

Organisational Resilience of SMEs: A Knowledge-Based View

As small and medium enterprises (SMEs) embark on the difficult path to recovery in the post-COVID era, the imperative of resilience has never been more pressing. This study draws on the knowledge-based view of the firm to explicate the role of intellectual capital in enhancing organizational resilience in SMEs in the aftermath of the pandemic. It elucidates how SMEs' ability to harness knowledge-based assets to navigate uncertainties and capitalize on emerging opportunities in the post-COVID landscape. This study illustrates how investments in the firm's intellectual capital fortify SMEs' adaptive capacity and enable them to thrive in the evolving business environment shaped by the vagaries of the aftermath of the pandemic.

Keywords: resilience, SMEs, intellectual capital

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In the wake of the COVID-19 pandemic, small and medium-sized enterprises (SMEs) have demonstrated remarkable resilience in navigating unprecedented challenges (McCann et al 2023). Despite facing disruptions in supply chains, revenue loss, and operational constraints, SMEs have adapted swiftly to the evolving landscape. However, the survival rate of small and medium enterprises (SMEs), especially those found in resource-constrained and developing economies is remarkably low relative to much larger firms (Mohezar, et al 2023; Watson and Everett 1996; Ucbasaran et al 2013). The rate further declines for firms that are doing business in geographic locations which are prone to almost all types of natural environmental hazards such as the case of SMEs in the Philippines – an archipelago of 7,641 islands in Southeast Asia. The geographic location as well as geotectonic profile of the Philippines within the Pacific Ring of Fire and Typhoon Belt have set this country up to annual disturbances and eruptions from more than 22 active volcanoes, periodic earthquakes, and more than 100 tropical cyclones (ranging from depressions to super typhoons) that cause storm surges, floods, and landslides (Sia-Catedral 2016). An example of such catastrophic natural disaster was the devastation brought by the super typhoon ‘Haiyan’ in November 2013 which killed more than six thousand people, destroyed more than a million houses, and cost the local economy more than US\$1.5 billion worth of damages to infrastructure, agricultural crops and business (Washing Post 2013; Sherwood et al 2015.) . Natural hazards and disasters like Haiyan pose grave threats to lives and property including damages to the local economy.

Given the essential role of SMEs in the economic and social development of the Philippine economy, an important research question arises on how these firms cope with adverse, unpredictable and unstable conditions and events arising from natural environmental and other man-made hazards and disasters. While there is a plethora of studies on how individuals, groups and communities cope with adversity (Sabatino 2016; Williams et al 2017; Pal et al 2014) in the domains of psychology and sociology, there

is paucity of research in the business and management literature that examines the resilience of organisations or firms such as SMEs especially in developing economies such as the Philippines.

This study aims to contribute in filling this important research gap by developing and testing a model of organisational resilience that is relevant to SMEs. The three major objectives of this study are as follows. Firstly, this study will draw from the intellectual capital theory (Bontis and Fitz-enz 2002; Edvinsson and Malone 1997; Sveiby 1997) in order to examine the role of three facets of a firm's intellectual capital, namely human, social and structural in shaping the organisational resilience of SMEs. Organisational resilience as the focal construct in this study captures the firms' capability to overcome, survive and recover from adverse, turbulent and unpredictable environmental conditions and events. Although the literature recognises the inherent resource-constraints of SMEs, this study advances the view that these firms rely on their intellectual capital to be resilient amidst adverse conditions. Secondly, this study offers a more nuanced explanation on why intellectual capital matters to organizational resilience of SMEs by taking into account the capital-enhancing effects of knowledge management capability of firms. This study posits that knowledge acquisition and exploitation are knowledge management capabilities of SMEs that transform and leverage intellectual capital to develop SMEs' resilience. Finally, this study will test these hypotheses using a sample of SMEs from the Philippines – a country that is ranked as the 4th most at-risked to global climate change (Global Climate Risk Index, 2021).

