CULTURE, STRATEGY FORMULATION, AND FIRM PERFORMANCE: A META-ANALYSIS

ABSTRACT

This article explores the relationship between strategy formulation and firm performance, and whether contextual specificity moderates such relationship. Connecting the type of formulation process to the cultural context allows inferences and prescriptive recommendations to enhance strategic outcomes. To test our assertions, we conducted a meta-analytic review of 43 empirical studies and a total of 54 effect sizes to contrast the type of strategy formulation process with firm performance. To assess fit and moderation, dataset was split into sub-groups categorized by the respective constructs or dimensions. Each sub-group was subsequently meta-analyzed. The resulting sample-size weighted corrected mean correlations, variance accounted by artifacts, and confidence intervals were then used to determine whether the hypotheses were supported by the data. Results suggest that implementing a formal strategy formulation process is positively related to firm performance, that rational/analytical approaches are more effective than emergent/reflexive approaches in impacting firm performance, especially for objective, strategic performance measures, or within long-term oriented, uncertainty averse, and highly hierarchical cultures. Beyond exploring the nuances that explain the varying results yielded by strategy formulation, this work proposes prescriptive recommendations for Latin American managers. Given Latin American countries' pervasive cultural leanings, firms in this region should favor rational/analytic strategy formulation approaches to enhance firm performance.

Keywords: strategy formulation, firm performance, cultural dimensions, fit, meta-analysis.

INTRODUCTION

There is abundant evidence on the positive relationship between strategy formulation (SF) and firm performance (FP). Moreover, a formal, sequential, deliberate, and prescriptive rational/analytic strategy formulation (RASF) approach should be more effective in impacting FP indicators than an informal, restricted, and descriptive emergent/reflexive strategy formulation (ERSF) approach. Literature also suggests that the interaction between the SF approach and the organizational context affects the strategic outcome. A strategic system will be effective if the SF approach is coherent both with the strategy implementation and the intended strategic outcome. Rational/analytic approaches fit stable environments and sustained commitments, which are consequent with long-term, incremental, and exploitative strategies, often defined by strategic, non-financial goals. Emergent/reflexive approaches fit dynamic environments and disruptive initiatives, which are consequent with short- or mid-term, radical and exploratory strategies, often defined by financial goals.

Previous research also suggests that SF effectiveness on FP is affected by the business environment. Firm performance will be enhanced if its strategic approach fits the culture. Specifically, dimensions such as long-term orientation, uncertainty avoidance, and power distance moderate the relationship between RASF or ERSF and FP.

To test these assertions, we conducted a meta-analysis of 43 empirical studies that report the effect of SF on FP. The results support the notion that having a SF process is positively related to FP. Also, that RASF approaches are more effective than emergent/reflexive approaches in impacting FP, especially with strategic, non-financial measures, or within long-term oriented, uncertainty averse, and highly hierarchical cultures.

Our work advances potentially valuable, prescriptive recommendations for Latin American managers. Latin American cultures tend to exhibit high levels of uncertainty avoidance, and power distance, which our results associate with a relative superiority of rational/analytic over emergent/reflexive approaches. Therefore, our findings imply that firms in this region should favor rational/analytic strategy formulation.

STRATEGY FORMULATION AND FIRM PERFORMANCE

Studies on strategy formulation fall into two broad theoretical approaches, respectively labeled *rational-analytical* and *emergent-reflexive*. Rational-analytical studies argue that SF is the result of higher-order cognitive processes that make use of explicit knowledge. Emergent-reflexive studies contend that SF relies on basic cognitive processes that utilize tacit knowledge (Nonaka, 1988).

Rational/analytical vs. emergent/reflexive strategy formulation

Strategy formulation is often described as a rational process built around a fundamental core of qualitative and quantitative tools that support logical, deductive decision making (Mintzberg, 2003; Nonaka, 1988). Per this rational/analytical strategy formulation (RASF) approach, configuring a strategy involves collecting and evaluating external data to identify trends and to compute industry's maturity, fragmentation, and attractiveness (Andrews, 1965; Porter, 1985). In general, RASF aims at formulating value-adding strategies to generate competitive advantage (Alderson, 1959; Steiner, Miner, & Gray, 1986).

