IMPACT OF DYNAMIC CAPABILITIES ON CONSTRUCTION FIRM PERFORMANCE. THE MODERATING ROLE OF ENVIRONMENTAL DYNAMISM

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ABSTRACT

The factors affecting construction firm performance are multiple, and their interrelationship is often complex. Recently, researchers have started advocating the use of contingency theory to understand such performance differentials factors. The contingency theory advocates achieving a 'fit' between various factors to achieve superior performance. This study aims to understand a few such performance-related contingencies, i.e. the role of Dynamic Capabilities (DCs) and environmental dynamism upon the firm performance.

Design/methodology/approach

Data is collected through industry professionals via a questionnaire survey. A quantitative data analysis method, i.e. Partial Least Squares – Structural Equation Modelling (PLS-SEM), is applied to validate the hypothesized relationships.

Findings

Our findings suggest that the DCs have a significant and positive impact on construction firm performance. Additionally, this relationship is further enhanced in the presence of environmental dynamism, thus implying its role as a 'moderator'. The results suggest that construction firms equipped with DCs will outperform those without any such capabilities operating in dynamic business environments.

Originality

Few studies in Construction, Engineering and Management (CEM) literature have examined the concept of DCV for construction firms. However, as per the authors' understanding, no study in CEM literature has tried to empirically explore the role of DCs on performance from the contingency theory perspective

Keywords: Dynamic Capabilities, Dynamic Capabilities View, Construction Firm Performance, Performance, Structural Equation Modelling.

INTRODUCTION

Over time, due to increased competition, technological advancements, and the blurring of national boundaries for businesses, there has been an increased interest in variables that affect the construction industry's performance (Ye et al., 2009; Cheah et al., 2004). Recent research points that contingency theory can effectively explain the performance of construction firms (Deng & Smyth, 2013). The contingency theory proposes that performance results from the 'fit' between several contextual factors, and the nature of their interaction are important to understand. This study explores the impact of such few relevant contingencies upon construction

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firm's performance, i.e. Dynamic Capabilities (DCs), Environment Dynamism, and their inter-relationship. Traditionally, the 'resources and capabilities' of a firm were considered a source of superior performance. This came to be known as the Resource-based View (RBV) (Barney, 1991). However, over time it was felt that RBV considers the business environment as stationary and is not a suitable response to environmental dynamism, i.e. when the market requirements are changing rapidly (Wang &Ahmed, 2007). As an extension of RBV, Dynamic Capability View (DCV) was proposed (Chryssochoidis et al., 2016; Eisenhardt & Martin, 2000) to address the limitations of RBV. The DCV emphasizes the role of dynamism within the business environment and advocates that firms adjust their routines with market needs. The construction business environment is also known to be highly volatile and often hypercompetitive. However, the implications of such dynamic business environments on the performance of construction firms have not been fully explored. Few studies in Construction, Engineering and Management (CEM) literature have examined the concept of DCV for construction firms (Adam & Lindahl, 2017; Choi et al., 2018). However, as per the authors' understanding, no study in CEM literature has tried to empirically explore the role of DCs on performance from the contingency theory perspective. Therefore, to fill this gap, this study aims to investigate the role of DCs on construction firm performance. Additionally, it explores the role of environmental dynamism as a 'moderator' in the relationship between the DCs and performance.

This study is conducted for the construction firms operating in New Zealand, with a unique business environment due to the country's small size and geographical isolation. It is estimated that the New Zealand construction industry contributes 7 % to the national GDP, which is significant compared to other sectors. However, it is also a highly volatile industry. In the last twenty years, it has shown both a double-digit growth and decline, which indicates a highly dynamic and volatile business environment (Rotimi et al., 2019). Therefore, an in-depth research is required to understand the unique performance determinants for the New Zealand construction industry.

The structure of the paper follows this layout. The following section contains the theoretical framework, rationale for formulating the hypothesis and the conceptual model. Afterwards, analysis techniques and results are discussed. Finally, discussions, conclusions and future research directions are presented.

