udosen, 2019; Olasupo, 2015; Oyedijo, 2012; Patrick, 2012; Ugwuanyi, 2012; Ugwuanyi et al., 2012a, 2012b). Of the few authors that have used cross-country data to study the performance effects of diversification, only Berry-Stölzle et al. (2013) that was limited to insurance companies included Nigerian firms. Apart from the methodological deficiencies of these studies, their results have also not been consistent. Moreover, none of these authors related the performance effects of diversification to insider ownership.

As indicated earlier in this section, the studies on Nigerian firms have produced inconsistent results. For instance, Adamu et al. (2011) and Oyedijo (2012) found that UDFs s outperform DFs. On the contrary, Patrick (2012), Ugwuanyi (2012), and Ugwuanyi et al. (2012a, 2012b) found a significant positive D–P relationship. Adamu et al. were limited to only 12 firms in the construction industry, and many of these companies are not listed on the stock exchange. Therefore, the reliability of their data is questionable given that unlisted companies in Nigeria are not known to comply with requirements regarding the preparation and filing of annual reports (Adamu et al., 2011). By using average specialization ratio (ASR) to classify firms as UDF, moderately DFs, and highly DFs, Adamu et al. also implicitly assumed that once a firm is classified as UDF, for instance, it remains same throughout the study period. The fact that firms' diversification status change over time makes this assumption faulty (Basu, 2010; Bowen et al., 2015; Hautz et al., 2014).

Oyedijo (2012) relied on self-reporting questionnaires to classify firms as diversified or undiversified. Not only does this reduce the reliability of their data, it also makes interfirm comparison difficult given that what firms call diversification may differ from firm to firm. Oyedijo also made the faulty assumption of a permanent diversification status that does not change over the sample period, contrary to the evidence in the literature (see Basu, 2010). Given that Oyedijo sampled managers from 48 firms and used 231 valid responses, more than one respondent may have come from the same firms. Since the financial information used was from published financial statements of the 48 firms, Oyedijo must have repeated this financial information for respondents from the same firms. The author did not indicate was done to avoid such duplication of data or ensure data consistency.

In the case of Patrick (2012), the author did not indicate the sample size used. Patrick classified firms as diversified if they produced “different goods” (p. 229) but did not indicate how the difference in goods was measured. By this approach, it is not possible to determine whether Patrick classified a firm producing two products with the same SIC codes as diversified or not.

The deficiency of Ugwuanyi (2012) stems from two central angles. In the first place, Ugwuanyi’s measure of diversification counts the number of subsidiaries a bank had. This classification does not show the extent of diversity between these subsidiaries’ activities and those of the bank. Based on this measure, it would not matter if the subsidiaries’ activities are the same (Chan & Watson, 2011). The authors would classify a bank that operates in different industry segments without any subsidiary as a standalone bank. Therefore, this approach is faulty. Ugwuanyi’s measure of EV does not show any comparison between focused and diversified banks. These limitations are also associated with Ugwuanyi et al. (2012a) and Ugwuanyi et al. (2012b) since it appears that the two studies are just a duplication from the same lead authors.

Most recent authors on the D–P relationship in Nigeria suffer the same limitations as previous ones (see Binuyo et al., 2019; Mac-Ozigbo & Daniel, 2020; Nwakoby & Ihediwa, 2018; Oladimeji & Udosen, 2019; Olasupo, 2015). They either did not identify how their measures of diversification were defined and operationalized (see Oladimeji & Udosen, 2019; Mac-Ozigbo & Daniel, 2020; Nwakoby & Ihediwa, 2018) or relied on respondents' view of whether the firm is diversified or not as in Binuyo et al. (2019) and Olasupo (2015). Relying on managers' opinion of whether a firm is diversified or not makes interfirm comparison impossible. Due to the absence of SIC data and inadequate segment data disclosure, Gunu and Gunu (2020) measured diversification as the difference between total revenue and sales revenue. This measure is not popular in the diversification literature but also does not capture the diversity in firms' activities.

Another problem with most of these works is that except Gunu and Gunu (2020), the sample of firms in these recent studies is small, ranging from four in the case of Binuyo et al. (2019) to 20 in the case of Nwakoby and Ihediwa (2018). Binuyo et al. and Olasupo (2015) sampled the opinions of 400 managers in four companies and 426 managers in 12 companies, respectively. As with Oyedijo (2012), it is obvious that there must have been duplication of firm data as more than one respondent must have come from the same firms. Mac-Ozigbo and Daniel (2020) sampled 400 private firms. However, the reliability of private firms' data in Nigeria is questionable. Gunu and Gunu sampled 42 firms, but their work focused on the manufacturing sector.

Because of these shortcomings, there is still limited understanding of the D–P relationship in Nigeria. None of the authors have used the SIC codes to classify firms as diversified or focused. The reason may have been that SIC code data for Nigerian firms have not been readily available. I am the first to employ SIC codes in the study of the D–P relationship in Nigeria. No author has yet examined the relationship between insider ownership and the performance effects of diversification in Nigeria. I am also the first to do this. None of the authors who have used data on Nigerian firms have captured the D–P relationship variations over time, given that all the authors employed cross-sectional analysis or pooled panel data analysis. These techniques do not capture the longitudinal nature of the data (Dhir & Dhir, 2015; Lin et al., 2014; Taĝ, 2017). I am the first to capture the longitudinal and multilevel nature of the information in the variables in the D–P literature in Nigeria.

Summary and Conclusions

A literature review on the D–P relationship shows that the diversification, performance, and insider ownership constructs are multidimensional. Researchers have measured them in different ways. The implication is that researchers must clarify the measurement adopted in any study. Availability of data has influenced the measurement of these constructs, considerably.

There is no consensus on the performance effects of diversification. However, there seems to be an increasing consensus that the performance effect of diversification depends on the institutional context and that studies in environments that are institutionally different could help resolve the D–P relationship puzzle. Only a few authors have directly tested the relationship between insider ownership and the performance effects of firm diversification without any consensus on the relationship's direction. There is a need for more direct testing of this relationship. Given that some DFs have outperformed their focused counterparts while others have underperformed, there is the need to analyze DFs according to their performance to see how factors such as insider ownership make a difference in DFs' performance.

In its institutional context, Nigeria is different from the developed markets, where the D–P relationship research has concentrated. Therefore, there is a need to examine this relationship and the moderating effect of insider ownership using data on Nigerian firms. Despite the insights from the few authors that have used data on firms in Nigeria to examine the D–P relationship, some methodological deficiencies limit these studies. None of these authors has used SIC codes to measure diversification. I bridge these gaps in the literature by using SIC codes to classify firms as diversified or focused in Nigeria's case. None has examined the relationship between insider ownership and the performance effects of diversification in Nigeria. I narrow this gap by examining this relationship. In chapter 3, I show the methodology I used to accomplish these.

Chapter 3: Research Method

The purpose of this quantitative study was to examine the relationship between firm diversification and firm performance and the relationship between insider ownership and the performance effects of diversification in Nigeria. In this chapter, I describe the overall approach to testing the hypotheses and answering the research questions. I identify and rationalize the research design I employed in this study. I describe the methodology, including the population, and also specify the sampling size and the sampling strategy I adopted. In this section, I also discuss the instrumentation, data collection process, and the data analysis plan for testing the hypotheses and addressing the research questions.

Research Design and Rationale

In this study, I addressed four questions focusing on the effects of diversification on performance and the relationship between insider ownership and diversification's performance effects. These questions are:

RQ1: How is the performance of DFs different from that of focused firms in Nigeria?

RQ2: What is the relationship between the level of diversification and firm performance in Nigeria?

RQ3: How is the insider ownership of DFs that outperform focused firms different from the insider ownership of DFs that underperform focused firms in Nigeria?

RQ4: What is the relationship between insider ownership and the performance effects of level of diversification in Nigeria?

The independent variables in this study were diversification status, level of diversification, and insider ownership. Firm performance, measured by ROE and ATQ, was the dependent variable. The control variables included firm size, leverage, board independence, and blockholding/ownership concentration.

The quantitative research approach is the most appropriate for examining the relationship between variables (Basias & Pollalis, 2018; Bloomfield & Fisher, 2019; Queiros et al., 2017; Rutberg & Bouikidis, 2018). Many researchers in similar studies have used the quantitative research approach (e.g., Aivazian et al., 2019; Bhatia & Thakur, 2018; Borah et al., 2018; Hoechle et al., 2012; Lee & Hooy, 2018a). Researchers have identified numerous research designs that include experimental designs and nonexperimental or correlational design (see Asenahabi et al., 2019; Bloomfield & Fisher, 2019; Rutberg & Bouikidis, 2018; Seeram, 2019). For this research, I employed the nonexperimental (correlational) design. Specifically, I employed the panel (longitudinal) design variant of correlational design (Asenahabi et al., 2019; Rutberg & Bouikidis, 2018; Wang et al., 2017).

The rationale for this design was that the units of analysis in this study are firms. Firms are naturally formed groups that I needed to treat as they are (Bloomfield & Fisher, 2019; Queiros et al., 2017; Wang et al., 2017). In such cases, randomization as a way of controlling for competing explanations of observed relationships was not possible (Bloomfield & Fisher, 2019; Queiros et al., 2017; Wang et al., 2017). This fact rules out experimental designs that require random assignment of the units of analysis into experimental and control groups (Bloomfield & Fisher, 2019; Wang et al., 2017).

Pretesting was also not possible as I had no control over the independent variables—control regarding when and whom to introduce them to test before and after their introduction to the groups. The nonexperimental design is suitable where a researcher lacks control over the independent variables (Bloomfield & Fisher, 2019).

Researchers have found that the primary variables analyzed in this research and their effects change over time. For instance, diversification status and diversification's performance effects change over time (Basu, 2010; Benito-Osorio et al., 2012; Hovakimian, 2016; Schommer et al., 2019; Smith & Coy, 2018). Ownership and other corporate governance features of firms also change and evolve with firm growth and changes in investment opportunities (Brickley & Zimmerman, 2010). Using a panel design enabled me to capture these variations over the sample period (Lien & Li, 2013; Ployhart & Vandenberg, 2010; Wang et al., 2017; West, 2009). One constraint consistent with this design is that I did not have enough resources to search for companies' annual reports where they were not publicly available.

Methodology

Under this heading, I discuss the population and the population size used in this study. I also review the sampling and data collection procedures I used. Finally, I indicate how I operationalized the various constructs.

Population

This study's population was all companies (equities) listed on the NSE at any time between January 1, 2008, and December 31, 2018. The reason for using only listed companies is that they are required to publish their annual reports and audited financial statements. The annual reports of companies listed on the NSE are more accessible and reliable as a source of data than unlisted companies. Moreover, the ATQ, which was one of the performance measures in this study, required data on company shares' market price. These data are only available for companies listed on the stock exchange.

The population size is the number of companies (equities) listed on the NSE at any time from December 31, 2008, to December 31, 2018. This information is available from the annual reports of the NSE. At the end of December 31, 2008, the number of equities listed on the NSE was 213. During the sample period, 12 new equities listed on the NSE. So, the population for the study was 225.

Sampling and Sampling Procedures

In this section, I discuss the sample size and the eligibility criteria. I also consider the sampling method and how I drew the sample. I aimed at a sample size that would help me achieve a statistical power of at least .80. Many researchers consider a statistical power of .80 adequate (Arend & Schäfer, 2019; Dattalo, 2009; Sherperis, 2014). The effect size I employed in determining the sample size necessary for statistical power of .80 was a function of the effect sizes that researchers have found in related studies.

The coefficient of determination (R^2) approximates the effect size (Arend & Schäfer, 2019; Burkholder, 2014; Sherperis, 2014). Field (2017) suggested that an average of effect sizes obtained in studies that addressed similar questions could approximate the effect size. Although some researchers have examined the relationship between diversification and firm performance in Nigeria, I am not aware of any researcher who has examined the relationship between insider ownership and diversification's performance effects.

Few authors have looked at how insider ownership (as a corporate governance mechanism) is related to the performance effects of diversification. Those who have, Anderson et al. (2000), Hoechle et al. (2012), and Tsai et al. (2011), reported effect sizes of .13, .103, and .161, respectively. Mazur and Zhang (2015), Benito-Osorio et al. (2015), and Yücel and Önal (2016) reported R^2 of .59, .64, and .39, respectively. The average of the effect sizes reported in these six studies means that I could work with an effect size of about .33, which for a regression study approximates to a large effect size of .35. which is considered appropriate (Burkholder, 2014; Sherperis, 2014).

Field (2017) recommended G*Power software for determining the sample size necessary to achieve a required power (p. 70). I used this software to determine the minimum sample size. An a priori (Dattalo, 2009) power analysis for a multiple regression random model using G*Power 3.1.9.2 software and assuming a large effect size of .30, alpha of .05, and seven predictors, indicated that a sample size of 51 companies would be required to achieve a power of .80. The seven predictors include the two independent variables, the four control variables, and the two independent variables' interaction term. Given the expectation of a high attrition rate due to lack of data (Adamu et al., 2011), there was a need to provide a buffer. To provide a buffer by increasing the sample size, I used a medium effect size of .15, which gave a sample size of 101. Overall, I used 109 firms.

The problem with the power analysis for a multiple regression random model using G*Power 3.1.9.2 software related to this longitudinal study (with multilevel data set) is that it does not account for the repeated measures nature of the data and the resulting within-subject correlations. However, as Guo et al. (2013) have pointed out, validated sample size determination methods are available for only a few mixed model classes. Guo et al. (2013) also pointed out that these few methods are based on approximations and "simple assumptions about the study design" (p. 2). Based on the current knowledge on power analysis, Guo et al. recommended power analysis methods developed for multivariate models. This recommendation justifies the use of the power analysis for a multiple regression random model.

Recently, Arend and Schäfer (2019) identified the R package-based SIMR using Monte Carlo simulation as the best approach for statistical power analysis for two-level multilevel models. Using this approach, Arend and Schäfer performed a minimum detectable effect size analysis and developed rules of the thumb for economically and quickly identifying sample sizes that achieve a statistical power of .80 in multilevel models. Based on the alpha of .05 and medium effect size, the researchers indicated that a Level 2 (firms) minimum sample size of 40 and a Level 1 (within-firm observations) sample size of 3 would achieve a power of .80 for a random intercept model. This rule suggests that a minimum of 3 firm-year observations for each firm and a minimum of 40 firms would be sufficient to achieve a statistical power of .80.

Arend and Schäfer (2019) and Lorah (2018) suggested that the interclass correlation (ICC) approximates effect size in multilevel models. I am aware of only Qiu

(2014) who has used the LMM in the D–P literature. Qiu calculated an ICC of .38. However, Qiu's study is a cross-country study, and the ICC indicates that 38% of the variability in the performance (measured by market value) of DFs lies between countries—the Level 2 variable. In my case, the Level 2 variable is the firms, and therefore, Qiu's ICC may not be a good proxy for interfirm variability. Arend and Schäfer recommended the use of a medium effect size where ICC information is not available. This recommendation justifies the use of medium effect size in using the Arend and Schäfer approach.

Eligibility Criteria

To be included in the sample, I required a firm to have data to measure the required variables. Following Hoechle et al. (2012) and others, I excluded financial services firms in the analysis. Financial services firms are usually listed under the financial services sector on the NSE and include banks; insurance carriers, brokers, and services; micro-finance banks, mortgage carriers, brokers, and services; and other financial institutions. In the International Standard Industrial Classification of all Economic Activities, Rev. 4, which I used to assign SIC codes to firms' economic activities, these financial services firms would be firms whose activities fall under the 64, 65, and 66 2-digit codes. Financial firms are excluded because their financial ratios are not usually comparable with those of nonfinancial firms. In the case of Nigeria, apart from the Company and Allied Matters Act that regulates all companies, financial institutions are further governed by the Banking and Other Financial Institutions Act 1991, as amended.

I also excluded firms that did not have the data to operationalize the variables in the study. Given the study's panel design and the need to capture how the relationships varied over time, I imposed the criteria that the firm must have a minimum of three consecutive years of data. Ployhart and Vanderberg (2010) argued that the change between two time points only is linear by default (p. 97). As a result, it is "impossible to determine the form of change over time" (p. 97). Ployhart and Vanderberg also argued that using less than three-time point observations may confound the actual change. The change observed from Time 1 to Time 2 may just be an isolated case due to measurement error (Ployhart & Vanderberg, 2010).

I employed probability sampling in this study (Rahi, 2017). I had the list of all the firms on the NSE over 2008–2018. Therefore, I could define the population precisely, and this made it possible to use probability sampling. I used simple random sampling to select the required number of firms. By this process, I gave all nonfinancial firms listed on the NSE a chance to be included in the sample. I executed the simple random sampling by assigning computer-generated numbers to all firms in the population. I selected firms whose assigned numbers matched the numbers drawn from the lot of random numbers generated. I did this until I obtain the required sample size. When I dropped any of the selected firms for data unavailability, I used simple random sampling to choose other firms from the remaining lot to replace them.

Procedures for Data Collection

For this study, I extracted the required data from the selected companies' annual reports and financial statements. I also collected data from NSE publications, such as the

NSE Factbook, daily price lists, and annual reports. These are publicly available from the NSE library, and I downloaded many from company websites.

Reliability

The companies I used in this study were all quoted on the NSE. The law requires these companies to publish annual reports and audited accounts. Presently, these annual reports are the most reliable data sources on companies in Nigeria, and many researchers have used them (e.g., Adamu et al., 2011; Gunu & Gunu, 2020; Oyedijo, 2012).

A significant task in this research was that of assigning SIC codes to firms. At the time of data collection, there were no databases like Compustat that published SIC codes of companies in Nigeria yearly. Therefore, I perused the companies' annual reports, especially the section on the nature of the business, to determine the products or services offered by each company for each of the years (either through any of its business units or its subsidiaries). I assigned SIC codes to each of the products/industries of every company selected based on the International Standard Industrial Classification of all Economic Activities, Rev. 4, published by the Economic and Social Department of the United Nations (2008). With this, I was able to classify firms as focused or diversified, and if diversified, the degree of diversification. Chen and Yu (2012) adopted a similar approach in their study of Taiwanese firms. To avoid bias, I also enlisted an industrial economist who independently did the assignment and classification. There was congruency between the two assignments.

This approach produced segment classifications similar to the business units of the Business Information Tracking Series (BITS) that Villalonga (2004) used. The approach mitigated managers' self-reported segment data based on different activity aggregation levels that make interfirm segment comparison difficult (Villalonga, 2004). It also prevented segment under or overreporting and ensured that the segment data reflected only economically meaningful diversification or refocusing events rather than mere reporting changes (Hyland & Diltz, 2002; Villalonga, 2004).

However, it was not possible to obtain usable segment sales, assets, or profit data. In many cases, the firms' reported segments and segment data—where such data existed—were inconsistent with firm segments classification I used in this study. The inconsistencies made interfirm comparison less informative. Gunu and Gunu (2020) also identified insufficient segment disclosure in Nigeria that made it impossible for them to use any SIC-based diversification measures. Due to insufficient segment disclosure, I could not use the Berger and Ofek (1995) approach to compute EV.

Using the EV measure of performance for robustness check, I could mitigate this problem in any of three ways. The first way is to compute the EV as the difference between the firm's Q and the unweighted average of its segments' imputed Qs as in Servaes (1996). The second is to follow an approach similar to Seo et al. (2010), and compute a DF's EV as the difference between the firm's Q and the average Q of single-segment firms in the market. To calculate the EV of group firms, Seo et al. compared the performance of group firm with the median performance of all nongroup firms in their sample. The third approach is to use only firms where reported segments (segment sales) corresponded to the classification of the firms' segment I used in this study. Although segment reporting is still in its rudimentary stages and many firms do not report any meaningful segment information (Gunu & Gunu, 2020), the Berger and Ofek (1995) EV measure may be calculated for firms with sufficient segment information based on reported segments. Given the limitations with my data (as I explain later), the only feasible options were the Servaes (1996) and Seo et al. (2010) approach.

Operationalization of Constructs

In this section, I indicate how I operationalized and measured the constructs in this study and the strengths and limitations of the measurement. The independent variables were the diversification status, the level/degree of diversification, and insider ownership. The dependent variable was firm performance, and the control variables were firm size, leverage, blockholding/ownership concentration, and board independence.

Diversification Status

Diversification status is the category that a firm falls into when I classify them as focused firms/UDF or as DF. So defined, this variable, is an unweighted business count measure. A firm was classified as UDF if it operated in only one industry measured at the two-digit SIC code level and as DF if it operated in two or more industries. This way, I measured diversification status at the nominal level. Many researchers have operationalized diversification status similarly (e.g., Benz & Hoang, 2020; Berger & Ofek, 1995; Borah et al., 2018; Denis et al., 1997; Giachetti, 2012; Hoechle et al., 2012; Hund et al., 2013; Lee & Hooy, 2018a, 2018b; Rojahn & Zechser, 2019; Selçuk, 2015; Shen et al., 2018).