An alternative view comes from the *emergent/reflexive strategy formulation (ERSF)* approach, in which strategies are the result of descriptive (Alderson, 1959; Andrews, 1965; Selznick, 1948), often disorganized and informal (Andersen, 2004; Hunger & Wheelen, 2003; Steiner et al., 1986; Tomlinson & Dyson, 1983), and essentially reactive processes (Hitt, Ireland, & Hoskisson, 2012; Porter, 1985; Schendel & Hofer, 1979; Whittington, 1996).

RASF and ERSF outcomes

Strategies aimed at improving efficiency or efficacy develop institutionalized knowledge organically to produce the *incremental* or *exploitative* innovations (Jansen, Vera, & Crossan, 2009; March, 1991) that are consistent with a RASF approach (Ansoff, 1987; Dörfler & Ackermann, 2012; McAdam & Leonard, 1998; Porter, 1980, 1981; Steiner et al., 1986; Tzabbar & Kehoe, 2014).

Strategies aimed at developing creative capabilities revise institutionalized knowledge to explore novel options and produce *radical* (Köhler, Sofka, & Grimpe, 2009; Porter, 1990; Sen & Ghandforoush, 2011) or *exploratory* innovations (Benner & Tushman, 2003; Jansen et al., 2009). Such outcomes are consistent with an ERSF approach that promotes experimentation and organizational adaptation (Abernathy & Clark, 1985; Chalmers & Balan-Vnuk, 2012; Tzabbar & Kehoe, 2014; Vera & Crossan, 2004).

Strategy formulation tools

RASF-related tools build on rational judgments from a deductive logic perspective to make deliberate decisions based on the analysis of explicit knowledge (Dörfler & Ackermann, 2012). RASF tools often involve individual users who apply analytical, quantitative techniques and models (Alderson, 1959; Mintzberg, Ahlstrand, & Lampel, 2005). As they seldom challenge institutional knowledge and prevailing logic, RASF tools promote

exploitation strategies (Abernathy & Clark, 1985; Benner & Tushman, 2003; Jansen et al., 2009).

ERSF-related tools build on intuitive perceptions from an inductive logic perspective to generate novel ideas based on tacit knowledge. Decisions are often reflexive solutions to unstructured problems that ensure the firm's survival (Hannan & Freeman, 1977). ERSF tools involve the assessment of past experiences (Argyris, 1991; Corner, Kinicki, & Keats, 1994), as well as the organizational context (Crossan & Berdrow, 2003). As they often challenge institutional knowledge and prevailing logic, ERSF tools promote experimentation strategies.

Contextual factors that affect RASF and ERSF

Previous research suggests that the competitive context, a firm's timeframe, or its organizational core values influence the SF processes and outcomes (Miles, Snow, Meyer, & Coleman, 1978; Mintzberg et al., 2005; Rowden, 2001). Cultural orientation can have a significant influence on people's choices (G. Hofstede, 1998; Singhapakdi, Kraft, Vitell, & Rallapalli, 1994; Swaidan & Hayes, 2005) and, consequently, on a firm's strategy (Gómez-Mejía & Welbourne, 1991; Hodgetts & Luthans, 1993; Schneider, 1989). Cultural dimensions such as long-term orientation (LTO), uncertainty avoidance (UAI), or power distance (PDI) can determine or affect a firm's preference towards RASF or ERSF (G. Hofstede, 2017).

Stable environments favor RASF (Fredrickson & Iaquinto, 1989; Mintzberg, 1973; Powell, 1992). In stable environments, knowledge remains valid for longer periods (Crossan, Vera, & Nanjad, 2008; Mintzberg et al., 2005), which facilitates long-term exploitative strategies (Bass, 1985; Ben-Oz & Greve, 2012; Rowe & Widener, 2011; Zahra & George, 2002). *Non-financial, strategic* goals (McNair, Lynch, & Cross, 1990) are often associated with long-term strategies and are therefore coherent with a rational/analytical approach. It follows that RASF is coherent with *long-term oriented* cultures that are able to subscribe sustained commitments (G. Hofstede & Bond, 1988; G. H. Hofstede & Hofstede, 2001).