THEORETICAL FRAMEWORK AND HYPOTHESIS

Dynamic Capabilities View (DCV

The Dynamic Capability View (DCV) suggests that firms should continuously address the business environment requirements through adaptation, reconfiguration of operational routines and renewal of their resources. The DCV literature contends that to achieve a competitive advantage, although resources play a significant role, but they do not fundamentally govern competitive advantage. On the contrary, a firm's capability to combine or recombine its resources base, as per market demands, will eventually result in performance improvement (Eisenhardt & Martin, 2000). DCV is considered an extension of the RBV and was developed to improve the efficiency of RBV (Chryssochoidis et al., 2016). The DCV emphasizes the role of dynamism that could arise from innovative technological advancements, variations in the market demand cycles, and changing client requirements (Ambrosini et al., 2009; Teece et al., 2007).

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Therefore, the DCV researchers claim that it is well suited to cater to dynamic environments' requirements by advocating for changes to firms' resource base, processes or routines (Helfat & Peteraf, 2009).

Dimensions of DCV

Teece work is considered a pioneer in research related to DCV, who conceptualized the DCV framework in three main dimensions of sensing, seizing, and reconfiguring (Teece, 2007). Sensing is the firm's capability to study and investigate the market to ascertain the market requirements and opportunities, e.g. keeping close relations with their stakeholders, observing and learning industrial best practices etc. (Wilden et al., 2013). A firm's seizing capability is about capturing the identified opportunities. For instance, investments in innovative or future-driven technologies that align with market requirements (O'Reilly III & Tushman, 2008; Teece, 2007). Finally, reconfiguring firm capabilities refer to the ability to readjust operational routines pertaining to the usage and combination of resources and capabilities and align product-line or services with market requirements. For example, readjusting the firm hierarchy to enhance efficiency and responsiveness to the market needs (Wilden et al., 2013).

Teece also stressed the role of Path dependency in DCV literature. The concept of Path dependency states that firm decision-making processes in the past also influence future decision-making processes. Therefore, any new strategic orientation in response to business environment requirements should consider the past decision making, obligations, and lessons learned to successfully apply DCV framework.

DCV Application in CEM

The underlying theoretical underpinnings of DCV are very much relevant to the construction industry due to its intrinsic intense competitive and dynamic nature. However, the concept of DCV has yet to be explored fully in the construction sector.

The DCs of 'sensing' is discussed in CEM literature in various terminologies. The firm's scanning capability for threats is linked to performance enhancement (Dikmen et al., 2005). 'Collaboration' is another form of sensing capability, which enables firms to deal with threats and opportunities in the market. Collaboration among various stakeholders results in the discovery of potential opportunities in the market (Adam & Lindahl, 2017), improved project delivery (Davies et al., 2016) and better risk management (Too, 2012). Seizing capabilities enable firms to grasp identified opportunities, e.g. changing the firm structure for efficient decision making where required (Choi et al., 2018) or changing project delivery methods (Davies et al., 2016). Similarly, a firm's capability to reconfigure routines is linked to improved performance (Handa & Adas, 1996). The reconfiguring of routines like changing procurement methods, flexible hierarchical structures could enhance the overall performance of constructions firms (Adam & Lindahl, 2017).

Relationship Between Dcs and Performance

Performance can be defined as the ability of a firm to meet its objectives economically and efficiently compared to its competitors. Performance measurement is a complex construct,

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and researchers have taken different approaches to understand performance (Deng & Smyth, 2013). Several researchers have explored firms' performance from the Resource- based View (RBV) (Barney, 1991). The DCV is considered an extension of RBV, which caters for changing market needs. Therefore, it could be argued that there is a positive relationship between DCs and firm performance. DCs aids in the selection of appropriate resources, building capabilities and aligning resource bases to create routines as per market demands. Similarly, it enhances firm responsiveness to market changes, thus providing opportunities for revenue generation and cost cuttings (Drnevich & Kriauciunas, 2011). DCs enable firms to alter their resource base to create new capabilities that could satisfy changing market needs (Helfat & Winter, 2011). Therefore, it is hypothesized that.

Hypothesis 1 (H1): DCs positively and significantly influences construction firm performance.

Application of Contingency Theory: The Moderating Role of Environmental Dynamism

Contingency theory advocates that firms do not operate in a vacuum, rather are influenced by their business environment. Therefore firms should align their attributes (contingencies) to the business environment in which they operate. The business environment is the sum of all of the forces and factors that affect the performance of firms in the environment. Some unique aspects of the construction business environment are related to the nature of projects which are often characterized by adversarial relationships, fragmented operations, lack of cooperative culture and complexity during project execution (Cicmil & Marshall, 2005).

