Supply management capability, strategic orientation and firm performance

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SUPPLY MANAGEMENT CAPABILITY, STRATEGIC ORIENTATION AND FIRM PERFORMANCE

ABSTRACT

Empirical research is yet to assess the potential for different firm level strategies to moderate the relationship between functional procurement capability and firm performance. Doing so will allow research to explore the effect of specific bundles of capabilities, and to assess how strategic configurations may comprise generic capability sets. Using a novel approach we assess the mediated and moderated effects of supply management capability and four different strategic configurations on two measures of firm-level performance. Results from partial least squares modelling indicate firms exhibiting a strategically viable configuration benefit from a positive mediated relationship of supply management capability on financial performance by firm operational performance. Strategically unstable businesses lack of either an operational or financial contribution from supply management capability. In both stable and non-stable strategic orientations supply management capability is not moderated in its relationship with firm-level strategy. These findings indicate a supporting role for supply management with capabilities impacting operational performance regardless of strategic orientation, and the muted performance role of supply management when a firm is in a transitionary stage of the adaptation cycle.

Keywords: strategy, configuration, supply management, capability, mediation, moderation

1. INTRODUCTION

This paper will assess if functional capabilities, when internally aligned with different firm-level strategies, yield performance benefits at business unit level. We therefore open up a line of research to explore if there are generic capability sets which are generally supportive of business level strategy will have varying degrees of performance impact based on the relative expertise of their deployment. The functional capabilities we explore are supply management-related, which "determine(s) overall purchasing policies and capabilities to guide and enable the entire firm in its purchasing activities" (Hesping and Schiele, 2015; 144). Nollet et al. (2005; 137) assert that supply management functional strategy remains "a master plan for coherence and integrity", but evidence for the effect of this coordination is mixed. For the sake of clarity a functional unit of analysis is distinct from particular categories strategies where specific groups of purchases are the focus of sourcing decisions (e.g. IT consulting services for an online travel company or raw chocolate for a bakery business).

Assessing if an integrated relationship exists between firm strategy and supply management processes, according to Schuh et al (2022), is practically as well as theoretically important. Tchokoguéa (2017) identify three types of strategic contribution. Typ1 I relates to supporting corporate improvement targets. Type II relates to supply management supporting organisational advantages (the focus of this paper), whilst Type III contributions relate to sources of sustainable competitive advantage.

Matthyssens et al. (2016) and Day et al (2015) highlight the benefits which internal integration can make when marketing and purchasing are unified with common company goals for value creation. More specifically previous studies advocate to practitioners it is necessary to align functional supply management practices with firm-level strategy (e.g. Monczka and Trent,

1991; Watts et al., 1992; Narasimhan and Das 2001; Brown and Cousins, 2004), albeit the specifics of the strategy configurations most suited to which procurement capabilities have yet to be explored by research.

Our study shares the same unit of analysis for strategic integration as Ralston et al. (2015; 49) who theorize its role as "hav[ing] a stronger relationship with improved performance because the foundation for integration is not operational in nature; rather the foundation is to support and underlying [firm] strategy". This is different to studies of integration exploring communication mechanisms used by supply management when bridging external interaction between internal stakeholders and suppliers (e.g. Zaefarian et al., 2013 and Escorcia-Caballero et al, 2019), the role played by supply chain (logistics) integration (e.g. Fawcett and Magnan, 2002), or the integration of corporate strategy and ex post performance measurement for purchasing (e.g. Quintens et al., 2006).

Existing studies of integration effects use a mixture of methods: generic strategies (Baier, Hartmann and Moser, 2008), output-based proxies such as performance objectives (Gonzales-Benito, 2010) and specific manufacturing-oriented practices (Narasimhan and Das, 2001). Although beneficial for establishing if functional and firm integration efforts pay off these approaches require extending to investigate what moderated effect strategy has on supply management capability. Using as the basis an organizational forms approach (Short et al., 2008) allows us to explore whether it is necessary to have a viable strategic configuration to interact with supply management capability, mirroring the theoretical approach advocated by Piercy (2009). We follow a similar direction taken by Olson et al. (2005) who assess the performance implications of fit between business and marketing strategy behaviour but we go further by including consideration of the performance impact of those businesses where firm

strategy is incoherent. In short our research has two prongs of inquiry: Are there are configurations of strategy associated with particular ordinary, functional capabilities? And if strategy is incoherent how this impacts functional-level contributions to performance?

According to Hesping and Schiele (2015) it is important for supply management strategy research to use more fine-grained routines-based approaches with a clear unit of analysis. We assess business unit and supply management functional strategy to explore if bundles of routines act as a foundation for procuring across categories of product and service. Underpinning our approach is the observation by Chakravarthy (1982) and Zimmermann et al (2020) where an organization's strategy will be adapted by managers in response to shifts in a firm's external environment, *or* adjustments to a firm structure (capabilities or routines) to better meet its strategy.

The notion of equifinality underpins our theorizing, reflecting the observation that improved firm performance is achieved by adopting ranges of firm-level strategies (e.g. Hrebiniak and Joyce, 1985; Venkatraman, 1990). Overall firm performance depends less on a particular market-oriented strategy such as cost leadership or differentiation and more reflective of how well a firm implements the chosen strategy through the development of capabilities. Thus, equifinality implies that managers have degrees of choice and flexibility in relation to strategy, but performance remains contingent because of the alignment between the structure and capabilities of a business and its chosen strategy.

Theorizing about the nature of how competitive advantage is achieved and protected in the resource-based view suggests it is necessary for capabilities to have properties of valuableness, rarity, inimitability and organisation-readiness (Barney, 1991). This argument demonstrates

the need for capabilities to be heterogeneous to elicit sustained advantages. However, there are a variety of capabilities which underpin the propensity to achieve a competitive advantage, termed 'ordinary capabilities' – those which are necessary for survival and are a platform on which differential advantage is developed. This paper seeks to explore if there are performance differences between firms embedding such capabilities which by themselves will not be advantage creating but must be present as threshold capabilities. Although dynamic capabilities have received considerable attention research into threshold capabilities originating in functions is under-researched. Threshold capabilities are "needed for an organisation to meet the necessary requirements to compete within a market and achieve parity with its competitors in that market" (Johnson et al., (2014), p.73). In other words, threshold capabilities allow entrepreneurs to survive within their industries, rather than yielding sustainable competitive advantages.

The paper is organized as follows. The capability-based approach at functional level is explained to conceptualise the nature of supply management in terms of organizational routines. Business unit strategy at firm level is conceptualised using the Miles and Snow (2003) gestalts to characterise four organizational archetypes at the business unit level. Three viable types are explained along with a non-viable strategic form. Two hypotheses are then proposed to empirically assess the mediated and moderated effects between supply management capability and performance among firms across a variety of industries adopting the four strategic orientations. Results are then reported from an empirical study of UK-based businesses to test the hypotheses and conclude with an extensive discussion which links to avenues that future research could take, along with managerial implications.

2. LITERATURE REVIEW

2.1 Supply management capability

Grant (1996) notes that capabilities are identifiable and can be appraised with a common functional classification of the firm's activities. We choose to examine capabilities as they are the firm-level bundles of routines which are the day-to-day means of producing a desired output (Zahra et al., 2006). Salvato and Rerup (2011) distinguish two distinct routine types, the first being behavioural regularities denoting recurring analytical processes which are embedded inside firms and are performed by groups of individuals. A second type is characterised by cognitive regularities which get formed from abstract patterns of understandings adopted to guide the performance of a specific routine. Helfat and Winter (2011) conclude that capabilities enable firms to perform regularised patterns of activity with much the same know-how, at an equivalent scale, to support current product or service offerings for an equivalent consumer population.