A *dynamic environment*, in contrast, requires strategic flexibility to adapt to changes by means of new knowledge, which is consistent with ERSF (Andersen, 2000; Bettis & Hitt, 1995; Brown & Eisenhardt, 1998; Crossan et al., 2008; Zahra & George, 2002). ERSF uses tacit knowledge to formulate aggressive explorative strategies and disrupt organizational learning. *Financial* goals (McNair et al., 1990) are often associated with such short- and mid-term strategies and are therefore coherent with an emergent/reflexive approach.

By adopting concrete rules and controls, a RASF approach can also reduce contextual ambiguity in highly *uncertainty averse cultures* (De Mooij & Hofstede, 2011; G. H. Hofstede & Hofstede, 2001; Porporato & García, 2011). Such cultures could benefit from a concrete, prescriptive, RASF approach that reduces uncertainty. ERSF, in contrast, is consistent with the openness to changes, preference for alternative options and risk tolerance associated with *uncertainty tolerant cultures*.

A RASF approach can also be appropriate in cultures with a *high power distance*. Highly hierarchical contexts where it is customary to accept and expect that power is distributed unequally (De Mooij & Hofstede, 2011; G. H. Hofstede & Hofstede, 2001) will likely embrace the prescriptive, normative, top-down, and directive RASF. In contrast, cultures with a *low power distance* should favor participative, emergent/reflexive approaches.

The Latin American case

Part of our motivation to conduct this research is advancing extant knowledge on strategy practice in Latin America to propose prescriptive recommendations that add value to the region's firms. Extant data on the measurable impact of SF on FP in Latin American firms

is scarce, almost nonexistent (Gómez, Hernández, & Valencia, 2013; Ketelhöhn & Ogliastri, 2013). Therefore, we do not formulate any region-specific hypotheses, at this time. However, we do anticipate valuable applications for the RASF/ERSF dichotomy in Latin American firms. The environmental turmoil characteristic of Latin American countries, their pervasive short-term orientation, and their chronically high levels of uncertainty avoidance and power distance (Ogliastri, 2007) posit a fascinating business idiosyncrasy which would certainly benefit from thorough investigations and consequent prescriptive propositions.

HYPOTHESES

Both management practices and specialized literature imply that intentionally formulating a strategy enhances FP. Moreover, the formal, sequential, deliberate, and prescriptive RASF should be more effective in impacting FP than the informal, restricted, and essentially descriptive ERSF. Therefore,

H1: Strategy formulation is positively related to firm performance

H1A: The positive relationship between SF and FP is stronger for RASF than for ERSF

A strategic system will be effective if the formulation approach fits both the implementation and the intended outcome. RASF fits the strategic, non-financial indicators usually associated with stable environments and long-term goals, whereas ERSF fits the financial indicators used for disruptive short- and mid-term goals. Therefore,

H2: The positive relationship between strategy formulation and firm performance is stronger when the SF approach fits the intended strategic outcome

H2A: The positive relationship between SF and strategic performance indicators is stronger for RASF than for ERSF

H2B: The positive relationship between SF and financial performance indicators is stronger for ERSF than for RASF

A firm's performance will be enhanced/undermined depending on the match/mismatch between its strategic approach and the type of culture. Long-term oriented cultures should favor RASF, whereas cultures with a short-term orientation should favor ERSF. Therefore,

H3: The positive relationship between the strategy formulation approach and firm performance is moderated by the cultural long term orientation

H3A: The positive relationship between SF and FP in long-term oriented cultures is stronger for RASF than for ERSF

H3B: The positive relationship between SF and FP in short-term oriented cultures is stronger for ERSF than for RASF

Uncertainty-averse cultures should benefit from a concrete, prescriptive RASF that reduces uncertainty. Uncertainty-tolerant cultures should tolerate ambiguous approaches, so they are likely to favor ERSF. Therefore,

H4: The positive relationship between the strategy formulation approach and firm performance is moderated by the cultural uncertainty avoidance

H4A: The positive relationship between SF and FP in uncertainty averse cultures is stronger for RASF than for ERSF

H4B: The positive relationship between SF and FP in uncertainty tolerant cultures is stronger for ERSF than for RASF

Cultures with a pronounced power distance should benefit from a top-down, directive RASF, whereas cultures with a low power distance should make a better use of a participative, bottom-up ERSF. Therefore,

H5: The positive relationship between the strategy formulation approach and firm performance is moderated by the cultural power distance

H5A: The positive relationship between SF and FP in cultures with high power distance is stronger for RASF than for ERSF

H5B: The positive relationship between SF and FP in cultures with low power distance is stronger for ERSF than for RASF

METHODOLOGY

We tested the hypothesized relationships by meta-analyzing correlational studies on the relationship between SF, our predictor, and FP, our criterion. To test our moderation hypotheses, we assessed the proposed cultural factors' moderating effect within these studies.

