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The longitudinal effects of internationalization on firm performance: The moderating role of marketing capability

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ABSTRACT

Firms seek to gain global competitive advantages via strategic international expansion targeting long-term performance improvements. This long-term perspective of the role of internationalization, however, is largely understudied in the literature. Exploring the longitudinal effects of internationalization on the firm is essential to explaining and understanding this widely adopted strategic option. This study adopts a PVARX method and maps out the time-series impact of internationalization on both firm financial returns and risk. These relationships are further explored by examining the moderating effects of firm marketing capability, one of the most powerful drivers leading to market advantages. The results demonstrate that high marketing capability assists international expansion to produce better outcomes over an extended period of time but low marketing capability does not produce these positive outcomes.

1. Introduction

The adoption of internationalization as a firm strategy has captured considerable attention and has become a fast-growing globalization trend characterized by market expansion, learning synergies, and new business opportunities (Bausch & Krist, 2007; Bianchi & Ostale, 2006; Javalgi & Todd, 2011; Singla & George, 2013). Managers are increasingly realizing the benefits of expanding their firm's geo-business scope across world markets with the support of internationalized resource sharing, information transfer, and customer reaching activities (Glaum & Oesterle, 2007; Lu & Beamish, 2004; Sharma, 2011). These benefits include both increasing firm performance through improving firm returns or profitability (Lavie & Miller, 2008) and decreasing firm risk (Wagner, 2004). The evaluation of firm performance using return and risk provides a more comprehensive evaluation of firm performance derived from internationalization (Anderson & Reeb, 2003; Galema, Plantinga, & Scholtens, 2008). The prospect of attaining firm benefits through internationalization has prompted academic domains such as management and marketing to extensively examine the contributions of internationalization on firm performance. However, in the literature, the effects of internationalization on firm performance are not consistent. For example, numerous studies find positive influences on firm outcomes, such as earnings, returns, and profitability (Chen & Hsu, 2010; Lavie & Miller, 2008; Zhou, Wu, & Luo, 2007). Yet some

researchers suggest that substantial cross-border business presence carries significant risks and creates complexities that eventually reduce the firm's market strengths (Kwok & Reeb, 2000; Shrader, Oviatt, & McDougall, 2000), while others find that internationalization has a mixed impact on firm performance (Lu & Beamish, 2001; Zahra & Garvis, 2000).

These conflicting results may be due to the lack of attention given to the long-term performance effects of internationalization and the lack of consideration given to key moderating factors. Studying these long-term performance effects is best evaluated with a time-series approach. This approach requires a time-related framework rather than concurrent modeling (Efrat & Shoham, 2012). The impact of internationalization on firm performance develops over time and may not appear immediately after a firm enters new markets. Concurrent modeling may lead to inconsistent results because these studies ignore the time effects or embed the time effects differently. Another reason for inconsistent findings may be that firms differ in their ability to manage their markets (Makadok, 2001). Although internationalization research has considered moderating factors, such as management structure, firm tenure, firm behavior, market orientation, and organizational power (Cacciolatti & Lee, 2016; Carr, Haggard, Hmieleski, & Zahra, 2010; Hsu, Chen, & Cheng, 2013; Lin, Liu, & Cheng, 2011); organizational level marketing moderators are missing in the literature. Specifically, how internationalization drives firm performance in

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relation to firm marketing capability (MCAP) is lacking in the literature. MCAP is a powerful firm asset that not only directly contributes to firm performance by streamlining key customer, channel, and market alliances but also facilitates other firm functional areas to achieve higher effectiveness (Dutta, Narasimhan, & Rajiv, 1999; Nath, Nachiappan, & Ramanathan, 2010). Examining the performance of international markets without considering MCAP for controlling and addressing these markets may yield incomplete and unreliable results (Sapienza, Autio, George, & Zahra, 2006). Additionally, even though international firms may have wide market coverage, they compete within their respective and specific industry boundaries. Inconsistent findings may also be attributed to the limited focus of some studies on specific industries using samples drawn from limited industry sectors. This focus on specific limited industries may yield varying performance impacts of internationalization (Cadogan, Kuivalainen, & Sundqvist, 2009).

We build on previous studies to address these concerns and provide a comprehensive perspective by mapping out the time-series impact of internationalization while considering MCAP on both firm financial returns and risk across multiple industries. This research precisely determines the portion of the return and risk benefit of internationalization attributable to each time period for different levels MCAP. This longitudinal analysis relies upon internationalization theory, resource-based view (RBV), and dynamic capabilities theory (DCT) in the formation of our model. Internationalization theory has developed over time to provide a basis for understanding the interaction of internationalization with business performance (Buckley, 2016). Internationalization theory identifies two salient factors: firm specific assets and transaction cost economics. Firms utilize specific assets to obtain financial returns and manage foreign market risks (Buckley, 2016; Javalgi & Todd, 2011; Si & Bruton, 2005) and seek to control transaction costs for entry into and execution in new markets (Erramilli & Rao, 1993). RBV and DCT are consistent with and complement internationalization theory in that firms establish assets in the form of capabilities that promote performance through competitive advantage (Barney, 1991; Teece, Pisano, & Shuen, 1997; Wernerfelt, 1984).

Recent literature has called for the investigation of the role of MCAP as an organizational function and into the specifics of how MCAP affects overall firm performance (Davcik & Sharma, 2016). This study expands upon previous research of Nath et al. (2010) and Zhao, Libaers, and Song (2015) in the examination of marketing capabilities as a function within the firm. Our research is focused on the longitudinal exploration of the relationship between internationalization and firm outcomes (return and risk) under the moderation of MCAP and thus places the relationship into a more realistic setting that has not been studied in the literature. Although performance indicators such as sales, profitability, and growth rates are often examined, the risk side of internationalization has been less investigated (Anderson & Reeb, 2003). For example, performance instability such as cash flow volatility is understudied. Formulating internationalization's impact on both financial returns and costs in the form of higher risk will provide a greater understanding of internationalization.

In particular, our study is designed to generate several key contributions to the literature. First, the longitudinal analysis on internationalization contributes to international business theories by going beyond the traditional directional relationships into a new domain that further illustrates how the relationships evolve over time. This analysis should more realistically and more precisely demonstrate the effects of internationalization. Second, this paper is one of a few studies that explicitly explore the sustained competitive advantages regarding the enduring effects of internationalization and therefore contributes to the RBV from an internationalization perspective. Third, the incorporation of MCAP as a moderating factor further enriches DCT and establishes linkage between international management and marketing functions in that a firm's internationalization may function differently based on that firm's capability levels. Fourth, our research also yields benefits for

international risk management by considering firm risk factors, cash flow uncertainty. Better understanding these relationships should provide future researchers with a more comprehensive understanding of the financial risk implications of internationalization. In addition, our research also provides valuable implications for international business practice such as strategic planning, risk control, resource allocation, and capability planning.

In the sections that follow, we first review the literature, present our arguments and develop our hypotheses. Next, we discuss the data, construct operationalization, and measures. In the methods section, we detail how we apply the panel data vector autoregressive model (PVARX) to our datasets and provide interpretive guidance. We then discuss the analytical results from PVARX and conduct additional analysis. Lastly, we provide a number of theoretical and practical implications, along with our limitations and guidelines for future research.