The rest of the paper is organised as follows. The first section presents a review of the literature followed by the development and discussion of the proposed conceptual model and relevant hypotheses in this study. We then present the empirical study and its results. The final sections include a discussion of the theoretical, conceptual, and managerial implications of the findings as well as a brief discussion of areas for future research.

Organisational resilience

There is paucity of research that examines how firms in general and SMEs in particular demonstrate and nurture their capability to not only survive but also adapt, learn and recover from the most

challenging business environments (Thekkootte, 2024; Sabatino 2016; Dhales et al 2015 Annarelli and Nonino 2016). This capability is best captured by the concept called organisational resilience. In this study, we conceptualized organisational resilience as the capability of SMEs to survive, overcome, and recover from unpredictable, adverse and turbulent environmental conditions. We conducted an extensive review of the literature in order to trace the emergence and evolution of organisational resilience and why it matters to SMEs particularly in developing economies. In this part of the paper, we highlight the research gaps including the needs to: focus on organisational as opposed to individual-level and community-level resilience (Blatt 2015; Ananrelli and Nonino 2016); tease out the antecedents, drivers, and enablers of organisational resilience (Pal et al 2014; Sabatino 2015); and understand organisational resilience in various sectors, industries and other contexts such as SMEs in developing economies (Thekkootte, 2024; Sabatino 2015; Annafrelli and Nonino 2016). For purposes of this study, we focus our discussion of the literature on the role of non-financial resources such as intellectual capital as the prime contributors to the development of the organisational resilience of SMEs given the fact that these firms tend to suffer from liabilities of smallness and newness therefore have limited resources (esp. financial) relative to large firms.

Intellectual capital

We draw on intellectual capital theory in developing the argument that SMEs can readily rely on their intellectual capital – human, social and structural capital – in developing their organisational resilience. The main argument is that in the absence of well-endowed financial capital, resource-constrained SMEs tend to rely on and deploy their knowledge-based resources such as intellectual capital to overcome adversities as they carry out their daily business routines. Human capital represented by the knowledge and skills of the owner/manager and employees can be readily deployed by the firm to address turbulent changes in its external environment. Social or relational capital has been noted in the literature to be one of the strategic resources of SMEs that enable them to access other forms of resources or capital which are beyond reach of SMEs that are outside a relational or social network. Structural capital such as the capacity of a firm to find solutions to organizational problems and innovate towards better ways of doing things strengthens the adaptive capacity of firms to respond effectively to drastic fluctuations

in the business environment. In this part of the paper, we explain the theoretical and empirical link between these three forms of intellectual capital and organisational resilience. However, this link may not be necessarily direct nor straightforward. We further argue in this study that intellectual capital requires a set of mechanism in order to exert their optimal positive effects on organisational resilience. These mechanisms are represented by the knowledge management capabilities of SMEs.

Knowledge Management in SMEs

We draw on the knowledge-based view of the firm and the knowledge management literature in developing the argument that intellectual capital per se does not directly make an SME organisationally resilient. These IC-based resources need to be leveraged by the firm through learning. The knowledge management capabilities of an SME to seek and acquire new knowledge (i.e. knowledge acquisition) as well as utilise and exploit such knowledge (i.e. knowledge exploitation) are critical to leveraging the IC-based resources in order to weather, respond to and bounce back from adverse events and conditions. In this part of the paper, we develop the theoretical and empirical-based arguments on how knowledge acquisition and knowledge exploitation effectively mediate the relationships between intellectual capital and organisational resilience. Figure 1 shows our conceptual model.