Environmental Dynamism is the frequency by which environmental factors are changing and how unpredictable such changes are (Dess & Beard, 1984; Keats & Hitt, 1988). Sources of dynamism could be economical, technological and political (Dess & Beard, 1984). Environmental dynamism can negatively impact the performance of firms relying on a fixed resource base (Wu, 2010). When there is dynamism, firms cannot rely on their previously owned resources to have a competitive edge in the market. However, DCs enable firms to integrate resource base rapidly and create new knowledge that could assist their maintenance of superior performance. DCs could be considered as the major source for competitive advantages under environmental dynamism (Wu, 2010).

In stable environments, where there is a low level of competition, resources are abundant, and with a high level of growth, the business opportunities are abundant. In such environments, the role of DCs may be insignificant or even negative (Wu, 2010). However, in the highly competitive environment, firms are required to carry out close surveillance of market volatility in terms of technological advancement, the threat of new entries to the market and knowledge of the underlying risks at the suppliers' end Oktemgil & Greenley (1997), making the role of DCs very important. Hence, it could be stated that when environment dynamism is high, the significance of DCs is even more enhanced for maintaining or improving the firm performance. Therefore, the strength of the relationship between the DCs and performance will be enhanced under environmental volatility, signifying the role of environmental dynamism as a 'moderator' (Li & Liu, 2014). The conceptual model of the study is shown in Figure 1. Hence, this study also hypothesizes that:

Hypothesis 2 (H2): Environmental Dynamism acts as a moderator in the relationship between DCs and construction firms' performance.

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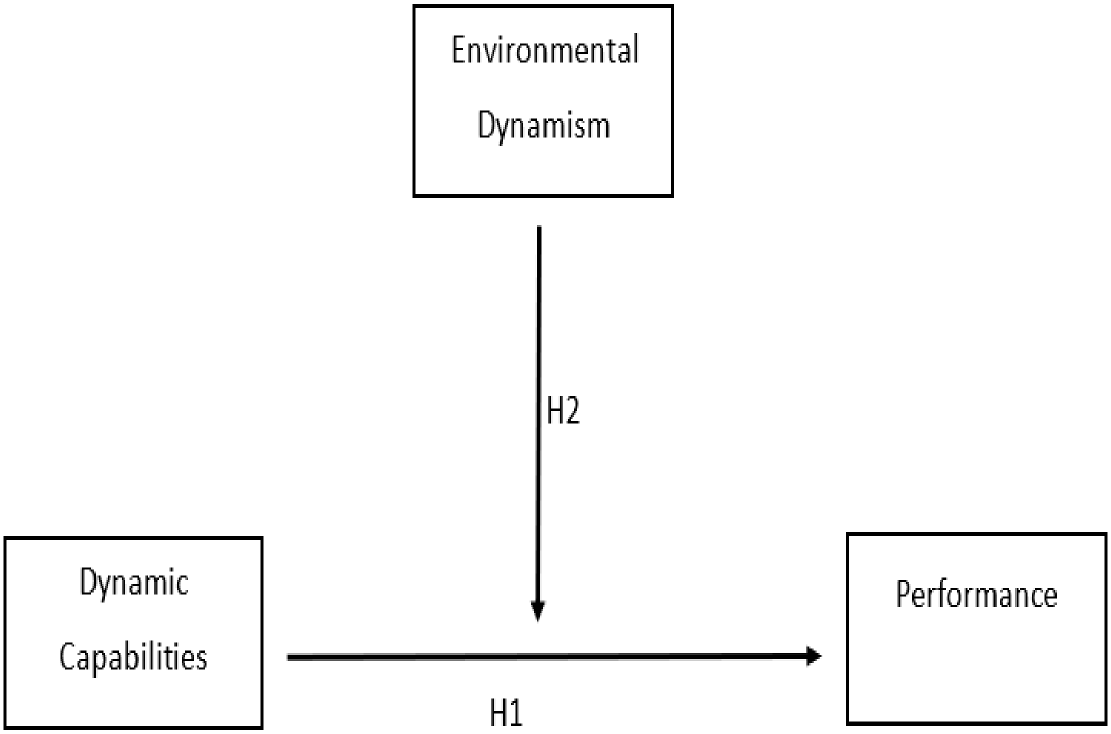