In providing a summary of routines pertinent to supply management Chen et al. (2004) draw three key bundles together which are supportive of a firm's strategy. Firstly, routines which relate to developing closer operational relationships with limited numbers of supply base members. Second, those which promote transparent interacting between supply-chain members. Finally, routines for the development of longer term co-evolved strategic alignment to yield mutual benefits. This trio shows clear commonality with the features of supply management integration specified by Carr and Smeltzer (1999). Ellram (2006) and Smeltzer et al. (2003) give further more intricate examples of key routines, which includes the deployment of sourcing techniques, a specific sourcing process for integrating these techniques and strategically managing suppliers with coherent objectives and planning in mind to achieve benefits from investing in such relationships.

A related approach is adopted by Narasimhan et al. (2001) when they explain how homogeneous manufacturing practices define what they term a "purchasing competence". Their five routines (employee competence, buyer/supplier relationship management, new product development (NPD) interaction effectiveness, empowerment and tactical interaction effectiveness) use different units of assessment. Two routines (empowerment and employee competence) reflect a person level (job) competence. These are different from routines according to Salvato and Rerup (2011) whilst Betsch et al. (2001) explain that person level competences are antecedents to the creation or use of a routine. This reflects the consideration that practices, routines, and capabilities are not interchangeable constructs. Peng et al. (2008) suggests separating them out into distinct routine bundles. Supply management capability therefore requires reorganizing into five heterogeneous routine bundles. This entails combining the organisationally focused practice from Narasimham et al. (2001) with the Chen et al.'s (2004) classification along with Carr and Smeltzer's (2000) integration facets to achieves more depth of conceptualization and some de-duplication of routines for a purchasing capability. Supply management capability therefore is conceptualized as four routine bundles - strategic cross-functional integration, supplier relationship management, strategic direction setting, and supply management performance assessment.

2.2 Firm performance - supply management capabilities link

Noordewier et al. (1990) assert that purchasing has a valid functional claim for influencing firm performance, rather than being the root cause of an advantage. Research to date consistently finds no direct relationship between supply management capability and firm financial performance (Carr and Pearson (1999); Baier, Hartmann and Moser (2008)). In a comprehensive study of the procurement – performance link Hartmann et al. (2012) confirm a relationship between supply management capability and financial performance mediated by

operational performance for the five supply management drivers used by Narasimhan and Das (2001). It is therefore too simplistic to model direct empirical relationships between financial performance and supply management capability (labelled as β_1 in figure 1). This indirect performance link may also indicate further factors might be in play other than purchasing integration alone (Narasimhan and Das, 2001). A modified approach is therefore necessary to assess the indirect interaction between supply management capability and firm-level performance. Synthesising existing research suggests a need to assume there are moderation or mediation effects involved, reflecting the results and theorizing of Hartmann et al. (2012). We therefore test if function-level supply management capability's performance impact is moderated by firm-level strategic orientation rather than just assuming there is alignment to the business strategy of all firms (Paulraj et al., 2006).

2.3 Business unit strategic orientation and supply management interaction

Das and Narasimhan (2000; 18) follow a production competence approach (Vickery, 1991) with purchasing competence defined as the "capability to structure the supply base in alignment with the manufacturing and business priorities of the firm". They argue the purchasing function is competent when demonstrating integration with business policy and corporate planning. The expected pattern of fit is achieved from a linear relationship between purchasing practices and mediated through facets of integration, reflected in performance. This approach confirms the important role played by general functional integration practices theorized by Escorcia-Caballero (2019) (e.g. co-operation with other functions, attending strategy meetings, or participating in design exercises). However, this approach to assessing mediation between supply management and firm-level strategy does not shed light if a moderated relationship exists between specific supply management capabilities and business unit strategy (Phillips, Chang and Buzzell, 1983; 42). Practices-based approaches are limited by what Miller (1987)

argue is the 'forcing' of linear relationships between business-unit performance and functional capabilities.

The most dominant of these practice-based approaches to conceptualise the relationship between supply management and business unit strategy alignment relies on generic strategy frameworks such as Porter (1980). At the heart of this approach to strategy is the assumption that the external market plays a large part in determining firm performance, and this is translated through firm-level strategy to set the parameters which supply management strategy will use as a guide to align with. In the case of Porter's framework product differentiation, cost leadership and focus form the basis for studies where alignment is assessed using the fit as profile deviation approach where misalignment is variance from ideal profiles of firm-level strategy. Baier, Hartmann and Moser (2008) narrow down business unit strategy further to two extremes of cost leadership and product differentiation. An even more parsimonious approach is used by Gonzalez-Benito (2010) where strategic types are replaced with generic performance objectives – a summary assessment of what the firm seeks to offer its market rather than more detailed aspects of particular strategic configurations. The challenge faced by studies adopting conceptualizations of strategy such as this is it concerns parts of strategies rather than wholes (Miller and Friesen, 1986; White, 1986). Also, from a configurational perspective the original Porter-based conceptualization of the three groups (cost leaders, differentiators and focused businesses) is less clear cut than expected (Hendry (1990) usefully re-frames this debate). Murray (1988) furthermore argues it is the latter of the types (focused firms) who cause the most confusion when it comes to the choice of strategy and its link with suitably different organizational arrangements and control procedures. Murray (1998) points to one particularly difficult dilemmas when it comes to this matching problem. On the one hand, it will be clear that techniques such as total quality management together with just-in-time inventory control

and effective sourcing processes provide a beneficial effect on responsiveness to the market or improved product/service quality. These benefits will appeal to customers, but they also control costs so it becomes problematic to assess differences between cost leader businesses and differentiators by practice because businesses can successfully compete with combination strategies.

An organisational forms perspective of configuration defines a series of distinct business strategies with requisite structural parameters, reflecting a similar approach used by Zaefarian et al. (2013). These forms are detailed in their explanations of their structure, technology and decision-making processes (Short et al., 2008). This allows us to resolve the challenge of generic strategic choices not being fine grained enough to examine if the procurement alignment-performance link is moderated. It allows the identification of multidimensional clusters of capability development denoting viable strategic and operational characteristics for a business (Meyer et al., 1993). Deviation from these gestalts denotes performance dis-benefits, but accounting for equifinality, each gestalt results in equally successful performance outcomes. It is an approach already demonstrated within industrial marketing to assess ambidexterity and firm performance (Menguc and Au, 2008), and types of new product development co-operation between marketing and research and development functions (Lu and Chyan, 2004).

We follow the lead of previous researchers (e.g. Olsen, Slater and Holt, 2005) and use the Miles and Snow (2003) typology to measure the interrelationships between business unit strategy and functional strategy variables and their impact on overall business performance. The enduring use of the typology in a variety of industries and countries in interaction research is due to its comprehensive framework which is extensively assessed (e.g. and Desbaro, Di Benedetto,

Song and Sinha, 2005; Oosthuizen, 1997, Shortell and Zajac, 1990; Zahra and Pearce, 1990) with no reported issues arising from its reliability, validity, or suitability for use.

A key issue overlooked in research assessing supply management / business unit strategy links is the need to separate out those organizations which exhibit a weak link between strategy and structure at firm level. Miles and Snow (2003; 86) label such firms 'reactors' because, at some point most organizations will experience problems in their adaptation lifecycle. Reactors "seldom makes adjustment of any sort until forced to do so by environmental pressures" (Miles and Snow, 2003; 29) and point to a number of reasons for this inertia but highlight the adherence to an outmoded strategy and structure. Reactors also suffer from the lack of a clear firm-level vision about their strategic direction thus rely more on external pressures to shape strategy, so it makes it difficult if not impossible for reactors to plan. Snow and Hrebiniak (1980) also observe how these weaknesses in general management then prevent reactors from developing what they term other distinctive competences. Summarising the articulation of a reactor Conant et al. (1990) point to these firms being 'less stable' and display the properties of 'inconsistency' as a pattern of behaviour. Reactors must therefore be separated out of any assessment for interaction between supply management capability and firm strategy to avoid any potentially confounding effects.