The unweighted business count measure reflects the full extent of different activities or business lines that a firm is engaged in. It has the further advantage of being more objective, given that it is usually based on internationally recognized standard measures of activity such as the SIC code system (Pitts & Hopkins, 1982). The data to measure the variable are also more readily available from published financial reports (Pitts & Hopkins, 1982). The availability of information is crucial, especially for developing countries like Nigeria where data availability is a serious issue. For instance, Giachetti's (2012) justification for using the diversification status variable was the absence of detailed segment reporting to enable the operationalization of the weighted business count measures such as the Herfindahl index.

However, one limitation of this measure is that it does not recognize the size differences of these activities and their contribution to the firm's total output (Pitts & Hopkins, 1982). As some authors have pointed out, diversification should not be gauged only by the number of business segments a firm is engaged in but also by the size and contribution of each segment to the firm's total output (Berry, 1971, Pitt & Hopkins, 1982). Rumelt (1982) also suggested diversification should be gauged by the relatedness of these segments (see also Berry, 1971; Pitt & Hopkins, 1982).

Despite this criticism, Ramaswamy et al. (2012) found a high correlation between the unweighted business count measure and the weighted business count measures (Herfindahl and entropy index) that capture each the contribution of each segment to the total firm output. Moreover, a business line may be presently insignificant for a firm but accounts for a significant proportion of the industry, such that the firm may come to depend on it in times of downturn in the other major segments. Also, significance is highly subjective given that it will boil down to what measure is used—sales, assets, profit, or employment. A segment in which a firm has more of its assets may be contributing an insignificant proportion of its total sales currently. The issue becomes whether the firm should disregard it.

As some authors have posited, the measure of diversification to be used in any study will depend on data availability (Chao et al., 2012; Gunu & Gunu, 2020; Pitts & Hopkins, 1982; Rumelt, 1982). Pitts and Hopkins (1982) recommended using numerical count when considering differences between groups of diversified and focused firms given that the measure has the advantages of accounting for all activities and data for it is more readily available. Chao et al. (2012), cited the lack of most of the information necessary to operationalize the other measures of diversification as the reason for their use of the BSD-MNSD approach, and Gunu and Gunu (2020) used what they called income and non-income diversification due to inadequate segment data disclosure in Nigeria.

Degree/Level of Diversification

The levelof diversification relates to the distribution of the firm's output (say sales) across its different businesses (Wiersema & Beck, 2017). I operationalized this variable as the number of industries/egments in which a firm operated. Level of diversification is an interval variable. Many researchers have also operationalized it similarly (e.g., Andrés et al., 2016, 2017b; Custódio, 2014; George & Kabir, 2012; Giachetti, 2012; Lee & Hooy, 2018a; Mitra & Pattanayak, 2013; Nejadmalayeri, Iyer, & Singh, 2017; Shen et al., 2018). Following Nejadmalayeri et al. (2017), and Harper et al. (2017), among others, I defined industry at the two-digit SIC code level.

This measure has the advantage of being able to be operationalized with data that are more readily available data from company financial statements, especially in Nigeria and other developing countries, where segment reporting is still not well-developed. It also reflects the full range of the activities in which a firm is engaged. Its limitation is that, like other unweighted business count measures, it does not reflect the size differences of a firm’s activities and their contribution to the measure of total output. Some authors have suggested that the definition of a firm’s level of diversification should reflect each activity’s contribution to the firm’s total output (Pitt & Hopkins, 1982). However, Ramaswamy et al. (2012) found a high correlation between the unweighted and weighted business count measures. Due to less informative segment reporting in Nigeria, I could not operationalize the level of diversification by the Herfindahl index or entropy index—measures that reflect each activity’s relative contributions.

Insider Ownership

Insider ownership refers to the ownership of people who have access to firm-specific information that is not usually available to other investors and who have influence over the firm’s decisions. I measured insider ownership as the proportion of a firm’s outstanding shares owned directly or indirectly by the firm’s directors (executive and nonexecutive) as disclosed in the annual reports. This way, I measured insider ownership at the ratio level. This definition is similar to that used in many studies (e.g., Anderson et al., 2000; Berķe-Berga et al., 2017; Chen & Yu, 2012; Denis et al., 1997; Hoechle et al., 2012). Companies in Nigeria are required to report the shareholding of their directors in their annual reports. These companies do not usually report officers’ shareholding (other than the CEO and executive directors). Therefore, I was unable to use officers' shareholding to operationalize insider ownership as Anderson et al. (2000), Chou (2015), Denis et al. (1997), Hoechle et al. (2012), and some others did. Cheng et al. (2012) employed the direct and indirect shareholding of directors in their study of Hong Kong firms because it was the only insider ownership information reported by companies in their annual reports.

The argument against this measure is that not all the directors could be considered insiders, per se. Other than the executive directors, many of the directors lack adequate information about the company's operations, and given their background and experience, some are not able to influence the firm's decisions (Brickley & Zimmerman, 2010). Therefore, some of these directors may not be said to possess the information and the influence over the firm's actions as insiders are assumed to have. Kim and Lu (2011) argued that CEO ownership should have the most impact if insider ownership is to be measured by influence over firm decisions. Boumosleh et al. (2012) used the CEO and the executive directors' ownership as insider ownership measures. However, I could not employ the CEO and the executive directors' shareholding to operationalize insider ownership because, during data collection, I did not make the distinction between executive directors' and nonexecutive directors' shareholding.

Firm Performance

Firm performance refers to how well a firm does over a period given its goals and objectives. I measured firm performance by ROE and ATQ. ROE is an accounting measure of performance and ATQ is a hybrid of accounting and financial market measures. These measures mitigate the limitations of each other.

I measured ROE as the net income after tax divided by shareholders' funds. As measured, ROE is an interval variable. Chen and Chu (2012), Oyedijo (2012), Berry-Stölzle et al. (2013), Olawale et al. (2017), and Zhou (2018), among others, measured ROE similarly. The strength of ROE is that, like most other accounting measures, the information for its computation is more readily available. It also provides information to management on past financial performance and rates of return to shareholders of the firm (Zhou, 2018), serving as a basis for future strategic decisions (Butler et al., 2012). However, it suffers from the limitations I identified in the literature review section. I mitigated these limitations by employing the ATQ measure.

I measured ATQ as the market value of ordinary shares plus book value of total liabilities divided by book value of total assets. This makes ATQ an interval variable. Many researchers have used this measure (e.g., Custódio, 2014; Hyland & Diltz, 2002; Lien & Li, 2013; Singh et al., 2018; Villalonga, 2004). As a hybrid measure of firm performance, it leverages the strengths of the accounting and the market measures. It captures risk, which accounting measures do not, and operational performance issues lost in financial market measures (Richard et al., 2009) but is computationally less cumbersome than Tobin's q.

However, the ATQ is an approximation of the original Tobin's q and suffers from some of the limitations of Tobin's q as I identified in the literature review, such as the assumption of market efficiency in calculating the market value of equity. However, despite the financial markets' inefficiency, market prices still give the best approximations of the value of assets. The book value of debt may not reflect the market value of debt since most of the firms' debts are not traded (Glaser & Mueller, 2010). Although it is possible to estimate the market value of debt using bond pricing equations, I could not do this for Nigerian firms due to the lack of detailed reporting of corporate debts in the annual reports. However, as some authors have pointed out, the difference between market value and the book value of debt could be ignored since the two values do not generally deviate significantly (Berk & Demarzo, 2019). Despite these limitations, Chung and Pruitt (1994) found that the ATQ explains 96.6% of the variability in Tobin's q while making use of readily available accounting and financial market information.

Control Variables

I controlled for some of the variables that researchers have found to be related to firm performance. The reason is to rule out their confounding explanations of any relationships observed in this study. These variables included firm size, firm leverage, blockholding, and board independence. In the following section, I indicate the ways I measured these variables.

Following Sturm and Nüesch (2019) and Brahmana et al. (2019), I measured firm size at the interval level as the natural logarithm of the book value of the firm's total assets. This measure is considered better for some reasons. C. Dang et al. (2018) found that total asset is the most widely used measure of firm size in the corporate finance literature and that most researchers use the logarithm form of firm size measures to mitigate high skewness in the firm size data. The data to operationalize it were also readily available. I extracted the data on total assets from company annual reports. Employment figures are not always available in the annual reports. C. Dang et al. (2018) found that total assets and total sales are highly correlated (see also Hashmi et al., 2020). This correlation suggests that researchers can safely use any of the measures as substitutes.

One criticism of the book value of the total asset as a measure of firm size is that the principle of conservatism, which accountants adopt in computing book values, biases asset values downward (Wakil, 2020). As a result, the book values may not accurately reflect the market values and what the market thinks of the firm's size (Wakil, 2020). Despite this drawback, Andrés et al. (2017b), Custódio (2014), Denis et al. (1997), Hoechle et al. (2012), Kuppuswamy et al. (2014), Olaniyi et al. (2017), Ramaswamy et al. (2017), Sturm and Nüesch (2019), and Sener and Selcuk (2020) among others, measured firm size similarly.

Leverage refers to the use of debt in a firm's capital structure. I measured firm leverage at the interval level as the ratio of the book value of total liabilities to the book value of total assets. I extracted the data for this from the balance sheet reported in the annual reports of the firms. This measure is preferable to other leverage measures because it captures all types of debt the firm might have. Other authors such as Andrés et al. (2017b), Chen and Yu (2012), Denis et al. (1997), and Hoechle et al. (2012) used this measure.

Blockholding refers to the shareholding of people who own a significant percentage of the shares of a firm. I measured blockholding or ownership concentration as the proportion of total shares held by shareholders who own 5% or more of the firm's shares. As defined, blockholding is an interval variable. Other researchers have measured blockholding similarly (see Anderson et al., 2000; Edman, 2014; Nguyen et al., 2015; Odewale & Kamardin, 2015; Sautner & Villalonga, 2010). I sourced information used to operationalize blockholding from the annual reports of the companies. Companies in Nigeria report the names and shareholding of shareholders who own 5% or more of the firm's shares.

Board independence refers to the ability of the board members to exercise independent judgment. Following Muller-Kahle (2015), I measured board independence as the proportion of board members that are nonexecutive directors. As measured, board independence is an interval variable. Other researchers have used this measure (e.g., Khosa, 2017; Nguyen et al., 2015; Sener & Akben- Selçuk, 2020; Singh et al., 2018; Yasser & Al Mamun, 2017). As Brickley and Zimmerman (2010) pointed out, researchers have commonly viewed nonexecutive directors as outside directors and independent (Muller-Kahle, 2015). I sourced the information used to measure this variable from the annual reports of the firms.

Data Analysis Plan

I used the SPSS Version 25 to analyze the data. I screened the data for accuracy, outliers, and missing data by running frequencies on the data set using the *explore* and *missing data* analysis functions in SPSS. All outliers were verified, and those that were not accurate data were removed or corrected such that only actual data were used in the analysis. I used the missing values analysis module in SPSS to identify whether missing data were at random or not. Missing values could be handled using pairwise deletion or imputation methods that are available in SPSS. However, the LMM, which I used for the analysis, accommodates missing data cases (Field, 2017; West, 2009). Therefore, I opted to analyze without imputation given that many experts have suggested that imputation does not add any value when LMM is used (Peters et al., 2012; Twisk et al., 2013).

Research Questions and Hypotheses

RQ1: How is the performance of DFs different from that of focused firms in Nigeria?

$H_0$1: There is no significant difference between the performance of DFs and focused firms in Nigeria.

$H_1$1: There is a significant difference between the performance of DFs and focused firms in Nigeria.

RQ2: What is the relationship between the level of diversification and firm performance in Nigeria?

$H_0$2: There is no significant relationship between the level of diversification and firm performance in Nigeria.

$H_1$2: There is a significant relationship between the level of diversification and firm performance in Nigeria.

RQ3: How is the insider ownership level of DFs that outperform focused firms different from the insider ownership of DFs that underperform focused firms in Nigeria?

$H_0$3: There is no significant difference in insider ownership level between DFs that outperform focused firms and DFs that underperform focused firms.

$H_1$3: There is a significant difference in insider ownership level between DFs that outperform focused firms and those that underperform focused firms.

RQ4: What is the relationship between insider ownership and the performance effects of level of diversification in Nigeria?

$H_0$4: There is no significant relationship between insider ownership and the performance effects of level of diversification.

$H_1$4: There is a significant relationship between insider ownership and the performance effects of level of diversification.

Statistical Test for Hypotheses

I tested two groups of hypotheses. The first and the third were about comparing the difference in means. These could be tested using the independent-sample t-test. However, the independent sample *t* test captures only differences in group mean but does not capture within-subject and between-subject differences over time. Therefore, I assessed the significance of the difference between means through the estimated marginal means function in the mixed procedure in SPSS. The second and fourth deal with relationships between variables, and I tested them with the LMM variant of multiple regression in SPSS

I included four variables that could confound the expected relationship between the independent variables and the outcome variable. These control variables were firm size, firm leverage, blockholding, and board independence. I included these firm characteristics and governance measures because some researchers have found they are correlated with firm performance (Chandra et al., 2019; Dao & Ta, 2020; Hashmi et al

2020; Iwasaki & Mizobata, 2020; Zattoni et al., 2017). As I show in Chapter 4, most of these control variables showed significant correlations with the outcome variables. These correlations justify their inclusion.

For Hypothesis 1, I evaluated whether the mean ROE and mean ATQ of firms classified as undiversified are significantly different from the mean ROE and mean ATQ of firms classified as diversified. The independent variable here—diversification status—as measured for this hypothesis is a nominal variable whereas the dependent variable, firm performance measured by ROE and ATQ, is interval variable. Because of the institution-based view of the performance effects of diversification, I expected the mean ROE and ATQ of DFs to be significantly higher than those of the UDFs.

For this test and the other test in this study, I established a significance level (α) of 5% (.05). This represents the probability of making a Type I error. I rejected the null hypothesis if the *p*-value was less than α, 0.05. Otherwise, I accepted the null hypothesis of no significance.

For the second hypothesis, I used the LMM to evaluate the relationship between the independent and dependent variables. Qiu (2014) used the LMM, which I describe later in this section. The level of diversification measured by the number of different industries/segments, which a firm operates in was the independent variable, and firm performance was the dependent variable. In this hypothesis, I estimated two sets of models: one with ROE as the dependent variable and another with ATQ as the dependent variable. I adopted a hierarchical modeling approach wherein I introduced the predictors one after the other.

The hierarchical modeling approach enabled me to observe how the model improves with the introduction of each predictor and helped in determining the model that best fits the data. I entered the level of diversification first and the control variables subsequently. None of the control variables was considered more important than the other. Therefore, I entered them in any order. I established the significance of the relationships at the α level of 5% and rejected the null hypothesis if the *p*-value was less than .05. Otherwise, I accepted the null hypothesis.

For Hypothesis 3, I could have used the independent-sample *t* test. However, this approach would not capture the within-subject and between-subject differences in the data. Therefore, I assessed the significance of the difference in mean insider ownership through the estimated marginal means function in the mixed procedure in SPSS. For this hypothesis, first, I classified DFs into two: OPDF and UPDF. I defined an OPDF as a DF whose performance (measured by ROE and ATQ) is greater than the average performance of focused firms, that is, DFs with positive EV. I defined a UPDF as a DF whose performance (measured by ROE and ATQ) is lower than the average performance of focused firms, that is, DFs with negative EVs. If agency cost theory of fir diversification holds, I would expect the average insider ownership of OPDF to be significantly greater than the mean insider ownership of UPDF. I assessed significance at the 5% level (that is, $\alpha = 0.05$).

I based the categorization of firms as OPDF and UPDF on the EV, which is a continuous variable. However, such a categorization leads to loss of information and statistical power (Cumberland et al., 2014; Kahan et al., 2016; Royston et al., 2006;

Sauzet et al., 2016). The loss of information is greater in the case of dichotomization (Naggara et al., 2011). Many authors agree that it is unnecessary to categorize continuous data for statistical analysis (Naggara et al., 2011; Royston et al., 2006). Royston et al. (2006) suggested that it is better to use regression on continuous data rather than categorizing them to use independent sample *t* test. Therefore, to avoid the loss of information due to this dichotomization and as a kind of robustness check, I also used the LMM to examine how insider ownership predicted excess ROE (ExROEav and ExROEserv) and excess ATQ (ExATQav and ExATQserv).

In the Hypothesis 4, I introduced insider ownership and an interaction term of level of diversification and insider ownership (level of diversification* insider ownership) as predictors in the model estimating the relationship between the level of diversification and firm performance. I did this to examine whether insider ownership moderated the D–P relationship. The dependent variable was firm performance measured by ROE and ATQ as earlier defined. I also introduced the control variables here. For robustness check, I also examined the relationship between insider ownership and DFs' performance only. The independent variable was insider ownership. The dependent variable was firm performance measured by ROE and ATQ as earlier defined.

For this hypothesis, I used the LMM first, to estimate the relationship between the interaction term of level of diversification and insider ownership on firm performance and secondly, the relationship between insider ownership and the performance of DFs. I also estimated two models, one for the ROE as the dependent variable and another for the ATQ as the dependent variable. The level of significance was also 5%.

The Linear Mixed Model

In this study, I tested the hypotheses by fitting LMMs to panel data. I was interested in a model that would allow the effect of the independent and control variables on firm performance to vary within companies and between companies. The random intercept model was the best fitting based on the -2 log-likelihood (-2LL), and I formulated this model as follows

$$Y_{tj} = b_{0j} + b_1 X_{tj} + \varepsilon_{tj} \tag{10}$$

$$b_{0j} = b_0 + u_{0j} \tag{11}$$

Where, *Y* is the dependent variable, b_0 is the overall intercept, b_1 is a vector of regression coefficients for the set of predictors *X*, *t* is case *t* (firm-year observation, Level 1)*; j* is firm (Level 2); ε_{tj} is within-firm (Level 1) error for case *t* (firm-year observations); u_{0j} is a vector of firm-specific random effects (for intercept), the Level 2 error that allows the intercept to vary across firms and is assumed to follow a normal distribution with mean vector zero. ε_{tj} is a vector of the unexplained error term and is assumed to be independent and ($\boldsymbol{\varepsilon}_t \sim N(0, \boldsymbol{\Sigma}_t)$). First-order auto-regressive was assumed for $\boldsymbol{\Sigma_t}$ given that in repeated measures, the correlation between scores is expected to lessen over time (Field, 2017). However, in each case, various models with different variance-covariance structures were tried to determine the best-fit models.

The LMM, variously referred to as multilevel model, random coefficient model, and hierarchical linear model (Field, 2017; West, 2009), has some advantages. It can accommodate the violation of the assumption of independent errors—an assumption that is difficult to hold in repeated measures design—by permitting the modelling of the dependence in nested data (Field, 2017; Harrison et al., 2018; West, 2009). I measured the variables for this study for the period 2008 to 2018. I could not assume, for instance, that the observation for one year is not correlated with those of previous and subsequent years.

The model can also accommodate missing data cases, which is a severe issue in longitudinal data and cases where the measurements are not taken at the same time points (Harrison et al., 2018; West, 2009). This feature of the model was helpful in this study, given the nature of the data set. The financial year ends of all the firms are not the same. Many firms have financial years that ended in December but there were others with financial years that ended in other months. As such, the observations (based on annual reports) may not be said to have been taken at the same time points.

Secondly, I did not expect a balanced data set because not all the companies listed on the stock exchange for all the years in the sample period. Some firms listed after 2008 (the beginning of the sample period). Moreover, some of the companies did not have the data for all the years due to the unavailability of their annual reports. I had companies with 11 years of observations and others with less than 11 years of observation. In few cases, some of the companies did not have data in their annual reports to operationalize some of the variables for some of the years. Achieving a balanced data set in these situations would require deleting many companies with less than 11 years of observation for all the variables. Deletion reduced the sample size, statistical power, and produces worse bias (Wang et al., 2017) and threatened the validity of the study.

The LMM was valuable in these situations. According to West (2009), the “LMM accommodates these types of unbalanced study designs and data sets” (p. 212). Models such as standard regression, ANOVA, and analysis of covariance handle the problem of missing data by deleting the whole case. Deletion reduces the final sample size and thus the study’s validity (Field, 2017; West, 2009). The LMM also accommodates the violation of the assumption of homogeneity of variance (Field, 2017; Harrison et al., 2018; West, 2009). Unlike repeated measures ANOVA, the LMM allows both time-varying and time-invariant predictors and permits the consideration of alternative covariance structures (West, 2009). This feature of the LMM was relevant given that variables such as level of diversification did not change for some firms over the sample period.