FIGURE 1
CONCEPTUAL MODEL

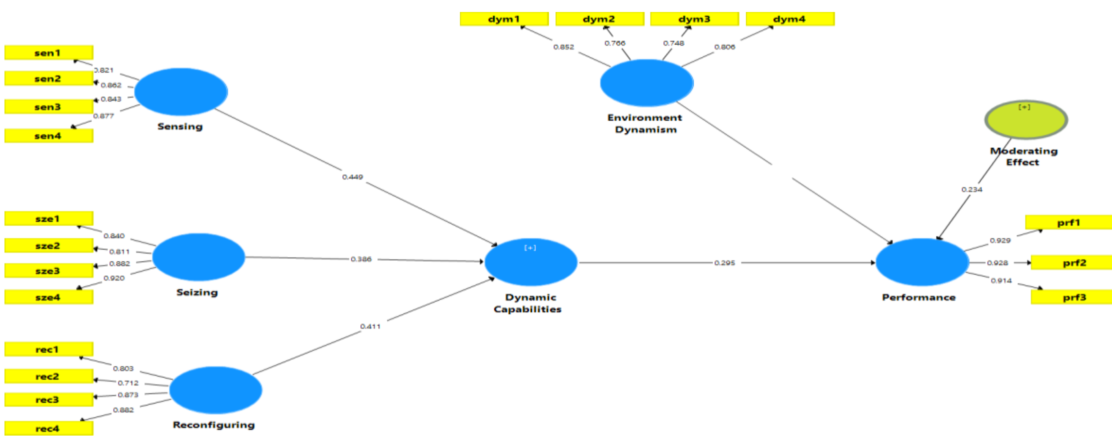

FIGURE 2
PATH COEFFICIENT

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METHODS

Measures

This research conceptualized DCs as a second-order reflective formative construct. Three first- order dimensions of sensing, seizing and reconfiguring form the second-order construct of DCs in line with the instrument developed by (Wilden et al., 2013). To measure Environment Dynamism, four items were devised from using the contributions of (Choi et al., 2018). In the construction industry, traditional accounting and financial measures are commonly used to measure firm performance (Hawawini et al., 2003). However, these objective measures have been criticized by researchers, as they are identified as lagging indicators, i.e. they tend to give historical rather than future performance information (Kagioglou et al., 2001). Therefore, using the contributions of Oyewobi et al. (2016), this study measured firms performances using three subjective indicators, i.e. profitability, growth in market share and growth in revenues.

Sample and Data Collection

After finalizing the questionnaire items, a pilot study was conducted to test the quality and suitability of the questionnaire to the construction industry. The questionnaire was distributed among three industry professionals and two academic professionals. All the respondents had an experience of more than 20 years. From the pilot study feedback, a few items within the questionnaire were deleted, and some were rephrased to improve the understanding of the questionnaire. After finalizing the survey items, 19 items were retained to collect data. Data from the industry was collected through a questionnaire using the web-based platform Qualtrics. To improve to response rate, the authors also distributed hard copies of the survey to the company offices, where contact information could not be found easily. The target population was identified through various professional bodies in New Zealand construction industries and public yellow pages. The size of the construction firms was also considered during the survey collection process.This study targeted medium and large-sized construction companies, as per the recommendation of A total of 74 responses were collected. After removing the incomplete responses, 64 responses were retained for data analysis. The demographics of respondents is presented in Table 1.

Table 1
RESPONDENTS DEMOGRAPHY

Respondents Characteristics	Percentage
Company Size	
6 to 20 employees	34%
21 to 50 employees	36%
51 to 100 employees	17%
100 over employees	13%
Working Experience in the Construction Industry	
1 to 5 years	8%
6 to 10 years	25%

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11 to 15 years	22%
16 to 20 years	19%
More than 20 years	27%
Business Areas	
Civil engineering (roads, railways, utility projects etc.)	28.6%
Residential Buildings construction services	26.3%
Commercial/Industrial Buildings construction services	24.8%
Professional services (project management, planning etc.)	6.0%
Specialized construction (demolition, electrical, plumbing etc	5.3%
Support services (maintenance, facility management etc.)	3.8%
Public-private partnership investments, Joint Ventures	3.8%
Property development (commercial, industrial, etc)	1.5%
Note: Number of Respondents= 64	

Analysis Methods

Partial Least Squares – Structural Equation Modelling (PLS-SEM) technique is selected for the current study. Hair et al. (2021) noted a few advantages of PLS-SEM. First, it can predict the relationships among the constructs by maximizing the covariance among the dependent and independent models. Second, a sample size of more than 30 is considered an acceptable sample size for PLS-SEM; therefore, a small sample size (64), as in the current study, is suitable for analyzing complex models using PLS-SEM. Third, reflective, formative and higher-order constructs are well handled by PLS-SEM. The statistical software, Smart PLS, was used to apply PLS-SEM techniques to test the hypothesized causal relationships in the research model.