As a hybrid of organisational theory and strategy the Miles and Snow (1994, 2003) typology is uniquely suited to assess studies of co-alignment as it is a general model of adaption that assesses the 'strategic fit' between the organisation and its environment through the product-market domains (entrepreneurial dimension) as well as the 'internal fit' amongst the structures and process domains (administrative and technical dimensions). Each type has its own configuration for responding to the environment, technology, structure and processes in a

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consistent pattern of orientation that allows for theoretical prediction and hypothesis testing. Drawing together the literature related to firm performance, supply management capability and strategic orientation we hypothesise these relationships to test for the direct and mediated relationship between supply management capability and firm performance by strategic orientation;

Hypothesis 1: Supply management capability's impact on firm level financial performance is mediated by operational performance in all stable (defender, analyser, prospector) strategic orientations.

Hypothesis 1a: Supply management capability's impact on firm level financial performance will not be mediated by operational performance in non-viable (reactor) strategic orientations.

[Insert:Figure1]

In seeking to evaluate supply management capability (independent variable), the firm's strategic orientation (moderator variable), and firm performance (two categories of dependent variables: operational and financial) we build from a fit as moderation approach. On this basis Miles and Snow (1994) argue that an organization will continually attempt to seek a fit between itself, its environment and the internal capabilities it exploits and refines. We therefore expect a moderating effect from strategic orientation on the relationship between supply management capability and firm performance. Incorporating the outcomes of an extensive review of supply management integration (Danese et al 2020) this approach is consistent with the way that previous research models functional and firm-level fit. However, according to Venkatraman (1989; 424) gestalts do not assume stability in the strategic profile of the business. It may be the case that, regardless of the capability a firm has in supply management, there may be occasions where business unit strategy lacks coherence, or as Miles and Snow (2003) term it,

reflect firms who are 'reactors'. Existing research is silent about the effect which firm-level strategic incoherence has for supply management's contribution to firm performance. We therefore hypothesise;

Hypothesis 2: The mediated effect between supply management capability and financial performance for viable strategic orientations (prospectors, analyzers and defenders) will be significantly different compared with non-viable (reactor) strategic orientations when the moderating effect of strategic orientation is considered.

[Insert:Figure2]

Figures 2 presents the research model to investigate the direct, mediated and moderated paths between Miles and Snow's (2003, 1994) types of *strategic orientation*, *supply management capability (SMC)*, and *performance* (operational and financial).

3 RESEARCH DESIGN

3.1 Survey instrument development

The questionnaire survey is designed according to the guidance of Dillman (2007) to maximise the response rate to the survey whilst adhering to the conventions of sound questionnaire research design.

We ensured the questionnaire's reliability and validity by making use of established scales. Table 1 shows the instrument design, construct definitions and the measurement scales.

Insert Table 1 about Here

Supply management capability scale

We use an existing scale of supply management capability (citation names redacted for review, 2015) which combines extant items from literature pertaining to strategic supply management. Four routines comprise supply management capability, namely supply management integration, co-ordinated sourcing, collaboration management and performance assessment.

Supply management integration (SMI) (three item measure) reflects the need for supply management to integrate its functional skill with that of the business and, according to Narasimhan and Das, (2001), is critical for yielding value from suppliers. Carr and Smeltzer (1997) point to repeat involvement in senior team meetings being reflective of procurement's extent of influence in relation to firm-level decisions (Ellram et al., 2002). This process builds a common awareness of supply management issues across a firm by involving supply managers in make vs. buy decisions and influencing firm-level decisions.

Co-ordinated sourcing (CS) (three item measure) reflects a need to develop and control sourcing tactics and supplier strategies. Carr and Smeltzer (1999) and Cousins (2005) explain that this set of routines directly impact firm performance. Sourcing incorporates planning resource deployments, implementing and communicating about sourcing decisions. Research suggests wider ranges of expenditure co-ordinated using sourcing processes yields the best performance (Baier et al., 2008). Such resource pattern use are visible demonstrators of supply management objectives getting shared through a firm (Ellram and Lui, 2002). They also give impetus to rationalising a supply base which permits volume leveraging if feasible (Narasimhan and Das, 2001).

Collaboration management (CM) (five item measure) focuses on routines to capture value in the supply base from managing network interaction that have direct implications on the firm

(Carr and Pearson, 1999; Wagner and Johnson, 2004). Certain supplier bonds benefit the firm better when competition is replaced with cooperation (Dyer, 1997). Relationships deemed strategic involve greater inter-firm information exchange and the building of trust (Sako, 1992). It requires selective investment in human resources and relational capital to unlock co-developed product/service and process innovations (Esposito and Raffa, 1994; Frohlich and Westbrook, 2001; Lawson et al., 2008). Investment in relationships will be multiple in form; mutual problem solving with common methods for improvement, opening up joint development opportunities, and making sure effective mechanisms exist to jointly innovate (Carr and Pearson, 2002).

Performance assessment (PA) (four item measure) is critical for monitoring the benefits achieved from supply management resource deployment (Paulraj, 2006). It also reflects the need to maintain a system which monitors the potential for opportunism by suppliers. The routine bundle reflects internal and external (supplier) monitoring, and to keep the top management team quantitatively and qualitatively informed about the status of supply arrangements (Carr and Smeltzer, 1997; Ellram et al., 2002). Performance assessment will also require well defined objectives and a process for data collecting (Pohl and Förstl, 2011).

Performance scale

Financial performance (FIN_PERF) is a three-item measure originally used by Dess and Robinson (1984) and comprises overall financial performance, sales growth, and return on investment (ROI). Operational performance (OPS_PERF) is a four-item measure that includes market focus, production costs, research and development used by Thomas and Ramaswamy (1996) and innovation used by Ellram and Lui (2002).

Strategic orientation

Using the Miles and Snow (2003) strategic typology as a base, each respondent is segmented according to their firm strategic orientation. As in other studies, (e.g. Olsen et al., 2005) we use the Conant et al. (1990) 11-item survey instrument and guidance to type organisations at the business unit level. Empirical assessment of co-alignment using the Miles and Snow typology were enhanced by Conant, Mokwa and Varadarajan's (1990) who operationalised the strategic types with an 11-item instrument with test re-test reliability of .69 which we employ in this study.   In accordance with this method, organisations were categorised into one of four types: prospector, analyser, defender and reactor (P-A-D-R) according to the response options using a 'majority rule'.   In the case of a tie, Conant et al.'s (1990) guidelines for ties are used to classify the organisation: (i) Ties for *reactor* responses result in an organisation being categorised as a *reactor*, (ii) Ties between *defenders*, *prospectors* and/or *analyzers* result in a firm getting classified as an *analyzer*.

3.2 Sample and demographics

The sample is drawn from supply management specialists with a wide range of sectoral representation. Respondents completed the paper survey with the business unit as the focus of their response. Existing research primarily sampled manufacturing businesses (Narasimhan and Das, 2001; Chen et al., 2004) however we chose to follow the same approach as Baier et al. (2008) and extended our sample frame to encompass a wider range of sectors. Supply management routines get used to procure an array of tangible as well as intangible sourcing, such as printing services, management consulting, advertising and manufacturing.

Data were collected from a sample of 4000 business professionals based in the United Kingdom. Senior and middle management professionals were sampled using the member roll

of the Chartered Institute of Procurement and Supply. Following Dillman's tailored design method (Dillman, 2007) the paper survey was introduced with a personalized letter. Two further mailings were distributed to non-returners of the first questionnaire at three and six week intervals. In order to improve response rate the offer of a complimentary report of results was provided.

