

**INVESTIGATING THE PATH FROM FIRM INNOVATIVENESS TO
FINANCIAL PERFORMANCE: THE ROLES OF NEW PRODUCT SUCCESS,
MARKET RESPONSIVENESS, AND ENVIRONMENT TURBULENCE**

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ABSTRACT

This resource-based study investigates how a path from firm innovativeness to financial performance is channelled through new product success, and is contingent upon levels of market responsiveness and environment turbulence. Using primary data from small- and medium-sized exporting firms in the United Kingdom, the study finds that new product success partially mediates the path from firm innovativeness to financial performance. The study further finds that while market responsiveness strengthens links between new product success and financial performance, environment turbulence weakens the relationship. The implications of these findings for both researchers and managers of small- and medium-size enterprises are discussed.

KEY WORDS: firm innovativeness, new product success, financial performance, market responsiveness, environment turbulence

INTRODUCTION

The rapid growth in new technologies, intensifying competition, and increasingly diverse and demanding customers have increased the importance of innovativeness to the success of a firm (Atalay, Nilgun, & Fulyan, 2013; Story, Boso & Cadogan, 2015; Tellis, Prabhu, & Chandy, 2009). Indeed, firms that hope to compete effectively in both local and global marketplaces must develop and offer value-added products that are competitive with marketplace peers (Rosenbusch, Brinckmann, & Bausch, 2011). A firm's innovativeness is measured by the extent to which it is creative enough to develop not only radically new products but also novel processes and technologies (Story, Boso, & Cadogan, 2015), and to reaffirm its position in existing markets, enter new markets, and create a differentiation advantage over competitors (Boso, Story, & Cadogan, 2013). Firm innovativeness has become a critical determinant of financial health and growth.

A review of the innovation literature provides an inconclusive account of the financial performance outcomes of firm innovativeness, with scholarship suggesting both positive and negative outcomes. For example, while Artz, Norman, Hatfield and Cardinal (2010); Calantone, Cavusgil, and Zhao (2002); Günday, Ulusoy, Kilic, and Alpkan (2011) and Jimenez and Sanz-Valle (2011) have found that innovation is positively associated with financial performance, Baum, Calabrese, and Silverman (2000) and Vermeulen, De Jong and O'Shaughnessy (2005) found that innovation is a risky and costly undertaking which negatively affects financial performance. In addition, Story et al.'s (2015) recent study hints at the possibility of a U-shaped firm innovativeness–financial performance relationship. Furthermore, the

innovation literature is not so clear on how the firm innovativeness–financial performance relationship is affected by a firm's internal and external environmental conditions.

Accordingly, this study examines the financial performance outcomes of firm innovativeness by taking into account the intervening roles of new product success and moderating roles of market responsiveness and environment turbulence. By so doing, this study contributes to extant product innovation literature in several ways. First, prior studies have discussed firm innovativeness as a causal antecedent fuelling financial performance (e.g., Rosenbusch, Brinckmann, & Bausch, 2011). We extend the existing theorizing in the innovation literature by arguing that an additional causal path results from firm innovativeness that leads to new product success and improved financial performance. Additionally, we suggest that this causal direction from new product success to improved financial performance is conditional upon levels of market responsiveness and environment turbulence. Further, in analyzing these causal paths, we reason that contextual consideration is important if we are to make precise and accurate conclusions (Whetten, 2009). Contemporary innovation research acknowledges that context is important in innovation theory building as it provides scholars opportunity to reach more accurate conclusions from empirical findings (Rousseau & Fried, 2001). Accordingly, we extend extant innovation research by examining relationships within the context of small- and medium-sized enterprises (SMEs).

In particular, we draw insight from the resource-based view (Barney, 1991) of firms to argue that variations in a SME's financial performance are a consequence of that firm's innovativeness efforts, and that the interplay

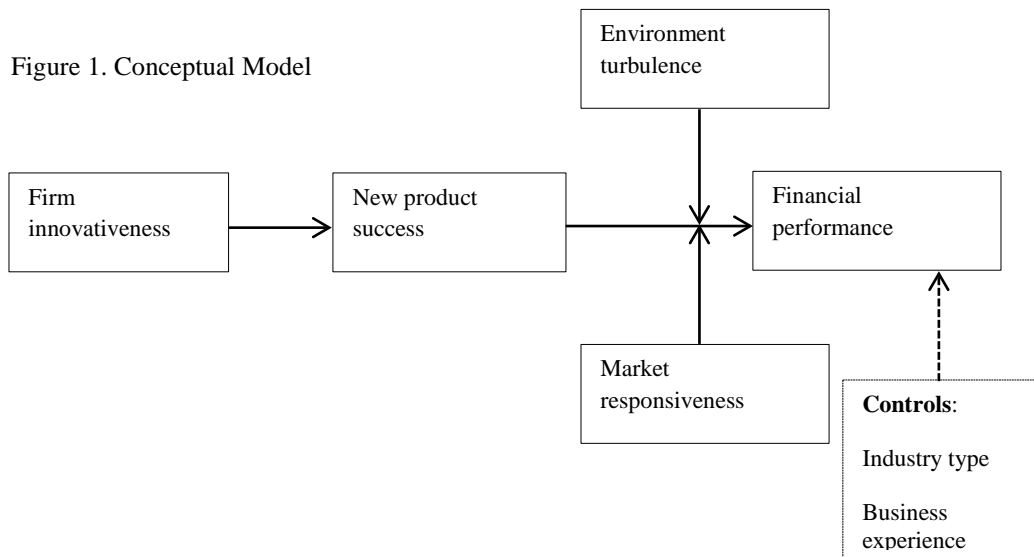
of new product success, market responsiveness, and environment turbulence provides a causal link underlying the effect of the innovation(s) on financial performance. The following section presents our theoretical model and the study’s hypotheses. Next, we describe the methods used to test our model and present the study findings. This is followed by a discussion of our study’s theoretical and managerial implications. The study concludes by suggesting some directions for future research.

THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

A resource-based view of a firm postulates that a firm’s resources and capabilities are a fundamental source of its competitive advantage and enhanced financial performance (Teece, Pisano, & Shuen, 1997). Story et al. (2015) define firm innovativeness as a propensity to innovate or develop new

products, i.e., a receptivity to new ideas and innovations as well as a tendency to embrace creativity, novelty, and experimentation (Deshpande' & Farley, 2004). A firm with a high propensity for innovativeness is likely to develop new products more successfully than a firm with a low propensity for innovativeness. The product innovation literature suggests that firms with greater numbers of successful innovations generate superior financial performance (Tellis, Prabhu, & Chandy, 2009). Therefore, in line with extant firm-innovation literature and following the Resource Based View (RBV) logic, our conceptual model displayed in Figure 1 proposes that new product success mediates the impact of firm innovativeness on financial performance, and that the effects of market responsiveness and environment turbulence are contingency factors that may shape this relationship.

Figure 1. Conceptual Model



The mediating role of new product success

In following the resource based view, we suggest that new product success (i.e. a firm’s capability to successfully introduce new products to the

market) mediates the relationship between firm innovativeness (a firm’s idiosyncratic resource) and financial performance. As previously argued, findings from prior studies on the firm innovativeness–financial performance relationship have been

ambiguous and largely inconclusive. This study argues that one possible source of this ambiguity may be that firm innovativeness is a resource that may not directly drive financial performance (Barney, 1991), but that may drive financial performance when channelled through successful introduction of innovative new products that in turn influence financial performance (Rubera & Kirca, 2012). In other words, introduction of successful new products serves as a channel through which firm innovativeness drives financial performance.

We contend that with increased successful introduction of innovative new products, a firm is able to attract new customers, sell more units of its products, and as a result generate greater returns to sales and assets. Firms with greater propensity to innovate are more likely than less innovative competitors to develop radical new products to serve multiple and diverse market demands (Story et al., 2015), enabling such innovative firms to increase sales revenue, enter a greater number of new and underserved markets, and strengthen their competitive positions. In other words, if a firm is highly innovative it should be more effective in developing and successfully introducing new products on the market, and with greater new product successes, it is more likely that a firm would earn higher financial returns. Accordingly, we propose that:

H1: New product success mediates the relationship between firm innovativeness and financial performance.

The moderating effect of market responsiveness

While much of the extant literature on firm innovation suggests that the successful development and introduction of new products is an important driver of financial

performance (e.g., Rosenbusch et al., 2011; Rubera & Kirca, 2012), further study is required to understand the effect of new products on financial performance. Although new products could be critical assets that generate value in the marketplace and the stock market (Rubera & Kirca, 2012), the literature has hinted that new product innovation may be a risky and costly activity that can consume a substantial portion of firm resources (e.g., Vermeulen et al., 2005). What is not clear, however, are the conditions affecting the boundaries between new product success and financial performance. To address this gap in the literature, we contend that this variation in the literature is consistent with the notion that the outcomes of new product success may depend on some contributing factors. Accordingly, we draw from the RBV to investigate the impact that market responsiveness and environment turbulence as, respectively, internal and external environment factors, may have on the new product success–financial performance relationship.

Market responsiveness in this study is defined as a firm's ability to react quickly to changing market demands through the application of efficiency and effectiveness strategies which allow firms to sense, interpret, and promptly act on market opportunities (Bodlaj, Coenders, & Zabkar, 2012; Narver, Slater, & Maclachlan, 2004). A firm that is able to quickly exploit new product opportunities and respond to changing market conditions is more likely to benefit from new product success than a firm that is less responsive. Market-responsive firms stay close to customers (Bodlaj et al., 2012; Wei, Samiee, & Lee, 2014), which allows them to better identify, evaluate, and develop new products tailored to customer preferences more effectively than their competitors. Also,

because market-responsive firms monitor market trends and invest resources to understand competitive activities (Narver, Slater, & MacLachlan, 2004), they are better prepared than their competitors to develop products that are more innovative and well received by their customers. Although studies that have examined market responsiveness as a conditioning factor on the relationship between new product success and financial performance are rare in the literature, we draw from the RBV to argue that market responsiveness is a critical firm capability that conditions the relationship. Thus, we hypothesize that:

H₂: The relationship between new product success and financial performance will be more positive in firms with high levels of market responsiveness.