Other assumptions of the LMM are that of homoscedasticity and the absence of perfect multicollinearity in the case of multiple predictors (Field, 2017; Harrison et al., 2018; Maas & Hox, 2004). Gelman and Hill (2007) noted that, normality or otherwise of residuals does not affect the parameter estimates in multilevel models, and advised against normality test in LMM (p. 46). Homoscedasticity did not constitute a problem because it is explicitly modeled in the LMM (Field, 2017; Harrison et al., 2018; Maas & Hox, 2004; West, 2009). Multicollinearity was assessed through correlation analysis, variance inflation factor of (VIF), and the tolerance statistics. As shown in Chapter 4, there is no multicollinearity problems to worry about. Overall, there seems to be a consensus that the LMM is robust to even severe violations of the assumptions and therefore nothing to worry about (see for instance LeBeau et al., 2018; Schielzeth et al., 2020).

The LMM was estimated using the maximum likelihood estimation, an approach whereby statistical parameters are estimated by choosing the parameters that most likely have caused the data to occur (Newman, 2014; Wang et al., 2017). I chose this approach because I needed to compare different models. I used the chi-square ratio test to assess the LMM's overall fit, and SPSS produces the deviance of this ratio as the -2LL in the information criteria table of the output (Field, 2017). The smaller the -2LL, the better the model, and a significant difference between the -2LL of models indicate improvement or not in the fit by introducing a new parameter (Field, 2017).

Threats to Validity

External Validity

One threat to external validity relates to the fact that I used only a sample of the listed companies on the NSE. I used a sample of the firms because it also achieves the required statistical power while reducing the cost and time required. Moreover, it was impossible to get the necessary yearly data for all the firms. Therefore, there was the issue of whether this sample was representative of the larger population of firms in Nigeria to enable me to generalize the results to the larger population.

I dealt with the threat of lack of representativeness of the sample by using the random sampling method of probability sampling, as indicated earlier. This approach gave all firms an equal chance of being included in the sample. As I show in Table 1 in Chapter 4, the sample included firms from all the sectors under which nonfinancial firms listed on the NSE as of 2018. Except for the construction/real estate sector with 62.50% representation in the sample, all the other sectors had over 70% representation. This high representation increases my confidence in the generalizability of the results. I also had no control over the variables and did not attempt to manipulate them, and this means that I conducted the study in a real-life setting. This approach increases the external validity of the study.

Internal Validity

The design I used has two main weaknesses that threaten internal validity. The first was the absence of randomization, which makes competing explanations of relationships inadequately controlled. The absence of randomization makes causal inferences less convincing. The second threat is experimental mortality. Some of the firms did not have the required information for all the years in the study period. I, therefore, dropped them from the study, and this tended to reduce the sample size. Another weakness of the methodology stemmed from the type and source of data. As I indicated earlier, I based this study on secondary data that I had no control over. Therefore, the data were reliable to the extent that the publishing institutions were reliable.

I addressed the design weakness of lack of randomization through the statistical models I employed for data analysis. These models controlled for some of the variables anticipated to offer competing explanations. Researchers who use nonexperimental designs tend to depend on statistical data analysis as a method of control (Bloomfield & Fisher, 2019; Wang et al., 2017). Although statistical association does not imply causality

(Bloomfield & Fisher, 2019; Field, 2017; Queiros et al., 2017), my intention was not to establish causality but a relationship. This increased my confidence about the relationships found in the study and my ability to generalize.

To address the weakness of experimental mortality, I provided a buffer and randomly drew from the remaining firms to replace any dropped firm. This approach helped maintain the required sample size despite anticipated mortality and increased the sample's representativeness, the study's internal validity, and the generalizability of the findings. Moreover, the LMM, which I employed to estimate the relationship between the independent and dependent variables, can fully accommodate missing data cases (Wang et al., 2017; West, 2009). Therefore, instead of dropping any firm because of unavailability of data for some years, I used all firm-year observations provided the firm had at least three years of consecutive data. This approach increased the overall sample size and statistical power.

Regarding the reliability of secondary sources, I addressed this weakness by using only publicly listed companies in this study. These companies are legally required to publish their annual reports and financial statements. The directors take responsibility for preparing financial statements that give an accurate and fair view of the company's affairs for the reporting period. They directors do this at the risk of jail terms under sections 334 and 335 of the Companies and Allied Matters Act 2004. Further, regulatory authorities require that reputable auditing firms audit these financial statements. Given these requirements, I feel confident that the data collected from these secondary sources are reliable.

Construct Validity

Some authors have shown most of the variables that I measured in this study as multidimensional constructs, each dimension meaning a different thing and measured differently (Butler et al., 2012; Hamann et al., 2013; Kim & Lu, 2011; Pitts & Hopkins, 1982; Richard et al., 2009; Sambharya, 2000). I ensured construct validity by employing multiple measures of some of the constructs, to the extent that available data permitted and as some authors have suggested (Papadakis & Thanos, 2010; Sambharya, 2000). These multiple measures are supposed to reflect different aspects of the construct.

Researchers have established the construct validity of some of these constructs. For instance, I used the unweighted business count measure for the diversification construct because I could extract data from companies' annual reports. Ramaswamy et al. (2012) found a high correlation between the unweighted business count measure and the weighted business count measures—Herfindahl index and the entropy index—that are more data-intensive. Therefore, the interpretation is that these two measures reflect the same constructs, are equivalent, and can substitute each other.

I could not employ the weighted business count measures (entropy index and Herfindahl index) because of limited segment data, as I indicated earlier. Ramaswamy et al. (2012) found a high correlation between the unweighted business count measure, the Herfindahl index, and the entropy index that capture each line of activity's contribution to the total firm output. This correlation increases my confidence in the validity of the diversification construct I used in this study.

In the case of firm performance, I used both an accounting measure (ROE) and a hybrid measure (ATQ). Hamann et al. (2013) found the construct validity of these performance measures (see also Aliabadi et al., 2013; Butler et al., 2012; El-Sayed Ebaid, 2012). To make this study comparable to other studies that have used the EV measure, I employed a variant of this measure. For a particular year, I computed the firm's EV as the difference between the ROE (or ATQ) of a firm and the average ROE (or ATQ) of all focused firms for that year. The reason for this was the shortage of focused firms in many of the industries.

Ethical Procedures

I extracted the data I used from publicly available sources. These sources included company annual reports and accounts and publications of the NSE. Company annual reports and accounts were available from the NSE Library and also from company websites. The NSE publishes daily price lists. Since my data collection did not involve humans, I had few ethical issues to address. However, as required by Walden University, before collecting data, I sought IRB approval that my procedure met all ethical requirements (IRB approval number: 11-01-16-0332133).

Summary

In this chapter, I presented and rationalized the research design that I adopted in this study. I also identified the population for this study and discussed how I determined the sample size. I discussed the sampling strategy that I adopted. I indicated how I collected the data for the study and how I operationalized the variables. Finally, I discussed the data analysis plan, the threats to the study's validity, and how I addressed them. In Chapter 4, I present the data, analyze them, and test the hypotheses to answer the research questions posed.

Chapter 4: Results

The purpose of this quantitative study was to examine the relationship between firm diversification and firm performance and how insider ownership is related to the performance effects of diversification in Nigeria. To achieve this objective, I posed four research questions and addressed them by testing hypotheses. I outline the research questions and the hypotheses tested below.

RQ1: How is the performance of DFs different from that of focused firms in Nigeria?

$H_0$1: There is no significant difference between the performance of DFs and focused firms in Nigeria.

$H_1$1: There is a significant difference between the performance of DFs and focused firms in Nigeria.

RQ2: What is the relationship between the level of diversification and firm performance in Nigeria?

$H_0$2: There is no significant relationship between the level of diversification and firm performance in Nigeria.

$H_1$2: There is a significant relationship between the level of diversification and firm performance in Nigeria.

RQ3: How is the insider ownership level of DFs that outperform focused firms different from the insider ownership of DFs that underperform focused firms in Nigeria?

$H_0$3: There is no significant difference in insider ownership level between DFs that outperform focused firms and DFs that underperform focused firms.

$H_1$3: There is a significant difference in insider ownership level between DFs that outperform focused firms and those that underperform focused firms.

RQ4: What is the relationship between insider ownership and the performance effects of level of diversification in Nigeria?

$H_0$4: There is no significant relationship between insider ownership and the performance effects of level of diversification.

$H_1$4: There is a significant relationship between insider ownership and the performance effects of level of diversification.

In this chapter, I describe the procedures I used to collect data for the study. I follow this by presenting the study results. Finally, I summarize the chapter.

Data Collection

Following IRB approval in November 2016 (IRB approval number 11-01-16-0332133), I started collecting data. This required visiting libraries such as those of the NSE and SEC of Nigeria for annual reports and other information on companies listed on the NSE. I also downloaded annual reports from company websites where they were available. Data collection for this study primarily involved extracting the information required to operationalize the variables in the study. There were no discrepancies in data collection from the plan presented in Chapter 3. Data collection took about 2 years. Based on the recommendation of the university research reviewer and due to the delay in graduation, there was a need to update the data period from 2008 to 2018 instead of 2013.

The population for this study was nonfinancial services companies listed on the NSE at any time between January 31, 2008, and December 31, 2018, and for which I had information to operationalize the variables for at least three consecutive years. I excluded firms in the financial services industry and real estate investment trusts for reasons stated earlier. As of December 31, 2008, the number of equities (financial and nonfinancial) listed on the NSE was 213. The number of listed equities dropped to 169 by the end of 2018 (NSE, 2018). Twelve firms used in the study were listed after 2008. During the sample period, a total of 13 firms used in the study were delisted. Of these firms that delisted, 12 were in the 2008 sample. Overall, I used 109 firms in this study, but the sample size varied from year to year. I included 97, 102, 103, 105, 106, 107, 108, 107, 102, 98, and 96 firms in the sample for the years 2008 to 2018, respectively.

For instance, in 2018, there were 169 equities on the NSE. Fifty-seven of these were listed under the financial services sector, whereas 112 were under the nonfinancial services sectors. Three of these 112 nonfinancial services firms were real estate investment trusts; 13 were dropped for lack of data, leaving a total of 96 firms in the 2018 sample. However, for robustness check, I reran all estimations using a sample comprising only of firms listed for the entire period. The sample comprised firms in the 10 sectors under which the NSE listed nonfinancial services companies in 2018. The NSE sectoral distribution of sample firms in 2018 is shown in Table 1.

Table 1

Nigerian Stock Exchange Sectoral Distribution of Sample Firms as of 2018

Sectors	No. of nonfinancial firms listed	No. of firms sampled	Sample as % of firms listed in the sector	Sample as % of total firms sampled
Agriculture	5	5	100.00%	5.21%
Conglomerates	6	6	100.00%	6.25%
Construction/real estate	8	5	62.50%	5.21%
Consumer goods	21	18	85.71%	18.75%
Healthcare	10	9	90.00%	9.38%
ICT	7	5	71.43%	5.21%
Industrials goods	14	13	92.86%	13.54%
Natural resources	4	4	100.00%	4.17%
Oil & gas	12	11	91.67%	11.46%
Services	25	20	80.00%	20.83%
Total	112	96		100%

Note. The table is based on the NSE List of Equities as of December 31, 2018.

This sample represents nonfinancial firms listed on the NSE because the selection was through random sampling, and I sampled 85.71% of such firms listed on the NSE at the end of 2018. As shown in Table 1, the least percentage of firms I sampled in each sector in 2018 was 62.5%. In Table 2, I present the equity market capitalization and the market capitalization of the firms in the sample for the period 2008–2018. As shown in Table 2, for most of the years, the sample firms represented more than half of the equity market capitalization of the NSE—66.67% in 2018. Given that I excluded the financial services industry (with a market capitalization of 3.88 trillion naira and representing about 33.08% of total equity market capitalization of the NSE in 2018) from the study, this sample appears representative of nonfinancial services firms listed on the NSE, at least, regarding market capitalization.

Table 2

Equity Market Capitalization and Market Capitalization of Sample Firms 2008-2018

Year	Equity market cap.	Market cap of sampled firms	Market cap of sampled firms as a % of equity market cap.
2008	7	2.47	35.29%
2009	5	2.53	50.60%
2010	7.92	4.63	58.46%
2011	6.54	4.46	68.20%
2012	8.98	5.64	62.81%
2013	13.23	9.31	70.37%
2014	11.49	8.46	73.63%
2015	9.86	7.32	74.24%
2016	9.26	6.72	72.57%
2017	13.62	9.03	66.30%
2018	11.73	7.82	66.67%

Note. The table was compiled based on data from various editions of the NSE Annual reports, Factsheets, and Market Review & Outlook. All amounts are in trillions of Nigerian naira; exchange rates to the U.S. dollar were 130.75, 147.16, 148.31, 151.82, 155.27, 159.79, 186.10, 199.35, 305, 359.99, and 364 for the years 2008 to 2018, respectively. Market cap a firms is the number of shares issued multiplied by market price as at the end of a firm’s financial year; equity market capitalization is from various issues of NSE annual reports and Market Recap and Outlook.

Study Results

In this section, I present some descriptive statistics relating to the sample. Following this, I evaluate the statistical assumptions of the LMM as it applies to this study. Finally, I report the statistical analysis performed and the findings. I organize these by research questions and hypotheses.

Descriptive Statistics

DFs represented 63.44% of the total firm-year observations, whereas UDFs represented 36.56%. In Table 3, I present data on some firm characteristics, such as the book value of total assets, liabilities, and equity, turnover, profit before tax, the market value of equity, directors' share ownership, number of directors, number of outside directors, and number of 2-digit SIC codes—which were the bases for computing the variables I used in this study. As shown in Table 3, using the bootstrap technique for independent sample *t* test of difference in mean, there is no significant difference in the mean of these firm characteristics between UDFs s DFs s except in the case of the number of 2-digit SIC codes that I used to measured the level of diversification.

Table 3

Bootstrap for Independent Sample Test of Difference in Mean of Firm Characteristics Between Undiversified and Diversified Firms

Characteristics	UDF			DF			Difference in mean	*p*
	N	Total	*M*	*N*	Total	*M*		
2018								
TA	29	4,447.43	153.36	59	4,119.16	69.82	83.54	.291
TL	29	2,117.55	73.02	59	2,710.15	45.93	27.08	.458
EQ	29	2,338.05	80.62	59	1,409.00	23.88	56.74	.216
Turnover	29	2,124.05	73.24	59	3,830.40	64.92	8.32	.831
PAT	29	455.01	15.69	59	171.25	2.90	12.79	.462
MVE	29	5,075.56	175.02	59	2,747.97	46.58	128.44	.415
Dirown	27	36.37	1.35	57	20.20	0.35	0.99	.219
No_Dir	29	244	8.41	59	489	8.29	0.13	.864
No_OutDir	29	189	6.52	59	375	6.36	0.16	.783
Nosic	29	29	1	59	218	3.69	–2.70	<.001
2017								
TA	30	4,052.07	135.07	62	4,096.26	66.07	69.00	.348
TL	30	2,244.37	74.81	62	2,850.11	45.97	28.84	.451
EQ	30	1,817.31	60.58	62	1,246.15	20.10	40.48	.262
Turnover	30	1,820.60	60.69	62	3,401.33	54.86	5.83	.856
PAT	30	299.90	10.00	62	154.42	2.49	7.51	.398
MVE	30	6,260.90	208.70	62	2,764.76	44.59	164.10	.377
Dirown	28	28.59	1.02	59	20.37	.35	.68	.341
No_Dir	30	259	8.63	61	507	8.31	.32	.627
No_OutDir	30	195	6.50	61	383	6.28	.22	.537
Nosic	30	30	1	62	226	3.65	–2.65	<.001
2016								
TA	31	3,136.49	101.18	62	4,019.36	64.83	36.35	.575
TL	31	1,599.64	51.60	62	2,871.82	46.32	5.28	.895
EQ	31	1,544.29	49.82	62	1,147.54	18.51	31.31	.325
Turnover	31	1,207.83	38.96	62	3,110.70	50.17	–11.21	.671
PAT	31	130.17	4.20	62	78.24	1.26	2.94	.597
MVE	31	3,646.72	117.64	62	3,075.78	49.61	68.03	.557
Dirown	29	26.86	0.93	61	34.96	0.57	.35	.691
No_Dir	31	266	8.58	61	505	8.28	.30	.640
No_OutDir	31	201	6.48	61	378	6.20	.29	.602
Nosic	31	31	1	62	226	3.65	–2.65	<.001
2015								
TA	35	3,050.40	87.15	64	3,260.90	50.95	36.20	.392
TL	35	1,543.41	44.10	64	2,404.16	37.57	6.53	.790
EQ	35	1,514.01	43.26	64	857.23	13.39	29.86	.230
Turnover	35	1,617.61	46.22	64	2,108.58	32.95	13.27	.500
PAT	35	268.85	7.68	64	38.65	0.60	7.08	.361
MVE	35	5,174.03	147.83	62	2,146.72	34.62	113.21	.346
Dirown	31	12.34	0.40	62	32.44	0.52	–0.13	.737
No_Dir	34	309	9.09	61	498	8.16	0.92	.094
No_OutDir	34	235	6.91	61	371	6.08	0.83	.096
Nosic	35	35	1	64	242	3.78	–2.78	<.001

Table continues

Characteristics	UDF			DF			Difference in mean	*p*
	N	Total	*M*	*N*	Total	*M*		
2014								
TA	35	2,750.62	78.59	66	3,132.52	47.46	31.13	.409
TL	35	1,318.64	37.68	66	2,282.63	34.59	3.09	.899
EQ	35	1,435.00	41.00	66	849.89	12.88	28.12	.220
Turnover	34	1,485.46	43.69	66	2,275.58	34.48	9.21	.588
PAT	35	299.06	8.54	66	12.18	0.18	8.36	.232
MVE	35	5,995.50	171.30	66	2,461.21	37.29	134.01	.328
Dirown	31	12.18	0.39	63	34.50	0.55	–0.15	.681
No_Dir	34	306	9.00	63	524	8.32	0.68	.307
No_OutDir	34	227	6.68	63	385	6.11	0.57	.233
Nosic	35	35	1	66	246	3.73	–2.73	<.001
2013								
TA	38	2,222.46	58.49	65	2,547.49	39.19	19.29	.478
TL	38	1,046.02	27.53	65	1,658.24	25.51	2.01	.865
EQ	37	1,176.43	31.80	65	840.86	12.94	18.86	.348
Turnover	37	1,517.66	41.02	64	2,456.43	38.38	2.64	.875
PAT	37	410.60	11.10	65	100.02	1.54	9.56	.231
MVE	38	6,543.12	172.19	65	2,769.36	42.61	129.58	.341
Dirown	33	13.40	0.41	61	34.36	0.56	–0.16	.680
No_Dir	38	328	8.63	61	506	8.30	0.34	.541
No_OutDir	38	242	6.37	61	364	5.97	0.40	.333
Nosic	38	38	1	66	241	3.65	–2.65	<.001
2012								
TA	38	1,647.69	43.36	63	2,204.11	34.99	8.37	.734
TL	38	852.36	22.43	63	1,473.74	23.39	–0.96	.939
EQ	38	795.37	20.93	63	714.49	11.34	9.59	.479
Turnover	38	1,142.32	30.06	62	2,480.57	40.00	–9.94	.560
PAT	38	220.00	5.79	63	80.47	1.28	4.51	.408
MVE	38	4,132.59	108.75	62	1,505.81	24.29	84.47	.275
Dirown	33	12.38	0.38	58	22.20	0.38	–0.01	.978
No_Dir	37	319.00	8.62	58	470	8.10	0.52	.344
No_OutDir	37	246	6.65	58	333	5.74	0.91	.448
Nosic	39	39	1.00	63	235	3.73	–2.73	<.001
2011								
TA	39	1,458.20	37.39	58	1,880.12	32.42	4.97	.809
TL	39	784.79	20.12	58	1,267.14	21.85	–1.72	.860
EQ	40	675.49	16.89	58	601.95	10.38	6.51	.472
Turnover	37	1,015.67	27.45	53	2,213.78	41.77	–14.32	.406
PAT	40	191.79	4.79	59	62.63	1.06	3.73	.392
MVE	40	3,211.23	80.28	59	1,243.37	21.07	59.21	.320
Dirown	33	13.14	0.40	51	20.64	0.40	–0.01	.974
No_Dir	38	330	8.68	53	437	8.25	0.44	.396
No_OutDir	38	249	6.55	53	306	5.77	0.78	.070
Nosic	40	40	1.00	59	216	3.66	–2.66	<.001
2010								
TA	34	1,095.29	32.21	50	1,531.35	30.63	1.59	.926
TL	35	553.36	15.81	50	990.78	19.82	–4.01	.630
EQ	36	542.43	15.07	51	540.70	10.60	4.47	.561
Turnover	32	867.24	27.10	48	1,814.35	37.80	–10.70	.442
PAT	37	174.46	4.72	51	92.95	1.82	2.89	.421
MVE	38	3,351.80	88.21	54	1,276.56	23.64	64.57	.333
Dirown	31	12.96	0.42	49	12.23	0.25	0.17	.297
No_Dir	35	292	8.34	50	419	8.38	–0.04	.492
No_OutDir	35	224	6.40	50	293	5.86	0.54	.282
Nosic	40	40	1	56	208	3.71	–2.71	<.001

Table continues

Characteristics	UDF			DF			Difference in mean	*p*
	N	Total	*M*	*N*	Total	*M*		
2009								
TA	32	915.04	28.60	47	1,419.26	30.20	–1.60	.896
TL	31	465.78	15.03	47	976.07	20.77	–5.74	.499
EQ	33	449.50	13.62	51	450.69	8.84	4.78	.443
Turnover	28	779.08	27.82	48	1,746.44	36.38	–8.59	.537
PAT	34	121.74	3.58	51	55.45	1.09	2.49	.295
MVE	34	1,127.24	33.15	56	897.10	16.02	17.13	.277
Dirown	31	12.95	0.42	50	12.27	0.25	0.17	.359
No_Dir	32	278	8.69	50	419	8.38	0.31	.557
No_OutDir	32	212	6.63	50	293	5.86	0.77	.496
Nosic	36	36	1	56	209	3.73	–2.73	.004
2008								
TA	26	517.64	19.91	42	1,271.58	30.28	–10.37	.340
TL	26	285.42	10.98	43	901.69	20.97	–9.99	.214
EQ	26	232.22	8.93	48	393.87	8.21	0.73	.844
Turnover	24	509.93	21.25	44	1,612.86	36.66	–15.41	.202
PAT	26	71.90	2.77	48	64.00	1.33	1.43	.339
MVE	30	959.60	31.99	55	1,508.58	27.43	4.56	.740
Dirown	26	4.87	0.19	51	9.64	0.19	–0.002	.982
No_Dir	28	241	8.61	51	418	8.20	0.41	.438
No_OutDir	28	180	6.43	51	287	5.63	0.80	.153
Nosic	31	31	1	55	206	3.75	–2.75	<.001

Note. TA = book value of total assets; TL = total liabilities; EQ = equity; PAT = profit after tax; MVE = market value of equity; Dirown = number of shares owned by directors; No_Dir = number of directors; No_OutDir = number of outside/nonexecutive directors; Nosic = level of diversification; all values (except for No_Dir, No_OutDir, and Nosic) are in billions of Nigerian Naira; exchange rates to the U.S. dollar are 130.75, 147.16, 148.31, 151.82, 155.27, 159.79, 186.10, 199.35, 305, 359.99, and 364 for the years 2008 to 2018 respectively; all values are my computations based on information extracted from financial reports of the sampled firms.