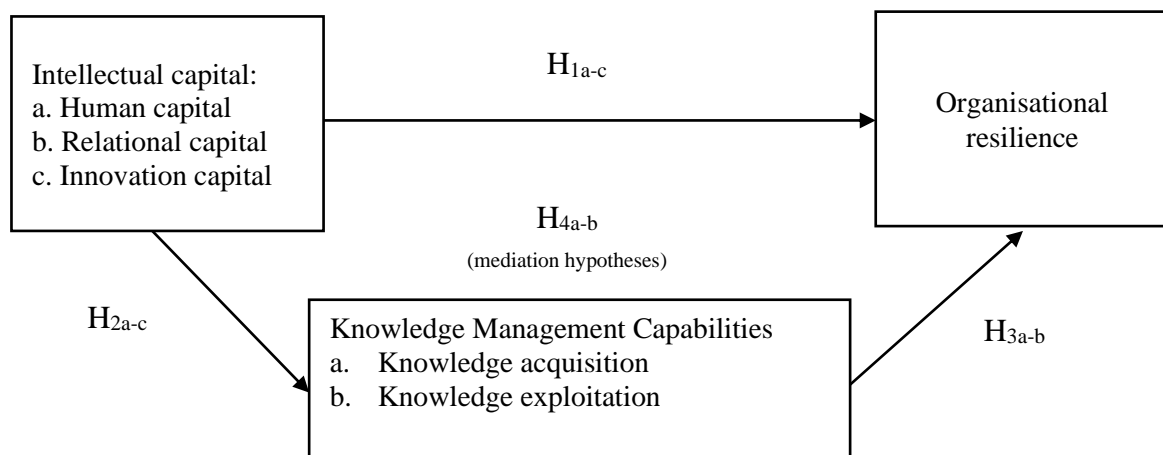


Figure 1. The conceptual model

Hypotheses

In this part of the paper, we developed and presented the theoretical, conceptual and empirical bases of the study's hypotheses which are as follows:

H1: Human capital (H_{1a}), Relational capital (H_{1b}), and Innovation capital (H_{1c}) are positively associated with the organizational resilience of SMEs.

H2: Human capital (H_{2a}), Relational capital (H_{2b}), and Innovation capital (H_{2c}) are positively associated with the knowledge acquisition and exploitation capabilities of SMEs.

H3: Knowledge acquisition (H_{3a}) and exploitation (H_{3b}) are positively associated with organizational resilience.

H4: Knowledge acquisition (H_{4a}) and exploitation (H_{4b}) fully mediate the effects of the three forms of intellectual capital on organizational resilience.

Data and Methods

In order to test the hypotheses posited above, this study uses data from a survey of 450 manufacturing firms in the Philippines. After data cleaning and checking for non-response and response biases (e.g. social desirability and common method biases) the survey generated an effective response rate of 48% (i.e. responses from 218 firms which are considered complete and useful for data analysis). More than a third of the firms in the sample are engaged in food processing (38%) while the rest are in the wood processing (17%), garments & textile (14%) and chemical & rubber (12%) industries. The average size of the firms is 38.12 (number of employees) while the mean is 8.4 years in terms of experience in the industry.

Measurement

We follow Dillman et al's (2014) Tailored Design Method and De Vellis' (2011) construct development and testing in the measurement of the key constructs and variables used in this study. Essentially, the process of developing the measures used in this study were based on the extant literature including adoption of existing and relevant measures when available and the development of new ones when this none. All constructs were measured by multiple items with seven-point Likert type of response scales

along with appropriate descriptive equivalents. *Organisational resilience* is considered a higher-order construct having two facets or dimensions and measured by 11 items (1-not at all to 7= to an extremely large extent) which were adaptations from the work of Whitman et al (2013). The two lower-level constructs are planning capability and adaptive capacity. We draw on the intellectual capital and knowledge management literature in order to propose measures of human capital, relational capital, innovation capital (as a facet of structural capital), as well as knowledge management capability (i.e. acquisition and exploitation capabilities) that are relevant to the SME context. The control variables include firm size and experience which may be relevant in explaining the variations in organizational resilience.