A total of 601 surveys were received. We removed 83 cases based on: (i) missing values (Olinsky et al., 2003), (ii) respondents indicating low or no decision-making influence, (iii) non- response and common method bias (Hair et al., 2016). The final sample size for our analysis was 518. Sample demographics are presented in Table 2a along with the results for strategic orientation displayed in Table 2b.

Insert Tables 2a and 2b about Here

3.3 Estimation procedure

Our structural equation model (SEM) entails a network of mediated and moderating relationships. Such composite and complex models have had a limited exposure in supply management literature and since "partial least squares has become an established means of modelling complex relationships between latent variables" (Henseler, 2007; 1) we employed SmartPLS version 3, developed by Ringle et al. (2015), which simultaneously examines the measurement and relational constituents of our SEM.

To evaluate and report the results we follow the guidelines of a two-stage approach proposed by Hair et al. (2016), Sarstedt et al. (2011) and Eberl (2010) by firstly assessing the measurement component and in the case of the multi-group analysis (MGA), measurement invariance among the strategic groups, before exploring the paths linkages in the structural model.

4. ANALYSIS

4.1 Measurement model for the combined groups: reliability and validity

We model supply management capability (SMC) as a second-order reflective latent construct comprising four sub-dimensions: *supply management integration* (SMI), *coordinated sourcing* (CS), *collaboration management* (CM) and *performance assessment* (PA). Such reflective measurement models must be initially assessed for reliability and validity. Traditional Cronbach's α underestimate reliability (Chin, 1998; Henseler et al., 2009), so we report the composite reliability ρ_c developed by Wert et al. (1974), all exceed 0.80 (Nunnally and Bernstein, 1994) (see Table 3). C Convergent validity meets the criterion of 0.5 for average variance extracted (AVE) set by Fornell and Larcker (1981) so each latent variable is explaining on average greater than 50% of the variance of its indicators (Götz et al., 2009). Discriminant validity is also confirmed, since the square root of each construct's AVE is greater than the bivariate correlation with the other constructs in the model (Chin, 1998) (see Table 5). Additional support for discriminant validity is evident because all cross-loadings are lower than all direct loadings (Chin 1998). Financial and operational performances are credible reflective latent constructs supported by all the diagnostics given in Table 4.

Insert Tables 3, 4 and 5 about Here

To assess significance of both the inner weights and outer loadings we executed a bootstrapping estimation procedure with 5000 subsamples following the approach advocated by Hair et al. (2016). All the standardised loadings exceed 0.70 and all are significant ($p<0.001$) (Table 4). The second order structure for SMC is assured by the significance of the regression weights at $p<0.001$ and the relatively high R^2s (SMI 41.6%; CM 53.1%; CM 79.0 %; PA 65.6%).

4.2 Structural model for the combined strategic groups: Evaluation with mediation

Our research model (Figure 1) embeds SMC in a nomological network with FIN_PERF mediated by OPS_PERF. A significant positive impact is found between SMC and OPS_PERF ($\beta_2 = 0.429$, $p < 0.01$) and OPS_PERF and FIN_PERF ($\beta_3 = 0.512$, $p < 0.01$), however, the relationship between SMC and FIN_PERF is insignificant ($\beta_1 = -0.062$) (See Table 6).

Insert Table 6 about Here

Assessing the mediation effect of OPS_PERF between SMC and FIN_PERF we followed the procedures suggested by Holmbeck (1997) and Mallinckrodt (2006). Initially, the direct effect of SMC on FIN_PERF without mediation is estimated ($\beta_1 = 0.158$, $p < 0.01$). This relationship declines ($\beta_1 = -0.062$) and becomes highly insignificant when the mediator OPS_PERF is introduced therefore, we conclude that there is full mediation between SMC and FIN_PERF via OPS_PERF for prospectors, analyzers and defenders (Baron and Kenny, 1986).

Furthermore, both the *indirect* effect ($\beta_2 x \beta_3$) and *total* effect ($\beta_1 + \beta_2 x \beta_3$) are shown to be significant at $p < 0.01$ for analyzers, defenders and reactors. The inclusion of the mediator increases the variance explained significantly ($F_{[1, 515]} = 144.82$, $p < 0.001$) (Mathieson et al.,

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2001) and has an effect size (f^2 = 0.28) judged to be approaching large by Cohen's (1988) criteria. Finally, since all constructs are reflective a global-fit measure (GoF = $\sqrt{}$[Average AVE*Average R^2]) defined by Tenenhaus et al. (2005) was evaluated. Our GoF of 0.36 meets the benchmark set by Wetzels et al. (2009) for a large effect. Our conclusion is that supply management capability has a positive impact on financial performance but this is mediated by operational performance lending partial support to both H_{1a} and H_{1b} when all strategic orientations are assessed together ("All Firms" column, Table 8).

4.3 Structural model for the individual strategic groups: Evaluation with mediation and moderation

Besides the mediation effect of OPS_PERF between SMC and FIN_PERF our model also incorporates a moderation of this relationship by the four strategic orientations: *prospectors*, *analysers*, *defenders* and *reactors* defined by Miles and Snow (1994, 2003) and used in previous research (e.g. Conant et al., 1990; DeSarbo et al., 2005). To investigate the impact of moderation we followed the multiple groups analysis (MGA) procedure recommended by a number of authors (Henseler 2007, Henseler et al., 2009; Qureshi and Compeau, 2009; Chin and Dibbern, 2010; Elberg, 2010; Sarsedt et al., 2011; Garson, 2016; Hair et al., 2016).

A prerequisite to MGA is measurement invariance or equivalence ensuring both theoretical and measurement constancy of constructs across the groups. The "comparison of models makes logical sense only if the inner model constructs are measured the same in each group and have the same meaning" (Garson 206; 167) otherwise we cannot surmise that any difference between groups can be attributed to the path coefficients. Specifically, we confirm firstly, that *configural invariance* is met. All constructs scores were obtained using identical indicators across the strategic groups. The composite reliability of each construct in each group

exceeded 0.7 with their AVEs reaching the pre-requisite benchmark of above 0.5 except for two (see Table 7). Discriminant validity was assured by the square root of the AVE surpassing the correlations with the remaining constructs.

Insert Table 7 about Here

Next, we proceed to the permutation test for *compositional invariance* requiring the random assignment of the observations to groups. This test explores whether the composite constructs scores between multiple-paired groups are correlated and whether they are significantly different from one. Compositional invariance was confirmed for all constructs except for OPS_PERF in one of the six multi-group pairs and for SMI in four of the six multi-group pairs.

Finally, *scalar invariance* was assessed using the permutation test for multiple-paired differences in means and variances of each of the composite construct scores. In this case there was more volatility between categories. However, as noted by Garson (2016; 187) "scalar invariance is quite stringent and conservative", therefore on the balance of evidence we infer that "partial measurement invariance has been established" (Henseler et al., 2015; 24) and thus "may proceed with MGA for comparing models in the sense of comparing paths across groups".

With measurement invariance assured we estimated the separate strategic groups to investigate for both mediation and moderation. Table 8 provides the summary of group estimations.

Insert Table 8 about Here

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Firstly, examining each sub-model for the indirect mediated effect. The direct relationship (SMC→FIN_PERF) is insignificant for all four strategic groups (prospectors, analysers, defenders and reactors), so regardless of strategic orientation there is no direct impact of supply management capability on firm financial performance. Moving to the (SMC→OPS_PERF) relationship we expect this to exhibit support for all orientations. However, we find only three strategic orientations (prospector, analyser, and defender) verifying this relationship but not the reactor. The relationship between performance variables (OPS_PERF→FIN_PERF) is supported for all four strategic orientations. More importantly, the indirect mediated effect (SMC→FIN_PERF) is supported for only three strategic orientations (prospector, analyser and defender) but not reactor. Again, the result confirms H_{1a} and H_{1b} for all the sub groups.