A two-step procedure was adopted in smart PLS for evaluating and validating the hypothesized models. First, the measurement model was validated to check for the validity and reliability of the constructs. Second, the Structural model was analyzed for hypotheses testing. A moderation test was also run using Smart PLS software. PLS-SEM analyses moderation effects by creating a new interaction term between variables under analysis and, after that, estimating the statistical significance of the path coefficient of the interaction term on the dependent variable (Hair et al., 2021).

RESULTS AND ANALYSIS

Construct Reliability and Validity

To validate the measurement model, construct reliability and validity was conducted using tests for indicator reliability, internal consistency, convergent validity and discriminant validity (Straub et al., 2004). Indicator Reliability captures how much is common among the observable indicators, which represent the underlying constructs (Urbach & Ahlemann, 2010, Hair et al., 2021). The factor loadings of indicators determine indicator reliability on the associated construct. A value of 0.5-0.7 is considered as satisfactory (Hair et al., 2021). The value of factor loadings of all measurement items are in the range of 0.712 to 0.929 (Table 2), indicating satisfactory indicator reliability.

The internal consistency gauges the degree to which the observable indicators measure the underlying construct, in line with the objective of the research (Urbach & Ahlemann, 2010). Composite reliability (CR) and Cronbach's alpha are used in the literature to measure the internal

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constituency of the constructs. However, CR provides more efficient results, as it takes care of different outer weights and considers the reliabilities of indicators without underestimation (Hair et al., 2021). Acceptable values for CR range between 0.6 to 0.7 for explanatory studies (Hair et al., 2021). All of the values of CR for the current study are in the range of 0.872 - 0.946 (Table 2), indicating high internal consistency.

Table 2
MEASUREMENT MODEL VALIDITY AND RELIABILITY TEST VALUES

Items		**Factor Loadings**	**Composite Reliability (CR)**	**Average Variance Extracted (AVE)**
DCs -second orderconstruct (formative)	**Sensing (reflective)**			
SEN1	Staff in our firm participate in professional development activities	0.821	0.913	0.724
SEN2	We use established processes to identify target market segments changing customer needs, and customer innovation	0.862		
SEN3	We seek best professional practice in our sector	0.843		
SEN4	We track economic information of our operations and operational environment.	0.877		
	Seizing (reflective)	0.922	0.747	
SZE1	We invest in finding solutions for our customers	0.84		
SZE2	We adopt the best professional practices in our sector	0.811		
SZE3	We respond to defects pointed out by employees	0.882		
SZE4	We review our practices based on customer feedback	0.92		
	Reconfiguring (reflective)		0.891	0.673
REC1	We implement new management strategies	0.803		
REC2	We implement new kinds of marketing strategies/ methods	0.712		
REC3	We implement new type of business processes	0.873		
REC4	We implement new ways of achieving our firm targets	0.882		
	Environmental Dynamism		0.872	0.631
DYM1	Our products and services become outdated quickly	0.852		
DYM2	Innovation in our operational processes need to be done frequently	0.766		
DYM3	Our customer change frequently needs	0.748		
DYM4	There are new challenges that keep emerging from our competitors	0.806		
	Performance (In past three years)		0.946	0.853

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PRF1	Comparative Profits	Firm's 0.929		
PRF2	Comparative Market Growth	Firm's 0.928		
PRF3	Comparative Revenue	Firm's 0.914		

Convergent validity determines the level of convergence of indicators onto a single construct. It is estimated by using Average Variance Extracted (AVE) (Gregory, 2004). AVE shows the amount of variance a construct obtains from its indicators compared to variance from the measurement error (Fornell & Larcker, 1981; Urbach & Ahlemann, 2010). AVE is the mean value of squared loadings of indicators onto the construct. AVE value 0.5 (50% variance extracted) and higher is regarded as satisfactory (Fornell & Larcker, 1981). The AVE of all the constructs are in the range of 0.631 to 0.853 (Table 2), therefore convergent validity of the model is satisfactory.