2. Theoretical framework and hypothesis development

2.1. Internationalization and performance

Internationalization theory has been used as a foundation for multinational organizations expansion into global markets. There is consensus among researchers that internationalization is viewed as a dynamic and evolutionary process that reflects incremental investments, as organizations learn about new market environments (Douglas & Craig, 2011; Kamakura, Ramón-Jerónimo, & Vecino Gravel, 2012). This process allows firms to increase both their awareness of international transactions as drivers for growth and their commercial engagement with other countries (Singla & George, 2013). Thus, internationalization occurs as a consequence of this managerial decision-making process (Buckley & Casson, 1998). Our application of internationalization theory pertains to the performance aspect of firm specific assets and transaction costs.

Firms gain economic performance by engaging firm assets in different international markets (Borda, Geleilate, Newbury, & Kundu, 2017). Internationalization theory proposes that the development of firm specific assets and the attention to transaction costs can provide firm performance in multinational enterprises (Chi, 2015). The theory also posits that firms can successfully increase performance by surviving competitive pressures and relying upon innate strengths (Buckley & Casson, 2016).

Internationalization is the process or extent to which firms increase their involvement in operations across borders (Kirca et al., 2011; Welch & Welch, 1996). Firms view the prospect of expansion into additional countries as a necessary strategic option to increase business performance (Tuppura, Saarenketo, Puumalainen, Jantunen, & Kyläheiko, 2008). However, research indicates mixed results regarding the performance implications of internationalization and these findings can be categorized into several aspects. First, internationalization can lead to additional revenue due to extended market coverage and customer reach (Zhou et al., 2007). This revenue gain, however, cannot be viewed without considering the economies of scale resulting from expansion into additional markets. Thus, it is the economies of scale that enable a firm to achieve higher performance, as indicated by return on investment (Contractor, 2007). The economies of scale are achieved as a result of internationalized firms being able to streamline and optimize their assets, and thus, they have higher probability to translate their assets into revenues (Chen & Hsu, 2010; Furrer, Liu, & Sudharshan, 2000). Second, internationalization creates important learning opportunities that contribute to a firm's innovation stock. For example, business experience accumulated from one country can be shared with and leveraged to neighboring markets (Ruigrok & Wagner, 2003) and new products created to satisfy one country's customers can be adopted by and adapted to other countries (for instance, GE's reverse innovation from India to the USA). These learning opportunities enable a firm to better satisfy key customers in respective global markets because of the

enriched knowledge stock and managerial experience gained (Inkpen & Dinur, 1998). Third, internationalization allows firms to discover new business opportunities beyond their existing domains and thus realize new revenue streams from new business lines (Hitt, Hoskisson, & Kim, 1997). International diversification has been found to assist firms in penetrating into significant new product markets, as globalized firms are in a better position to capture the evolution of markets and possess early-mover advantages (Chetty & Stangl, 2010). Fourth, from a cost perspective, global firms constantly seek lower transaction costs through reductions in the cost of operations such as labor, R&D, and production. Factor heterogeneity provides important opportunities for firms to reconfigure their operations toward lower costs and thus increase overall profitability (Wagner, 2004).

Although its function as a performance driver is well documented, internationalization's negative impacts on a firm's financial position have also been studied (Bianchi & Ostale, 2006; Ruigrok, Amann, & Wagner, 2007). Engaging in multiple markets incurs significant financial burdens, such as production facilities, customer acquisition, and relationship-building, all of which result in higher transaction costs. Simultaneous presence in multiple countries leads to much higher operating costs, which may be a hindrance to firm performance (Capar & Kotabe, 2003). Equally important, is that aggressive international diversification significantly increases the managerial complexity arising from unfamiliar markets and competition for resources that leads to higher costs in serving customers and capturing network advantages (Hitt et al., 1997; Tihanyi, Ellstrand, Daily, & Dalton, 2000). In addition, international expansion may result in resource dilution due to limited corporate resources being spread across a larger number of markets. This dilution is detrimental to firm performance, especially in highly competitive markets, due to reduced services provided to key customers (Yeoh, 2004).

2.2. Sustained performance and the moderating role of marketing capability

Having introduced the positive and negative relationships between internationalization and firm performance, we now turn to the primary aspect of our research, which is the evaluation of these relationships over time. We frame internationalization with the theory of sustained competitive advantages from the RBV. The central tenet of the RBV is that firms strategically use their resources, assets, and processes to achieve superior business performance (Barney, 1991; Lin & Wu, 2014). The definition of ideal performance in the RBV is based on the logic that a firm should strive for the best competitive position over an extended time period and that all resources, processes, and assets that lead to sustained performance be considered firm resources. To qualify as a firm resource, the assets or processes should possess several key characteristics: they should be valuable, rare, inimitable, and free of substitutes (Barney, 1991; Kraaijenbrink, Spender, & Groen, 2010). These theoretical assertions are supported in the literature. For example, a study that examines innovations' mediating of role on performance found that MCAP, as firm resources, can be used to gain sustained competitive advantage (Sharma, Davcik, & Pillai, 2016).

In the DCT paradigm, MCAP represents the effectiveness that a firm can translate its marketing resources into specific outcomes better than its competitors (Dutta et al., 1999; Krasnikov & Jayachandran, 2008). This organizational capability is built from a firm's long-term learning mechanism and knowledge stock that consists of a firm's in-depth understanding of the markets, customers, external conditions, and internal assets such as sales teams, advertising functions, and management support systems (Najafi-Tavani, Sharifi, & Najafi-Tavani, 2016; Vorhies & Morgan, 2005). Thus firms with superior MCAP are able to collect market information, deploy resources, and conduct implementations toward optimal market performance (Morgan, Vorhies, & Mason, 2009). For multinational firms, MCAP is even more important because firms rely on marketing to explore opportunities, assess the competition, and execute entry into foreign markets (Kotabe, Srinivasan, &

Aulakh, 2002).

We present MCAP as a key organizational asset that should moderate the relationship between internationalization and firm returns and risk. The moderating role of MCAP on internationalization is expected for several reasons. The RBV supports that a firm's competitive advantages cannot be sustained if its strategies or resources can be easily imitated by competitors (Barney, 1991; Vorhies & Morgan, 2005). International diversification is a firm action that is largely visible to and analyzable by external parties, but MCAP is internal and not readily visible. International diversification often fosters imitation because a firm may reveal information to competitors with a successful market entry that can be used by other firms to quickly gain entry into that market (Autio, Sapienza, & Almeida, 2000). While international diversification may produce performance improvements in itself, it is a firm's intrinsic MCAP that distinguishes the firm in the marketplace (e.g., Bausch & Krist, 2007). MCAP plays a critical role because it has been found to protect a firm's market position by providing social and operational complexities that prevent imitation (Krasnikov & Jayachandran, 2008). The marketing function of a multinational firm connects its customers across multiple countries and creates organizational assets not visible to other firms, thus enabling the firm to expand in a predictable and controllable manner (Teece et al., 1997). In this sense, MCAP will protect internationalization efforts, positively impact revenue, and smooth income flows (Srivastava, Shervani, & Fahey, 1998).

A firm with high MCAP possesses better abilities to manage resource configurations, which is a requirement for optimal performance in new market entry. MCAP assists in new market entry because it allows the firm to better organize its available resources and to adapt to heterogeneous global market needs (Nath et al., 2010). This resource configuration is also improved by MCAP through communication and cooperation with other firm functions, such as information technology, operations, and executive management (Shoham, Brencic, Virant, & Ruvio, 2008).