In Table 4, I present descriptive statistics that characterize the sample over the entire period, and in Table 5, I show the significance of the differences in the mean of these variables between UDFs and DFs using the bootstrap technique for independent sample t-test. As shown in Table 5, on average, UDFs had higher ROE and ATQ than DFs over the period, although the difference was significant only in the case of ATQ. These values may support the view that DFs underperform UDFs (Berger & Ofek, 1995; Lang & Stulz, 1994). As shown in Table 5, also, UDFs had significantly greater blockholding and board independence than DFs over the period. The greater blockholding and board independence may indicate that UDFs have better corporate governance than DFs, based on agency theorists’ prescriptions relating to blockholding and board independence (Denis et al., 1997).

As I showed in Table 5, on average, DFs were significantly larger than UDFs, consistent with C. Dang et al. (2018) and Lawrey and Maorris (2019). On average, DFs carried significantly more debt than UDFs over the study period. This tends to support the idea that DFs have the advantage of increased debt capacity due to the coinsurance effect of multiple lines of business (Aivazian et al., 2015; Lewellen, 1971). I subject some of these preliminary findings to multivariate statistical analysis in the next section.

Table 4

Descriptive Statistics of Firm-Year Observations for the Sample Period

	Undiversified firms					Diversified firms				
Characteristics	*N*	*M*	*SD*	*Min*	*Max*	*N*	*M*	*SD*	*Min*	*Max*
ROE	348	.07	2.06	–19.64	28.97	614	.02	.71	–10.00	1.41
ATQ	367	1.77	1.43	.23	11.98	636	1.50	1.26	.29	11.76
Fsize	367	22.74	2.12	18.27	28.16	637	23.24	1.64	19.62	27.70
Nosic	385	1.00	0.00	1.00	1.00	668	3.70	2.30	2	13
Insdown	368	.21	.27	.00	.97	664	.18	.24	.00	.97
Lev	367	.57	.40	.03	3.95	637	.62	.27	.05	2.48
Blkh	376	.59	.26	.00	.95	665	.52	.24	.00	.98
Bind	365	.75	.13	.20	.92	622	.72	.13	.20	.93

Note. ROE = return on equity; ATQ = approximate Tobin's q; Fsize = firm size; Nosic = number of 2-digit SIC codes which measured level of diversification; Insdown = insider ownership; Lev = leverage; Blkh = blockholding; Bind = board independence.

Table 5

Bootstrap t Test of Difference in Mean of Firm Characteristics Between UDFs and DFs

Variables	Undiversified firms		Diversified firms		Difference in mean & p-value	
	N	*M*	*N*	*M*	Difference in mean	*p*
ROE	348	.07	614	.02	.05	.700
ATQ	367	1.77	636	1.50	.27	.004
Fsize	367	22.74	637	23.24	–.50	<.001
Nosic	385	1.00	668	3.70	–2.70	<.001
Insdown	368	.21	664	.18	.03	.144
Lev	367	.57	637	.62	–.05	.032
Blkh	376	.59	665	.52	.06	<.001
Bind	365	.75	622	.72	.04	<.001

Note. ROE = return on equity; ATQ = approximate Tobin's q; Fsize = firm size; Nosic = number of 2-digit SIC codes which measured level of diversification; Insdown = insider ownership; Lev = leverage; Blkh = blockholding; Bind = board independence.

Statistical Assumptions

I tested the hypotheses using the LMM. This model is an extension of the basic linear model, and the relevant assumptions apply (Harrison et al., 2018; Maas & Hox, 2004). These assumptions include the homoscedasticity, independence of error, and normality assumptions, and in the case of linear multiple regression, there is also the assumption that there is no perfect multicollinearity (Field, 2017; Harrison et al., 2018; Maas & Hox, 2004).

The LMM has the advantage of accommodating the violation of the assumption of independent errors because the correlations between errors are modeled in the LMM (Field, 2017; Harrison et al., 2018; Maas & Hox, 2004; West, 2009). So, this is not an assumption to worry about when using the LMM. Homoscedasticity is also not a problem in the LMM because it is explicitly modeled in the LMM (Field, 2017; Harrison et al., 2018; Maas & Hox, 2004; West, 2009). Based on the central limit theorem, there was no need to worry about the normality assumption given that the sample size is large enough (Lumley et al, 2002; Maas & Hox, 2004). Moreover, as Gelman and Hill (2007) noted, normality or otherwise of residuals does not affect the parameter estimates in multilevel models. Gelman and Hill advised against normality tests of regression residuals in multilevel models (p. 46). Beck and Katz (2007) also showed that for time-series cross-sectional data, the random-effects model performs well even when the normality assumption is not met.

To test for multicollinearity, I did a correlation analysis of the predictor and outcome variables and presented the results in Table 6. As I show in this Table, the highest correlation coefficient is between insider ownership and firm size (–.30). A multiple regression analysis with the predictors and ATQ shows an average variance inflation factor of (VIF) of 1.133 with a highest of 1.255 for firm size and lowest of 1.022 for leverage. The lowest tolerance value was .797 for firm size, and the highest was .978 for leverage. In the ROE outcome variable, the average VIF was 1.160; the highest and lowest VIF were 1.282 and 1.109 for firm size and Board independence, respectively. The lowest and highest tolerance values were .780 for firm size and .901 for Board independence, respectively. The correlation, VIF, and tolerance statistics are within acceptable limits (Field, 2017) and indicate no multicollinearity problem of concern.

The Durbin-Watson (DW) statistic, which I requested in the regression analysis, shows DW = 1.673 in the ROE as the dependent variable and DW = .580 in the case of ATQ. The DW indicates a violation of the assumption of independent errors in the ATQ dependent variable (Field, 2017). However, this is no cause for concern as the LMM that I used accommodates the violation of this assumption (Field, 2017; Harrison et al., 2018; West, 2009). Overall, many researchers have shown that the LMM is robust to even severe violations of model assumptions (e.g., LeBeau et al., 2018; Schielzeth et al., 2020). This strengthened my confidence to proceed with the LMM.

As I also show in Table 6, there is a significant correlation between the two independent variables (level of diversification and insider ownership) and ATQ. Insider ownership is also significantly correlated to ROE. Except for board independence, all the control variables showed a significant correlation with at least one outcome variable. These correlations justify the inclusion of these covariates in the models.

Table 6

Correlation Analysis of Variables to Assess Multicollinearity

No	Variables	1	2	3	4	5	6	7	8
1	ROE	1							
2	ATQ	.17**	1						
		(.000)							
3	Nosic	–.04	–.11**	1					
		(.266)	(.001)						
4	Insdown	–.09**	–.10**	–.09**	1				
		(.008)	(.001)	(.008)					
5	Blkh	.03	.16**	–.10**	.14**	1			
		(.359)	(.000)	(.002)	(.000)				
6	Bind	.02	–.03	–.23**	–.08*	.09**	1		
		(.501)	(.316)	(.000)	(.018)	(.009)			
7	Lev	–.14**	.08*	.19**	–.13**	.09**	–.17**	1	
		(.000)	(.024)	(.000)	(.000)	(.007)	(.000)		
8	Fsize	.06	.09**	.26**	–.30**	.15**	–.10**	.26**	1
		(.085)	(.006)	(.000)	(.000)	(.000)	(.000)	(.000)	

Note. ROE = return on equity; ATQ = approximate Tobin's q; Nosic = number of 2-digit SIC codes which measured level of diversification; Insdown = insider ownership; Blkh = blockholding; Bind = board independence; Lev = leverage; Fsize = firm size; exact p-values are in parenthesis.

* $p < .05$; ** $p < .01$.

As I indicated in the methodology, the data set is a multilevel one, and I used the LMM to test the hypotheses. It was, therefore, necessary to assess its justification. The LMM allows researchers to account for intra-firm (within-firm) and interfirm (between-firm) variances in firm performance. The model involved two levels—Level 1 and Level 2—which correspond to within-firm and between-firm levels. Significant between-firm variability (above 5%) justifies the use of the LMM for conducting the multilevel analysis (Heck et al., 2010, p. 74). This variability is captured by the ICC, which provides a sense of the degree to which differences in the outcome exists between firms (Level 2 units). The ICC is given by (Heck et al., 2010, p. 74) as,

$$ICC = \frac{\sigma_B^2}{\sigma_B^2 + \sigma_W^2} \tag{12}$$

Where, σ_B^2 = between-firm variance represented by the variance of the intercept, and σ_W^2 = within-firm variance represented by the Residual.

The variances I used for calculating the ICC are those for the intercept-only model. I calculated the between-firm and within-firm variances in ATQ to be .40 and .29, respectively, giving an ICC of .58 for the ATQ. I calculated the between-firm and within-firm variances in ROE to be .04 and .05, respectively and an ICC of .44. These ICCs indicate that 58% and 44% of the variability in ATQ and ROE respectively, lie between firms. These high ICCs (above 5%) justify a multilevel LMM analysis.

Another issue I dealt with was missing data. Data for some firms were missing for two main reasons. Some of the firms were not listed for all the years in the study period, and the annual reports of some were not available for some of the years. In some cases, the published annual reports did not contain sufficient information to operationalize some variables. I used the missing values analysis dialog in SPSS to analyze the missing pattern. The minimum percentage missing that I specified for a variable to be displayed was .01. I summarize the variables and the percentage of missing values in Table 7. ROE had the highest percentage of missing values. The reason is that I removed ROE for observations with negative equity. For a loss-making firm, computing ROE with negative equity will produce a positive ROE, thus creating the wrong impression that the firm was making a profit.

Table 7

Summary of Variables and Percentage of Missing Firm-Year Observations

Variables	Missing N	Missing Percent	Valid N
ROE	159	14.3%	956
Fsize	134	12.0%	981
Lev	134	12.0%	981
Insdown	131	11.7%	984
Bind	130	11.7%	985
Blkh	114	10.2%	1001
ATQ	110	9.9%	1005

Note. ROE = return on equity; ATQ = approximate Tobin's q; Insdown = insider ownership; Blkh = blockholding; Bind = board independence; Fsize = firm size; Lev = leverage.

Little's MCAR test did not show significance, indicating that data were missing at random (MAR). For each variable, I also compared ROE and ATQ of the firm-years with missing data to those without missing data. There were no significant differences, and this indicates that data missingness was not systematic but at least MAR. This missingness pattern is consistent with Wang et al. (2017) who pointed out that missingness in longitudinal data is typically MAR. MAR permits the application of LMM. The LMM accommodates missing data if data are missing completely at randomor at least MAR (Wang et al., 2017). If data are missing completely at random or MAR, multiple imputations could be used to achieve a balanced data set. Alternatively, I could ignore the missing value and use the available data to estimate the model.

Researchers have argued whether multiple imputations—which is probably the most sophisticated method of handling missing data to achieve a balanced data set—is necessary for the LMM analysis of longitudinal data (Peters et al., 2012; Twisk et al., 2013). However, there seems to be a consensus that multiple imputations before conducting LMM analysis on longitudinal data do not add any value (Peters et al., 2012; Twisk et al., 2013). Twisk et al. (2013) found that the results were quite unstable when they conducted multiple imputations before LMM analysis of longitudinal data. For the above reason, I opted to analyze without multiple imputations.

Another issue I addressed was that of centering the predictors. For two reasons, I chose to center the predictors. In the first place, one of the predictors (level of diversification) has no meaningful zero points in the sense that no firm can have zero segments. Secondly, there is an interaction term (level of diversification * insider ownership) in the fourth hypothesis. These are situations that necessitate centering of the predictors for any meaningful interpretation of the *b* parameters in the regression models. Moreover, centering also helps to deal with any multicollinearity problems that may exist and tend to make the models more stable (Field, 2017; Kelly et al., 2017). Although there is no statistically correct choice between grand mean and group mean centering, following Kelly et al. (2017), who favored grand mean centering, I fitted the LMM with grand mean centered predictors. Grand mean centering enabled me to capture the combined effects of within-firm and between-firmvariations in the covariates on firm performance.

To select the best fit model for each of the tests based on their –2LL, I first fitted the pooled ordinary least squares (OLS) model that ignores the hierarchical and covariance structure of the data. I fitted the fixed effect, random intercept, and random intercept and slope models with different repeated covariance structures. In the case of the covariance structures, I focused on the first-order autoregressive structure, AR(1) and its other version, the AR(1) heterogeneous [AR(1): Het] structure. The focus on the AR(1): Het structure was because my data set is a repeated measures data taken over time. According to Field (2017), these covariance structures are most appropriate for such repeated measures data set. I also tried the scaled identity and unstructured covariance structures.

Research Questions and Results

RQ1: How is the performance of DFs different from that of focused firms in Nigeria?

$H_0$1: There is no significant difference between the performance of DFs and focused firms in Nigeria.

$H_1$1: There is a significant difference between the performance of DFs and focused firms in Nigeria.

For this hypothesis, I proposed using the independent-sample *t* test to evaluate whether the mean ROE and mean ATQ are significantly different between DFs and UDFs. Given that the observations are repeated measurements, the independent sample *t*-test approach will only capture group mean differences that ignores the hierarchical structure of the data and the within-firm and between-firm differences that obscure the independent variable's effect. Because of this, I used the the estimated marginal means procedure in the LMM to test whether the mean ROE and mean ATQ are significantly different between DFs and UDFs. I also used the LMM to evaluate whether firm diversification status predict firm ROE and ATQ.

The random intercept model with AR(1): Het repeated covariance type provided the best fit for this hypothesis. For the ROE dependent variable, the improvement in fit over the OLS model is significant, $\chi 2_{Change}$ = 276.07 – (–151.25) = 427.32, $p < .001$. The improvement between the random intercept model and the fixed effects model is also significant, $\chi 2_{Change}$ = –87.91 – (–151.25) = 63.34, $p < .001$. In the case of ATQ, the improvement in fit between this model and the OLS model is significant, $\chi 2_{Change}$ = 2,266 – 1,089.88 = 1,176.12, $p < .001$. The improvement between the random intercept model and the fixed effects model is also significant, $\chi 2_{Change}$ = 1,121.02 – 1,089.88 = 31.14, $p < .001$.The results are shown in Tables 8 and 9, for ROE and ATQ respectively.

Table 8

Diversification Status (Diverstat) and Firm Performance Measured by ROE

Variables	M	*b*	*SE*	*df*	*F*	*p*	95% CI
Intercept		.07	.02	98.48	14.67	.00	.02, .12
Diverstat =0	.09	.02	.03	267.55	.27	.60	–.05, .08
Diverstat =1	.07	0[a]	0				
–2LL		–151.25					
ARH1 rho		.37	.05		7.89	.00	.28, .46
Var(Int)		.03	.01		5.39	.00	.02, .05

Note. ROE is the dependent variable; I coded UDFs as 0, and DFs as 1; CI = confidence interval; ARH1 rho = correlation of adjacent errors; Var(Int) = variance of intercepts; –2LL = deviance of log-likelihood ratio; The values recorded for the ARH1 rho and Var(Int) under F represents their Wald Z statistics.

[a]This parameter is set to zero because it is redundant.

Table 9

Diversification Status and Firm Performance Measured by ATQ

Variables	M	*b*	*SE*	*df*	*F*	*p*	95% CI
Intercept		1.16	.07	98.42	315.40	.00	1.02, 1.30
Diverstat =0	1.20	.04	.08	586.03	.30	.59	–.11, .20
Diverstat =1	1.16	0[a]	0				
–2LL		1089.88					
ARH1 rho		.82	.03		26.34	.00	.75, .87
Var(Int)		.33	.07		4.64	.00	.22, .51

Note. ROE is the dependent variable; I coded UDFs as 0, and DFs as 1; CI = confidence interval; ARH1 rho = correlation of adjacent errors; Var(Int) = variance of intercepts; –2LL = deviance of log-likelihood ratio; The values recorded for the ARH1 rho and Var(Int) under F represents their Wald Z statistics.

[a]This parameter is set to zero because it is redundant

The analysis shows that using ROE as the measure of performance, firm diversification status did not significantly predict ROE, $F(1, 267.55) = .27$, $p = .604$. On average, UDFs ($M = .09$, $SE = .03$) had higher ROE than DFs ($M = .07$, $SE = .02$). However, the difference, $b = 0.02$, 95% CI [–.05, .08] was nonsignificant, $t(267.55) = .52$, $p = .604$. The result with ATQ also shows that firm diversification status did not significantly predict ATQ, $F(1, 586.03) = .30$, $p = .587$. On average, UDFs ($M = 1.20$, $SE = .08$) had higher ATQ than DFs ($M = 1.16$, $SE = .07$). The difference, $b = 0.04$, 95% CI [–.11, .20] was nonsignificant $t(586.03) = .54$, $p = .587$. The assumption of AR(1): Het is reasonable given that the correlation of adjacent errors (ARH1 rho) was positive and significant, $b = .37$, Wald $\chi2(1) = 7.89$, $p < .001$ in the case of ROE and $b = .82$, Wald $\chi2(1) = 26.34$, $p < .001$ in the case of ATQ (West, 2009). The intercepts also varied across companies as indicated by the variance of random intercepts [Var(Int)] which was significant, b = .03, Wald $\chi2(1)$ = 5.39, $p < .001$ and b = .33, Wald $\chi2(1)$ = 4.64, $p < .001$ for ROE and ATQ respectively. I, therefore, accepted the null Hypothesis 1 that there is a nonsignificant difference between the performance of DFs and UDFs in Nigeria.

RQ2: What is the relationship between the level of diversification and firm performance in Nigeria?

$H_0 2$: There is no significant relationship between the level of diversification and firm performance in Nigeria.

$H_1 2$: There is a significant relationship between the level of diversification and firm performance in Nigeria.

For this hypothesis, the independent variable was the level of diversification measured by the number of industries in which a firm operates, with industry measured at the 2-digit SIC code level. The dependent variable is firm performance measured by ROE and ATQ. The control variables are leverage, firm size, blockholding, and board independence (Bind). To test this hypothesis, I did the analysis separately for each of the performance measures (ROE and ATQ) as the dependent variable.