The meta-analysis complies with standard procedures for validity generalization (Lipsey & Wilson, 2001). We chose the Raju, Burke, Norman and Landis (RBNL) procedure to test statistical significance based on the confidence intervals about the adjusted correlations' mean (Burke, 1984; Burke, Landis, & Murphy, 2003; Raju, Burke, Normand, & Langlois, 1991; Sagie & Koslowsky, 1993). The RBNL procedure is especially suited for dealing with statistical artifacts based on a sample, such as predictor or criterion reliability values, and for moderation testing. To test for moderation, we ran meta-analytic simulations with data subsets generated by dividing the data about each moderation variable's median-split (Cortina, 2003; Sagie & Koslowsky, 1993).

Meta-analyses were conducted using an application developed by Burke, Borrero, Beal, and Christian (2017) that uses sample size, observed correlation coefficients or

equivalent effect sizes, and predictor/criterion reliability to compute a rho equivalent and a confidence interval. We used reported Cronbach's alpha or other valid measure of internal consistency as an estimate of criterion and predictor reliability. A default value of 1.0 was assumed when reliability was not reported.

We conducted a search for peer-reviewed, correlational articles that focused on the relationship between SF and FP. We were especially interested in empirical studies that assessed the effect of analytical or emergent strategy tools on FP. We reviewed a total of 245 articles that somehow addressed such relationship. We discarded studies that dealt with individual performance, studies that duplicated previously reported effect sizes, and studies based on experimental designs. We finally kept 43 papers that reported a total of 54 effect sizes.

The complete dataset was used to test the relationship between SF and FP (Hypothesis H1). To test the effect of RASF on FP, relative to ERSF (Hypothesis H1A), we separated the effect sizes by type of predictor. We then conducted separate meta-analyses for each subset and contrasted results.

Similarly, to test the fit between RASF and strategic/non-financial performance indicators, and between ERSF and financial indicators (Hypothesis H2), we separated the effect sizes by type of predictor and by type of criterion. We then conducted separate meta-analyses for all RASF/ERSF—strategic/financial combinations. As it could be argued that the strategic performance indicators are impacted more strongly than financial performance indicators, or vice versa (rather than resulting from a fit between the SF approach and the strategic outcome), we also assessed the overall effect of SF on both types of indicators.

To test our moderation hypotheses H3-H5, we split our data about each cultural moderator's median and conducted separate analyses for each sub-set. We thus tested the moderation effect of LTO, UAI, and PDI (G. Hofstede, 2007, 2017), and generated confidence intervals for cross-comparison. As it could be argued that some cultures, per se, are better suited for SF and thus have stronger direct effects on FP, we also assessed the direct effect of each cultural dimension sub-group on the SF—FP relationship.

RESULTS

Each meta-analytic simulation yielded the observed correlations standard deviation, sample-size weighted corrected mean correlation coefficient (corrected Mρ), random and fixed effects standard error (SE) of the mean of ρ, 95% lower and upper random effects (LRE and URE, respectively), random and fixed 95% confidence intervals (C.I.) about the mean of ρ, 80% lower and upper credibility values, estimate of the variance of ρ, sampling variance of the mean of ρ, and percent of variance accounted by artifacts (%V).

To test hypothesis H1, we conducted a simulation for the entire dataset, with SF as predictor and FP as criterion. To test hypothesis H1A, we conducted separate simulations with RASF and ERSF as predictors. Figure 1 summarizes these simulations' statistics.

To test the fit between SF and FP indicators, we conducted separate analyses for all RASF/ERSF—strategic/financial combinations. We also conducted separate analyses for both criteria, with SF as the predictor (see Figure 2).

To test the cultural orientation moderation on the relationship between SF and FP, we generated sub-sets about the median of each cultural dimension. We then conducted separate analyses for all RASF/ERSF—high/low cultural dimension combinations. We also conducted separate analyses for each cultural dimension split with SF as the predictor (see Figures 3-7).