The estimated total effect gives more variable results, however we subscribe to the observation made by Rucker et al. (2011), "Consistent with emerging perspectives (Hayes, 2009; MacKinnon et al., 2002; Shrout & Bolger, 2002; Zhao et al., 2010), we question the requirement that a total $X \rightarrow Y$ effect be present before assessing Mediation" (p. 4) and conclude "If there are theoretical reasons to predict the presence of an indirect effect, ….., researchers should explore these effects regardless of the significance of the total effect." (p. 10). Overall, our inference is that the relationship SMC→FIN_PERF is mediated by OPS_PERF for prospectors, analysers and defenders but critically not for reactors whose strategic orientation is unstable.

Secondly, examining group differences for moderated mediation reveals unambiguous results (see Tables 9a and 9b).

[Insert Tables 9a and Table 9b]

Performing a PLS MGA enables comparison between the multiple paired strategic types. Of specific interest is the difference between prospectors and reactors (SOP – SOR), between analysers and reactors (SOA – SOR), and finally between defenders and reactors (SOD - SOR). When the moderating effect of strategic orientation is considered, we infer that the mediated effect of operational performance between supply management capabilities and financial performance is insignificant for the stable strategic type (prospectors, analyzers, defenders) (see Table 9a). However, the comparison between the individual stable types (prospectors, analyzers and defenders) and the unstable type (reactors) is significant as indicated in Table 9b. This lends support to our H_2.

This is an important finding, as SMC benefits firms which are more innovative in their orientation (i.e. prospectors), firms which are second in to a market (analysers) much the same as firms in more mature markets (i.e. defenders). The exception is for firms whose strategic orientation is characterised as 'reactor' – firms which are experiencing external or internal strategic adaptation. This finding is consistent with previous research where a reactor's inconsistency leads to results that differ from those of the three stable types (e.g. Conant et al., 1990; Parnell and Wright, 1993, Olsen et al., 2005).

Finally, from a methodological perspective we demonstrate the robustness of the scale used to assess supply management capability across three viable and one non-viable strategic types. The instrument also permits the disaggregation by performance of reactors which is novel within research assessing supply management strategy when assessed at firm level.

6. DISCUSSION

At first glance our results confirm existing research indicating better supply management capability allows firms to achieve above-average financial performance relative to rivals where a positive (mediated by operational performance) relationship exists. There is no direct relationship between supply management capability and financial performance for strategically stable or reactor firms, indicating an operationally focused performance role for supply management capabilities in relation to firm-level performance. Related studies of the performance link (Ellram et al., 2002; González-Benito, 2007; Chen et al., 2004; Baier et al., 2008) find this indirect effect with strategically non-coherent firms (reactors) included in their samples.

However, when 'reactor' firms get separated from strategically coherent firms (prospectors, analysers, defenders) there is an important difference in the mediated performance link. Reactor firms do not benefit from supply management capability in terms of operational or financial performance. So, regardless of the supply management capability a firm possesses or the function's degree of integration into the wider business, there is no positive net effect on firm performance when the firm is in a transitional phase of the adaptation cycle.

When assessing the moderated relationship (supply management capability and strategic orientation) on firm performance we find for three strategic orientations (prospectors, analysers and defenders) that there is no relationship. Although the lack of interaction is theorized by Baier et al. (2008) our findings are the first to empirically confirm this. This is significant, as the absence of the moderating effect of strategic orientation between supply management capability and the strategic direction of the firm suggests, regardless of the viable strategic pathway a firm may take, there are operational capabilities impacting performance for all

'viable' types. Put differently: there is no particular advantage gained from pursuing the development of dedicated sets of capabilities associated with one type of strategic orientation in respect of supply management.

The study indicates support for the proposition that particular routines forming supply management capability are indeed indistinct by strategic orientation. Although, at an aggregate level, this study confirms an equality of impact on financial performance (mediated by operational performance) for strategically viable orientations it would be interesting to see how the routines used in this study map in their relative intensity of connection to each orientation. Theoretically it could be expected that routines comprising a capability to persist at different intensities in each configuration. This is because the perceived value achieved from their performance changes as a result of different strategic drivers being at play (technology, markets, product or service lifecycle stage). It will therefore be useful to take each stable configuration and see if prospecting, defending and analysing by using case studies in each type to assess how supply management capabilities manifest within these alternate contexts. A case design could also permit the inclusion of dichotomous extremes of the viable strategic types of prospectors and defenders to shed light on the starker differences in supply management capabilities by strategic orientations (Thomas and Ramaswamy, 1996; Baier et al., 2008).

7.   CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS

The results of our research are clear when it comes to the dis-benefit achieved from supply management capability within the context of a firm undergoing adaptation. We labelled such firms 'reactors', reflecting the nomenclature of Miles and Snow (2003). However, due to the pre-determined constraints on our research it is difficult to shed light on what ostensive or

performative routines become important in periods of firm-level transition. Put simply: what role does supply management play in reactor firms, and why is this contribution not reflected in performance? This research direction is very poorly explored at the present time so could be beneficial for practitioners to seek insight for what are likely to be challenging context to work in. Equally it will be important for scholars to assess how supply management (working with, or against suppliers) plays a role in transition. It may be the case that a 'steady state' firm with a viable strategic orientation allows supply management the space and time to exploit internal and inter-firm capabilities. When transition occurs it may be the case that such capabilities are adjusted or not leveraged and are replaced by those which have a more firm-centric and self-seeking motive, or the lack of a strategic direction makes it difficult to judge how to decide functional supply management strategy.

Another interesting avenue of research may be to conceptualise how collections of sourcing levers (c.f. potential 'dedicated' routines by sourcing category) might be most suited to particular strategic orientations, such as pooling of demand, price evaluation and extension of the supply base. It may be the case that learnable routines, repeated and refined, might shape a foundational ethos for category strategies according to the demands of a particular strategic orientation (Hughes et al., 2007). This elaborates a research direction advocated by Hesping and Schiele (2015) who suggest that specific category strategies are different in their detailed nature but they may share an adopted direction from the firm strategy through its functional procurement strategy. This sharper tactical focus using a more fine-grained unit of analysis will address the wider knowledge gap concerning the operational dynamics of supply management and its alignment to strategic configurations.

This research has pre-defined constraints which may also initiate its extension. We explicitly trade off specifying detailed elements of routines comprising supply management capability to enable the rationale for routine bundles could be tested. We therefore focus on abstracted levels for certain routines such as sourcing processes acting as cross category direction-setting activities. Future research should conceptualise and test more intricate measurements for the four routines. It may also be fruitful to explore and test if new routines will improve the supply management capability construct.

Further developing the construct of supply management capability will make it possible to separate out our focus (exploiting routines) from those which are focused on exploring the development of new capabilities. These potentially idiosyncratic capabilities change existing operational capabilities by acting on them to "combine" and "recombine" them to form new ones to better fit the firm's environment. In light of this suggestion future research should include some assessment of the environmental context - levels of munificence – to see if there if it has a moderating influence on the relationship between supply management capability, strategic orientation and firm performance.