For the ROE dependent variables, the random intercept model with the AR(1): Het repeated covariance type provided the best fit. For instance, with all the sample firms, the improvement in fit between the pooled OLS model and the random intercept model with all control variables was significant, $\chi2_{Change}$ = 180.94 – –300.07 = 481.01, $p < .001$. With the fixed effects model, the improvement in fit was also significant, $\chi2_{Change}$ = –233.39 – –300.07 = 66.68, $p < .001$. With DFs only, the random intercept model showed a significant improvement in fit over the pooled OLS model, $\chi 2_{Change}$ = 347.19 – 34.57 = 312.62, p < .001, and over the fixed effects model, $\chi 2_{Change}$ = 116.30 – 34.57 = 81.73, p < .001. I present the analysis based on observations on all firms in Table 10 and then the analysis based on DFs only in Table 11. Model 1 represents the relationship between the level of diversification (without any control variable) and the dependent variable. The control variables were entered in a stepwise manner but not hierarchically. Model 5 includes the independent variable and all the control variables.

Table 10

LMM Results of the Relationship Between Level of Diversification and ROE Using Observations for All Firms

	Model 1		Model 2		Model 3		Model 4		Model 5	
Parameter	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*
Intercept	.07** (.02)	.04, .11	.05* (.02)	.002, .09	.05* (.02)	.01, .09	.05* (.02)	.01, .09	.05* (.02)	.01, .09
Nosic	–.02 (.03)	–.07, .03	–.001 (.03)	–.05, .05	–.01 (.03)	–.06, .04	–.01 (.03)	–.06, .04	–.01 (.03)	–.06, .05
Lev			–.44** (.06)	–.55, –.32	–.44** (.06)	–.56, –.32	–.45** (.06)	–.57, –.34	–.44** (.06)	–.56, –.33
Fsize					.03* (.01)	.01, .06	.03** (.01)	.01, .05	.03* (.01)	.01, .05
Blkh							–.04 (.06)	–.15, .07	.09 (.06)	–.03, .22
Bind									–.11 (.10)	–.30, .08
ARH1 rho	.37**		.36**		.37**		.37**		.41**	
Var(Int)	.03**		.04**		.04**		.04**		.04**	
–2LL	–151.40		–218.60		–223.74		–227.32		–300.07	
Δ in –2LL	22.62**		67.20**		5.14*		3.58		72.32**	
N	108		108		108		108		107	

Note. Standard errors are in parentheses. Nosic = level of diversification; Lev = leverage; Blkh = blockholding; Bodind = board independence; Firmsize = firm size; CI = 95% confidence interval; ARH1 rho = correlation of adjacent errors; Var(Int) = variance of intercepts; –2LL = deviance of log likelihood ratio; Δ = change

**p* < .05; ***p* < .01.

Table 11

LMM Results of the Relationship Between Level of Diversification and ROE Using Observations for Diversified Firms Only

Parameter	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	b	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*
Intercept	.09** (.02)	.05, .14	.07* (.03)	.02, .13	.08** (.03)	.02, .13	.08** (.03)	.03, .13	.08** (.03)	.02, .15	.08** (.03)	.02, .15
Nosic	–.02 (.04)	–.11, .07	–.04 (.05)	–.13, .06	–.05 (.05)	–.15, .04	–.03 (.05)	–.13, .06	–.03 (.05)	–.13, .06	–.03 (.05)	–.12, .07
Lev			–.36** (.07)	–.50, –.22	–.37** (.07)	–.51, –.22	–.34** (.07)	–.48, –.19	–.31** (.08)	–.46, –.17	–.31** (.07)	–.45, –.17
Fsize					.02 (.01)	–.01,.05	.02 (.02)	–.01, .05	.01 (.02)	–.02, .04		
Blkh							.13 (.10)	–.07, .33	.12 (.10)	–.09, .32	.13 (.10)	–.07, .34
Bind						.			.02 (.12)	–.23, .26	.01 (.12)	–.24, .24
ARH1 rho	.32**		.29**		.30**		.31**		.31**		.31**	
Var(Int)	.03**		.05**		.04**		.04**		.04**		.04**	
–2LL	200.15		98.30		96.60		80.46		34.57		35.33	
Δ in –2LL	0.14		101.85**		1.7		16.14**		45.89**		–0.76	
N	72		72		72		71		71		71	

Note. Standard errors are in parentheses. Nosic = level of diversification; Lev = leverage; Blhk = blockholding; Bind = board independence; Fsize = firm size; CI = 95% confidence interval; ARH1 rho = correlation of adjacent errors; Var(Int) = variance of intercepts; –2LL = deviance of log likelihood ratio; Model 6 excludes Fsize which did not improve the model significantly.

*$p < .05$; **$p < .01$.

As I indicated in Model 1 of Table 10, there was a negative but nonsignificant relationship between the level of diversification and ROE, $b = -.02$, $F(1, 174.42) = .424$, $p = .516$. This relationship was consistent across all the models. For instance, in model 5 of Table 10, in which I included all the control variables, the level of diversification was not significantly related to ROE, $b = -.01$, $F(1, 199.81) = .03$, $p = .862$. The correlation of adjacent errors (ARH1 rho) was positive and significant, $b = .41$, Wald $\chi^2(1) = 8.62$, $p < .001$. The positive and significant coefficient of ARH1 rho suggested that the assumption of AR(1): Het covariance structure was reasonable (West, 2009). The intercepts also varied across companies given that the Var(Int) was significant, $b = .04$, Wald $\chi^2(1) = 5.34$, $p < .001$.

To further verify the relationship between the level of diversification and ROE, I reran the analysis using only DFs because interfirm differences in the level of diversification are only among DFs. As shown in Table 11, there was a nonsignificant negative relationship between Level of diversification and ROE in all the models. For instance, in Table 11, Model 1 where no control variable was included, there was a nonsignificant relationship between Level of diversification and ROE, $b = -.02$, $F(1, 94.68) = .15$, $p = .704$. Accounting for all the control variables as in Table 11, Model 5, the relationship remained nonsignificant, $b = -.03$, $F(1, 99.45) = .48$, $p = .489$. The Level of diversification-ROE relationship remained nonsignificant in Model 6 where I removed firm size that did not improve the model significantly, $b = -.03$, $F(1, 99.17) = .27$, $p = .603$. As shown in Table 11, ARH1 rho and Var(Int) are positive and significant in all the models, indicating that the assumption of an AR(1): Het repeated covariance structure is reasonable. Intercepts also varied across companies. Based on the analysis in this section, I accepted the null Hypothesis 2 that there is no significant relationship between the level of diversification and firm performance measured by ROE in Nigeria. Leverage was the only control variable that showed significance in all the models in Table 11. It was negatively related to ROE.

In the case of the ATQ as the dependent variable, the random intercept model with the AR(1): Het repeated covariance type provided the best fit both when I did the analysis with all-firm observations and when I executed it with DF observations only. With all-firm observations, this model showed a significant improvement in fit over the pooled OLS model, $\chi2_{Change}$ = 2016.18 – 903.27 = 1112.91, $p < .001$ and over the fixed effects model, $\chi2_{Change}$ = 933.06 – 903.27 = 29.79, $p < .001$, with all the control variables included. With DF observations only, the improvement in fit over the pooled OLS model was significant, $\chi2_{Change}$ = 1563.35 – 563.92 = 999.43, $p < .001$. The improvement in fit over the fixed effects model was also significant, $\chi2_{Change}$ = 620.80 – 563.92 = 56.88, $p < .001$. I present the analysis based on observations on all firms in Table 12 and then the analysis based on DFs only in Table 13.

Table 12

LMM Results of the Relationship Between Level of Diversification and ATQ Using Observations for All Firms

	Model 1		Model 2		Model 3		Model 4		Model 5	
Parameter	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*
Intercept	1.18**	1.05,	1.14**	1.02,	1.15**	1.03,	1.13**	1.01,	1.13**	1.01,
	(.07)	1.31	(.06)	1.26	(.06)	1.27	(.06)	1.25	(.06)	1.24
Nosic	–.12	–.26, .02	–.10	–.22, .02	–.08	–.21, .05	–.07	–.20,	–.07	–.20, .06
	(.07)		(.06)		(.06)		(.06)	(.05)	(.06)	
Lev			.75**	.63, .88	.74**	.61, .86	.74**	.62, .86	.74**	.62, .87
			(.06)		(.06)		(.06)		(.06)	
Fsize					–.07**	–.12,	–.08**	–.13,	–.07**	–.12,
					(.02)	–.02	(.03)	–.03	(.22)	–.02
Blkh							.23*	.03, .42	.34**	.09, .59
							(.10)		(.13)	
Bind									–.34	–.73, .05
									(.20)	
ARH1 rho	.82**		.83**		.83**		.84**		83**	
VAR (Int)	.34**		.27**		30**		.31**		.28**	
–2LL	1,087.32		955.29		948.40		913.36		903.27	
Δ in –2LL	117.05**		132.03**		6.89**		35.04**		10.09**	
N	109		109		109		109		108	

Note. Standard errors are in parentheses. Nosic = level of diversification; Lev = leverage; Blkh = blockholding; Bodind = board independence; Firmsize = Firm size; CI = 95% confidence interval; ARH1 rho = correlation of adjacent errors; Var(Int) = variance of intercepts; –2LL = deviance of log likelihood ratio.

**p* < .05; ***p* < .01.

Table 13

LMM Results of the Relationship Between Level of Diversification and ATQ Using Observations for Diversified Firms Only

Parameter	Model 1		Model 2		Model 3		Model 4		Model 5	
	b	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*
Intercept	1.26** (.10)	1.07, 1.45	1.21** (.09)	1.02, 1.40	1.23** (.10)	1.03, 1.43	1.19** (.10)	1.00, 1.38	1.32** (.11)	1.11, 1.53
Nosic	–.26* (.12)	–.51, –.02	–.11 (.11)	–.33, .11	–.07 (.11)	–.29, .15	–.08 (.12)	–.31, .16	–.02 (.12)	–.26, .22
Lev			.93** (.08)	.78, 1.08	.90** (.08)	.75, 1.05	.92** (.09)	.75, .1.09	.91** (.09)	.73, 1.08
Fsize					–.12** (.04)	–.20, –.04	–.10* (.04)	–.18, –.01	–.10* (.04)	–.19, –.02
Blkh							.47* (.19)	.09, .85	.55** (.20)	.15, .94
Bind									–.68** (.24)	–1.15, –.20
ARH1 rho	.74**		.78**		.77**		.79**		.77**	
Var(Int)	.60**		.60**		.68**		.60**		.62**	
–2LL	696.67		584.66		577.48		567.83		563.92	
Δ in –2LL	4.48*		112.01**		7.18**		9.65**		3.91*	
N	73		73		73		72		72	

Note. Standard errors are in parentheses. Nosic = level of diversification; Lev = leverage; Blhk = blockholding; Bind = board independence; Fsize = firm size; CI = 95% confidence interval; ARH1 rho = correlation of adjacent errors; Var(Int) = variance of intercepts; –2LL = deviance of log likelihood ratio.

**p* < .05; ***p* < .01.

As I showed in Model 1 of Table 12, without accounting for the control variables, the relationship between the level of diversification and ATQ was negative but nonsignificant, $b = –.12$, $F(1, 332.24) = 2.96$, $p = .086$. The nonsignificant negative relationship persisted in all the models. For instance, after accounting for all the control variables in model 5, the level of diversification remained nonsignificantly related to ATQ, $b = -.07$, $F(1, 283.59) = 1.18$, $p = .279$. The covariance structure was reasonable given that the ARH1 rho was positive and significant in all the models. For instance, Model 5 ARH1 rho showed $b = .83$, Wald $\chi2(1) = 25.19$, $p < .001$. The intercepts also varied across companies since the Var(Int) was significant in all the models. For instance, in Model 5, Var(Int) showed, $b = .28$, Wald $\chi2(1) = 4.41$, $p < .001$.

To further verify the relationship between the level of diversification and firm performance for the reasons indicated earlier, I reran the analysis using DFs only. I presented the results in Table 13. As I showed in Model 1 of Table 13 where I did not include any control variable, the relationship between Level of diversification and ATQ was negative and significant, $F(1, 318.99) = 4.58$, $p = .033$. However, in all the other Models where I introduced the control variables, the coefficient of Level of diversification remained negative but nonsignificant. For instance, in Model 5, where I introduced all the control variables, the coefficient of Level of diversification was negative and nonsignificant, $F(1, 273.18) = .025$, $p = .875$. The ARH1 rho was positive and significant in all the models and indicates that the AR(1): Het repeated covariance type was a reasonable assumption for this analysis. The Var(Int) was also positive and significant in all the models and indicated that the intercepts varied across companies. Based on the analysis in this section, I accepted the null hypothesis that there is no significant relationship between the level of diversification and firm performance measured by ATQ in Nigeria.

In Tables 12 and 13, all the control variables improved the Models and were significantly related to ATQ at the 5% level except board independence that was significant at only the 10% level when I used observations from all firms (Table 12). The coefficients of leverage and blockholding were positive, while that of firm size and board independence were negative.

To make the results comparable with studies that used EV as the measure of performance, I used some variants of EV measures. I could not use Berger and Ofek (1995) approach to calculate EV because I did not have segment sales, assets, or revenue data necessary to compute weights for segment contribution for most of the companies and most of the years. Moreover, in many cases, firm-reported segments and segment data (where such data existed) were not consistent with the firms' segments' classification based on their SIC codes. It was, therefore, not possible for me to make any meaningful calculations using this approach.

I computed two variants of EV and used them as the measures of performance. In the first place, following Seo et al. (2010), I computed excess ROE (ExROEav) of a DF for each year as the difference between the ROE for that year and the average ROE of all UDFs for that year. I also calculate excess ATQ (ExATQav) for any year as the difference between the DF's ATQ and the average ATQ of all UDFs s for that year. This measure is close to Smith and Coy's (2018) Diversified Q Differential EV measure. The analysis showed that the relationship between the level of diversification and EV of DFs was nonsignificant for both ExROEav, $b = -.03$, $F(1, 102.48) = .36$, $p = .552$ and ExATQav, $b = -.25$, $F(1, 245.88) = 3.68$, $p = .056$. Accounting for the control variables, the relationship remained nonsignificant for both the ExROEav, $b = -.05$, $F(1, 110.74) = 1.16$, $p = .283$ and the ExATQav, $b = -.07$, $F(1, 224.53) = .27$, $p = .602$.

The problem with the Seo et al. (2010) approach is that it does not reflect industry differences that may affect the performance of DFs, as some authors have noted (Purkayastha & Lahiri, 2016). To mitigate this problem, I followed Servaes (1996) and computed another variant of excess ROE (ExROEserv) and excess ATQ (ExATQserv) of a DF as the difference between the firm's ROE (ATQ) and the unweighted average of the imputed ROE (ATQ) of its segments. Imputed ROE (ATQ) for a segment is the unweighted (equally weighted) average ROE (ATQ) of focused firms in that segment/industry. For example, if a DF operates in three 2-digit SIC code industries (say 10, 23, and 31), each of these segments/industries was assigned the average ROE (ATQ) of all focused firms that operate exclusively in the industry. The firm's imputed ROE (ATQ) will now be the equally weighted average of the assigned ROEs (ATQs) for the three industries.

The problem I ran into with the Servaes (1996) approach was that for many segments, there were no focused firms in the same industry that I could use to compute imputed ROE (ATQ). To deal with this problem, I aggregated the observed firm segments/industries into groups. Every 2-digit SIC code industry that had five or more focused firms was assigned a distinct group. Those with less than five focused firms were grouped together with others in the same 1-digit SIC code industry. This aggregation resulted in 18 groups. Some authors had also employed similar aggregations when they encountered the absence of sufficient focused firms in any given industry (see Berger & Ofek, 1995; Ljubownikow & Ang, 2020; Sturm & Nüesch, 2019).

The analysis based on the Servaes (1996) approach showed that the relationship between level of diversification and ExROEserv was nonsignificant, $b = –.06$, $F(1, 97.04) = 1.42$, $p = .237$. Accounting for the control variables, the relationship remained nonsignificant, $b = –.09$, $F(1, 113.09) = 2.85$, $p = .094$. In the case of ExATQserv, the relationship was negative and significant, $b = –.34$, $F(1, 314.23) = 6.81$, $p = .009$. However, by including the control variables in the model, the relationship turned nonsignificant, $b = –.19$, $F(1, 247.52) = 1.99$, $p = .160$.

From the analysis based on EVs, I still could not reject the hypothesis that there is no significant relationship between the level of diversification and firm performance in Nigeria. The drawback of the Servaes (1996) approach is that it gives too much weight to a firm's less significant segments (Servaes, 1996). However, in the absence of reliable segment revenue, profit, or asset data, it is difficult to determine each segment's significance. This rationalizes the use of the equal weighting approach.

RQ3: How is the insider ownership level of DFs that outperform focused firms different from the insider ownership of DFs that underperform focused firms in Nigeria?

$H_0$3: There is no significant difference in insider ownership level between DFs that outperform focused firms and DFs that underperform focused firms.

$H_1$3: There is a significant difference in insider ownership level between DFs that outperform focused firms and those that underperform focused firms.

For this hypothesis, I classified DFs into two groups according to their EV status: OPDF and UPDF. The EV status is based on their excess ROE (ExROEav and ExROEserv) and excess ATQ (ExATQav and ExATQserv). OPDF (UPDF) are firms with positive (negative) excess ROE or excess ATQ, as the case may be. I then used the LMM to test the significance of the difference in insider ownership between these two groups. On the basis of –2LL, the random intercept model with AR(1): Het repeated covariance type was the best fit model for both the excess ROE- and excess ATQ-based classifications.

Using the ExROEav-based classification, on average, OPDF had a lower insider ownership (M = .18, SE = .03) than UPDF (M = .20, SE = .03). The difference, b = –.02, 95% CI [–.02, .04] is nonsignificant, t(359.19) = –1.92, p = .056. In the case of the ExROEserv-based classification, on average, OPDF (M = .19, SE = .03) had a lower insider ownership than UPDF (M = .20, SE = .03), and the difference, b = –.01, 95% CI [–.02, .00] was nonsignificant, t(345.14) = –1.85, p = .065. Using the ExATQav-based classification, on average, OPDF (M = .20, SE = .03) had a higher insider ownership than UPDF (M = .19, SE = .03) but the difference was nonsignificant, b = .01, 95% CI [–.01, .03], t(383.02) = 1.12, p = .262. With the classification based on EVATQserv, on average, OPDF (M = .20, SE = .03) had a higher insider ownership than UPDF (M = .19, SE = .03) but the difference, b = .01, 95% CI [–.01, .02] was nonsignificant, t(363.20) = 1.06, p = .292. These suggested that there is no significant difference in the level of insider ownership between OPDF and UPDF, classified on the basis of the excess ROE and excess ATQ measures. However, the difference is significant at the 10% level in the case of the measures excess ROE. These findings are inconsistent with the interest alignment hypothesis of increasing insider ownership, which suggests that OPDFs should have significantly higher insider ownership than UPDFs.

However, given that excess ROE and excess ATQ are continuous variables, the categorization of firms into two based on them—dichotomization—has some limitations. It results in loss of information and reduces statistical power because it obscures intra category variations in values (Cumberland et al., 2014; Kahan et al., 2016; Naggara et al., 2011; Royston et al., 2006; Sauzet et al., 2016). Many authors agree that it is unnecessary to categorize continuous data for statistical analysis (Naggara et al., 2011; Royston et al., 2006). Royston et al. (2006) suggested that it is better to use regression on continuous data rather than categorizing them to use independent sample *t* test or similar tests.

Consequently, I used the LMM to examine how insider ownership is related to excess ROE (ExROEav and ExROEserv) and excess ATQ (ExATQav and ExATQserv). For this analysis, the random intercept model with the AR(1): Het repeated covariance type was the best fit model in all the cases. I present the results with the ExROEav and ExROEserv measures in Panels A and B respectively of Table 14 and present the ExATQav and ExATQserv measures in Panels A and B, respectively of Table 15. Model 1 of each Panel shows the relationship between insider ownership and EV measures without the control variables. In Model 2 of each Panel, I introduced the control variables.

As shown in Table 14, Panel A, Model 1, insider ownership was a significant negative predictor of ExROEav, $b = -.16$, $F(1, 173.92) = 4.19$, $p = .042$. However, when

I incorporated the control variables in Table 14, Model 2, insider ownership lost its significance, *b* = –.10, *F*(1, 176.22) = 1.35, *p* = .247. Insider ownership exhibited a significant negative relationship with ExROEserv as I show in Table 14, Panel B, Model 1, *b* = –.19, *F*(1, 151.01) = 4.61, *p* = .033, and when I introduced the control variables in Model 2, the coefficient of insider ownership remained negative but nonsignificant, *b* = –.14, *F*(1, 179.17) = 2.20, *p* = .140.