MCAP has the ability to produce long-term effects. This ability to build MCAP is path-dependent, which indicates that developing this capability is specific to that firm's development (Teece et al., 1997). Once strong MCAP is realized, the effects on the firm may be enduring due to customer loyalty and erected competition barriers (Krasnikov & Jayachandran, 2008). These conditions secure the benefits of a firm's international market expansion, as reflected by augmented financial gains and reduced risks.

Given these arguments for the positive influence of MCAP on internationalization and performance, we would expect that for high-MCAP international firms, internationalization will have stronger and more enduring positive impact on firm returns.

H1. The short-term effects of internationalization on firm performance will be moderated by marketing capabilities such that firms with high marketing capabilities will have better performance.

H2. The long-term effects of internationalization on firm performance will be moderated by marketing capabilities such that firms with high marketing capabilities will have stronger and longer performance gains.

2.3. Internationalization and cash flow volatility: the moderating role of marketing capability

Firm risk factors are equally important for researchers desiring to fully understand the performance implications of firm strategy (Kwok & Reeb, 2000; Rego, Billett, & Morgan, 2009). Risk can negatively impact firm performance and costs (Wagner, 2004). Cash flow volatility (CFV) has been emphasized in management and marketing literature (Minton & Schrand, 1999; Srivastava et al., 1998). Cash flow represents the income generated by a firm's operating activities and CFV is an important firm-risk metric (Gruca & Rego, 2005). CFV represents a firm's

Table 1
Variable information (low marketing capability).

Variables		Mean	STD	Var1	Var2	Var3	Var4	Var5	Var6	Var7
Internationalization	Var1	−0.144*	0.949							
ROA	Var2	0.007	0.173	−0.006						
Cash flow volatility	Var3	0.349	0.192	0.043***	0.101***					
Firm size	Var4	7.516	2.229	0.171***	0.212***	0.043***				
Product diversification	Var5	6.121	4.489	0.075**	0.077***	0.001	0.354***			
Environmental dynamism	Var6	0.744	2.323	−0.002	0.014	−0.016	0.029**	−0.006		
Environmental munificence	Var7	1.077	0.105	0.049**	0.034**	0.004	0.014	−0.017	0.040***	
Competition intensity	Var8	0.676	0.258	0.007	0.009	0.005	0.033**	0.006	−0.001	−0.167***

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

income-flow uncertainties and is a prominent gauge of firm operational effectiveness. CFV is a forward-looking indicator of firm outcomes, such as shareholder value and default risk (Srivastava et al., 1998; Uhrig-Homburg, 2005).

CFV is a good measure of risk from internationalization for several reasons. First, a popular risk-reduction function of cross-border operations is derived from the portfolio effect. The portfolio effect is when turbulent individual markets may cancel each other out and lead to lower overall cash-flow uncertainty for the entire firm (Reeb, Kwok, & Baek, 1998). International firms have more freedom to configure their key resources in their global markets and thus obtain sufficient strategic flexibility to buffer market turbulence (Lee & Makhija, 2009). Second, firms that expand into multiple foreign markets are likely to create a global network that consists of a number of local partnership systems (Evers & Knight, 2008). These networks are interconnected and provide not only key information but also timely support when disruptions occur. Third, CFV is highly related to a firm's planning effectiveness (Minton & Schrand, 1999). When a firm's information stock is diversified internationally into multiple foreign markets, this firm will possess an enlarged knowledge stock regarding serving customers and coping with competitors (Armario, Ruiz, & Armario, 2008). Fourth, internationalized firms exert their presence in different markets, set their frontline closer to end customers, and have more in-depth interactions with key stakeholders, such as regulators, social interest groups, and service providers. These connections further build a relational system beyond their business operations and provide additional support and protection that will reduce income uncertainties (Verhoef, 2003).

MCAP should moderate the relationship between internationalization and CFV. MCAP can establish a strong link between customers to create enduring relationships with customers by repeatedly satisfying their needs (Morgan & Rego, 2006). Strong customer satisfaction serves as a basis for establishing customer loyalty, and that loyalty creates a long-term relationship between customer and the firm. MCAP can assist the firm in accumulating customer loyalty, which will translate into longer and more stable purchases in international markets (Luo & Peng, 1999). For example, a relationship with one major local supplier can ensure smooth production and enhance customer experience by securing delivery time and quality, which in turn contributes to customer loyalty and long-term income stability. Apple's close connection with Foxconn in China, for instance, will ensure its business stability with customers in many countries.

Given these arguments for the negative influence of MCAP on internationalization and risk, we expect that for high-MCAP international firms, internationalization will have a stronger and more enduring negative effect on CFV, reducing firm risk.

H3. The short-term effects of internationalization on firm risk will be moderated by marketing capabilities such that firms with high marketing capabilities will have lower CFV.

H4. The long-term effects of internationalization on firm risk will be

moderated by marketing capabilities such that firms with high marketing capabilities will have lower CFV over the long term.

3. Data, measures, and empirical estimation methods

3.1. Data

To adequately address the research questions posed in this paper, the data should meet several standards. First, the data should be a time series format that covers sufficient duration to reflect the long-term notion of firm operations. Second, the data should be comprehensive regarding firm type and industry composition. Third, the data items should be rich enough to cover not only the focal variables in question but also the necessary control variables that improve the model specification and estimation.

In order to meet these standards, we collected data from multiple sources, such as Compustat Global, Business Segment, and firms' annual reports. These data sources are popularly used in management, marketing, and international business research (Dutta et al., 1999; Minton & Schrand, 1999; Morgan & Rego, 2006; Nath et al., 2010). The use of these multiple sources not only allows for comprehensive datasets but also provides more objectivity regarding firm attributes and specifications. The final dataset contains 9200 observations from 1220 firms spanning 1995 to 2015. This time span allows us to map out the long-term effects. To estimate the effects of internationalization on high and low MCAP, we median split the firms into two groups based on their MCAP levels (MCAP measuring methods are discussed below) which is consistent with previous studies (e.g., Chen, Hsu, & Chang, 2016). The variable descriptive information and correlations of both subgroups are presented in Table 1 and Table 2. Next, we discuss the measurement of the variables. The firms collected cover a wide range of industry sectors, such as mining and oil, transportation, manufacturing, retail and wholesale, and professional services (see Table 3).

3.2. Internationalization

In the literature, internationalization is often measured by the number of countries in which a firm has a business presence or the business volume achieved in foreign markets. A more comprehensive measure that incorporates both dimensions (number and volume) is found in past research (e.g., Carpenter & Sanders, 2004; Kumar, 2009). We adopt this multi-dimensional measure because the degree of internationalized business should consider both breadth and depth. We collected the number of countries that a firm covers from the Business Segment database. This database also contains a firm's sales volume obtained from those countries. Next, using these data items, we calculated the percentage of sales that a firm realized from foreign markets (Carpenter & Sanders, 2004). We also supplemented the missing data points by searching a firm's annual reports whenever possible. To obtain the final measure of internationalization, we ran a principal

Table 2
Variable information (high marketing capability).