Although the research demonstrates a uniformity in the firm performance contributory effect of supply management capability it might be the case that some routines have a learning curve associated with them. Some may be initially negative in their performance: (1) when executed sub-optimally (i.e. at the early stage of their acquisition), or (2) may adversely impact parts of the supply base where there is low relational value with the vendor. This suggested avenue for research augments the approach advocated by Rozemeijer (2008) when he suggests an evolution for supply management capability as a linear process. It also introduces other potentially confounding moderators for performance; improving certain routines over others to

deal with poor repeated execution, or the different pathways that dependencies may have on capability use or learning in relationships. This could involve the use of case research to trace how operational routines become known and shared, if particular operational routines are more idiosyncratic than first thought, or there are different speeds of learning for such foundational routines. The assumption of a repeated and reliable nature of a routine bundle or capability should be held to account in terms of its refinement from trial-and-error learning, incremental improvement and repetition.

Finally, our sample is limited to UK private sector businesses whose managers are members of the Chartered Institute of Procurement and Supply who kindly supported our data collecting efforts. We expect the sample (middle/senior managers from a variety of sectors) to have enough depth of insight about supply management routines it will be beneficial to synthesise results with studies from the public sector or other geographies – a similar approach followed by Peng et al. (2008).

8. IMPLICATIONS FOR PRACTICE

If, as we find in this research, that supply management capability is foundational, then we suggest a stable firm-level strategy is the pre-requisite for yielding performance benefits from SMC. Our results therefore extend existing research to indicate the indirect performance link is only present when the strategic orientation of the firm is stable. Supply management capability does not contribute to firm performance when the wider strategic orientation of the firm is unstable (i.e. when transitioning through major product or service changes, in the face of a rapidly changing or complex external environment, or where strategic decision making has stalled). It could be suggested that, given instability at firm level, it is not wise to use firm resources and managerial attention to build supply management capability during a time of

transition. However, anecdotal evidence suggests supply management could be tactically important in firm-level crisis situations where near-term significant and immediate price reductions are required from suppliers (Carter et al, 2009). Our results do not suggest this tactical behaviour presents itself as a firm-level performance benefit for reactors. It would therefore be justified to undertake further research to assess the role played by procurement teams in reactor firms as the picture seems more complex than currently portrayed from anecdotal accounts. Our results conclude by suggesting supply management professionals will experience more difficulty in showing their performance benefit to the organization when the strategic horizon for the firm is unclear, in transition, or going through crisis. They could play some sort of role in enabling the firm to clarify its strategic direction by transferring knowledge from the supply base before devoting time and attention to functional strategy. Alternatively they may set aside day-to-day supply management capabilities and focus on methods which yield price or contractual concessions from suppliers.

Finally, our research draws the same normative conclusions Das and Narasimhan (2000) when it comes to the importance of more generic (non-technical supply management) skills of functional integration. Although supply management capabilities are 'needed to play' there is considerable extra effort needed to integrate them into the day-to-day workings of a firm. The skill of integration is a 'prerequisite to perform' and yield the benefits invested in supply management capability. Professionals in this domain not only must therefore be professionally competent but also ingrain in their work a deep connection to the wider strategic landscape which an organisation occupies.

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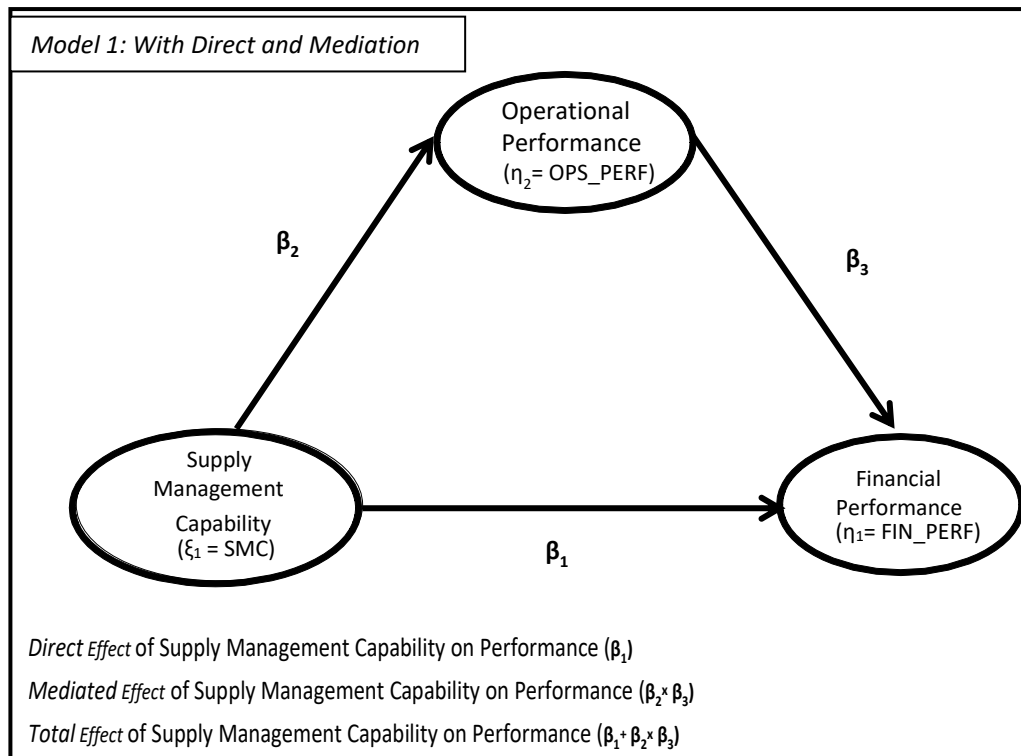
Figure 1. Research model with *mediating effect* between supply management capability and financial performance
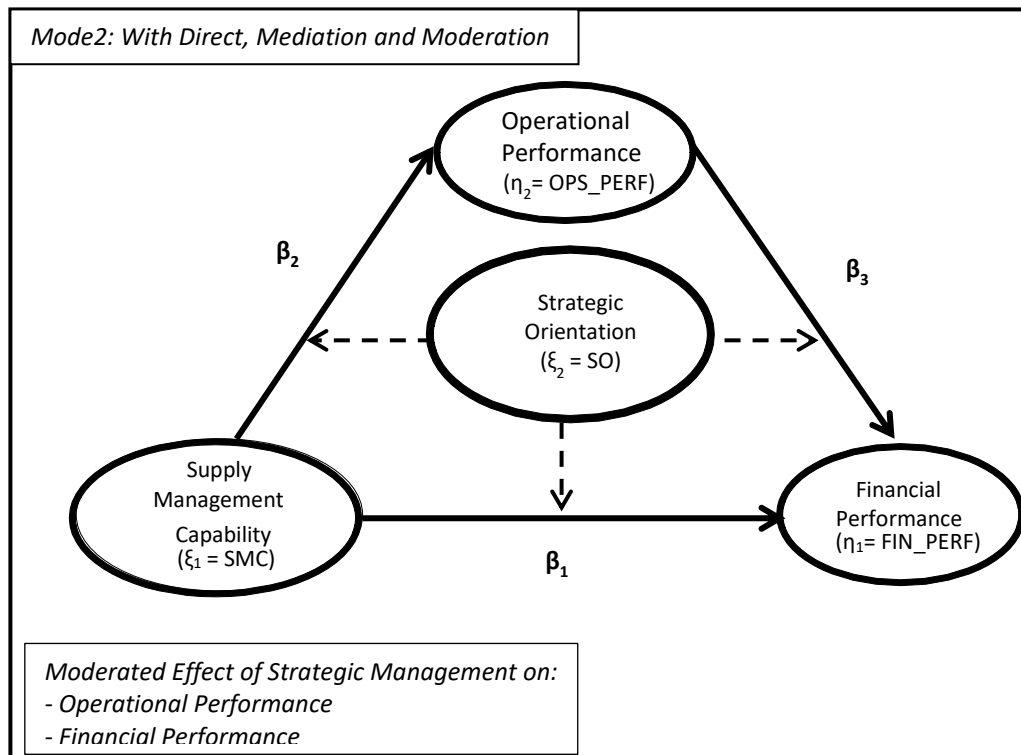
Figure 2. Research model with *mediating* and *moderating* effects between supply management capability and financial performance