The moderating effect of environment turbulence

Environment turbulence is understood as the degree and frequency of shift in the business environment and is a condition of the relationship between new product success and financial performance. It relates to the instability and unpredictability of competitive strategies, changes in customer needs and preferences, shifts in existing technology, introduction of new technologies, and unpredictable regulatory changes (Joshi & Campbell, 2003). Major shifts in the environment may threaten SMEs' financial health and new product success rate. For instance, it can be argued that the potential weakening effect of turbulence for SMEs in developing economies can be traced to a lack of marketplace experience or limited valuable resources (such as skilled personnel and finances), and because such firms often lack marketplace legitimacy. Moreover, SMEs tend to focus on narrow product lines, such

that any major shift in the market is likely to be a major threat to such firms' viability in terms of their ability to extract financial returns from those product offerings. Hence, the argument can be made that increases in market environment turbulence may weaken the extent to which new product success impacts SMEs financial performance.

In highly turbulent environments, customer preferences are constantly changing, compelling firms to engage in greater development and commercialization of an increasing number of new products to meet customers' exigencies. Firms operating in turbulent environments need lots of new products to ensure that they do not lose ground to competitors' new offerings and changing strategies. These marketplace pressures present additional new product development and transaction costs to SMEs. When such costs rise above a certain threshold, any financial benefits that firms derive by commercializing innovative new products may be cancelled out. This expectation of rising costs supports the argument that high levels of turbulence may weaken the positive effect of new product success on financial performance. Conversely, in low turbulence environments, new product development and transaction costs are lower as firms are able to plan for the future more accurately and are able to keep overhead cost under control. Additionally, there is no or little customer, competitor, or regulatory pressure on firms to justify the development of new products. Thus, in low turbulent environments the effect of new product success on SMEs' financial performance is likely to be strengthened. Accordingly, we argue that:

H₃: The relationship between new product success and financial performance will be negative when environment turbulence is strong.

METHODS

To test the conceptual model, data is collected from SME exporting firms in the United Kingdom. To ensure consistency, all variables are conceptualized at the export level as the unit of analysis is the export unit within the firm (Cadogan et al., 2003). A structured questionnaire was used targeting local exporting firms. Based on work done by Morgan, Katsikeas, & Vorhies, (2012) and Wiklund and Shepherd (2011) we focused on firms that met the following requirements: (1) firms that were independent entities and not part of any company group or chain; (2) firms that employed a minimum of five full-time staff; (3) manufacturers of physical products or service providers that engaged in export marketing activities; (4) firms that had a minimum of five years exporting experience; and (5) firms that had complete contact information on the Chief Executive Officer (CEO) or someone with comparable seniority with knowledge of the firms' strategic operations.

We used the Bureau van Dijk database to obtain our sample. The Bureau van Dijk database provides a list of exporting firms in the UK including the names, addresses, and telephone numbers of senior managers. From an initial list of 1,781 small- and medium-sized exporting firms, and after removing 251 ineligible firms (firms that had ceased exporting), 1,530 firms were sent a structured questionnaire by post. After two rounds of reminders, 325 valid responses were received, an effective response rate of 21%. The firms in our sample operated in multiple industries including computer (e.g., computer hardware and software, networking, and peripherals); aviation; textiles and garments; food and beverages; crafts; agro-processing; security; professional services; and financial services. The firms employed an average of 656 full-

time employees, and average total annual sales were US\$ 749 Million. The mean percentage of export revenue was 40.67% of total annual revenue, which exceeds Knight and Cavusgil's (2004) criteria for describing active exporting firms. We compared the responses from early and late respondents by applying Armstrong and Overton's (1977) non-response test in both settings. Results showed no substantial differences between the means for early and late respondents even at 10% significance levels (Blair & Zinkhan, 2006). Thus, we concluded that non-response bias did not create a major impact on the variables assessed in the developed market samples.

Measures

The items used to measure the theoretical constructs were derived from an extensive review of the extant literature. We adapted, where necessary, the items' wording to reflect managers' understanding of the constructs. Each item was measured using a seven-point Likert scale consistent with the literature. Table 1 provides details of the measures used and information on their sources. Specifically, we adapted our firm innovativeness measures from Tellis et al. (2009) and Wang and Ahmed (2004), while new product success items are adapted from Atuahene-Gima et al. (2005). We took our market responsiveness items from Jaworski and Kohli (1993), market turbulence measures from Jaworski and Kohli (1993) and Joshi and Campbell (2003), and financial performance items from Menguc and Auh (2006).

In line with previous studies, we also controlled for four factors: industry type, business experience, dedicated R&D function, and firm size, all of which have the potential to influence the new product success and financial performance relationship (e.g.,

Rosenbusch, Brinkman, & Bausch, 2011; Rubera & Kirca, 2012). We control for industry type because innovation levels may vary with the type of industry in which a firm operates (Hawawini, Subramanian, & Verdin, 2003). For example, innovation appears to be a critical element in high-tech industries where firms need to constantly introduce new products to meet rapidly changing consumer needs. Business experience and dedicated R&D functions are controlled for in order to

mitigate the effects of a firm's establishment in an industry over time and management capability, either of which is likely to affect financial performance. Firm size can be expected to influence the financial performance outcomes of new product success because larger firms are able to apply economies of scale and resource sufficiency to dominate markets and gain competitive advantage (Rubera & Kirca, 2012).