Variables		Mean	STD	Var1	Var2	Var3	Var4	Var5	Var6	Var7
Internationalization	Var1	−0.019	1.016							
ROA	Var2	0.025	0.118	0.021						
Cash flow volatility	Var3	0.356	0.192	0.022	0.148***					
Firm size	Var4	8.024	1.980	0.190***	0.230***	0.090***				
Product diversification	Var5	6.534	4.714	0.067***	0.072***	−0.024*	0.345**			
Environmental dynamism	Var6	0.770	2.037	0.004	−0.006	0.021	0.008	0.032**		
Environmental munificence	Var7	1.076	0.104	0.010	0.011	−0.007	0.024*	0.002	0.122***	
Competition intensity	Var8	0.690	0.236	−0.024*	0.021	−0.003	−0.004	−0.023	−0.011	−0.173***

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

component analysis on the number of foreign markets and international market sales, which resulted in a single item that represents the degree of internationalization. This approach is based on a multi-dimensional measure of internationalization that is widely used in the literature (e.g., Carpenter & Sanders, 2004; Kumar, 2009; Oviatt & McDougall, 1997).

3.3. Financial performance and CFV

We chose ROA to represent the financial performance of the firms (Lavie & Miller, 2008). The data item is collected from Compustat. ROA essentially represents the degree to which a firm may translate its assets to revenue and is the appropriate measure of performance for our study. We measure CFV by collecting quarterly cash flow data from Compustat, and following Minton and Schrand (1999) in using the coefficient of variation on each five-year moving window. Using quarterly data allows us to fully consider the seasonal fluctuation within a year and thus obtain more information than CFV based on annual data. In our robustness check, we also measured CFV as the standard error of time-series regressions. The results produced were consistent.

3.4. Marketing capability

MCAP has been conceptualized as an organizational level construct that measures the degree to which a firm is able to utilize its marketing resources to achieve the best possible outcomes. In econometrics, the Stochastic Frontier Model (SFM) has become a preferred method of measuring MCAP, as documented in many studies (Dutta et al., 1999; Nath et al., 2010). SFM has several notable advantages in measuring capabilities. First, it adopts an input-output configuration that precisely fits the theoretical foundations of the DCT view of the firm. SFM benchmarks the firm's utilization of a full set of inputs and gauges the distance between a firm's performance and the best performance of the group (frontiers). Thus, the resulting scores from SFM seamlessly represent the degree of capability. Second, SFM is stochastic in nature and is powerful in dealing with outliers and minimizing biased results (Dutta et al., 1999). Third, the capability measure based on SFM and Compustat firm data is deemed to have a high level of objectivity which is often a problem when using traditional survey data to measure organizational level capabilities. In an international setting, this level of objectivity advantage is even more pronounced because survey respondents from multinational firms often have limited knowledge of the firm and its competitors as a result of the respondents' specific position in the firm and familiarity with all of the firm's global operations.

To implement the SFM, we collected a set of organizational level input and output variables from Compustat. We collected selling, general, and administrative variables to represent marketing expenditures because these expenditures are important resource inputs for obtaining firm outcomes (Nath et al., 2010). Intangible assets represent knowledge and reputation which assist marketing in acquiring and

transforming resources into value offerings (Mohr & Batsakis, 2014; Morgan, 2012), so we collected the balance sheet intangible data items (Heiens, Leach, & McGrath, 2007). As customer relational stock is another form of firm marketing resources in international markets, we collected receivables to measure relational stock and resources devoted to building customer relationships (Dutta et al., 1999). Receivables also captures a represents a firm's willingness to extend credit to its key customers (Narasimhan, Rajiv, & Dutta, 2006). The current customer install base represents the current adoption or usage of the firm's products and may be a condition that facilitates firm marketing, so we collected previous sales to measure the install base (Dutta et al., 1999; Knox & Van Oest, 2014). In addition, we collected working capital and retained earnings to represent the slack resources that each firm uses to achieve strategic flexibility in serving the customer markets (George, 2005). Market outcomes are measured by firm market share and gross margin (Min & Wolfenbarger, 2005). Our approach not only considers business volume, but also considers profitability and therefore reflects a more comprehensive perspective of firm outcomes from the marketing perspective.

3.5. Control variables

We included several control variables that are relevant to the focal models because ROA and CFV can also be related to firm-specific and environmental factors. We controlled for firm size because firms differ in size, which will likely affect their returns and risk management (Perez-Quiros & Timmermann, 2000). We measured firm size as the asset volume (log-transformed). Firm performance may also be driven by product diversification because a broad product line may provide firms with additional chances to acquire new customers and reduce income turbulence due to portfolio effects (Tallman & Li, 1996). We collected the number of product lines, as represented by four-digit SIC codes, from the Business Segment database, firm annual reports, and websites. In addition to firm-specific factors, environmental traits have been shown to be influential for both firm performance and risk. This notion is very important in global markets because firms place more weight on adapting to new environments (Suarez & Lanzolla, 2007). We operationalized a full set of environmental characteristics suggested by Keats and Hitt (1988), including munificence, dynamism, and competition. Munificence is measured as the growth rate in each five-year time window for every industry. Dynamism is the turbulence of the industry sales during the same period. Competition is the reversed Herfindahl-Hirschman index for every industry. Further, we split the firms into high vs. low MCAP groups to control for the effects of marketing side ability in our models. The addition of this set of control variables considers the balance between PVARX model complexity and parsimony and thus achieves a preferred model specification.

Table 3
Industry coverage of the sample.

SIC	SIC industry label	#OBS
10	Metal mining	163
12	Coal mining	353
14	Mining and quarrying of nonmetallic minerals, except fuels	25
15	Construction - general contractors & operative builders	22
16	Heavy construction, except building construction, contractor	101
17	Construction - special trade contractors	36
20	Food and kindred products	250
21	Tobacco products	12
22	Textile mill products	46
23	Apparel, finished products from fabrics & similar materials	102
25	Furniture and fixtures	66
26	Paper and allied products	138
27	Printing, publishing and allied industries	121
28	Chemicals and allied products	731
29	Petroleum refining and related industries	101
30	Rubber and miscellaneous plastic products	166
31	Leather and leather products	37
32	Stone, clay, glass, and concrete products	77
33	Primary metal industries	171
34	Fabricated metal products	201
35	Industrial and commercial machinery and computer equipment	855
36	Electronic & other electrical equipment & components	956
37	Transportation equipment	269
38	Measuring, photographic, medical, & optical goods, & clocks	750
39	Miscellaneous manufacturing industries	165
42	Motor freight transportation	22
44	Water transportation	48
45	Transportation by air	59
47	Transportation services	43
48	Communications	275
49	Electric, gas and sanitary services	65
50	Wholesale trade - durable goods	258
51	Wholesale trade - nondurable goods	108
52	Building materials, hardware, garden supplies, mobile homes	23
53	General merchandise stores	29
54	Food stores	23
55	Automotive dealers and gasoline service stations	12
56	Apparel and accessory stores	22
57	Home furniture, furnishings and equipment stores	44
58	Eating and drinking places	91
59	Miscellaneous retail	100
60	Depository institutions	21
61	Nondepository credit institutions	22
62	Security & commodity brokers, dealers, exchanges & services	13
63	Insurance carriers	19
64	Insurance agents, brokers and service	12
65	Real estate	40
67	Holding and other investment offices	88
70	Hotels, rooming houses, camps, and other lodging places	20
72	Personal services	58
73	Business services	1211
75	Automotive repair, services and parking	20
78	Motion pictures	41
79	Amusement and recreation services	51
80	Health services	51
82	Educational services	28
87	Engineering, accounting, research, and management services	281
99	Nonclassifiable establishments	88

SIC: Standard Industrial Classification.