Construct	Measure	Source
Performance	Financial: 3 items; Operational: 3 items; Overall: 6 item scale comprising financial and operational performance	Dess and Robinson, 1984; Pearce, et al, 1987; Miles and Snow, 2003; Thomas and Ramaswamy, 1996; Ellram and Lui, 2002.
Strategic orientation	11 item scale with 4 alternative descriptions of the strategic types for each item	Conant et al, 1990; Parnell and Wright,1993
Supply Management Capability	15 item scale with four first order latent constructs	(Citation redacted for review) Narasimhan and Das, 2001; Ellram et al, 2002; Spekman et al, 1999; Carr and Smeltzer, 1997; Carr and Pearson, 2002; Virolainen, 1998; Cavinato, 1999

Table 1: Instrument design

	Frequency	Percent (rounded)
Position (Self-Defined)		
Business Unit General Manager	10	2
Supply Chain Director/Manager	74	14
Procurement Director/Manager	269	52
Contracts Director/Manager	30	6
Other	135	26
Respondent Job Tenure		
Less than 2 years	69	13
2-5 years	152	29
6 years or more	297	57
Firm Size (Employees)		
Don't know	5	1
1 to 100	82	16
101 to 300	88	17
301 to 500	62	12
501 to 1000	47	9
1001 or greater	234	45
Firm Size (Sales Revenue, GBP)		
Less than £50m	142	27
Between £50m and £100m	47	9
Between £101m and £500m	94	18
Between £501m and £1bn	37	7
Between £1bn and £5bn	53	10
Greater than £5bn	94	18
Don't Know	51	10
Firm Age		
Don't Know	12	2
2-4 Years old	19	3
5-10 Years old	31	5
11-20 Years old	59	11
21-30 Years old	68	13
31 Years or greater	329	63

Table 2a Final sample distribution by position, tenure, firm size (employees, sales revenue), and firm age

	Frequency	Percentage
Prospector	156	30%
Analyzer	97	19%
Defender	185	36%
Reactor	80	15%
Total	518	100%

Table 2b. Sample distribution for strategic orientation construct

			Weights γ	Loadings λ	ρ_c	AVE
SMI	←	SMC	0.645*			
CS	←	SMC	0.729*			
CM	←	SMC	0.889*			
PA	←	SMC	0.810*			
SMI_attend	←	SMI		0.776*	0.820	0.604
SMI_influence	←	SMI		0.758*		
SMI_makebuy	←	SMI		0.797*		
CS_comm	←	CS		0.878*	0.892	0.733
CS_effect	←	CS		0.875*		
CS_total	←	CS		0.814*		
CM_capt	←	CM		0.771*	0.912	0.674
CM_innov	←	CM		0.858*		
CM_joint	←	CM		0.834*		
CM_long	←	CM		0.812*		
CM_new	←	CM		0.828*		
PA_qual	←	PA		0.814*	0.902	0.699
PA_quant	←	PA		0.984*		
PA_smat	←	PA		0.835*		
PA_write	←	PA		0.809*		

*$P<0.001$
t-values for weights vary from 15.29 to 54.35
t-values for loadings vary from 18.69 to 73.65

Table 3: Second order measurement model for SMC – Aggregate model standardized weights and loadings

			Loadings	ρc	AVE
FIN_overall	←	FIN_PERF	0.894*	0.917	0.787
FIN_roi	←	FIN_PERF	0.894*		
FIN_vol	←	FIN_PERF	0.872*		
OPS_rd	←	OPS_PERF	0.764*	0.808	0.585
OPS_innov	←	OPS_PERF	0.711*		
OPS_mkt	←	OPS_PERF	0.815*		

P<0.001; t-values for loadings vary from 19.96 to 43.08

Table 4: First order measurement model for PERF - Aggregate model standardized loadings

	SMI	CS	CM	PA	FIN	OPS
SMI	**0.777**					
CS	0.475	**0.856**				
CM	0.352	0.537	**0.821**			
PA	0.404	0.464	0.580	**0.836**		
FIN	0.179	0.102	0.156	0.069	**0.887**	
OPS	0.327	0.198	0.437	0.325	0.485	**0.765**

Off diagonals are bivariate correlations, bold main diagonal elements are square root of corresponding AVE

Table 5: Discriminant validity of constructs

Aggregate Group with Mediation *Paths from Figure1*	β	S.E.	t-values	R²
SMC → FIN_PERF (β_1)	-0.062**	0.053	1.16	0.239
SMC → OPS_PERF (β_2)	0.429*	0.053	8.10	0.184
OPS_PERF → FIN_PERF (β_3)	0.512*	0.039	13.20	
Indirect Effect SMC → FIN_PERF ($\beta_2 x \beta_3$)	0.219*	0.036	6.03	
Total Effect SMC →FIN_PERF ($\beta_1 + \beta_2 x \beta_3$)	0.158*	0.058	2.96	

*p<0.001, **NS*

Table 6: Structural mediating model for aggregate group via OPS_PERF – regression weights

Latent Variables	Reliability & Validity	All Firms	Prospectors SOP	Analysers SOA	Defenders SOD	Reactors SOR
		n = 518	n = 156	n = 97	n = 185	n = 80
SMI	ρ_c	0.820	0.830	0.721	0.851	0.780
	AVE	0.604	0.621	*0.471*	0.657	0.562
CS	ρ_c	0.892	0.855	0.884	0.897	0.918
	AVE	0.733	0.663	0.719	0.743	0.788
CM	ρ_c	0.917	0.899	0.880	0.905	0.944
	AVE	0.674	0.642	0.595	0.655	0.771
PA	ρ_c	0.902	0.866	0.870	0.904	0.952
	AVE	0.699	0.621	0.629	0.703	0.831
FIN_PERF	ρ_c	0.917	0.926	0.857	0.922	0.940
	AVE	0.787	0.807	0.667	0.798	0.839
OPS_PERF	ρ_c	0.808	0.843	0.798	0.786	0.682
	AVE	0.585	0.644	0.574	0.557	*0.435*

Note:
i. All AVEs significant (p<0.01)
ii. All ρ_c significant (p<0.01)

Table 7: AVEs and Composite Reliability for constructs in each sub-group

Sub-Groups with Mediation *Paths from Figure1*	All Firms	Prospectors SOP	Analysers SOA	Defenders SOD	Reactors SOR
	n = 518	n = 156	n = 97	n = 185	n = 80
SMC → FIN_PERF (β_1)	*-0.062***	*-0.09***	*-0.143***	*0.028***	*-0.201***
	(1.16)	*(0.79)*	*(0.87)*	*(0.29)*	*(1.46)*
SMC → OPS_PERF (β_2)	0.429*	0.521*	0.394*	0.468*	*0.107***
	(8.10)	(5.71)	(2.24)	(5.38)	*(0.43)*
OPS_PERF → FIN_PERF (β_3)	0.512*	0.531*	0.651*	0.475*	0.527*
	(13.20)	(5.93)	(4.34)	(4.87)	(2.17)
Indirect Effect SMC → FIN_PERF ($\beta_2 x \beta_3$)	0.219*	0.276*	0.256*	0.222*	*0.057***
	(6.03)	(4.48)	(1.98)	(3.62)	*(0.43)*
Total Effect SMC →FIN_PERF ($\beta_1 + \beta_2 x \beta_3$)	0.158**	*0.186***	*0.114***	0.250	*-0.144***
	(2.96)	*(1.63)*	*(0.55)*	(2.84)	*(0.92)*