Discriminant validity measures the degree of dissimilarity between different constructs in the model (Hair et al., 2021). The most commonly used measures of discriminant validity are i)- cross-loading and ii)- Fornell-Larcker's criterion (Hair et al., 2021). When applying the cross-loading criteria, the main loading of an indicator on the associated construct should be higher than all of its cross-loadings on other constructs. This is satisfied for the current study, as there are no issues of high cross-loadings (Table 3).

Table 3
CROSS LOADINGS

	Sensing	**Seizing**	**Reconfiguring**	**Environment Dynamism**	**Performance**
SEN1	**0.821**	0.05	0.594	0.159	0.086
SEN2	**0.862**	0.193	0.586	-0.004	0.037
SEN3	**0.843**	0.132	0.602	-0.01	0.168
SEN4	**0.877**	0.383	0.673	-0.089	0.267
SZE1	0.19	**0.84**	0.264	0.111	0.112
SZE2	0.218	**0.811**	0.266	0.053	0.082
SZE3	0.177	**0.882**	0.421	0.061	0.274
SZE4	0.229	**0.92**	0.396	0.166	0.22

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REC1	0.487	0.246	**0.803**	-0.126	0.573
REC2	0.518	0.249	**0.712**	0.21	0.349
REC3	0.649	0.357	**0.873**	-0.1	0.449
REC4	0.697	0.421	**0.882**	-0.144	0.43
DYM1	0.01	0.123	-0.048	**0.852**	-0.372
DYM2	0.046	0.088	-0.023	**0.766**	-0.314
DYM3	-0.026	0.163	-0.039	**0.748**	-0.222
DYM4	-0.01	0.03	-0.073	**0.806**	-0.415
PRF1	0.168	0.153	0.502	-0.421	**0.929**
PRF2	0.144	0.16	0.501	-0.42	**0.928**
PRF3	0.161	0.2 56	0.51	-0.359	**0.914**

Fornell-Larcker's criterion states that the square root of AVE of a construct should be higher than its correlation with other latent constructs (Fornell & Larcker, 1981). All the constructs fulfil the criteria, as the value of all the diagonal elements (square root of AVE) in Table 4 is higher than off-diagonal values, showing satisfactory discriminant validity.

Table 4
FORNELL-LARCKER'S CRITERIA

	AVE	Environment Dynamism	Performance	Reconfiguring	Seizing	Sensing
Environment Dynamism	0.631	**0.794**				
Performance	0.853	-0.434	**0.924**			
Reconfiguring	0.673	-0.06	0.546	**0.82**		
Seizing	0.747	0.115	0.205	0.395	**0.864**	

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Sensing	0.724	0.008	0.171	0.723	0.235	**0.851**

Structural Model Analysis

After the validation of the measurement model, the next step is the evaluation of the structural model. The evaluation of structural mode is done by checking the value of path coefficients. A value of path coefficient of at least 0.1 is recommended to impact the models under consideration (Hair et al., 2021).

All values of first-order construct i.e., sensing (p=0.449, ß<0.05), Seizing (p=0.386, ß<0.05), and Reconfiguring (p=0.411, ß<0.05) to the second-order construct i.e., DCs are positive andsignificant (Table 5). This shows that the conceptualization of DCs as a second-order construct is justified (Wilden et al., 2013).

Table 5
PATH COEFFICIENTS FOR DYNAMIC CAPABILITIES CONSTRUCT (2ND ORDER)

	Original Sample (O)	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**
Sensing to Dynamic Capabilities	0.449	0.442	0.069	6.502	0
Seizing to Dynamic Capabilities	0.386	0.365	0.092	4.187	0
Reconfiguring to Dynamic Capabilities	0.411	0.415	0.051	8.064	0

The path coefficient of DCs to performance is positive and significant (p=0.295, ß<0.05), hence giving support to the H1 that DCs have a positive and significant impact on the firm's performance (Figure 2). Moreover, the 'environmental dynamism' role as a moderator is positive and significant (p=0.234, ß<0.05), supporting H2 that environmental dynamism acts as a moderator in the relationship between DCs and performance (Table 6).