4. Empirical analysis and results

4.1. Empirical estimation methods

Because we are examining dynamic relationships over time, a PVARX with exogenous variables is the appropriate method. This method is applied widely in management, marketing, and finance, where dynamic relationships between variables are the focus (Nair & Filer, 2003; Tirunillai & Tellis, 2012). PVARX is a system of equations that treats the focal variables as endogenous and regresses each variable with the lagged terms of all the endogenous variables. Thus, the time-

related pattern can be estimated. Meanwhile, a set of exogenous variables can be incorporated as control variables because the dependent variables in each equation can be explained by variables other than the lagged endogenous ones. Driven by our theoretical assertions and the nature of the PVARX model specification, we constructed the model using two scenarios, high vs. low MCAP, and we ran the PVARX for each of them. We median-split the samples based on the level of MCAP to obtain the high and low sample groups. This type of grouped longitudinal analysis has been explicitly suggested by and adopted in previous research (e.g., Lim, Currim, & Andrews, 2005; Sismeiro, Mizik, & Bucklin, 2012). MCAP also serves as a control in the model. We then randomly selected half the samples to run the PVARX. We saved the other half as holdout samples for post hoc analysis after we obtained the PVARX results. The PVARX models are specified as follows:

$$\left(\begin{array}{l} (Intiz_{it, hp}) \\ (ROA_{it, hp}) \end{array} \right) = \begin{pmatrix} \xi_{10, hp} \\ \xi_{20, hp} \end{pmatrix} + \sum_{j=1}^J \begin{pmatrix} \xi_{11, hp}^j & \xi_{12, hp}^j \\ \xi_{21, hp}^j & \xi_{22, hp}^j \end{pmatrix} \times \begin{pmatrix} (Intiz_{it-j, hp}) \\ (ROA_{it-j, hp}) \end{pmatrix} + \begin{pmatrix} (Exog) \\ (Set) \end{pmatrix} + \begin{pmatrix} \varepsilon_{1it, hp} \\ \varepsilon_{2it, hp} \end{pmatrix} \\ \left(\begin{array}{l} (Intiz_{it, lp}) \\ (ROA_{it, lp}) \end{array} \right) = \begin{pmatrix} \xi_{10, lp} \\ \xi_{20, lp} \end{pmatrix} + \sum_{j=1}^J \begin{pmatrix} \xi_{11, lp}^j & \xi_{12, lp}^j \\ \xi_{21, lp}^j & \xi_{22, lp}^j \end{pmatrix} \times \begin{pmatrix} (Intiz_{it-j, lp}) \\ (ROA_{it-j, lp}) \end{pmatrix} + \begin{pmatrix} (Exog) \\ (Set) \end{pmatrix} + \begin{pmatrix} \varepsilon_{1it, lp} \\ \varepsilon_{2it, lp} \end{pmatrix} \end{array} \right)$$

$$\left(\begin{array}{l} (Intiz_{it, hp}) \\ (CFV_{it, hp}) \end{array} \right) = \begin{pmatrix} \xi_{10, hp} \\ \xi_{20, hp} \end{pmatrix} + \sum_{j=1}^J \begin{pmatrix} \xi_{11, hp}^j & \xi_{12, hp}^j \\ \xi_{21, hp}^j & \xi_{22, hp}^j \end{pmatrix} \times \begin{pmatrix} (Intiz_{it-j, hp}) \\ (CFV_{it-j, hp}) \end{pmatrix} + \begin{pmatrix} (Exog) \\ (Set) \end{pmatrix} + \begin{pmatrix} \varepsilon_{1it, hp} \\ \varepsilon_{2it, hp} \end{pmatrix} \\ \left(\begin{array}{l} (Intiz_{it, lp}) \\ (CFV_{it, lp}) \end{array} \right) = \begin{pmatrix} \xi_{10, lp} \\ \xi_{20, lp} \end{pmatrix} + \sum_{j=1}^J \begin{pmatrix} \xi_{11, lp}^j & \xi_{12, lp}^j \\ \xi_{21, lp}^j & \xi_{22, lp}^j \end{pmatrix} \times \begin{pmatrix} (Intiz_{it-j, lp}) \\ (CFV_{it-j, lp}) \end{pmatrix} + \begin{pmatrix} (Exog) \\ (Set) \end{pmatrix} + \begin{pmatrix} \varepsilon_{1it, lp} \\ \varepsilon_{2it, lp} \end{pmatrix} \end{array} \right)$$

(i denotes individual firms; t denotes time periods; j denotes time lags.)

This model specification has a number of strengths that enhance our empirical work. First, the lagged formulation sufficiently puts the relationships into time-based dynamic panel data models. Second, the models not only account for the relationships hypothesized in our paper but also include the reverse-loop between the endogenous variables, such as performance → internationalization over time, and therefore better represent reality. Third, firm-specific factors such as size and product diversification control the natural differences between individual firms. Fourth, the set of environmental variables, munificence, dynamism, and competition intensity control for industry heterogeneities.

Before running the PVARX model, the endogenous variables should pass a unit root test to ensure that they are stationary in nature (Nair & Filer, 2003; Tirunillai & Tellis, 2012). In addition, although panel data add advantages to the analysis, such as higher estimation precision, the fixed effects will be a threat. Therefore, we applied the well-known Helmert transformation (Arellano & Bover, 1995) to forward mean-difference on each endogenous variable. This transformation method is preferred to the traditional mean-differencing in that it retains the orthogonality between the transformed variables and the variable lags in the PVARX model and therefore allows us to use a system generalized method of moments GMM with lagged endogenous variables as instrument variables (Grossmann, Love, & Orlov, 2014). The system GMM is chosen because it handles the endogeneity well and is robust to heteroscedasticity as well as satisfying distributional assumptions (Wooldridge, 2001). The results of above PVARX model cannot be directly interpreted toward time-series implications. Rather, they require the use of the impulse response function (IRF) based on the PVARX to show the results. IRF models the dynamic relationship between the impulse variable and response variable by providing the parameters to capture the impacts of one standard deviation of the impulse variable on the response variable. The significance level is obtained using Monte Carlo simulation on the IRF (Tirunillai & Tellis, 2012; Vahid & Issler, 2002).

4.2. Results

Before we ran the PVARX models, we first checked the stationarity of the endogenous variables. We adopted three different unit root tests: Im, Pesaran and Shin Test; ADF-Fisher Test; and Phillips-Perron-Fisher Test. All tests show that the variables are stationary and that using PVARX is appropriate (see Table 4). IRF results are presented in Table 5 and Table 6 for internationalization's impact on ROA and CFV, respectively. We generated significance bands by running a 500-time Monte Carlo simulation, and thus, we can tell whether the impact on each period is significant (see Table 5 and Table 6). To better illustrate the longitudinal effects of internationalization, we created the corresponding graphs with Fig. 1 and Fig. 2.