Table 1
Details of Measures and Results of Validity Tests

Item description (CR/Discriminant Validity)	Factor Loadings	Error Variances
Firm Innovativeness (Tellis et al., 2009; Wang and Ahmed, 2004): 1 = Not at all; 7 = To an extreme extent ($\alpha = 0.87$, CR = 0.88, AVE = 0.71)		
My company is known as an innovator among businesses in our industry.	0.74(1.00)	0.45(9.59)
My company provides leadership in developing new products/services.	0.83(15.32)	0.31(7.76)
My company is constantly experimenting with new products/services.	0.94(18.31)	0.12(3.24)
New Product Success (Atuahene-Gima et al., 2005): 1 = Below expectation; 7 = Above expectation ($\alpha = 0.91$, CR = 0.87, AVE = 0.69)		
Number of new products	0.87(1.00)	0.24(7.33)
Number of new market entry.	0.92(18.17)	0.15(5.04)
Revenue from new products or services.	0.84(15.65)	0.30(8.53)
Market Responsiveness (Jaworski and Kohli, 1993): 1 = Strongly disagree; 7 = Strongly agree ($\alpha = 0.838$, CR = 0.84, AVE = 0.64)		
If a major competitor were to launch an intensive campaign targeted at our customers, we would implement a response immediately.	0.72(1.00)	0.48(8.97)
We are quick to respond to significant changes in our competitors' price structures in target markets.	0.81(14.21)	0.34(7.03)
We rapidly respond to competitive actions that threaten us in our target markets.	0.86(15.31)	0.26(5.51)
Environment Turbulence (Jaworski and Kohli, 1993; Joshi and Campbell, 2003): 1 = Not at all; 7 = To an extreme extent ($\alpha = 0.858$, CR = 0.86, AVE = 0.64)		
Our target markets are noted for competition between companies.	0.71(1.00)	0.50(9.35)
There is substantial competition among companies in our targets markets.	0.75(13.05)	0.43(8.84)
Competition among companies in our target markets is intense.	0.85(15.61)	0.27(6.45)
There is an intense promotional war among companies in our target markets.	0.80(14.10)	0.37(8.07)
Financial Performance (Menguc et al., 2006): 1 = Very Dissatisfied; 7 = Very Satisfied ($\alpha = 0.86$, CR = 0.83, AVE = 0.63)		
Return on assets	0.87(1.00)	0.25(7.09)
Return on sales	0.96(19.18)	0.08(2.31)
Profitability	0.67(11.60)	0.55(10.31)

Note: t-values are in parenthesis

Measure assessment and purification

Our measure analysis started with SPSS exploratory factor analysis using Principal Axis Factoring. Results show that the scale items were generally adequate for measuring the latent variables. For example, the KMO test of sample adequacy of 0.86 is a good indication that the item sample was adequate. Also, commonalities for all items have scores higher than 0.4. All five factors were extracted, consistent with the number of the main variables in our theoretical model. These factors together explained 67% of the variance in the model. The regression coefficients of the variable on each of the factors of greater than 0.6 after rotation using a significant factor criterion of 0.4 were recorded.

Following these generally favorable exploratory factor analysis results, confirmatory factor analysis was conducted. While there are several statistical packages that can be used to analyze structural equations (e.g., AMOS, EQS, and MPLUS) we used the most longstanding and widely distributed (Byrne, 1998) linear structural relationship (LISREL) statistical software to validate the study's measures and structural relationships. The maximum likelihood estimation method was applied. We assessed the exact model fit using the chi-square difference test and relevant recommended fit heuristics. The initial model indices indicated a need for model purification ($\chi^2 = 409.75$, $df = 179$, normed $\chi^2 [\chi^2 / df] = 2.29$, $p < .05$). In addition, all the other relevant fit heuristics were within acceptable limits. Specifically, the Root Mean Square Error of Approximation (RMSEA) = 0.051; Standardized Root Mean Square Residual (SRMR) = 0.049; Normed Fit Index (NFI) =

0.93; Non Normed Fit Index (NNFI) = 0.96; Incremental Fit Index (IFI) = 0.97; Comparative Fit Index (CFI) = 0.97 and Goodness of Fit Index = 0.93.

Next, we submitted all constructs to reliability and convergent and discriminant validity evaluations. As shown in Table 1, the standardized factor loadings for all items were significant providing support for convergent validity. In addition, composite reliability (CR) values for all scales were higher than Bagozzi and Yi's (1988) recommended benchmark of .70, confirming that the scales provided a reliable measure of the constructs in the model. The Average Variance Extracted (AVE) of greater than 0.5 for each scale provides further proof of the reliability of our measures. Our measures also achieved discriminant validity as the AVE for each construct was greater than the Highest Shared Variance (HSV) between each pair of constructs.

Common method bias test

Because we used single respondents, we conducted a common method bias test to ensure data fidelity. We adopted the single latent factor approach recommended by Podsakoff, MacKenzie, Lee, and Podsakoff (2003) where all items in our model were loaded onto a single latent factor. We then compared the results to the moderation model used to test the research hypothesis. As can be seen in Table 2, the fit indices for the single latent model were completely inadequate while that of the research model meets all accepted criteria. We can thus conclude that common method bias would not be a major threat to our data and findings we deduce from it.