Methods

The analysis of data in this study followed a two-step approach: the development and testing of the measurement model and the structural model testing in order to test the hypotheses. The study conducted a partial-least square – path analysis (PLS-PA) approach using WarpPLS v6 (Kock 2017) consistent with the guidelines and recommendations of Marcoulides (2006) and Hair et al (2014). The results of the first step of data analysis showed the acceptable predictive quality of the measurement model used in this study as indicated by high ($\geq .50$) item loading constructs as well as average variance extracted values and acceptable ($\geq .80$) coefficients of reliability and validity such as composite reliability, Dillon-Goldstein rho and coefficient H. These statistics indicate acceptable levels of construct homogeneity, internal consistency, reliability and construct validity as far as the six (6) main constructs are concerned.

The results of the second step – structural model development and testing are shown in Table 1.

The results show that the three facets of intellectual capital, namely human capital, relational capital and innovation capital are strongly and positively associated with well-developed knowledge management capability of firms in the sample. The results suggest that human capital has the strongest positive effect relative to others in shaping the capability of firms to manage their knowledge-based resources. The three forms of intellectual capital explain approximately 35% in the variations in the

level of knowledge management capability of firms. The medium to large effect size (.07 to .18) indicate that the path coefficients are substantively meaningful from which inferences can be drawn.

Table 1: Results of Structural Model Testing through PLS-Path Analysis

Predictor Variables and Constructs	Dependent Variables	
	<i>Knowledge management capability</i>	<i>Organisational resilience</i>
	β (f^2)	β (f^2)
Human capital	.32** (.18)	.06 (n/a)
Relational capital	.15** (.07)	.16** (.09)
Innovation capital	.25** (.11)	.23** (.13)
Knowledge management capability		.64** (.40)
Control:		
Age of firm		.12* (.05)
Size of firm		-.01 (n/a)
	r^2	.35
	Q^2	.34
<i>Predictive Quality Indicators of the Model:</i>		
Average Path Coefficients (APC)		.20**
Average R-squared (ARS)		.53**
Average Variance Inflation Factor (AVIF) (acceptable if <5)		2.16
Tenenhaus' Goodness of Fit Index (TGFI)		.637 (large effect size)
Legend: β = path or beta coefficient; f^2 = Cohen's f-squared as indicator of effect size; r^2 = Pearson's r-squared; Q^2 = Stone-Geisser Q-squared coefficient ** and * = significant at $p < .01$ and $p < .05$ respectively n/a = not applicable due to non-significance		

Knowledge management capability, on the other hand, has strong positive benefits (with large effect size) to the organisational resilience of firms in the sample. It explains approximately 71% of the variations in the level of organizational resilience of SMEs in the sample. However, the results also show that both relational capital and innovation capital have significant and direct effects on organizational resilience. This particular finding suggest that there are other variables not accounted for in the model that may further explain why these two forms of intellectual capital matter to the resilience of firms in the sample. The positive and significant beta coefficient for age of firms suggests that resilience is positively correlated with business experience. The results offer support to H1 to H3 and partial support to the full mediation hypothesis which is H4.

Results, Discussion and Implications

The findings of this study offer substantive theoretical extension, conceptual and empirical contributions towards current understanding and mainstreaming of organisational resilience in the small business/SME literature. The findings of the study extend the ambit of intellectual capital theory and the knowledge-based view of the firm by departing from the notion that resources are critical to competitive advantage of firms. In this study, we offer plausible empirical evidence to demonstrate that these ‘competitive advantage-focused’ theories from strategic management can be extended to explain the resilience of organisations such as SMEs. The findings also replicate and validate the two-dimensional construct of organisational resilience developed by Whitman et al (2013). The methodological currency of the paper rests on the application in the SME/small business literature of the more recent techniques and standards required in conducting robust PLS-based structural regression or path analysis (e.g. Hair et al 2014). The empirical results offer significant and practical business or managerial implications as these findings underscore the need to develop non-traditional (i.e. non-financial) resources and leverage knowledge-based capabilities to develop and nurture the organizational resilience of SMEs, especially those found in developing economies that are under threat due to climate change.

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