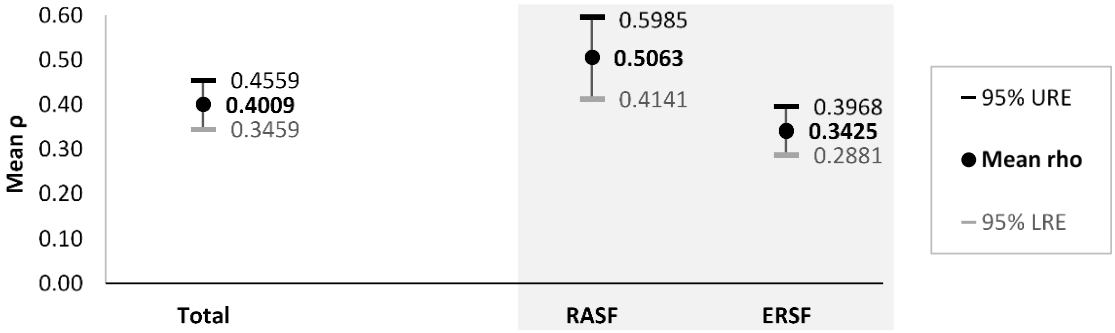

Figure 1. Relationship between strategy formulation and firm performance (H1/H1A).

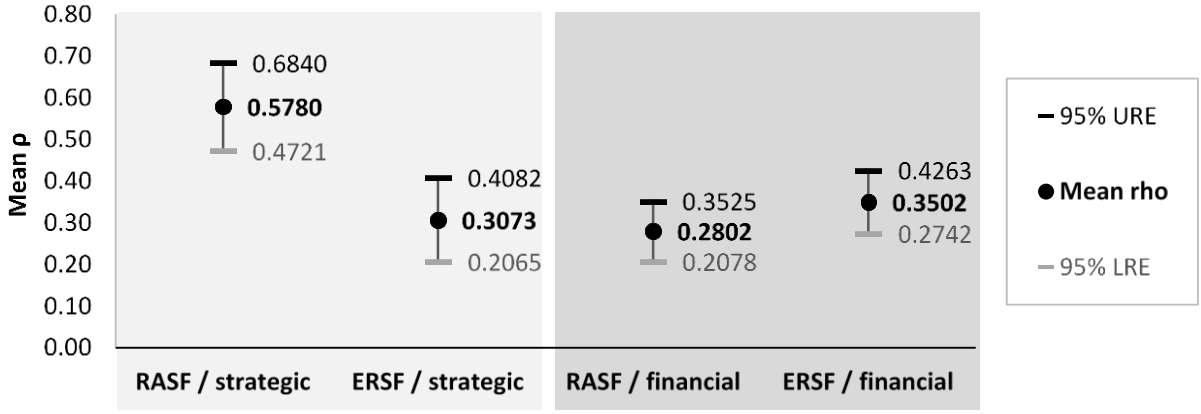

Figure 2. Relationship between strategy formulation approach and performance indicator type (H2/H2A/H2B).

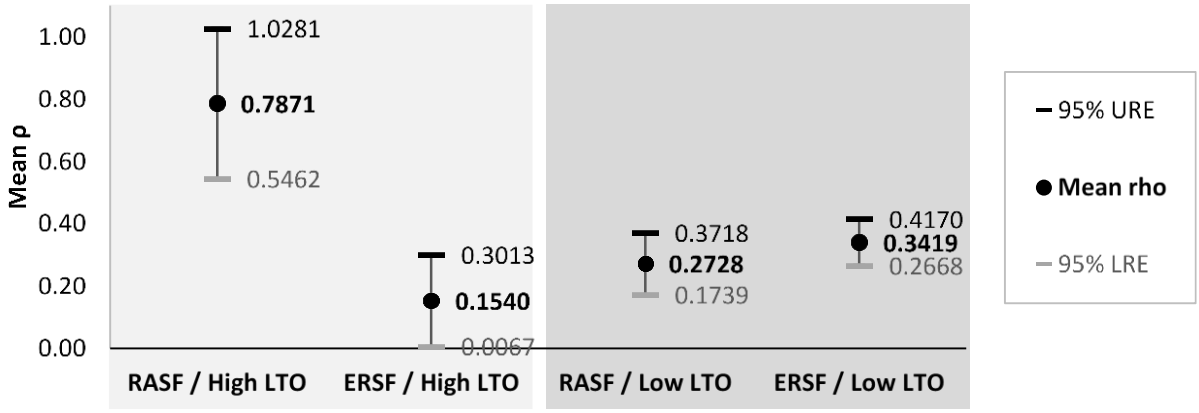

Figure 3. Relationship between strategy formulation approach and firm performance moderated by cultural long term orientation (H3/H3A/H3B).