*p<0.001; **NS

Table 8: Structural mediating sub-groups via OPS_PERF – regression weights

Strategic Group Differences (Stable Types)	SOP - SOA	SOP - SOD	SOA - SOD
	$n_P = 156$	$n_P = 156$	$n_A = 97$
	$n_A = 97$	$n_D = 185$	$n_D = 80$
Paths from Figure1	*|Differences|*	*|Differences|*	*|Differences|*
	(p-values)	*(p-values)*	*(p-values)*
Indirect Effect SMC→ FIN_PERF ($\beta_2 x \beta_3$)	0.020	0.054	0.034
	(0.435)	*(0.261)*	*(0.406)*
Total Effect SMC→ FIN_PERF ($\beta_1 + \beta_2 x \beta_3$)	0.072	0.064	0.136
	(0.324)	*(0.680)*	*(0.801)*

SOP = Prospector; SOA = Analyser; SOD = Defender; SOR = Reactor

Table 9a: Structural mediating and moderating sub-models (*stable types*) via operational performance (OPS_PERF) and strategic orientation (SO): PLS MGA

Strategic Group Differences	SOP - SOR	SOA - SOR	SOD - SOR
	$n_p = 156$	$n_A = 97$	$n_D = 185$
	$n_R = 80$	$n_R = 80$	$n_R = 80$
Paths from Figure1	*|Differences|*	*|Differences|*	*|Differences|*
	(p-values)	*(p-values)*	*(p-values)*
Indirect Effect SMC→ FIN_PERF ($\beta_2 x \beta_3$)	0.220	0.200	0.166
	(0.021)	*(0.086)*	*(0.056)*
Total Effect SMC→ FIN_PERF ($\beta_1 + \beta_2 x \beta_3$)	0.330	0.258	0.394
	(0.005)	*(0.049)*	*(0.000)*

SOP = Prospector; SOA = Analyser; SOD = Defender; SOR = Reactor

Table 9b: Structural mediating and moderating sub-models (*stable vs unstable)* via operational performance (OPS_PERF) and strategic orientation (SO): PLS MGA

Appendix 1

Scale items

Latent Variable	Item Label	Question
SMI*	SMI_attend	Those with supply management responsibility regularly attend company strategy meetings.
	SMI_influence	Supply managers influence all expenditure with suppliers.
	SMI_makebuy	Those with supply management skills are involved in important make versus buy decisions.
CS*	CS_comm	Common products and services are purchased in a co-ordinated manner across our business
	CS_effect	We have effective business processes that control the cost of inputs from suppliers
	CS_total	Our company has a clear understanding of its total expenditure with suppliers
CM*	CM_capt	We have defined processes for innovation capture from suppliers
	CM_innov	We develop innovation partnerships with suppliers when appropriate
	CM_joint	We engage in structured joint problem solving with suppliers
	CM_long	We foster long-term joint development relationships with certain suppliers
	CM_new	I feel confident that suppliers bring new ideas to our company before offering them to others
PA*	PA_qual	We use qualitative measures of supplier performance
	PA_quant	We use quantitative measures of supplier performance
	PA_smat	The metrics we use to measure internal supply management performance are SMART (specific, measurable, achievable, realistic, time-related)
	PA_write	There are written objectives for supply management
FIN**	FIN_overall	The overall performance of the company.
	FIN_roi	The return on investment in the company.
	FIN_vol	Growth in the volume of sales
OPS**	OPS_rd	Research and development (e.g. ratio of research and development to total sales).
	OPS_innov	Number of joint company/supplier innovations generated in the last year.
	OPS_mkt	Market focus (e.g. ratio of marketing expenditure to total sales).

Latent Variable	Question	Options
SO***	The products/services we provide to our customers are best characterised as:	a. More innovative, continually changing and broader in nature b. Fairly stable in certain markets while innovative in other markets c. Well focused, relatively stable and consistently defined d. In a state of transition, and largely based on responding to opportunities or threats from the marketplace or environment
	Relative to our competitors, we have an image in the marketplace as a company which:	a. Offers fewer, selective products/services which are high in quality b. Adopts new ideas and innovations, but only after careful analysis c. Reacts to opportunities or threats from the marketplace to maintain or enhance our position d. Has a reputation for being innovative and creative
	The amount of time my company spends on monitoring changes and trends in the marketplace can best be described as:	a. Lengthy: We are continuously monitoring the marketplace b. Minimal: We really don't spend much time monitoring the marketplace c. Average: We spend a reasonable amount of time monitoring the marketplace d. Sporadic: We sometimes spend a great deal of time and at other times spend little time monitoring the marketplace
	Any changes in demand, which we have experienced, are due most probably to:	a. Our practice of concentrating on more fully developing those markets which we currently serve b. Our practice of responding to the pressures of the marketplace by taking few risks c. Our practice of aggressively entering into new markets with new types of product/service offerings d. Our practice of aggressively penetrating more deeply into markets we currently serve, while adopting new services only after a very careful review of their potential
	One of the most important goals in this company is our dedication and commitment to:	a. Keep costs under control b. Analyse our costs and revenues carefully in order to keep costs under control and to selectively generate new products/services or enter new markets c. Ensure that the people, resources and equipment required to develop new products/services and new markets are available and accessible d. Make sure that we guard against critical threats by taking whatever action is necessary
	The competencies (skills) which our managerial employees possess can best be	a. Analytical: their skills enable them to both identify trends and then develop new product/service offerings or markets b. Specialised: their skills are concentrated into one, or a few, specific areas c. Broad and entrepreneurial: their skills are diverse, flexible and enable changes to be created.

	characterised as:	d. Fluid: their skills are related to the short-term demands of the marketplace
	The one thing that protects my company from our competitors is that we are able to:	a. Carefully analyse emerging trends and adopt only those which have proven potential b. Do a limited number of things exceptionally well c. Respond to trends even though they may posses only moderate potential as they arise d. Consistently develop new products/services and new markets
	More so than many of our competitors, our management staff tends to concentrate on:	a. Maintaining a secure financial position through cost and quality control measures b. Analysing opportunities in the marketplace and selecting only those opportunities with proven potential, while protecting a secure financial position c. Activities or business functions which most need attention given the opportunities or problems we currently confront d. Developing new products/services and expanding into new markets or market segments
	My company prepares for the future by:	a. Identifying the best possible solutions to those problems or challenges which require immediate attention b. Identifying trends and opportunities in the marketplace which can result in the creation of product/service offerings which are new to our industry or which reach new markets c. Identifying those problems which, if solved, will maintain and then improve our current product/service offerings and market position d. Identifying those trends in the industry which our competitors have proven possess long-term potential while also solving problems related to our current product/service offerings and our current customer's needs
	The structure of my company is:	a. Functional in nature (ie. organised by department - marketing, accounting, HR etc) b. Product/service or market orientated (ie. organised by product or maket orientated divisions) c. Primarily functional (departmental) in nature; however a product/service or market orientated structure does exist in newer or larger product/service offering areas d. Continually changing to enable us to meet opportunities and solve problems as they arise
	The procedures my company uses to evaluate our performance are best described as:	a. Decentralised and participatory encouraging many organisational members to be involved b. Heavily orientated towards those reporting requirements which demand immediate attention c. Highly centralised and primarily the responsibility of senior management d. Centralised in more establed product/service areas and more participatory in newer product/service areas

* 5 point Likert-style scale, strongly disagree – strongly agree with "Don't know" option
** 5 point Likert-style scale, much worse to much better with "Don't know" option

*** Respondents are asked to choose one option per question to describe their organisation by comparison to competitors