Table 14

LMM Result of the Relationship Between Insider Ownership and the ExROE of DFs

Parameter	Panel A: ExROEav				Panel B: ExROEserv			
	Model 1		Model 2		Model 1		Model 2	
	b	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*
Intercept	–.01 (.02)	–.06, .04	–.04 (.03)	–.10, .03	–.03 (.03)	–.03, .08	.02 (.04)	–.05, .09
Insdown	–.16* (.08)	–.32, –.01	–.10 (.08)	–.26, .07	–.19* (.09)	–.37, –.02	–.14 (.10)	–.33, .05
Lev			–.24** (.07)	–.38, –.10			–.33** (.08)	–.50, –.17
Fsize			.04* (.01)	.01, .06			.03* (.02)	.001, .06
Blkh			.13 (.10)	–.06, .33			.16 (.11)	–.06, .39
Bind			.06 (.12)	–.18, .31			–.07 (.14)	–.35, .22
ARH1 rho	.26**		.24**		.16**		.12*	
Var(Int)	.03**		.03**		.03**		.04**	
–2LL	139.18		48.78		294.33		197.31	
Δ in –2LL	55.98**		90.40**		75.68**		97.02	
N	71		71		71		71	

Note. Standard errors are in parentheses. Insdown = insider ownership; Lev = leverage; Blhk = blockholding; Bind = board independence; Fsize = firm size; CI = 95% confidence interval; ARH1 rho = correlation of adjacent errors; Var(Int) = variance of intercepts; –2LL = deviance of log likelihood ratio.

**p* < .05; ***p* < .01.

Table 15

LMM Result of the Relationship between Insider Ownership and the ExATQ of DFs

Parameter	Panel A: ExATQav				Panel B: ExATQserv			
	Model 1		Model 2		Model 1		Model 2	
	b	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*
Intercept	.14 (.09)	–.03, .32	.26* (.10)	.06, .46	–.04 (.10)	–.23, .15	.02 (.11)	–.19, .23
Insdown	.07 (.18)	–.28, .42	–.10 (.16)	–.42, .22	.16 (.18)	–.19, .50	–.02 (.17)	–.36, .31
Lev			1.02** (.16)	.83, 1.21			.89** (.10)	.69, 1.09
Fsize			–.06 (.04)	–.14, .02			–.03 (.04)	–.12, .05
Blkh			.63** (.22)	.19, 1.07			.59* (.23)	.14, 1.04
Bind			–.80** (.27)	–1.33, –.28			–.49 (.27)	–1.02, .05
ARH1 rho	.73**		.74**		.68**		.72**	
Var(Int)	.48**		.52**		.59**		.58**	
–2LL	767.59		657.845		708.93		631.90	
Δ in –2LL	48.82**		109.75**		43.04**		77.03**	
N	72		72		72		72	

Note. Standard errors are in parentheses. Insdown = insider ownership; Lev = leverage; Blhk = blockholding; Bind = board independence; Fsize = firm size; CI = 95% confidence interval; ARH1 rho = correlation of adjacent errors; Var(Int) = variance of intercepts; –2LL = deviance of log likelihood ratio

**p* < .05; ***p* < .01.

The results in Table 15, Panel A, Model 1 show that insider ownership has a nonsignificant relationship with ExATQav, *b* = .07, *F*(1, 324.13) = .146, *p* = .703. When I introduced the control variables in Model 2 of the Panel, the relationship continued to be nonsignificant, *b* = –.10, *F*(1, 224.71) = .39, *p* = .535. The results in Table 15, Panel B, Model 1 show that insider ownership has a nonsignificant relationship with ExATQserv, $b = .16$, $F(1, 327.24) = .78$, $p = .378$. When I included the control variables in Table 15, Panel B, Model 2, the relationship remained nonsignificant, $b = -.02$, $F(1, 267.16) = .02$, $p = .887$.

In all the models I estimated in Tables 14 and 15, the coefficient of ARH1 rho is positive and highly significant. This indicates that the assumption of AR(1): Het was reasonable. The Var(Int) is also positive and highly significant, indicating that the intercept varied across companies. The analyses presented in Tables 14 and 15 show no significant relationship between insider ownership and the measures of EV used in this study. I, therefore, accepted the null hypothesis that there is no significant difference in insider ownership between DFs that outperform focused firms and those that underperform focused firms in Nigeria.

Singh et al. (2004) examined whether the numbers of diversification gainers and losers in the groups of low and high insider ownership firms are significantly different. I followed Singh et al. and did a similar analysis. I classified DFs into low-insider ownership firms (that is, firms with insider ownership below the average) and High-insider ownership firms (that is, firms with insider ownership above the average). In Table 16, I showed the number an insider ownership d proportion of firm-year observations that belong to each combination of insider ownership and EV categories (status). In Tables 17, 18, 19, and 20, I presented the generalized linear mixed model (GLMM) results of the relationship between I insider ownership status and EV status based on the ExROEav, ExROEserv, ExATQav, and ExATQserv measures of EV, respectively.

Table 16

Diversified Firms According to Their Insider Ownership and Excess Value Categories

Pooled Data	ExROEav	ExROEserv	ExATQav	ExATQserv
Low_Insdown-OPDF	202	233	140	216
High_Insdown-OPDF	77	103	40	56
Low_Insdown-UPDF	162	132	241	165
High_Insdown-UPDF	146	119	181	165
Total Low-Insdown firm	364	365	381	381
Total High-Insdown firm	223	222	221	221
Proportion of Low-Insdown and OPDF	0.55	0.64	0.37	0.57
Proportion of High-Insdown and OPDF	0.35	0.46	0.18	0.25
Proportion of Low-Insdown and UPDF	0.45	0.36	0.63	0.43
Proportion of High-Insdown and UPDF	0.65	0.54	0.82	0.75

Note. Insdow = insider ownership; OPDF = outperforming diversified firms; UPDF = underperforming diversified firms; The table was compiled based on insider ownership data extracted from the annual reports of companies and on the 2-digit SIC codes assigned to the firms

Table 17

GLMM Result of the Relationship Between Insider Ownership Status and the ExROEav

Parameter	*b*	*SE*	*t*	*p*	95% Confidence Interval		*OR*
					LL	*UL*	
Intercept	–.66	.26	–2.54	.015	–1.19	–.14	.52
Low-Insdown=0	.72	.36	1.99	.049	.004	1.43	2.05
High-Insdown=1	0[a]						
–2LL	2,720.75						
Var(Int)	2.41	.60	Z = 4.03	.000	1.48	3.92	
N	587						

Note. Insdown = insider ownership; Var(Int) = variance of intercepts.

[a]This coefficient is set to 0 because it is redundant.

Table 18

GLMM Result of the Relationship Between Insider Ownership Status and the ExROEserv

Parameter	*b*	*SE*	*t*	*p*	95% Confidence Interval		*OR*
					LL	*UL*	
Intercept	.032	.26	.12	.902	–.48	.54	1.03
Low-Insdown=0	.46	.35	1.31	.191	–.23	1.16	1.59
High-Insdown=1	0[a]						
–2LL	2,673.28						
Var(Int)	1.92	.50	Z = 3.83	.000	1.15	3.20	
N	587						

Note. Insdown = insider ownership; Var(Int) = variance of intercepts.

[a]This coefficient is set to 0 because it is redundant

Table 19

GLMM Result of the Relationship Between Insider Ownership Status and the ExATQav

Parameter	*b*	*SE*	*t*	*p*	95% Confidence Interval		*OR*
					LL	*UL*	
Intercept	–1.55	.33	–4.71	.000	–2.22	–.89	.21
Low-Insdown=0	.49	.41	1.19	.238	–.33	1.30	1.63
High-Insdown=1	0[a]						
–2LL	2976.31						
Var(Int)	3.77	.91	Z = 4.15	.000	2.35	6.04	

Note. Insdown = insider ownership; Var(Int) = variance of intercepts.

[a]This coefficient is set to 0 because it is redundant

Table 20

GLMM Result of the Relationship Between Insider Ownership Status and the ExATQserv

Parameter	*b*		*t*	*p*	95% Confidence Interval		*OR*
					LL	*UL*	
Intercept	–1.14	.36	–3.17	.002	–1.86	–.43	.32
Low-Insdown=0	.57	.44	1.29	.199	–.30	1.45	1.77
High-Insdown=1	0[a]						
–2LL	2,891.00						
Var(Int)	3.50	.85	Z = 4.13	.000	2.18	5.63	
N	602						

Note. Insdown = insider ownership; Var(Int) = variance of intercepts.

[a]This coefficient is set to 0 because it is redundant

The data in Table 16 shows that in all the EV measures, the proportion of observations in the Low-insider ownership category that are OPDF (have positive EVs) is more than those that are in the High-insider ownership category. In contrast, the proportion of observations in the Low-insider ownership category that are UPDF (have negative EVs) are less than those in the High-insider ownership category. Whether these differences are significant is the question.

Because my data are pooled repeated measures data set that violate the assumption of independence, I could not use the Chi-square test to check for the significance of the differences as Singh et al. (2004) did. Alternatively, I could use the Chi-Square test on a yearly basis. The problem here was that this procedure does not give summary statistics for the whole period that could enable me to draw a uniform conclusion. This is because in some years, some of the differences were significant, and in others, they were not. Moreover, the assumption of expected frequencies was violated in some of the years.

Because of these challenges, I used the GLMM procedure in SPSS to check whether insider ownership status predicted EV status. In other words, is EV status independent of insider ownership status? The GLMM is appropriate in this case where the outcome variable is categorical, and the assumption of independence is violated as in repeated measures observations.

As shown in Tables 17, 18, 19, and 20, in all the EV measures, the odds (represented by the odds ratio) are higher that a Low-insider ownership observation will have a positive EV than a High-insider ownership observation. For instance, if an observation belongs to the Low-insider ownership category, the odds of their having a positive EV is 2.05, 1.59, 1.63, and 1.77 times higher than if they belonged to the High-insider ownership category for the ExROEav, ExROEserv, ExATQav, and ExATQserv measures, respectively. Insider ownership status did not significantly predict EV status except in the ExROEav measure, b = .72, F(1, 156) = 3.95, p = .049 as shown in Table 17. However, when I included the control variables, insider ownership status lost its significance in the ExROEav measure, b = .45, F(1, 197) = 1.12, p = .291. On the basis of these analyses, I was unable to conclude that the proportion of OPDF and UPDF in the groups of low- and high- insider ownership firms are significantly different. Singh et al. (2004) also arrived at a similar conclusion—reults that do not support the agency cost hypothesis.

RQ4: What is the relationship between insider ownership and the performance effects of level of diversification in Nigeria?

$H_0$4: There is no significant relationship between insider ownership and the performance effects of level of diversification.

$H_1$4: There is a significant relationship between insider ownership and the performance effects of level of diversification.

To test this hypothesis, I did the analysis separately for each of the performance measures (ROE and ATQ) as the dependent variable. The random intercept model with AR(1): Het repeated covariance type was the best fitting model for the ROE outcome variables. For instance, when I estimated the models using observations from all firms and including all the predictors, the random intercept model showed a significant improvement in fit from the pooled OLS model, $\chi2_{Change}$ = 164.04 – (–304.08) = 468.12, p < .001. The improvement between the fixed effects model and the random intercept model was also significant, $\chi2_{Change}$ = –240.21 – (–304.08) = 63.87, p < .001.

Also, when I estimated the models with ROE as the dependent variable, included all the predictors, and using observations from DFs only, the random intercept model showed a significant improvement in fit from the pooled OLS and fixed-effects models. The improvement from the pooled OLS model was $\chi 2_{Change}$ = 312.21 – 32.64 = 279.57, p < .001 and $\chi 2_{Change}$ = 97.80 – 32.64 = 65.16, p < .001 for the fixed effects model. I presented the analysis based on observations on all firms in Table 21 and then the analysis based on DFs only in Table 22.

Table 21

LMM Result of the Relationship Between Insider Ownership and the ROE Effects of Diversification: All Firms

Parameter	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	b	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*
Intercept	.07** (.02)	.04, .11	.08** (.02)	.04, .12	.08** (.02)	.04, .12	.05* (.02)	.01, .09	.05* (.02)	.01, .09	.05* (.02)	.01, .09	.05* (.02)	.01, .09
Nosic	–.02 (.03)	–.07, .03	–.01 (.02)	–.06, .04	–.02 (.02)	–.06, .03	–.003 (.03)	–.05, .05	–.01 (.03)	–.06, .04	–.02 (.03)	–.07, .04	–.01 (.03)	–.06, .04
Insdown			–.06 (.05)	–.16, .04	–.07 (.05)	–.17, .04	–.09 (.05)	–.19, .01	–.08 (.05)	–.18, .02	–.08 (.05)	–.18, .03	–.14* (.06)	–.26, –.03
Nosic × Insdown					–.08 (.07)	–.23, .07	–.05 (.08)	–.19, .10	–.05 (.07)	–.20, .09	–.05 (.07)	–.20, .10	–.10 (.08)	–.26, .06
Lev							–.44** (.06)	–.55, –.32	–.44** (.06)	–.56, –.32	–.45** (.06)	–.57, –.34	–.45** (.06)	–.56, –.34
Fsize									.03* (.01)	.01, .05	.03** (.01)	.01, .05	.02* (.01)	.00, .04
Blkh											–.03 (.06)	–.15, .08	.13 (.07)	–.01, .26
Bind													–.15 (.10)	–.34, .04
ARH1 rho	.37**		.38**		.38**		.36**		.38**		.38**		.41**	
Var(Int)	.03**		.03**		.03**		.04**		.03**		.04**		.04**	
–2LL	–151.40		–162.88		–164.06		–217.52		–222.83		–228.07		–304.08	
Δ–2LL	22.62**		11.48**		1.18		53.45**		5.32*		5.23*		76.01**	
N	108		107		107		107		107		107		106	

Note. Standard errors are in parentheses. Nosic = level of diversification; Lev = leverage; Blkh = blockholding; Bind = board independence; Firmsize = Firm size; Insdown = Insider ownership; CI = 95% confidence interval; ARH1 rho = correlation of adjacent errors; Var(Int) = variance of intercepts; –2LL = deviance of log likelihood ratio.

**p* < .05; ***p* < .01.

Table 22

LMM Result of the Relationship Between Insider Ownership and the ROE Effects of Level of Diversification: DFs Only

Parameter	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	b	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*
Intercept	.09**	.05,	.10**	.05,	.10**	.05,	.07**	.02,	.08**	.02,	.08**	.03,	.09*	.02,	.08*	.02,
	(.02)	.14	(.02)	.15	(.02)	.15	(.03)	.13	(.03)	.13	(.03)	.13	(.03)	.15	(.03)	.15
Nosic	–.02	–.11,	–.02	–.11,	–.02	–.11,	–.05	–.15,	–.06	–.16,	–.05	–.15,	–.05	–.15,	–.05	–.15,
	(.04)	.07	(.04)	.07	(.04)	.07	(.05)	.04	(.05)	.04	(.05)	.04	(.05)	.04	(.05)	.04
Insdown			–.19*	–.34,	–.19*	–.34,	–.16*	–.32,	–.16	–.31,	–.19*	–.36,	_.19*	–.36,	–1.6*	–.32,
			(.08)	.04	(.08)	–.04	(.08)	.002	(.08)	.001	(.08)	–.03	(.08)	–.02	(.08)	–.004
Nosic × Insdown					.01	–.33,	–.29	–.62,	–.27	–.60,	–.28	–.63,	–.27	–.60,	–.29	–.62,
					(.17)	.36	(.17)	.04	(.17)	.06	(.17)	.05	(.17)	.06	(.17)	.04
Lev							–.36**	–.50,	–.36**	–.51,	–.36**	–.51,	–.34**	–.49,	–.34**	–.49,
							(.07)	–.22	(.07)	–.22	(.07	–.22	(.07)	–.19	(.07)	–.20
Fsize									.01	.02,	.01	–.02,	.01	–.02,		
									(.02)	.04	(.02)	.04	(.02)	.04		
Blkh											.21*	.001,	.20	–.01,		
											(.11)	.42	(.11)	.41		
Bind													–.04	–.28,	–.03	–.28,
													(.12)	.21	(.12)	.21
ARH1 rho	.32**		.34**		.34**		.30**		.30**		.30**		.30**		.30**	
Var(Int)	.03**		.03**		.03**		.04**		.04**		.04**		.04**		.04**	
–2LL	200.15		140.08		140.08		43.78		43.08		42.49		32.64		33.42	
Δ–2LL	0.14		60.07**		0		96.30**		.70		0.59		9.85**		–0.78	
N	72		71		71		71		71		71		71		71	

Note. Standard errors are in parentheses. Nosic = level of diversification; Lev = leverage; Blkh = blockholding; Bind = board independence; Fsize = firm size; Insdown = insider ownership; CI = 95% confidence interval; ARH1 rho = correlation of adjacent errors; Var(Int) = variance of intercepts; –2LL = deviance of log likelihood ratio.

*p < .05; **p < .01.

The analysis in Table 11 (based on observations on all firms) showed a nonsignificant relationship between the Level of diversification and ROE. As I showed in Model 3 of Table 21, after introducing insider ownership and the interaction term of level of diversification and insider ownership as predictors, the relationship remained nonsignificant, $b = -.02$, $F(1, 170.84) = .39$, $p = .532$. The interaction term of level of diversification and insider ownership was nonsignificant, $b = -.08$, $F(1, 448.67) = 1.19$, $p = .276$. The coefficients of the level of diversification and the interaction term of level of diversification and insider ownership were also nonsignificant in all the models incorporating the control variables. The ARH1 rho was positive and significant in all the models, suggesting that the assumption of AR(1): Het covariance structure was reasonable. As the positive and significant coefficient of Var(Int) shows, the intercepts also varied across companies in all the models.

When I reran the analysis using observations for DFs only, the relationships remained qualitatively similar to those obtained with all firm observations. As shown in Model 2 of Table 22, when I introduced insider ownership as a predictor, level of diversification remained nonsignificantly related to ROE, $b = -.02$, $F(1, 87.68) = .24$, $p = .627$ while insider ownership showed a significant negative relationship with ROE, $b = -.19$, $F(1, 154.51) = 6.08$, $p = .015$. The interaction term of level of diversification and insider ownership in Model 3 of Table 22 was nonsignificant, $b = .01$, $F(1, 155.91) = .01$, $p = .938$ and did not improve the model significantly while level of diversification remained nonsignificant. With the introduction of the control variables in Models 4 to 7 of Table 22, the coefficient of the interaction term and level of diversification remained nonsignificant. When I removed firm size and blockholding that did not improve the model significantly, the interaction term remained nonsignificant as shown in Model 8 of Table 22, $b = –.29$, $F(1, 190.32) = 3.02$, $p = .084$ while level of diversification remained negative and nonsignificant, $b = –.05$, $F(1, 115.35) = 1.25$, $p = .267$.

The covariance structure assumption was reasonable in all the models as indicated by the positive and significant ARH1 rho. The intercepts varied across firms, as shown by the positive and significant coefficient of the Var(Int) in all the models. Based on the analysis in Tables 21 and 22, I accepted the null hypothesis that there is no significant relationship between insider ownership and the performance effects of level of diversification in Nigeria based on the ROE. In other words, insider ownership did not moderate the level of D–P relationship in Nigeria.

As shown in Table 21 where I presented the results with all firm observations, leverage showed a significant negative relationship with ROE. Firm size was positively and significantly related to ROE. When I used only observations from DFs, as presented in Table 22, insider ownership and leverage consistently showed a significant negative relationship with ROE in all the models, except Model 5 for insider ownership and Model 6 for Lev.

For the ATQ outcome variable, the random intercept model with AR(1): Het repeated covariance type was the best fitting model. When I used observations from all firms, the improvement in fit between the pooled OLS model and the random intercept model with AR(1): Het model (with all predictors included) was significant, $\chi 2_{Change} = 1982.68 – 903.05 = 1079.63$, $p < .001$. The improvement between the fixed effects model and the random intercept model is also significant, $\chi 2_{Change}$ = 932.88 – 903.05 = 29.05, $p < .001$. When I estimated the model using observations from DFs only, the random intercept model showed a significant improvement in fit. The improvement from the pooled OLS model was $\chi 2_{Change}$ = 1504.28 – 543.65 = 960.63, $p < .001$ and $\chi 2_{Change}$ = 608.24 – 543.65 = 64.59, $p < .001$ for the fixed effects model. I show the results in Table 23 for the analysis based on all firms (both diversified and undiversified) and in Table 24 for the analysis based on DFs only.