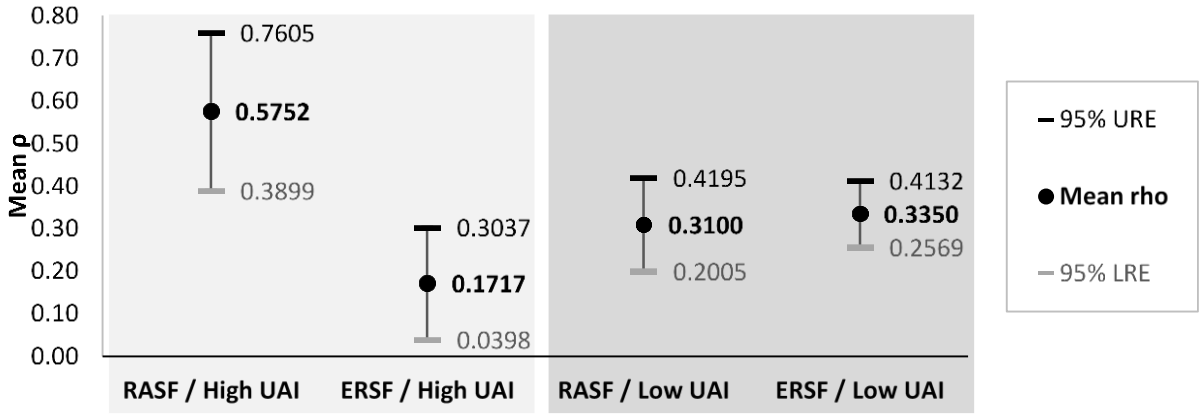

Figure 4. Relationship between strategy formulation approach and firm performance moderated by cultural uncertainty avoidance (H4/H4A/H4B).

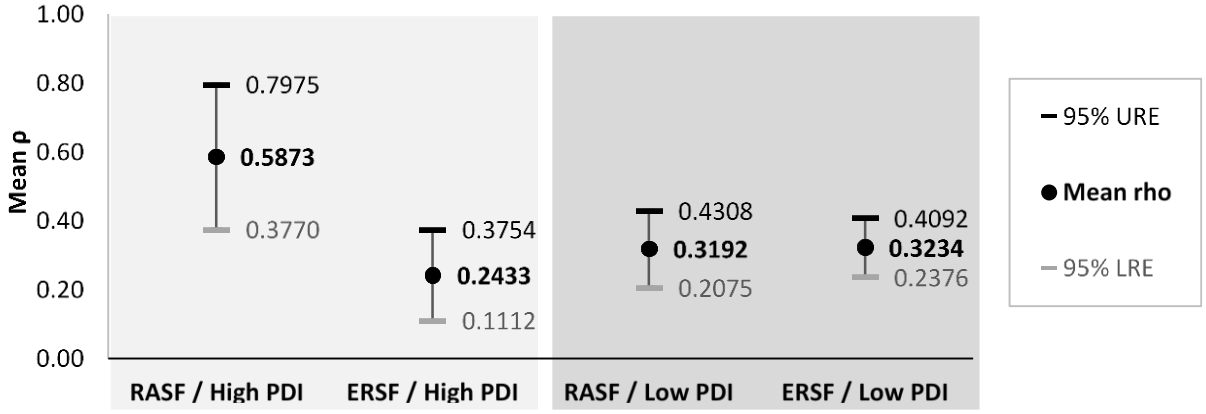

Figure 5. Relationship between strategy formulation approach and firm performance moderated by cultural power distance (H5/H5A/H5B).