4.2.1. Short-term impacts for ROA

We define short term as a three-year time span from year 0 to year 2. Barton and Wiseman (2014) found that a significant portion of managers set their strategies within a three-year window and treat the following years as long-term options. This three-year window is also found in other business studies (e.g., Doukas & Lang, 2003; Goldberg, 1996; López, Garcia, & Rodriguez, 2007). One note is that the short term can be further segmented to concurrent impact as well as the lagged effect. Our empirical analysis results show that internationalization does not generate significant influence on ROA for the concurrent year for both high- and low-MCAP firms (year 0). This means that the firm's expansion is unable to generate immediate benefits regardless of whether the firm possesses high MCAP. Rather, it takes time to escalate the positive outcomes. The difference emerges from year 1 in that for high-MCAP firms, internationalization positively affects ROA (IRF = 0.08, $p < 0.05$), and in year 2, the influence increases (IRF = 0.093, $p < 0.05$), supporting H1. This pattern depicts a "build-up" process in which the benefits of internationalization accumulate over time rather than show up at the very beginning. This result precisely reflects the business reality in international business in that firm strategy impact is time-sensitive and echoes the theoretical foundation of the strategy implementation regarding time issues (Doukas & Lang, 2003; Efrat & Shoham, 2012). However, for low-MCAP firms, no significant impact of internationalization is observed. This is in line with many extant studies that suggest the power of MCAP for assisting other firm functions to realize their performance-driving strengths. ROA reflects the ability of a firm to translate its assets into concrete financial returns. Internationalization, combined with high MCAP, can quickly start to increase firm returns in its global markets. This is also supported by the logic of DCT that posits MCAP enables a firm to optimally organize its resources and quickly produces benefits (Li & Liu, 2014). Further, as Greenley, Hooley, and Rudd (2005) observed, MCAP is characterized by rapid information collection and efficient knowledge absorption. These traits further facilitate internationalized firms to quickly grasp market opportunities and gain short-term financial

Table 4
Unit root tests on the endogenous variables.

		ROA	CFV	Internationalization
Marketing capability (low)	Im, Pesaran and Shin test*	-4.86***	-1.86**	-19.69***
	ADF-Fisher test	452.38***	372.19***	517.54***
	Phillips-Perron-Fisher test	540.58***	535.94***	508.95***
	Levin, Lin & Chu test	-26.30***	-17.10***	-180.50***
Marketing capability (high)	Im, Pesaran and Shin test	-9.84***	-9.99***	-20.29***
	ADF-Fisher test	1206.77***	1110.15***	1026.75***
	Phillips-Perron-Fisher test	1561.94***	1276.60***	1206.38***
	Levin, Lin & Chu test	-48.92***	-91.59***	-307.13***

Note: Null hypothesis: unit root.

- * $p < 0.1$.
- ** $p < 0.05$.
- *** $p < 0.01$.

Table 5
Vector autoregressive model results (impacts of internationalization on ROA with high vs. low marketing capability).

Time periods	High		Low		Effect difference test b/w high and low
	Impulse response estimator	Significant at 0.05 level	Impulse response estimator	Significant at 0.05 level	
0	0	No*	0**	No	n.s.
1	0.080	Yes	-0.093	No	***
2	0.093	Yes	-0.081	No	***
3	0.085	Yes	-0.058	No	***
4	0.073	Yes	-0.040	No	***
5	0.062	Yes	-0.027	No	***
6	0.052	No	-0.018	No	n.s.
7	0.043	No	-0.012	No	n.s.
8	0.036	No	-0.008	No	n.s.
9	0.030	No	-0.005	No	n.s.
10	0.025	No	-0.004	No	n.s.

Note:

- The 95% significance level is based on 500 times Monte Carlo simulation of the impulse response functions.
- The effect difference test is based on the t-test on the actual changes when the impulse response functions between high and low marketing capability are applied on the holdout sample.
- n.s. not significant.
- * $p < 0.1$.
- ** $p < 0.05$.
- *** $p < 0.01$.

returns.

4.2.2. Long-term impacts for ROA

We define the long term as the time beyond year three. Given today's fast-changing global markets, sorting out long-term performance drivers is of particular interest to global managers. Our research results display that internationalization places strong long-term influences on ROA (Table 5). However, these influences are only limited to high-MCAP firms (IRF = 0.085, $p < 0.05$; IRF = 0.073, $p < 0.05$, and IRF = 0.062, $p < 0.05$, for years 3, 4, and 5, respectively), supporting H2. Compared to the "build-up" process in the short term, the long-term influence shows a "fade-away" pattern. This is in line with RBV regarding international competitiveness, which posits that competitors may eventually erode a firm's advantage by gaining similar positions, such as the same market entry strategies or similar resource configurations. We must also note that the long-term results observed in the PVARX model is the outcome of a single impulse of internationalization at T0. This does not mean that the firm will necessarily lose its advantages in the long term. Firms are continuously adjusting their

Table 6
Vector autoregressive model results (impacts of internationalization on cash flow volatility with high vs. low marketing capability).

Marketing capability					
Time periods	High		Low		Effect difference test b/w high and low
	Impulse response estimator	Significant at 0.05 level	Impulse response estimator	Significant at 0.05 level	
0	0	0	0*	0**	n.s.
1	-0.082	Yes	-0.037	No	***
2	-0.125	Yes	-0.053	No	***
3	-0.143	Yes	-0.057	No	***
4	-0.144	Yes	-0.054	No	***
5	-0.136	Yes	-0.048	No	***
6	-0.122	Yes	-0.041	No	***
7	-0.107	Yes	-0.034	No	***
8	-0.090	No	-0.028	No	n.s.
9	-0.075	No	-0.022	No	n.s.
10	-0.061	No	-0.018	No	n.s.

Note:

- The 95% significance level is based on 500 times Monte Carlo simulation of the impulse response functions.
- The effect difference test is based on the t-test on the actual changes when the impulse response functions between high and low marketing capability are applied on the holdout sample.
- n.s. not significant.
- * p < 0.1.
- ** p < 0.05.
- *** p < 0.01.

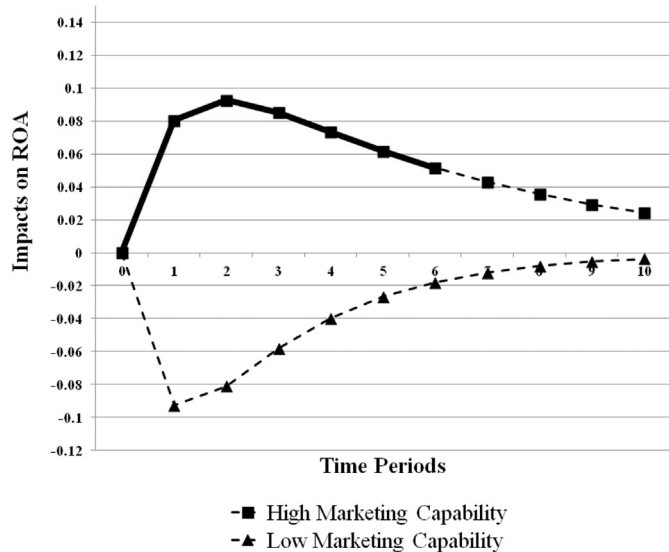


Fig. 1. Impulse response function of internationalization on ROA.

Note:

- The 95% significance level is based on 500 times Monte Carlo simulation of the impulse response functions.
- Solid lines denote significant relationship; dotted lines denote insignificant relationship.

strategies to improve their position, but PVARX allocates precisely which portion of the advantages in each time period can be attributed to a single early strategy movement. MCAP plays an important role in strengthening financial performance driven by a firm's international endeavors. This finding provides empirical evidence that pinpoints the RBV's and DCT's notion of sustained competitive advantages from a special angle. Dynamic capabilities have been treated as necessary protection mechanism that leads to firms' superior positions in the

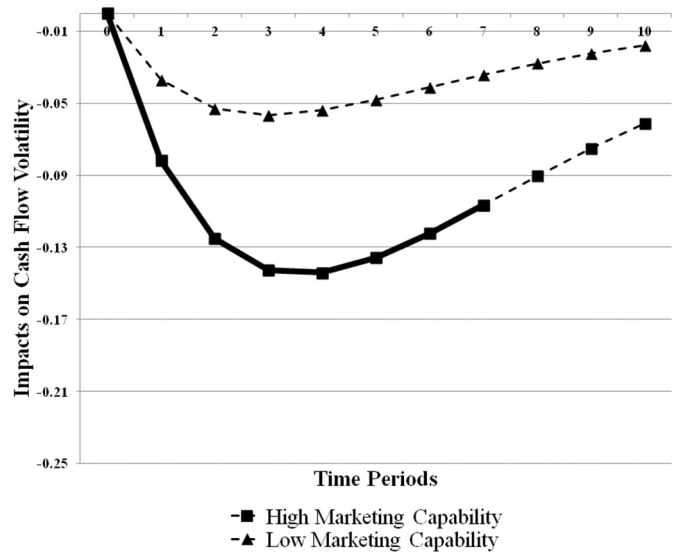


Fig. 2. Impulse response function of internationalization on cash flow volatility.