Table 2

Comparison of estimated research model and single latent test model

Model	χ^2 (df)	χ^2 /df	p-value	RMSEA	SRMR	NNFI	CFI
Single Latent Test	1711.59(104)	16.46	0.001	0.252	0.17	0.30	0.39
Research Model	30.32(18)	1.68	0.034	0.053	0.020	0.92	0.98

STRUCTURAL MODEL ESTIMATION

We adopted the structural equation modelling (SEM) approach to test our hypotheses. Unlike other methods, SEM is generally considered the preferred causal modelling method because it not only provides researchers a comprehensive means for assessing and modifying the theoretical model but also allows them to estimate and account for both systematic and random errors (Anderson & Gerbing, 1988; Bagozzi & Yi, 2012). In the following subsections, we explain the steps we took to estimate the different models.

Mediation analysis

We used a series of sequential chi-square tests to test for mediation. First we estimated the direct effect of firm innovativeness on new product success and financial performance (direct effects). Then we added a path between new product success and financial performance to estimate both the direct effect of innovativeness and the indirect effect through new product success (partial mediation). Last, we removed the direct path between firm innovativeness and financial performance to estimate the indirect effect of firm innovativeness through new product success (full mediation). Table 3 displays the results of the chi-square tests for mediation.

Table 3

Comparisons of estimated mediation structural models

Test	χ^2 (df)	χ^2 /DF	p-value	RMSEA	SRMR	NNFI	CFI
Direct effects	59.27(25)	2.34	0.001	0.075	0.079	0.97	0.098
Partial mediation	48.52(24)	2.02	0.002	0.065	0.044	0.97	0.98
Full mediation test	95.53(25)	3.82	0.001	0.108	0.14	0.92	0.95

Note: Hypothesized path for a full mediation is not supported.

Moderation analysis

To test our moderation hypotheses, the multiplicative approach was adopted where, after mean centring, each of the moderators was multiplied by the independent variable to create single indicators of new product success x market responsiveness and new product success x environment turbulence. Then four models were estimated and compared using the hierarchical approach. All four models had financial performance as the dependent variable. In the first model, only the impact of the control variables was estimated. The second model was estimated in which the

control variables and main effect variable (new product success), were considered. The third model estimated the impact of control variables, main effect, and direct effect of the moderators. In the last model all the variables (control, main effect, and interaction) were freely estimated. The models were compared with the last model to observe variations in the fits and R^2 change.

RESULTS

Our study argues in H_1 that new product success positively mediates the relationship between firm innovativeness and financial

performance. However, results in Table 3 do not support our hypothesis of full mediation because there is a significant difference between the chi-square values of partial mediation model and full mediation model ($\Delta\chi^2 = 47.01$, $\Delta df = 1$). In other words, the normed chi-square is worse (χ^2/df from 2.02 to 3.82) when the direct path between firm innovativeness and financial performance is removed. We can thus conclude that the partial mediation model was superior to the full mediation model, and therefore full mediation is rejected.

From Table 4, we can see that the normed chi-square value for Model 4 ($\chi^2/DF = 1.68$) is

significantly smaller compared with that of Model 1 (2.82), Model 2 (2.76), and Model 3 (2.15). This indicates that Model 4 provides a significant improvement in model fit compared to the other models. In addition, the fit indices for Model 4 are better than those for the other models (e.g., RMSEA = .053; SRMR = .020; NNFI = .92; and CFI = .98). Furthermore, the R^2 value of 0.26 for Model 4 is substantially superior compared to the R^2 values for the three other models. Taken together, we can say that Model 4 provides a significant improvement over the other three models and as such we proceed to use Model 4 to assess the study's moderation hypotheses.

Table 4
Comparisons of estimated moderation structural models

Model	R^2	χ^2	DF	χ^2/DF	p-value	RMSEA	SRMR	NNFI	CFI
Model 1	0.016	22.55	8	2.82	0.004	0.086	0.030	0.91	0.97
Model 2	0.14	27.58	10	2.76	0.002	0.085	0.027	0.89	0.96
Model 3	0.23	30.13	14	2.15	0.007	0.069	0.024	0.90	0.97
Model 4	0.26	30.32	18	1.68	0.034	0.053	0.020	0.92	0.98

We used a one-tailed t-test to assess the magnitude and significance level of the estimated structural paths. Values were considered significant at the 5% level if t-values were greater than 1.65. Table 5 displays the path estimates for Model 4. In H_2 we argued that the interaction between new product success and market responsiveness is positively related to financial performance. As shown in Table 5, the interaction between new product success

and market responsiveness is positively and significantly related to financial performance ($\gamma = .17$, $t = 2.52$, $p < .05$). Consequently, we conclude that H_2 is supported. Our results indicate that the interaction between environment turbulence and new product success is negatively and significantly related to financial performance ($\gamma = -.15$, $t = -1.89$, $p < .05$), providing support for H_3 .

Table 5
Path estimates for the moderating effect analysis

Dependent variable: Financial Performance (time 2)		
Variables (time 1)	Standardized estimates (t-values)	Findings
Industry type	.04 (.68)	
Business experience	-.06 (-1.04)	
R&D function	.04 (.59)	
Firm size	.14 (2.33)	
New product success	.28 (4.44)	
Market responsiveness	.4 (5.58)	
Environment turbulence	-.04 (-.69)	
New product success x market responsiveness	.17 (2.52)	Supported
New product success x environment turbulence	-.15 (-1.89)	Not supported

Note: *T-values are in parenthesis. Critical t-value for hypothesized paths = 1.65 (5%; one tailed tests)*

In terms of the effects of the control variables, results show that while industry type, business experience and dedicated R&D function exerted no statistically significant influence on the new product success–financial performance relationship, firm size exerted a significant positive influence ($\gamma = .14$, $t = 2.33$, $p < .05$). Hence, the proposed relationships were verified with regard to firm size in that the larger the firm, the more positive the new product success–financial performance relationship.