Table 23

LMM Result of the Relationship Between Insider Ownership and the ATQ Effects of Diversification: All Firms

Parameter	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	b	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*
Intercept	1.18** (.07)	1.05, 1.31	1.17** (.07)	1.04, 1.30	1.17 (.07)	1.04, 1.30	1.13** (.06)	1.01, 1.24	1.14** (.06)	1.02, 1.26	1.14** (.06)	1.01, 1.26	1.13** (.06)	1.01, 1.26
Nosic	–.12 (.07)	–.26, .02	–.12 (.07)	–.26, .02	–.12 (.07)	–.26, .02	–.10 (.06)	–.22, .02	–.08 (.06)	–.21, .05	–.07 (.06)	–.20, .05	–.07 (.07)	–.20, .06
Insdown			–.09 (.10)	–.28, .10	–.08 (.10)	–.28, .11	–.02 (.09)	–.19, .16	–.02 (.09)	–.19, .16	–.13 (.10)	–.32, .07	–.16 (.11)	–.38, .06
Nosic × Insdown					.07 (.15)	–.21, .36	–.01 (.13)	–.26, .25	–.05 (.13)	–.30, .21	–.01 (.13)	–.27, .25	.09 (.15)	–.21, .39
Lev							.76** (.06)	.64, .88	.74** (.06)	.62, .86	.74** (.06)	.62, .86	.74** (.06)	.61, .86
Fsize									–.07** (.03)	–.12, –.02	–.08** (.03)	–.13, –.03	–.07** (.03)	–.13, –.02
Blkh											.29* (.11)	.06, .51	.42** (.14)	.14, .70
Bind													–.35 (.20)	–.75, .04
ARH1 rho	.82**		.83**		.83**		.85**		.85**		84**		.82**	
Var(Int)	.34**		.33**		.33**		.27		.30**		.30**		.29**	
–2LL	1,087.32		1,065.73		1,065.49		933.78		925.88		914.41		903.05	
Δ–2LL	117.05**		21.59**		.24		131.71**		7.90**		11.47		11.36**	
N	109		108		108		108		108		108		107	

Note. Standard errors are in parentheses. Nosic = level of diversification; Lev = leverage; Blkh = blockholding; Bind = board independence; Fsize = firm size; Insdown = insider ownership; CI = 95% confidence interval; ARH1 rho = correlation of adjacent errors; Var(Int) = variance of intercepts; –2LL = deviance of log likelihood ratio.

**p* < .05; ***p* < .01.

Table 24

LMM Result of the Relationship Between Insider Ownership and the ATQ Effects of Diversification: DFs Only

Parameter	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	b	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*	*b*	*CI*
Intercept	1.26** (.10)	1.07, 1.45	1.21** (.09)	1.04, 1.39	1.21** (.09)	1.04, 1.39	1.17** (.09)	.99, 1.36	1.19** (.10)	.99, 1.39	1.19** (.10)	1.00, 1.38	1.31** (.11)	1.10, 1.52
Nosic	–.26* (.12)	–.51, -.02	–.12 (.13)	–.36, .13	–.12 (.13)	–.37, .14	–.09 (.12)	–.33, .14	–.06 (.12)	–.29, .18	–.09 (.12)	–.33, .15	–.04 (.13)	–.28, .21
Insdown			.07 (.17)	–.26, .40	.07 (.17)	–.26, .40	.07 (.14)	–.21, .35	.05 (.14)	–.22, .33	–.07 (.15)	–.37, .22	–.08 (.15	–.38, .22
Nosic*Insdown					–.02 (.36)	–.74, .70	–.01 (.30)	–.60, .57	–.07 (.30)	–.65, .51	–.33 (.31)	–.95, .29	–.27 (.31)	–.89, .35
Lev							.99** (.08)	.82, 1.16	.96** (.08)	.80, 1.13	.98** (.09)	.81, 1.15	.97** (.09)	.80, 1.14
Fsize									–.09* (.04)	–.17, –.01	–.10* (.04)	–.18, –.02	–.11* (.04)	–.19, –.02
Blkh											.57** (.21)	.16, .99	.65** (.22	.22, 1.08
Bind													–.62* (.24)	–1.09, –.14
ARH1 rho	.74**		.74**		.74**				.79**		.80**		.79**	
Var(Int)	.60**		.50**		.50**				.65**		.63**		.63**	
–2LL	696.67		651.26		651.25		557.02		553.00		546.47		543.65	
Δ–2LL	4.48*		45.41**		.01		94.23**		4.02*		6.53*		2.82	
N	73		72		72		72		72		72		72	

Note. Standard errors are in parentheses. Nosic = level of diversification; Lev = leverage; Blkh = blockholding; Bind = board independence; Fsize = firm size; Insdown = insider ownership; CI = 95% confidence interval; ARH1 rho = correlation of adjacent errors; Var(Int) = variance of intercepts; –2LL = deviance of log likelihood ratio.

*$p < .05$; **$p < .01$.

As shown in Model 1 of Tables 12 and 23, where I used observation on all firms in the sample, the level of diversification showed a nonsignificant negative relationship with ATQ. When I introduced insider ownership and the interaction term of level of diversification and insider ownership in Model 3 of Table 23, the coefficient of the interaction term was nonsignificant, $b = .07$, $F(1, 559.96) = .24$, $p = .623$. The coefficient of level of diversification remained negative and nonsignificant, $b = –.12$, $F(1, 325.20) = 2.96$, $p = .086$. The nonsignificance of the interaction term and the level of diversification persisted with the introduction of the control variables in Models 4 to 7. Leverage and blockholding showed a significant positive relationship with ATQ, while firmsize exhibited a significant negative relationship. The assumption of ARH1 Heterogeneous covariance structure is reasonable given the positive and significant coefficient of ARH1 rho in all the models in Table 23. The intercepts varied across companies, as shown by the positive and significant coefficients of the variance of the intercepts in the Table.

I reestimated the models using only observation from DFs. In Model 1 of Tables 13 and 24, where I used observations from DFs only, the level of diversification showed a significant negative relationship with ATQ, $b = –.26$, $F(1, 318.99) = 4.58$, $p = .033$. With the introduction of insider ownership in Model 2 of Table 24, level of diversification became nonsignificant. When I introduced the interaction term of level of diversification and insider ownership in Model 3 of Table 24, the interaction term was negative and nonsignificant, $b = –.02$, $F(1, 274.67) = .004$, $p = .952$. When I introduced the control variables in the subsequent Models of Table 24, level of diversification, insider ownership, and the interaction term of level of diversification and insider ownership (Nosic * insider ownership) remained nonsignificant in all the models.

AR(1): Het covariance structure was a reasonable assumption given that ARH1 rho had a positive and significant coefficient in all the models. Consistent with the random intercept assumption, the intercepts varied across companies, as shown by the positive and significant coefficient of Var(Int) in all the models. Based on the preceding analysis, I accept the null Hypothesis 4 that there is no significant relationship between insider ownership and the performance effects of diversification in Nigeria with ATQ as the measure of performance. insider ownership did not significantly moderate the relationship between the level of diversification and ATQ. Leverage and blockholding showed significant positive relationships with ATQ, while firm size and board independence had significant negative relationships with ATQ when I used only DFs in the analysis

Additional Statistical Tests

One concern with the analysis so far is that not all the firms were listed for the entire period. Therefore, this fact may have biased the results. To address this concern, I reestimated the models using observations from firms listed for the entire period. On all the hypotheses tested, I arrived at the same conclusions as when I used all the companies' observations in the sample.

On Hypothesis 1, I found as before, that diversification status did not significantly predict ROE, $b = .009$, $F(1, 275.00) = .07$, $p = .797$. UDFs had higher ROE ($M = .094$, $SE = .03$) than DFs ($M = .085$, $SE = .03$) but the difference, b = .009, 95% CI [–.06, .08], was nonsignificant, $t(275.00) = .26$, $p = .797$. Also, diversification status did not predict ATQ significantly, $b = .07$, $F(1, 514.42) = .75$, $p = .386$. The difference between the mean ATQ of UDFs ($M = 1.20$, $SE = .09$) and DFs ($M = 1.13$, $SE = .08$) was nonsignificant, .07, 95% CI [–.09, .24], $t(514.42) = .87$, $p = .386$.

On Hypothesis 2, I found that when both DFs and UDFs were used in the analysis, there was no significant relationship between level of diversification and ROE, $b = –.02$, $F(1, 169.35) = .31$, $p = .577$, 95% CI [–.07, .04]. The situation remained the same with the introduction of each of the control variables, and in the full variable model (with all control variables), $b = –.01$, $F(1, 197.61) = .14$, $p = .711$, 95% CI [–.07, .04]. When I estimated the models with only observations from DFs, I also found a nonsignificant negative relationship in the model without the control variables, $b = –.03$, $F(1, 97.51) = .34$, $p = .561$, 95% CI [–.12, .06]. With the introduction of each of the control variables, the relationship remained nonsignificant. For example, in the model that included all the control variables, the relationship was also nonsignificant, $b = –.05$, $F(1, 105.22) = .86$, $p = .357$, 95% CI [–.14, .05].

In the case of ATQ, there was also a nonsignicant negative relationship in all the models when I used all firms in the sample. Without the control variables, the level of diversification showed a marginally significant negative relationship with ATQ, $b = –.14$, $F(1, 278.99) = 3.88$, $p = .050$, 95% CI [–.29, -.00], and in the model with all control variables, $b = –.10$, $F(1, 259.84) = 1.85$, $p = .175$, 95% CI [–.23, .04]. When I reestimated the relationship with observations from DFs only, the coefficient of level of diversification was significantly negative in the model without the control variables, $b =$

–.26, *F*(1, 270.55) = 4.21, *p* = .041, 95% CI [–.50, –.01]. However, with the introduction of each of the control variables in the subsequent models, the coefficients of level of diversification were nonsignificant. In the model that included all control variables, the relationship was nonsignificant, *b* = –.02, *F*(1, 261.69) = .0.14, *p* = .907, 95% CI [–.27, .24].

On Hypothesis 3, I found that insider ownership was not a significant predictor of any of the measures of EV. For ExROEav without the control variables, *b* = –.12, *F*(1, 182.70) = 2.25, *p* = .136, 95% CI [–.28, .04]. With the control variables included, insider ownership remained a nonsignificant predictor of ExROEav, *b* = –.07, *F*(1, 173.32) = .74, *p* = .390, 95% CI [–.24, .09]. In the case of ExATQav, the relationship with insider ownership (without the control variables) was nonsignificant, *b* = .06, *F*(1, 295.37) = .11, *p* = .736, 95% CI [–.30, .43]. Accounting for the control variables, the insider ownership continued to be a nonsignificant predictor of ExATQav, *b* = –.09, *F*(1, 194.68) = .25, *p* = .618, 95% CI [–.42, .25]. When I used the ExROEserv measure, I found also that insider ownership did not significantly predict EV, *b* = –.14, *F*(1, 151.36) = 2.57, *p* = .111, 95% CI [–.32, .03]. When I included the control variables, the relationship remained nonsignificant, *b* = –.09, *F*(1, 175.77) = .90, *p* = .344, 95% CI [–.28, .10]. With the ExATQserv measure, insider ownership remained a nonsignificant predictor of EV without the control variables, *b* = .14, *F*(1, 310.07) = .59, *p* = .444, 95% CI [–.22, .50] and with the control variables, *b* = .02, *F*(1, 254.60) = .11, *p* = .914, 95% CI [–.33, .37].

With regard to Hypothesis 4, insider ownership was not a significant moderator of the level of diversification-ATQ relationship. When I used all firms in the sample, the coefficient of the interaction term of level of diversification and insider ownership was nonsignificant, *b* = .04, *F*(1, 511.93) = .09, *p* = .766, 95% CI [–.25, .34]. Accounting for the control variables, the interaction term remained nonsignificant, b = .06, F(1, 404.58) = .13, p = .723, 95% CI [–.26, .38]. Reestimating the models with DFs only, the interaction term remained nonsignificant, *b* = –.11, *F*(1, 242.69) = .08, *p* = .783, 95% CI [–.86, .65]. The interaction term was nonsignificant with the introduction of each of the control variables, and for the full variable model it also showed nonsignificance, *b* = –.39, (1, 187.37) = 1.41, *p* = .236, 95% CI [–1.04, .26].

In the case of ROE, insider ownership had no significant moderating effect on the level of diversification-ROE relationship when I used all firms in the sample since the coefficient of the level of diversification * insider ownership interaction term was nonsignificant, *b* = –.05, *F*(1, 427.21) = .43, *p* = .513, 95% CI [–.20, .10]. The coefficient of the interaction term remained nonsignificant with the introduction of each of the control variables. For instance, accounting for all the control variables, *b* = –.08, F(1, 335.00) = .89, p = .345, 95% CI [–.25, .09]. When I used DFs only to run the analysis, the interaction term was also nonsignificant, *b* = –.06, *F*(1, 170.47) = .14, *p* = .713, 95% CI [–.41, .28]. Overall, the conclusions based on observations from firms listed for the entire period did not diverge from those based on the data set that included firms that were not listed for all the years.

Summary

I used the LMM to test the hypotheses developed to address four research questions. Two questions related to whether firms differed in their performance on the basis of their diversification status and level of diversification. The other two questions related to whether insider ownership distinguished between OPDFs and UPDFs and how insider ownership is related to the performance effects of the level of diversification.

On the basis of the analyses, there is sufficient evidence that there is no significant difference in performance between DFs and UDFs. There is also evidence that there is no significant relationship between the level of diversification and firm performance. The analyses also showed that insider ownership did not significantly predict outperforming and underperforming DFs. I also found that there is no significant relationship between insider ownership and the performance effects of the level of diversification.

Some of the control variables were significantly related to the measures of performance, and some were not. Leverage consistently showed a significant negative relationship with ROE and a positive one with ATQ. Blockholding also consistently showed a significant positive relationship with ATQ. Firm size consistently exhibited a significant negative relationship with ATQ. Board independence was significant only in its relationship with ATQ when I analyzed with DFs only. insider ownership did not show significance in all the models where I introduced it except when I used DFs only to examine the relationship between level of diversification and ROE.

In Chapter 5, I discuss these findings in the light of existing literature and the two theories that formed the foundation of the study. These theories are the agency theory and the IBT. I also draw some conclusions and make some recommendations on the basis of the findings in Chapter 4.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative panel design study was to examine the relationships between firm diversification and firm performance and how insider ownership is related to the performance effects of diversification in Nigeria. The study was conducted with a guiding framework of IBT and agency theory. IBT suggests that diversification will help to improve firm performance in emerging markets where market-supporting institutions are underdeveloped. The reason is that diversification leads to the creation of internal markets that enable firms to overcome institutional voids in the economy. Agency theory of firm diversification suggests that diversification is a corporate strategy motivated by agency problems resulting from low insider ownership. Accordingly, diversification is likely to be associated with poor performance in firms with low insider ownership.

I conducted this study to bridge gaps in the D–P literature, especially in the case of Nigeria, which is the most populous country and one of the biggest economies in Africa. None of the authors who used data on Nigerian firms had employed SIC codes to measure diversification. Only a few authors have directly tested the relationship between insider ownership and the performance effects of diversification, and there has been no consensus on the direction of the relationship. Moreover, none of the authors that have used data on Nigerian firms has examined the relationship between I insider ownership and the performance effects of diversification. None of the authors who used data on Nigerian firms captured the variations in the D–P relationship over time because they either employed cross-sectional analysis or pooled panel data analysis—techniques that do not capture these changes (Dhir & Dhir, 2015; Lin et al., 2014).

I used data on firm products to assign SIC codes to sampled firms and used the SIC codes to classify firms as either diversified or undiversified for each of the years in the sample period. The number of 2-digit SIC codes assigned to a firm measured the firm's level of diversification. I employed the LMM to examine the relationship between diversification and firm performance and how insider ownership moderated the relationship between the level of diversification and performance. The LMM captured the effects of the within-firm and between-firm variations in the variables over the sample period. Overall, I tested four hypotheses and summarized the results in Table 25.

Table 25

Summary of Results of Tests of Hypotheses

Details of hypotheses		Dependent variable	Decision
$H_0$1	There is no significant difference between the performance of DFs and focused firms in Nigeria.	ROE	Accepted
		ATQ	Accepted
$H_0$2	There is no significant relationship between the level of diversification and firm performance in Nigeria.	ROE	Accepted
		ATQ	Accepted
$H_0$3	There is no significant difference between the level of insider ownership of DFs that outperform focused firms and DFs that underperform focused firms.	ROE	Accepted
		ATQ	Accepted
$H_0$4	There is no significant relationship between insider ownership and the performance effects of level of diversification.	ROE	Accepted
		ATQ	Accepted

The diversification status identifies that a firm is diversified or not but does not indicate the degree/level of diversification (Oweis, 2012). Consequently, in the second hypothesis, I aimed at discovering whether the level of diversification is related to firm performance. The test of $H_0 2$ showed that the level of diversification measured by the number of 2-digit SIC code industries in which a firm operated was not significantly related to firm performance. This finding was consistent across both measures of performance.

Against the background that some DFs have underperformed DFs, and others have outperformed, in $H_0 3$, I aimed at identifying whether insider ownership could differentiate between underperforming DFs and outperforming ones. The analysis showed no significant difference in insider ownership between DFs that OPDF and those that UPDF in Nigeria. I also found that the proportion of OPDF and UPDF in the groups of low and high insider ownership firms is not significantly different. The test of $H_0 4$ showed no significant relationship between insider ownership and the performance effects of level of diversification in both performance measures. In other words, insider ownership did not moderate the level of D–P relationship.

Interpretation of Findings

The results of this study are consistent with some findings in previous literature and inconsistent with others. In the case of studies based on data on Nigerian firms, the D–P relationship results were mixed. Adamu et al. (2011) and Oyedijo (2012) found that UDFs outperformed diversified ones. Nonetheless, Patrick (2012), Ugwuanyi (2012), and Ugwuanyi et al. (2012a, 2012b) found significant positive relationships between firm diversification and firm performance (see also Gunu & Gunu, 2020; Mac-Ozigbo & Daniel, 2020; Oladimeji & Udosen, 2019). I found no significant relationship between diversification and firm performance, which is inconsistent with these streams of the D–P relationship literature in Nigeria. One explanation for the inconsistency is that none of the previous authors used SIC codes to classify firms as diversified or undiversified. Also, none used analytical techniques that captured the effects of within-firm and between-firm variations in the predictors over time.

For the broader D–P literature, my findings are inconsistent with the diversification discount literature (Berger & Ofek, 1995; Borah et al., 2018; Denis et al., 1997; Jouida et al., 2017; Lang & Stulz, 1995; Lee & Hooy, 2018b; Liu et al., 2018; Mazur & Zhang, 2015). My results are also inconsistent with the diversification premium literature (Aivazian et al., 2019; Bhatia & Thakur, 2018; Cole & Karl, 2016; Lawrey & Morris, 2019; Villalonga, 2004). With regards to the relationship between firm diversification and firm performance, the results are more consistent with the no relationship literature (Garcia-Feijoo & Smith, 2017; Hoberg & Philips, 2014, Mackey et al., 2017; Mansi & Reeb, 2002; Schommer et al., 2019).

The no relationship stream of the literature argues that diversification is not necessarily a value-creating or a value-destroying corporate strategy (Hoberg & Philips, 2014; Mackey et al., 2017; Schommer et al., 2019; Tsai et al., 2011). Therefore, factors other than diversification could be responsible for performance differences between firms in Nigeria. Hoberg and Philips (2014) identified one of those factors as product uniqueness; Delbufalo et al. (2016) indicated family involvement, while Mackey et al. (2017) suggested the firm’s resources and operating context. I examined the effects of insider ownership as one factor that could explain performance differences between firms, whether diversified or undiversified, and between DFs that outperform and those that underperform focused firms.

Using the EV measures (ExROEav, ExATQav, ExROEserv, and EVATQserv), I found that the relationship between insider ownership and EV of DFs was nonsignificant in all the measures of EV. This finding suggests that UPDF do not differ from OPDF on the basis of insider ownership, as agency theory suggests. The finding is consistent with Singh et al. (2004), who found no significant difference in the number of UPDF and OPDF for both the groups of low and high-insider ownership firms. My finding of nonsignificant relationship between insider ownership and the EVs of DFs is also consistent with Anderson et al. (2000) and Gleason et al. (2012) but inconsistent with Taĝ (2017), who found a negative relationship between executive shareholding and EV.

I also found that insider ownership did not significantly moderate the relationship between the level of diversification and firm performance. The finding that insider ownership did not significantly moderate the relationship between the level of diversification and firm performance is inconsistent with Lins and Servaes (1999), Hyland and Diltz (2002), and Boumosleh et al. (2012). These authors found a positive relationship between insider ownership and the performance effects of diversification. The finding that insider ownership did not significantly moderate the relationship between the level of diversification and firm performance is inconsistent with agency theory and the expected benefits of increasing insider ownership (Boateng et al., 2017; Denis et al., 1997; Gugong et al., 2014; Jensen & Meckling, 1976; Rashid, 2020).

The positive relationship I found between leverage and ATQ is consistent with Chandra et al. (2019) and the literature that considers leverage a good corporate governance mechanism (Jensen & Meckling, 1976). Leverage helps to reduce the agency cost of free cash flow. It introduces the discipline of the market that increases efficiency in picking projects—factors that the markets tend to value positively (Jensen & Meckling, 1976). However, it is inconsistent with O'Brien et al. (2014). O'Brien et al. found that leverage has a significant negative relationship with DFs' value. This relationship supports the view based on transaction cost economics that leverage limits managerial discretion to leverage on strategic resources to experiment and adapt in such forms as diversification into new products and markets that are potentially value-creating. My finding that leverage consistently showed a significant negative relationship with ROE is supportive of the transaction cost economics view and consistent with the findings of some authors who used profitability as the measure performance (e.g., Yazdanfar & Öhman, 2015).