DISCUSSION

In any given simulation, a significant positive relationship is indicated by a positive mean ρ, positive 95% lower and upper random effects (i.e., a 95% confidence interval that *does not* encompass zero), and by a relatively small estimate of the variance of ρ, (i.e., a sizable percentage of the criterion variance accounted for by the statistical artifacts tested). The sample-size weighted corrected mean of ρ was positive and significant in all the meta-analyses performed. Therefore, hypothesis H1 is supported by the aggregate results.

Results in Figure 1 also show a stronger relationship between RASF and FP than between ERSF and FP. In this case, the significant difference between the RASF and ERSF subgroups is indicated by the respective, *non-overlapping*, confidence intervals. Therefore, hypothesis H1A is supported.

The approach—indicator fit tests in Figure 2 was qualified by the fact that there is no difference on the overall effect of SF on either strategic (non-financial) or financial indicators. The relationship between RASF and strategic performance indicators is stronger than the relationship between ERSF and strategic performance indicators, which supports hypothesis H2A. Although directionally consistent with our hypothesis, the relationship between ERSF and financial indicators is not significantly stronger than the relationship between RASF and financial indicators, so hypothesis H2B is rejected.

The moderation tests in Figures 3-5 were qualified by the fact that there is no difference on the overall effect of SF on FP when split by each cultural dimension. Consistent

with our predictions, for cultures with high LTO, UAI, and PDI, the relationship between RASF and FP is stronger than between ERSF and FP. Therefore, hypotheses H3A, H4A, and H5A are supported. Although directionally consistent with our hypotheses, the relationship between ERSF and FP is not significantly stronger than the relationship between RASF and FP for cultures with low LTO, UAI, or PDI. Therefore, hypotheses H3B, H4B, and H5B are rejected.

CONCLUSIONS

Taken together, our results imply that the use of formal SF is positively related to FP. The literature reviewed, however, does not provide empirical evidence on the effect of intuitive strategic decisions on FP, which could allow a contrast between tool-based and intuitive strategy formulation. We only found a handful of articles that attempted to empirically assess the effect of heuristics or personal biases on performance, most of which explored the relationship between such heuristics or biases and managerial decisions, rather than their measurable effect on FP. Future investigations could explore such relationship by means of experimental designs.

Our results also supported the thesis that the formal, sequential, deliberate, and prescriptive nature of rational/analytic approaches gives them an edge over the essentially informal, restricted, and descriptive nature of emergent/reflexive approaches. Our contention that RASF fits long-term, non-financial, and strategic indicators was also supported by the analyses. Our moderation hypotheses for high levels of long-term orientation, uncertainty avoidance, and power distance were also supported. This is, for cultures high on such dimensions, RASF seems to be more effective than ERSF.

We expected that financial indicators, widely used for short- and mid-term goals, would be better served by more disruptive emergent/reflexive approaches. We also expected that ERSF would fit better than RASF those cultures with low long-term orientation, uncertainty avoidance, or power distance. These contentions, however, were not supported by our analyses. The alleged superiority of emergent/reflexive over rational/analytic approaches for specific situations or contexts is not clear. This could be partially explained by the difficulty in defining the ERSF construct. Rational/analytic tools are concrete and therefore their implementation is more easily measured, and tested.

Also, it could be argued that uncertainty tolerant cultures, or cultures with low power distance, are more flexible and adaptable, and thus are indifferent to either SF. Note, however, that cultures low in these dimensions also exhibit lower means of ρ, hinting a weaker or more diffuse relationship between SF and FP. Taken together, the ambiguous results for lower levels of our hypothesized moderators suggest the presence of confusing variables which should be explored by future research.

Finally, the chronic instability typical of Latin American countries would apparently favor emergent/reflexive approaches, given the aforementioned relationship between such type of SF and environmental dynamism or turmoil. This would also seem consistent with Latin American countries' pervasive short-term orientation, which does not particularly favor a RASF approach. On the other hand, Latin American cultures also tend to exhibit high levels of uncertainty avoidance and power distance, which our results associate with a relative superiority of RASF over ERSF. All things considered, we expect RASF to have a stronger, positive relationship with FP than an ERSF approach for Latin American firms.

Given that extant data on Latin American SF processes and their relationship with FP is scarce or null, we need to explore the nuances particular to this region's business idiosyncrasy before we can advance any prescriptive propositions. Such is a promising venue

for future research, which could probe, experimentally or by means of correlational studies, what combination of tools or approaches is better suited for Latin American managers.

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