DISCUSSION

The two main objectives of this paper are to explain the mediating role of new product success on the firm innovativeness–performance relationship and to explain the conditions under which new product success is most or least beneficial to a firm’s financial performance. Two conditioning factors – environment turbulence and market responsiveness – were examined. The study presents interesting findings in that it lends support to existing literature on the one hand, while conflicting with them on the other. We

discuss both the theoretical and managerial implications that our findings highlight in the following subsections.

Theoretical implications

This paper contributes to the literature by helping to clarify the firm innovativeness–performance studies that have advocated for a direct positive link between firm innovativeness and financial performance (e.g., Calantone et al., 2002; Rubera & Kirca, 2012). The study adds to research on innovativeness by providing evidence that the innovativeness–performance relationship is partially mediated by new product success. This suggests that the innovativeness–financial performance relationship is more complex than has previously been postulated. Besides, the finding helps expand our understanding of the beneficial consequences of firm innovativeness through new product success, which leads to superior financial success. Although studies that have examined the mediating role of new product success on firm innovativeness and performance relationship are rare in the literature, our

finding is supported in part by Story et al.'s (2015) study of the effect of firm innovativeness on new product performance in both the developed and emerging market settings. In that study, a curvilinear relationship between firm level product innovativeness and new product performance was found. However, because their study examined the effect of innovativeness on new product performance, it is possible that the effects of innovativeness on overall financial performance through the mediation of new product performance may show a picture that is closer to our findings. In short, our findings suggest that firms that develop and successfully commercialise new products are likely to record higher sales and profits than those firms that do not. This is because the successful introduction of new products enables firms to serve multiple and diverse market demands.

This study expands existing literature by helping to clarify the boundary conditions that shape the effects of new product success on financial performance. While the new product success-performance relationship is generally understood as positive and linear, evidence from the literature points strongly to the fact that the relationship is more complex than that. For example, Story et al.'s (2015) study provides evidence on a curvilinear relationship between firm innovativeness and performance, and that market orientation, access to financial resources, and environmental dynamism condition the nature of this relationship. Rubera and Kirca's (2012) meta-analysis of the extant literature on the effects of innovation found a number of conditioning factors including market position, culture, advertising intensity, size, and age. To bring further understanding to the complex nature of the new product success-performance relationship, we examined

market responsiveness and environment turbulence as conditioning factors.

Our findings indicate that market responsiveness has a significant positive moderating effect on the new product success-performance relationship. Confirming our expectations, it appears that with increasing levels of market responsiveness, the success of new products becomes a value firms can leverage to boost their financial performance. Greater market responsiveness enables firms not only to launch products on time but also to better target new products to customer needs and preferences. In addition, firms with greater market responsiveness are likely to benefit more from new products by serving multiple and diverse market demands, thereby capturing market share that is larger than less market-responsive competitors. These findings are noteworthy because the previous new product success research on the moderating effect of market responsiveness is quite limited (e.g., Rubera & Kirca, 2012; Story et al., 2015). We therefore extend the literature on innovation and its benefits through new product success by showing that market responsiveness conditions the performance consequences of new innovations.

The study revealed that the interaction between new product success and environment turbulence has a negative but not significant effect on financial performance. This finding is not only contrary to our expectations but also contrasts with that of the Boso et al. (2013) study which found that environment turbulence had a significant positive moderating effect on the innovativeness-performance relationship. Although the support that Boso et al. provide for the hypothesized moderating role of environment turbulence is a valuable empirical result with important implications,

this study proposes several explanations for this discrepancy. First, while our study examined the moderating influence of environment on the relationship between new product success and financial performance, the Boso et al. study examined the relationship between firm innovativeness and export performance. Thus, the differences in the variables being studied could account for the discrepancy. Second, the research setting is likely to be another reason for the variance in the findings in that the moderating effect of environment turbulence could be unique to middle income economies, Ghana and Bosnia and Herzegovina, surveyed in Boso et al. This study surveyed firms in the United Kingdom, and it appears that environment turbulence might not be a sensitive factor for firms operating in a single high-income economy. One possible explanation is that unlike firms in these two middle-income economies, UK firms may have the requisite skills and capabilities needed to effectively coordinate changes required to respond rapidly to turbulent environments.

However, our findings also indicate that the effect of new product success on financial performance may be negative in highly turbulent environments. These results are similar to the empirical findings of Yang and Li (2011) that show that the curvilinear link between competence exploration and new product performance was negatively moderated by environmental dynamism. Taken together, these results support the notion that when the level of environment turbulence is relatively high, firms must manage uncertainty by not only adapting their internal characteristics to the external environment but also by allocating more resources (Boyne & Meier, 2009; González-Benito, O., González-Benito, J., & Muñoz-Gallego, 2014) to new product success activities such as R&D, innovative

distribution, and other marketing strategies to continuously thrive in such an environment. Conversely, firms can typically benefit from new product success activities when the level of environment turbulence is low and there is less pressure to spend more on adapting and responding to the environment. In short, our findings imply that high environment turbulence puts pressure on firms to devote large resources to new product success activities which then depresses financial performance.