Table 6
PATH COEFFICIENTS FOR STRUCTURAL MODEL

	Original Sample (O)	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**
Dynamic Capabilities to Performance	0.295	0.309	0.085	3.463	0.001
Moderating Effect to Performance	0.234	0.229	0.111	2.11	0.035

DISCUSSION

The current study results show that DCs lead to improved performance and thus enhanced competitive advantage for construction firms operating within New Zealand. This finding aligns closely with Sun Tzu's (famous war strategist) postulations in his book 'The Art of War' that "rapidity is the essence of war" (Ling et al., 2012). In other words, in highly

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competitive business environments, sensing opportunities and threats and acting accordingly is vital for a construction firm's performance. For example, suppose some drastic change in demand or some novel ideas/technologies emerge, construction firms that have DCs are better suited to grasp such opportunities Li & Liu (2014) and ultimately improve their performance.

DCs enable firms to adopt new strategies and adjust their resource base to new operating environments (Newey & Zahra, 2009). Furthermore, DCs enable construction businesses to integrate their resources more effectively and rapidly and create new knowledge to enhance their performance in the volatile construction business environment (Wu, 2010). In turbulent environments, resources are difficult to obtain. Hence efficient observations, prompt adjustments, and the timely implementation of newly devised strategies are the different ways organizations could enhance their performance (Drnevich & Kriauciunas, 2011). Participants in the current investigations have indicated that sensing, seizing and reconfiguration capabilities have benefited their organizations immensely. This means that DCs create new decision-making options for those firms, leading to improved performance levels. The findings from these New Zealand organizations align with Teece (2007) conclusions that DCs make the firm utilize their resources to generate the new resources and develop new competencies. Hence, it can be articulated that DCs enable construction firms to gain a competitive advantage by creating new knowledge, products, and internal processes. Thus, in New Zealand construction organizations' context, their DCs positively improved their performance. Hence H1 is supported.

Schreyögg and Kliesch-Eberl, have explained that the development of DCs are likely to be expensive due to maintenance costs, when the environment is comparatively stable with little technological progress or when clients' preferences remain unchanged. In stable environments, the relationship between DCs and performance can become weaker. However, when there is environmental turbulence or constant threat from close competitors, competitive advantage is altered, and the potential value of current capabilities diminishes. This usually forces firms to make frequent and complex changes (Li & Liu, 2014). Therefore, in a rapidly changing environment, DCs play a vital role indicating a positive moderating role of environmental dynamism (Drnevich & Kriauciunas, 2011; Zhou & Wu, 2010; Li & Liu, 2014). Moreover, going by the nature of the construction business environment in New Zealand (complex, dynamic, uncertain and unique), the relationship between DCs and performance is significantly enhanced in such environments. Hence the conclusion from H2 that environmental dynamism has a positive moderating impact on the relationship between dynamic capabilities and performance is also in line with the literature.

CONCLUSION

This study aimed to understand the influence of DCs on the performance of construction firms that are based in New Zealand. The study concludes that the presence of the DCs has a positive and significant impact on construction firm performance. Moreover, 'environmental dynamism' acts as a moderator in the relationship between DCs and performance. This implies that when the construction business environment is volatile, and market needs are constantly changing, the firms equipped with DCs will outperform those without such capabilities.

These findings have practical implications for construction industry professionals. The managers need to continuously scan their environments for their client's changing requirements

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or any new technologies which may alter their competitive advantage. Moreover, efforts and resources should be directed at developing and improving the sensing, seizing and reconfiguring capabilities, as such capabilities would give a competitive edge to the construction firms during environment volatility.

There could be several promising future research directions in the area. First, it should be noted that a cross-sectional data collection approach was adopted for the current study due to time constraints. However, another crucial aspect of DCV is the role of path dependency, which warrants a longitudinal study for the construction firms with DCs. Second, the current study was conducted for the New Zealand construction industry, which is comparatively a small industry, marked by geographic isolation and high volatility. Similar studies conducted in the other countries construction business environment would provide more fascinating insights into the research area. Third, similar studies could be carried out to understand the impact of DCs individually for various industry players, i.e. contractor, consultant, client and public sector firms, to ascertain its relevance and importance for DCs for different stakeholders.

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