Note:

- The 95% significance level is based on 500 times Monte Carlo simulation of the impulse response functions.
- Solid lines denote significant relationship; dotted lines denote insignificant relationship.

market (Teece et al., 1997) and further MCAP has been conceptualized to be one of the strongest elements in this mechanism. Our research extends the understanding in that MCAP is capable of extending the positive impacts produced by firm internationalization in the long-run.

4.2.3. Short-term impacts for CFV

Similar to ROA, the concurrent influences of internationalization on CFV is absent, but the “build-up” pattern appears from year 1 (IRF = -0.082, p < 0.05) to year 2 (IRF = -0.125, p < 0.05) and year 3 (IRF = -0.143, p < 0.05), supporting H3. However, the risk reduction effects of internationalization are only available for high-MCAP firms (Table 6). This short-term effect is worth highlighting. Internationalized firms must face numerous uncertainties, such as political risks, unfamiliar local markets, newly established channels, and new form of intra-firm managerial structures. Therefore, globalized firms must manage a dynamic balance between the uncertainties and the benefits they encounter in foreign markets. Thus, it is difficult to quickly transform the firm into a smooth revenue-generating system. This can be seen clearly in our results for low-MCAP firms, where the risk reduction effect of internationalization is constantly insignificant. This may be due to the long-lasting offset effects between supporting and undermining factors related to risk reduction. However, high-MCAP firms can quickly position internationalized firms to decrease performance uncertainties. This finding is supported by DCT which describes firm capabilities as the protection agent for a firm's advantage (Luo, 2000). Our findings support this theory by finding a longitudinal pattern that illustrates the nature of a dynamic capability. This risk-reduction speed of high-MCAP firms also reflects the effectiveness of marketing-side competencies in dealing with underlying international task complexities. Market intelligence-gathering is one of the prominent traits of high-MCAP firms. In addition, these firms are also efficient in deploying available corporate resources, such as customer relationships, market expenditures, and external networks. These combined strengths from intelligence and resource deployment allow international firms not only to prepare reliable plans before foreign market launches but also to cope with unexpected occurrences with a well-organized system that enables them to reduce performance turbulence in a shorter time period.

4.2.4. Long-term impacts for CFV

Compared to the 5-year impact on ROA, internationalization shows a longer effect on CFV (7 years). The “build-up” pattern from the short-term effects extends further into year 3 (IRF = -0.143 , $p < 0.05$) and year 4 (IRF = -0.144 , $p < 0.05$) for high-MCAP firms, supporting H4. Two interesting findings can be discussed. First, when compared to the impact magnitude on ROA (average IRF = 0.0865 for short term and average IRF = 0.073 for long term), high-MCAP firms' internationalization has a stronger effect size on CFV (average IRF = -0.117 for short term and average IRF = -0.127 for long term). Further, the effect size difference is greater for the long term (Δ IRF = 0.054) than the short term (Δ IRF = 0.030). This means that MCAP more effectively assists multinational firms to mitigate uncertainties in their international markets, resulting in lower-income turbulence. This finding echoes the dynamic nature of firm capabilities as conceptualized by previous research, in that capabilities are especially powerful in helping firms cope with market changes (Li & Liu, 2014; Teece et al., 1997). This dynamic nature especially matches the needs of multinational firms to understand and deal with new market conditions. Along the time lines, internationalization's impact on income uncertainties lasts even longer. This is an important finding because previous research in international business mainly focused on returns. However, the risk implications may be even stronger, as revealed by our results. Second, the combined benefits of internationalization on ROA as well as CFV are equally interesting and important because they provide a more profound insight into internationalization, as it seems to impact both returns and risks and therefore plays a role beyond traditional thinking based on either return or risk. In short, a risk-adjusted return may further justify the role of internationalization, which provides a dual contribution for the firm, given superior MCAP.

4.3. Post hoc analysis and robustness analysis

In addition to the main PVARX model, we used the other half of the samples for further analyses. Two objectives are considered with the holdout samples. First, we can examine if the effect difference in each period between the high vs. low MCAP are significant when each of the two groups has significant IRFs during some of the time periods. Second, we can use these sample firms to validate the results from our PVARX. We used the IRF results and calculated the actual impact on the holdout sample firms' ROA and CFV (for high- and low-MCAP firms), and then we use a t -test to compare the means. We found that all the significant IRFs of high-MCAP firms are significantly different from those of low-MCAP firms (which are 0s in our PVARX outcomes). Therefore, our holdout sample provides support for the findings we obtained.

We also conducted a series of robustness checks. In our main model, we used normal-half normal assumptions in the SFM formulation to obtain MCAP. We then changed the assumption to normal-exponential and normal-truncated assumptions to obtain the capability scores. The results were consistent. For the CFV, we chose quarterly data points to capture seasonal fluctuations. We also examined the same models using volatility based on yearly data points, and we adopted other volatility measuring methods, such as the standard error of time-based regressions proposed by Keats and Hitt (1988), and used by many other researchers, such as Boyd (1995) and Rasheed (2005). We did not observe significant differences in the findings. We also changed the time lengths of our samples to the neighboring year boundaries and re-ran the PVARX models. The results were consistent. In our IRF, we used a 500-time Monte Carlo simulation. We further checked a 1000- and a 2000-time runs and the patterns remained consistent.

4.4. Additional analysis

To further evaluate the role of internationalization, we conducted

another PVARX model using firm Tobin's q . This construct has been extensively emphasized in recent business research because it is related both to firm financial returns and to operating income risks such as CFV and thus is an essential component of firm outcomes (Morgan et al., 2009). Tobin's q represents shareholder value and is also prized by other stakeholders such as debt holders. We followed Chung and Pruitt's (1994) approach to obtain the measure of Tobin's q , and we used the same PVARX method to produce the results shown in Fig. 3. The IRFs are embedded in the graph, and significant IRFs are indicated by bold solid lines. The results are consistent with both the ROA and CFV models. Internationalization is found to increase Tobin's q if and only if the firms have high MCAP. Two notable differences can be found in the Tobin's q model. First, the effect size of internationalization seems to be greater in the Tobin's Q model than in the ROA or CFV models. Second, the impact of internationalization seems to be longer in the shareholders model (Tobin's q) than in the financial performance models (ROA, CFV). This means that when shareholders evaluate the firm, the history of international endeavors is incorporated and has an extended reach over time. Third, MCAP is an important indicator that facilitates shareholder decision-making regarding confidence in the firm's international endeavors.