Similar to Rubera and Kirca (2012), we found evidence that firm size has an influence on the new product success-performance relationship. The findings indicate that new product success is more beneficial to larger firms. This could be because of the large resource pool associated with larger firms which can be effectively invested to enhance the success of new products.

Overall, this study contributes to our understanding of the positive impact of new product success on financial performance of firms within the context of SMEs in a developed economy. Our study extends the theory of firm innovation-financial performance and contributes to the body of existing literature by presenting an in-depth consideration of the impact of new product success.

Managerial implications

A number of implications for managers can be drawn from these findings. First, at the most basic level, our findings indicate that if they are to achieve superior financial performance, managers should not only invest resources to increase firm innovativeness but also to enhance new product success rates. When the commercialisation of newly innovated products is unsuccessful, a firm's financial performance will suffer from the huge losses

associated with R&D and other resources that the firm would have spent on those innovations.

Second, our findings indicate that the extent to which firms pursue innovations should be dependent on the levels of market responsiveness within the firm. Compared to firms with low levels of market responsiveness, a market-responsive firm will quickly respond and exploit new-product opportunities created by changing market conditions, leverage new product success activities, and subsequently benefit from that new product success. This significant mediating role of product development implies that firms should put in place strategies for product development to assure consistent superior performance and an ability to respond quickly to changing market demands, thereby exploiting new product market opportunities.

Third, our findings introduce contrasts to the literature, highlighting a possible moderation in the extent to which new product success should be pursued in turbulent environments. While the extant literature suggests that firms in highly turbulent environments should benefit more from new product success (e.g., Story et al., 2015), our findings do not support such a notion. Rather, our findings indicate that environment turbulence has a negative non-significant effect on how much firms benefit financially from new product success. By implication, firms should plan new product activities cautiously in a highly turbulent environment to minimise negative financial outcomes. Managers need to know the strengths and weaknesses of their firms and put in place effective routines that will enable their firms to adapt and respond to environment turbulence without undermining financial performance.

Finally, our findings indicate that managers of larger firms are well-advised to invest more resources in innovative products in order to achieve superior financial performance, as firm size appears to be directly related to new product success and financial performance. Hence, managers should remain cognizant of the importance of new product success to the overall financial performance of their firms and make appropriate investments to assure the success of new products. Firms should invest in innovative products as they are valuable instruments in achieving competitive advantage and financial success. Managers will benefit from a rich understanding and appreciation of the impact of new product success on firm innovativeness–financial performance relationships and how these can be used to their firms’ advantage.

LIMITATIONS AND FUTURE RESEARCH

We conducted our study using a cross-sectional research design in a specific context. This limits the generalisation of our findings and extrapolating our findings to other countries should be done with care. Further empirical investigation across large numbers of emerging and developed economies would enrich our innovation knowledge. Further research will contribute to empirical investigations of the applicability and generalizability of our findings in various contexts. It would also be interesting to use the measures adopted in this study to investigate how new product success increases financial performance in developing countries. This would provide a better understanding of how new product success mediates the path from firm innovativeness to financial performance, particularly in the context of larger firms in developing countries which may have high incidence of environmental turbulence.

In addition, further research should aim at conducting a longitudinal study to replicate and extend the research scope. Longitudinal data on the study constructs could provide well-grounded and better nuanced results. Finally, our study focuses on only two conditioning factors and there is need for more research to explore other internal and external environmental factors. Examining other performance outcomes, such as strategic planning and customer performances, also offer promising future research directions. Further research needs to investigate the role of internal factors such as organizational structure – levels of decentralization, centralization – and their influence on the speed of new product development and, in turn, financial success. Taking a broader perspective will provide a better understanding of the field of firm innovativeness and financial performance.

REFERENCES

- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*, 411-423.
- Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, *14* (3), 396-402.
- Artz, K. W., Norman, P. M., Hatfield, D. E., & Cardinal, L. B. (2010). A longitudinal study of the impact of R&D, patents, and product innovation on firm performance. *Journal of Product Innovation Management*, *27*(5), 725-740.
- Atalay, M., Anafarta, N., & Sarvan, F. (2013). The relationship between innovation and firm performance: An empirical evidence from Turkish automotive supplier industry. *Procedia-Social and Behavioral Sciences*, *75*, 226-235.
- Atuahene-Gima, K., Slater, S. F., & E. M. Olson. (2005). The contingent value of responsive and proactive market orientations for new product program performance. *Journal of Product Innovation Management*, *22*, 464-82.
- Bagozzi, R. & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, *16*, 74-94.
- Bagozzi, R. & Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation models. *Journal of the Academy of Marketing Science*, *40*, 8-34.
- Barney, J. (1991). Firm Resources and sustained competitive advantage. *Journal of Management*, *17*, 99.
- Baum, J. A. C., Calabrese, T. & Silverman, B. S. (2000). Don't Go It Alone: Alliance Network Composition and Startups' Performance in Canadian Biotechnology. *Strategic Management Journal*, *21*, 267-294.
- Blair, E., & Zinkhan, G. M. (2006). Nonresponse and generalizability in academic research. *Journal of the Academy of Marketing Science*, *34*, 4-7.
- Bodlaj, M., Coenders, G. & Zabkar, V. (2012). Responsive and proactive market orientation and innovation success under market and technological turbulence. *Journal of Business Economics and Management*, *13*, 666-687.
- Boso, N., Story, V. M., Cadogan, J. W., Micevski, M. & Kadić-Maglajlić, S. (2013). Firm innovativeness and export performance: Environmental, networking, and structural contingencies. *Journal of International Marketing*, *21*, 62-87.