The results of this study that show a significant positive relationship between blockholding and ATQ in all the models are consistent with some previous studies (e.g., Mitra & Pattanayak, 2013; Singh et al., 2020; van Essen et al., 2020) but inconsistent with Thraya (2015). For the D–P relationship literature, the finding is consistent with Lins and Servaes (1999), Pratyaksa et al. (2015), and Sautner and Villalonga (2010). These results support the idea that blockholders provide effective monitoring that curtails managerial self-seeking behavior and leads to higher market valuation (Yasser & Al Mamun, 2017). Blockholders can monitor managers because they have the incentives and power to do so (Basu, 2014; Edmans & Holderness, 2017). However, the study did not distinguish blockholders by their identity and motivations, the number of blockholders, and the mechanism employed to influence management. Some authors have found that these factors moderate the effects of blockholding on firm performance (Edmans et al., 2013; Hautz et al., 2013; Li & Li, 2015).

I found that firm size consistently exhibited a significant negative relationship with ATQ. This finding is consistent with the view that complexity and coordination cost tends to increase with firm size, making larger firms less transparent and increasing the ease of managers' opportunistic and value-destroying behavior (Olaniyi et al., 2017). However, this finding is inconsistent with Khatun and Siddiqui (2016).

I found a nonsignificant relationship between board independence and firm performance when all firms were in the analysis. This result is consistent with Akpan and Amran (2014) in the general board independence–performance relationship literature in Nigeria. However, the significant negative relationship I found between board independence and ATQ when I did the analyses with DFs only, is inconsistent with Boumosleh et al. (2012) and Gleason et al. (2012). Boumosleh et al. (2012) and Gleason et al. (2012) found a significant positive relationship between board independence and the performance effects of diversification. The way I operationalize board independence may explain the differences in the results. I found that insider ownership is not significantly related to ATQ but negatively related to ROE when I used only DFs for the analyses.

I interpret these findings in the context of the theoretical framework of the study. The IBT and agency theory formed the theoretical foundation of this study. Essentially, IBT states that the institutional context in which firms operate shapes their strategic choices and the outcomes of such choices (Elango & Lahiri, 2014; Garrido et al., 2014; Rottig, 2016; Zhang et al., 2015). Therefore, IBT suggests that a strategy should not be expected to perform similarly in all contexts and periods.

The IBT predicts that DFs will perform outperform UDFs in emerging markets where market-supporting institutions are less developed (Benito-Osorio et al., 2012; Khanna & Palepu, 1997; Kuppuswamy et al., 2014; Lohwasser et al., 2019). The reason for this prediction is that, among other advantages, diversification facilitates the creation of internal markets that mitigate the cost of the imperfections in the external markets of emerging markets (Benito-Osorio et al., 2012; Berry-Stölzle et al., 2013; Khanna & Palepu, 1997; Kuppuswamy et al., 2014). The theory also predicts that as the country's institutional framework develops, diversification will move from a value-creating strategy to a value-destroying one (Kuppuswamy et al., 2014; Lee et al., 2008).

On the basis of IBT, the expectation was that in Nigeria—an emerging market with weak institutions—DFs would perform better than UDFs, and the level of diversification will be show a significant positive relationship with firm performance. The results in this study are inconsistent with the predictions of IBT. There was no significant difference between the performance of DFs and UDFs. There was also no significant relationship between the level of diversification and firm performance. Although the difference in performance was not significant, DFs had lower mean ROE and ATQ than UDFs. In all the models I specified for the relationship between the level of diversification and firm performance, the coefficient for diversification was negative.

The inconsistency between the prediction of IBT and the findings in this study can explain in various ways. First, it is possible that the theory is misspecified and does not hold in all contexts (Yusuf et al., 2018). Secondly, the reforms that have been going on in Nigeria since the return to democratic rule in 1999 may have brought significant improvements in the institutional context. These reforms may have reduced the "institutional voids" (Khanna & Palepu, 1997, p. 41) that make diversification relevant in the first place—consistent with Kuppuswamy et al. (2014), Lee et al. (2008), and Ramaswamy et al. (2017). The effect of these reforms would require further studies to clarify. Since I had no variable that measured institutional development in this study, I cannot assert that improvements in the institutional context explain the contradiction.

Agency theory—the other theoretical foundation of this study—can also explain the inconsistency in the results of this study and the predictions of IBT. The motive that dominates a particular diversification decision influences the performance outcomes (Basu, 2010; Dey & Banerjee, 2019). If agency considerations dominate, diversification will more likely produce negative results (Dey & Banerjee, 2019). Diversification in Nigeria could be an agency-motivated strategy that would not be expected to create value.

Agency theory predicts that the separation of ownership from control in organizations could lead to a conflict of interest between shareholders and managers. When this is the case, managers are more likely to pursue their interests even if it destroys shareholder value. One way of preventing such managerial self-seeking behaviors is to place appropriate corporate governance structures in the firm (Bendickson et al., 2016; Jensen & Meckling, 1976; Panda & Leepsa, 2017; Schillemans & Bjurstrøm, 2020; Yusuf et al., 2018). Therefore, agency theorists prescribe two types of corporate governance mechanisms. One of these is interest alignment measures, such as insider ownership. Based on this theory, Denis et al. (1997) posited that if value-reducing diversification is due to agency problems, on average then, diversification should be associated negatively with firm performance in low-insider ownership firms and positively in higher-insider ownership firms.

I found that insider ownership did not significantly predict the EV of DFs. In other words, in Nigeria, insider ownership does not distinguish DFs that outperform focused firms from those that underperform. I also found that the proportion of OPDF and UPDF in the groups of low- and high-insider ownership firms is not significantly different. Although the differences are not significant, in all the EV measures that I employed in this study, the odds (represented by the odds ratio) are higher that a Low-insider ownership observation will have a positive EV than a High- nsider ownership observation. These findings are inconsistent with the traditional agency theory prediction that shareholder-manager conflicts from low insider ownership are likely to result in poor firm performance. I also found a negative relationship between insider ownership and firm performance, a result that was significant only in the case of ROE when only DFs were used in the analysis. This negative relationship is inconsistent with the traditional agency theory.

Therefore, I conclude that the shareholder-manager agency conflict resulting from low insider ownership—that higher insider ownership is expected to mitigate—is not per se responsible for the diversification discount that some researchers have documented. Singh et al. (2004) arrived at a similar conclusion. Consequently, the factors that explain the underperformance of some DF remain unclear and requires further studies. One explanation for the nonsignificant relationship between insider ownership and the performance effects of level of diversification is that the interest alignment mechanism of corporate control is less effective than control/monitoring mechanisms in Nigeria. There is increasing evidence that monitoring mechanisms such as blockholding and leverage are more effective than interest alignment mechanisms such as increased insider ownership (see Alessandri & Seth, 2014; Gleason et al., 2012; Kim & Lu, 2011; Lacoste et al., 2010).

The other set of corporate governance mechanisms prescribed by agency theorists is monitoring mechanisms such as increased leverage, blockholding, and board independence which I employed as control variables in this study. Consistent with agency theory, I found a significant positive relationship between leverage and ATQ and between blockholding and ATQ. These findings tend to support the view that monitoring mechanisms are more effective than interest alignment mechanisms (Alessandri & Seth, 2014; Gleason et al., 2012; Kim & Lu, 2011; Lacoste et al., 2010). However, the negative relationship between leverage and ROE calls this view to question. The reason leverage has a divergent relationship with the two measures of performance is unclear. One explanation for it is that the two measures capture different dimensions of the performance construct and that each would appeal to different stakeholder groups. This requires further investigation.

Board independence was negatively but nonsignificantly related to performance in most models except with ATQ when DFs only were used in the analysis. This nonsignificant relationship suggests that in Nigeria, board independence does not play the valuable corporate governance role predicted by agency theory. However, this finding may be an artifact of the way I operationalized the variable in this study. Whether being a nonexecutive ensures a director's independence is questionable (Brickley & Zimmerman, 2010).

Limitations of the Study

This study is limited in some ways. I relied on secondary data. The biases and reliability of this type of data are a constraint. I addressed this weakness by using only companies listed on the Nigeria Stock Exchange (NSE). The law requires these companies to publish their audited annual reports and financial statements that give an accurate and fair view of the company's affairs for the reporting period. The directors take responsibility for this, at the risk of jail terms under sections 334 and 335 of the Companies and Allied Matters Act 2004.

However, some companies did not comply with this requirement in some years. For these noncomplying companies, data were not available to operationalize some of the variables for some of the years. In some cases, published reports did not provide the required information. These increased the number of missing data in my data set. I addressed this limitation by making serious efforts to acquire the companies' annual reports wherever available and using the LMM for data analysis. This analytical technique accommodates cases of missing data better than ANOVA and standard regression techniques. For robustness check, I also used firms listed for all the years and had data to operationalize the variables. The conclusions based on these additional tests are qualitatively similar to those from all firms in the sample.

Segment reporting is still in its initial stages in Nigeria. Before adopting international financial reporting standards (IFRS) in 2012, emphasis on segment reporting was on geography (Madawaki, 2012). Even with the adoption of IFRS, the level of activity aggregation depends on the chief operating decision-makers' discretion (Ibrahim, 2014). In many cases, the aggregation did not reflect differences in company activities. This discretion made interfirm comparison less informative.

Consequently, it was impossible to operationalize some of the diversification and performance measures that I could have used for construct validity. This limitation threatens validity, given that many of the constructs are multidimensional. For instance, the primary measure of diversification in this study did not reflect the relative contribution of each segment of the firm to the total output. The measure of a DF's EV did not reflect each firm's segment/industry's weighted contribution. As some authors have pointed out, diversification's performance effects may depend on industry characteristics (Purkayastha & Lahiri, 2016).

However, it is impossible to cover all the dimensions of all the constructs in this study. I tried to mitigate this weakness by narrowing down the research to specific domains of the constructs and employed multiple measures as much as possible. Some authors have proposed this approach to dealing with multidimensional constructs (e.g., Hoskisson et al., 1993; Sambharya, 2000). Some experts have agreed to the construct validity of some of the measures I employed (e.g., Hoskisson et al., 1993).

The study focused on nonfinancial firms listed on the NSE. I excluded financial firms and private companies. The findings in this study are generalizable to these financial and private firms only to the extent that the sample used in this study represents these firms. Also, because I did not use randomization, I may not have adequately controlled for competing explanations of the observed relationships. The absence of randomization makes causal inferences less convincing and limits the ability to generalize the results. I addressed this limitation through statistical techniques such as the LMM used for data analysis. This model controlled for some of the confounding variables. I hope that the control variables reasonably captured the essential factors that impact performance. The introduction of these control variables increases my confidence about the relationships found in the study and the ability to generalize.

Some questions arose from the analysis of the data. Some of these issues were not addressed due to a lack of data to do so. Addressing those questions will extend knowledge in this area. I recommend some of these issues and questions for further research.

Recommendations

I can hardly claim that this study has been exhaustive of all the issues that could improve knowledge about the relationship between diversification and firm performance and how insider ownership impacts this relationship. As indicated in the preceding section, this study is limited in some ways. Mitigating these limitations in future studies will extend knowledge in this area. In the light of the findings and limitations of this study, I offer some recommendations for further research in this area.

I recommend that future researchers in this area in Nigeria should incorporate other measures of diversification such as the Herfindahl index and entropy measure. The use of these measures will increase robustness and make for a better comparison of the results of this study with those of authors that have used these other measures. The primary measure of diversification in this study did not reflect the relative contribution of each segment of the firm to the total output. Berry (1971) suggested that the measurement of diversification should reflect each segment’s relative contribution. I could not use these measures because of the deficiencies that still exist in segment reporting in Nigeria. I relied exclusively on publicly available information, especially from financial statements. Given the current state of segment reporting in financial statements in Nigeria, future researchers should combine published financial statements and management accounts privately held by companies. Making this manageable will require case studies of few companies to collect more detailed information to operationalize relevant variables where these are not publicly available.

The combination of both publicly available and privately held information will help to reduce cases of missing data. It will also facilitate the operationalization and use of other measures of relevant constructs. For instance, my first measure of the EV of DFs was the difference between a firm’s ROE (ATQ) and the average ROE (ATQ) of UDFs. The second measure was the difference between the firm’s ROE (ATQ) and the unweighted average of its segments' imputed ROEs (ATQs). Whereas the first measure does not reflect industry effects on performance, the second does not reflect the weighted contribution of each segment/industry. It also entailed the grouping together of some industries.

I could not use Berger and Ofek's (1995) measure of EV, which deals with these limitations because, for many industries, there were no focused firms that I could use for comparison and avoid grouping. Secondly, I did not have detailed and informative segment sales, profit, and assets data to compute segment contribution for most companies and most of the years. The inclusion of private companies in future studies could increase the number of UDFs in each industry and enable the use of the Berger and Ofek measure. However, it may limit the use of market-based measures of performance. The use of privately held information will also provide more segment revenue, profit, and assets data.

I operationalized insider ownership by the proportion of total company shares held by its directors. I did not distinguish between the ownership of executive directors and nonexecutive directors or that of the CEO. Kim and Lu (2011) have argued that the executive directors and especially the CEOs are the most impactful insiders in the company and that their holding should count the most. Therefore, my conclusions on the impact of insider ownership may have been a reflection of the measure of insider ownership that I used. Future researchers should consider distinguishing between executive directors and nonexecutive directors' shareholding.

There is evidence that blockholder identity, number, the contest for control, and strategy impact blockholder effectiveness (Benamraoui et al., 2019; Fattoum-Guedri et al., 2018; Hadlock & Schwartz-Ziv, 2019; Lee et al., 2020; van Essen et al., 2020). I did not make these distinctions in my measure of blockholding due to a lack of data. Future researchers should try to capture these dimensions of blockholding.

As I indicated in the section on interpretation of findings, my results are inconsistent with the predictions of IBT regarding the performance effects of diversification in emerging markets. One plausible explanation for this contradiction may be that the institutional reforms that the government has implemented since the return to democratic rule in 1999 may have changed the institutional context of Nigeria. However, I did not include any variable that captured institutional changes over time. Future researchers in this area should include some measures of institutional development in their model. The inclusion of a measure of institutional development would enable one to verify how the performance effects of diversification have varied with changes in the institutional context.

As I indicated earlier, segment reporting is still in its initial stages in Nigeria. Segment reporting in Nigeria was mandated, effective 2008. However, there seems to be no guideline that will ensure interfirm comparability of reported segments. Even with the adoption of IFRS, segment reporting has focused on geography, and activity aggregation has depended on the chief operating decision maker’s discretion (Ibrahim, 2014). As a result, in many cases, the aggregation does not reflect differences in company activities. The absence of standardized segment reporting rules makes the comparison of interfirm segment data less informative (Hund et al., 2019). There is, therefore, the need for regulatory authorities to aggregate activities along lines similar to SIC codes and enforce segment reporting consistent with those codes.

Implications

Businesses act as development agents by creating jobs and innovative products and services that society depends on (Blowfield & Dolan, 2014; Likoko & Kin, 2017). They also respond to various societal needs through forms of CSR (Blowfield & Dolan, 2014; Likoko & Kin, 2017). In these ways, businesses contribute to positive social change, and therefore, their survival and growth are essential if they are to continue contributing to society in this direction (Carroll, 2016). Corporate survival and growth require sustainable improvement in performance and continuous adaptation to face the challenges posed by the dynamic environment (Burgelman, 2014; Chen, 2017; Josefy et al., 2017; Kaulio et al., 2017).

This study has implications for positive social change because of its relevance for firm survival and economic development. The results of this study indicate that contrary to the prediction of IBT, diversification is not associated with better firm performance in Nigeria. Contrary to agency theory, insider ownership is not associated with performance improvement and does not significantly predict DFs that will outperform or underperform focused firms. Insider ownership does not also moderate the relationship between the level of diversification and performance. Therefore, companies may improve performance by not focusing on whether or not to diversify because it does not make any significant difference in performance. Businesses can improve performance by focusing on some of the control governance mechanisms such as blockholding that I found to be associated with firm market value measured by ATQ. With improved performance, businesses can attract more resources and investors that will guarantee their survival and ability to contribute to society.

The study also contributes to positive social change by providing information that will improve the investing public's investment decisions. I found that insider ownership does not positively moderate the D–P relationship and does not predict OPDFs and UPDFs but is, at best, associated negatively with the ROE of DFs. This points to the view that interest alignment corporate governance mechanisms such as stock options may not be adequate in Nigeria. Armed with this information, investors in the stock market may shift focus away from insider dominated firms. They may increase their returns and economic well-being by investing in firms with significant blockholding given the finding that this monitoring governance mechanisms is positively associated with ATQ. Investors may also improve their returns by selling off their holdings in such firms without blockholders. Investors' exit may pressure such firms' stock prices and force the managers to take corrective actions that could improve performance.

The study also has methodological and theoretical implications. As I pointed out earlier, my findings are inconsistent with the two strands of the D–P literature in Nigeria—the diversification discount and premium strands. One explanation for the inconsistency may be that none of the previous authors had used SIC codes to measure diversification, as I did. It may, therefore, be necessary to revisit the previous studies using SIC codes to operationalize diversification.

As I also indicated, there have been few direct tests of the relationship between insider ownership and the performance effects of diversification. Most of the few direct tests did not consider that some DFs outperform focused firms while others underperform. To the best of my knowledge, only Singh et al. (2004) have distinguished between DFs that are gainers and losers to see if there is a significant difference in the proportion of gainers and losers among high-insider ownership and low-insider ownership DFs. However, among the other differences that I identified earlier, their study was based in the United States, which has an institutional context different from Nigeria, the focus of this study. This approach, which I used in this study, is necessary to make meaningful assertions about the relationship between insider ownership and the performance effects of diversification (Singh et al., 2004). The reason is that instead of the wrong premise that diversification is ex ante value-destroying, I considered the fact that some DFs outperform focused firms while some underperform. There is need to revisit this conclusion in other settings, using this approach.

The findings in this study have theoretical implications also. My findings are inconsistent with IBT and agency theory regarding their predictions about the performance effects of diversification and the role of insider ownership in this relationship in Nigeria. One explanation for the inconsistency may be that the theories are context-specific and have no universal application. The findings in this study suggest revisiting these theories in different institutional contexts.

There are also implications for policy and practice. As I pointed out in the literature review, researchers have increasingly recognized ownership as a form of corporate governance (Connelly et al., 2010; Muller-Kahle, 2015). In their codes of corporate governance, two central regulatory authorities in Nigeria—the Central Bank of Nigeria and the SEC—promote insider ownership as a suitable corporate governance mechanism (see Central Bank of Nigeria, 2006, para. 5.1.1; SEC, 2011). The results of this study show that increasing insider ownership does not make any significant positive difference in performance. Therefore, to improve corporate governance, it is necessary to revisit such proposals. There is increasing evidence that monitoring mechanisms such as blockholding are more effective than interest alignment mechanisms such as increased insider ownership (see Alessandri & Seth, 2014; Gleason et al., 2012; Kim & Lu, 2011; Lacoste et al., 2010).

Conclusions

Despite the value destruction attributed to diversification and blamed on agency problems from low insider ownership, many firms have continued to diversify. DFs have also continued to account for significant proportions of economic activity, worldwide (Matvos & Seru, 2014; Sambasivan & Asrarhaghighi, 2016). This study was conducted against the background that there is no consensus in the existing literature on the D–P relationship and how insider ownership moderates this relationship.

Most of the previous studies have been focused on the developed countries, and researchers know little about these relationships in Africa. I focused this study on Nigeria, the most populous country and one of the largest economies in Africa, given the calls to explore these relationships in institutional contexts that are different from those of the developed countries (Benito-Osorio et al., 2012; Erdorf et al., 2013; Picone &

Dagnino, 2016; Sun et al., 2017; Zechser, 2019). Moreover, the methodological deficiencies of some of the studies in which researchers have used data on Nigerian firms have resulted in limited understanding of the D–P relationship in Nigeria. Importantly too, only a few authors have directly examined the relationship between insider ownership and the performance effects of diversification. In Nigeria's case, I am not aware of any author that has examined the relationship between insider ownership and the performance effects of diversification. I attempted to bridge this gap with this study.

I used data from firms listed on the NSE to examine these relationships. The study advanced knowledge of how diversification is related to firm performance in Nigeria and how insider ownership impacts this relationship. The findings indicate that firm diversification in Nigeria is not the value-creating strategy that IBT predicted for emerging markets. In other words, the diversification decision is irrelevant. It also indicates that in Nigeria, insider ownership is not the performance-enhancing governance mechanism that agency theorists present. These findings have implications for theory, practice, and positive social change, as I indicated in the preceding sections.

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