5. Discussion

5.1. Theoretical implications

Our research first contributes to internationalization theory by revealing the authentic roles of new market exploration in the global markets. In the literature, both positive and negative effects of internationalization are found in different pairs of strategy/attributes-performance indicators. Our research helps untangle the mixed findings in several meaningful ways. First, there may be a dynamic balance between the benefits and costs of expanding into international markets. The overall observed performance is the outcome of this balance. When the benefits and costs change in magnitude according to scenario-based conditions, either one of the positive, negative, and neutral relationships can emerge according to these specific conditions. For example, in our research results, firms with high MCAP can reap the positive gains of exploring more markets, while low-MCAP firms cannot enjoy the same benefits. The concurrent positive and neutral relationships, depending on MCAP levels, illustrate the situation well based on the relationship direction and strength. Second, the initial non-significant (at T_0) results but significant in the following years, explains other mixed findings in the literature from a temporal perspective. When research

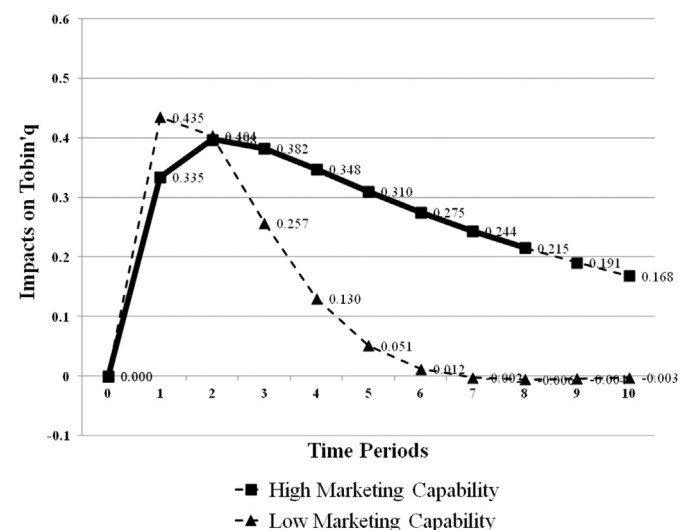


Fig. 3. Impulse response function of internationalization on Tobin's q .

designs are based on the same time period for input and outcomes, they have a higher possibility of discovering fewer or non-significant associations because these designs do not allow for the time effect that firm strategies take to generate effectiveness.

The “build-up” and “fade-away” patterns of the longitudinal impact of internationalization provide implications for internationalization theory. The traditional scope of viewing international strategies—such as market entry, alliance strength, new products, and innovation—are often limited to the cross-sectional associations and fail to account for the impact over time. Exploring these patterns provide theorists a better understanding of the strategy constructs and allow theorists to formulate better analytical models. Further, the “build-up” and “fade-away” pattern also raises caution regarding the evaluation of the strengths of firm strategies. Researchers may automatically assume that the power of a firm strategy will follow a declining curve from its launch time. This might not always be the case. Firm internationalization in our example illustrates that firms need time to configure their resources to achieve the expected performance gains after market entry. Researchers must take the time path into account if they want to paint a precise picture of a firm strategy element.

Further, our research provides additional support for RBV and DCT in an international theory framework. The significant long-term impacts of internationalization for high-MCAP firms provide important insights into the close connections between MCAP and internationalization. Moreover, theorists have long treated international market diversification as an effective risk management tool because the portfolio effect allows the firm to spread out burdens and reduce turbulence because of the possible opposite movement of individual markets. Our research provides evidence that this logic is valid only for firms with high MCAP. For low-MCAP firms, market diversification cannot effectively provide risk-reduction benefits.

5.2. Practical implications

International marketing managers seek evidence to justify their market expansion plans. However, contradictory cases often exist in real business practice. Successful examples as well as failures are seen in multiple industries and international markets. This creates complexities for managers to confidently launch plans for internationalization. Internationalization can be a performance driver, but this effect only occurs when the firm has satisfactory MCAP. Therefore, managers should evaluate firm MCAP and benchmark international competitors as a prerequisite of market expansion. In this sense, MCAP provides a necessary capability to support a firm to implement internationalization and is a pre-condition that global managers should consider on the path toward market expansion.

The long-term effects of internationalization provide another important implication for properly evaluating the outcome of international expansion. Our research provides strong support for executing market expansion initiatives only when the firm has sufficient MCAP. In many cases, managers expect long-term performance, but in reality, it is often difficult to determine what specific factors actually lead to the corresponding performance change. Our model thus provides quantitative evidence for that purpose. In addition, the “build-up” and “fade-away” patterns displayed provide managers with guidelines as to how they should expect their market expansion initiatives to yield observable results.

Our study's finding that multinational firm income volatility can be mitigated by international expansion with the support of high MCAP provides strong support for risk management. Additionally, our finding using Tobin's q further strengthens this proposition. Shareholders more heavily weigh a firm's internationalization in their valuation system when they observe that the firm has sufficient power to deploy and control its marketing resources.

Our research also yields important insights into “born global” firms. These firms rapidly develop international expansion into markets. The

initial absence of returns should not be considered a sign of inferior management or problematic expansion plans; rather, resource configuration and functions take time to develop and are contingent upon capabilities.

5.3. Limitations and future research

Due to the specific nature of PVARX it is infeasible of evaluating meaningful IRF for continuous moderators. MCAP had to be split into high vs. low groups which causes the model to incur a certain degree of information loss. Also, the current study is primarily focused on revealing longitudinal relationships based on a single internationalization construct. However, this construct also contains a number of aspects, such as supplier base, production centers, innovations, and customer base. These individual aspects of internationalization can be further examined using longitudinal studies to show their idiosyncratic contribution or negative impact on firm performance. More interestingly, the strength and direction of the impact can be further contrasted to show how these inherently different but practically joined terms may impact the firm in different ways.

In this paper, we include only MCAP as the main moderating factor. However, within the boundary of DCT, a firm has other important capabilities that can also be used in research settings similar to those outlined in this research. For example, future studies can examine internationalization to determine the effects under high vs. low technological capability. In addition to capability types, a firm's key resources and assets can also be incorporated to enrich our understanding of the role of internationalization. For example, the corporate learning mechanism may play an important role in this domain. How firms acquire, absorb, and implement knowledge in international markets becomes an interesting and meaningful avenue for research in today's big-data era. Additionally, a firm's inherent nature such as firm size, age, as well as industry sectors such as manufacturing vs. service oriented businesses can also be the candidates of new moderating factors that are likely to significantly add knowledge in this direction.

Given the specific objectives of this paper, we only use environmental factors such as munificence, dynamism, and competition as exogenous variables in the PVARX model. However, in the real business world, environmental factors constitute another critical system likely to influence or determine firm factors to gain performance. In the literature, these environmental factors are formulated into moderating roles, along with many other firm factors. In this sense, future research can also consider how internationalization impacts firms at different levels of external situational aspects.

6. Conclusion

Our research makes the first attempt to model the longitudinal relationship between internationalization and performance into a moderated framework based on the firms' marketing competency. This approach is necessary to reveal the authentic power of international diversification along the time line, which has been largely neglected in the extant literature. The moderated framework significantly enriches the time-series relationships because our results clearly demonstrate the varying effects of internationalization on firm performance. For high marketing capability firms, internationalization may yield long-term beneficial results but for low marketing capability firms, firms' international expansion may not be effective in helping the firm achieve performance. Our research considers both financial returns and risks when examining this relationship and we find that the significance of marketing capability in driving internationalization's long-term effects is consistent across firm performance measures.

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