- Boyne, G. A., & Meier, K. J. (2009). Environmental turbulence, organizational stability, and public service performance. *Administration & Society, 40*, 799.
- Byrne, B. M. (1998). Structural equation modeling with LISREL, PRELIS, and SIMPLIS: Basic concepts, applications, and programming. Mahwah, NJ: L. Erlbaum Associates.
- Cadogan, J. W., Cui, C. C., & Li, E. K. Y. (2003). Export market-oriented behavior and export performance. *International Marketing Review, 20*, 493-513.
- Calantone, R. J., Cavusgil, S. T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management, 31*, 515-524.
- Deshpande, R., & Farley, J. U. (2004). Organizational culture, market orientation, innovativeness, and firm performance: an international research odyssey. *International Journal of Research in Marketing, 21*, 3-22.
- González-Benito, Ó., González-Benito, J., & Muñoz-Gallego, P. A. (2014). On the consequences of market orientation across varied environmental dynamism and competitive intensity levels. *Journal of Small Business Management, 52*, 1-21.
- Gunday, G., Ulusoy, G., Kilic, K., & Alpkan, L. (2011). Effects of innovation types on firm performance. *International Journal of Production Economics, 133*(2), 662-676.
- Hawawini, G., Subramanian, V., & Verdin, P. (2003). Is performance driven by industry- or firm-specific factors? A new look at the evidence. *Strategic Management Journal, 24*, 1-16.
- Jaworski, B. J., & A. K. Kohli. (1993). Market orientation: Antecedents and consequences. *Journal of Marketing, 57*, 53-70.
- Jiménez-Jiménez, D., & Sanz-Valle, R. (2011). Innovation, organizational learning, and performance. *Journal of business research, 64*(4), 408-417.
- Joshi, A. W., & Campbell, A. J. (2003). Effect of environmental dynamism on relational governance in manufacturer-supplier relationships: A contingency framework and an empirical test. *Journal of the Academy of Marketing Science, 31*, 176-188.
- Knight, G. A., & Cavusgil, S. T. (2004). Innovation, organizational capabilities, and the born-global firm. *Journal of International Business Studies, 35*(5), 124-141.
- Menguc, B., & S. Auh. (2006). Creating a firm-level dynamic capability through capitalizing on market orientation and innovativeness. *Journal of the Academy of Marketing Science, 34*(1), 63-73.
- Morgan, N. A., & Katsikeas, C. S., & Vorhies, D. W. (2012). Export marketing strategy implementation, export marketing capabilities, and export venture performance. *Journal of the Academy of Marketing Science, 40*, 271-289.
- Narver, J. C., Slater, S. F., & MacLachlan, D. L. (2004). Responsive and proactive market orientation and new-product success. *Journal of Product Innovation Management, 21*, 334-347.
- Podsakoff, P. M., Mackenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*, 879-903.

- Rosenbusch, N., Brinckmann, J., & Bausch, A. (2011). Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs. *Journal of Business Venturing*, 26, 441-457.
- Rousseau, D. M., & Fried, Y. (2001) Location, location, location: Contextualizing organizational research, *Journal of Organizational Behavior*, 22: 1-13.
- Rubera, G., & Kirca, A. H. (2012). Firm innovativeness and its performance outcomes: A Meta-analytic review and theoretical integration. *Journal of Marketing*, 76, 130-147.
- Story, V. M., Boso, N., & Cadogan, J. W. (2015). The form of relationship between firm-level product innovativeness and new product performance in developed and emerging markets. *Journal of Product Innovation Management*, 32, 45-64.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18, 509-533.
- Tellis, G. J., Prabhu, J. C., & Chandy, R. K. (2009). Radical innovation across nations: The preeminence of corporate culture. *Journal of Marketing*, 73, 3-23.
- Wang, C. L., & P. K. Ahmed. (2004). The development and validation of the organizational innovativeness construct using confirmatory factor analysis. *European Journal of Innovation Management*, 7, 303-13.
- Wei, Y. S., Samiee, S., & Lee, R. P. (2014). The influence of organic organizational cultures, market responsiveness, and product strategy on firm performance in an emerging market. *Journal of the Academy of Marketing Science*, 42(1), 49-70.
- Vermeulen, P. A. M., De Jong, J. P. J., & O'Shaughnessy, K. C. (2005). Identifying key determinants for new product introductions and firm performance in small service firms. *Service Industries Journal*, 25, 625-640.
- Whetten, D. (2009). An examination between context and theory applied to the study of organizations in China, *Management and Organization Review*, 5(1): 29-55.
- Wiklund, J., & Shepherd, D. A. (2011). Where to from here? EO-as-experimentation, failure, and distribution of outcomes. *Entrepreneurship Theory and Practice*, September, 925-946.
- Yang, T.T., & Li, C.R. (2011). Competence exploration and exploitation in new product development. *Management Decision*, 49, 1444-1470.