The impact of manager's demographic characteristics on prospector strategy, use of management accounting systems and financial performance

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Abstract. Managers need the support of management accounting system (MAS) in making decisions and controlling activities. This article investigates the factors of CEO's personal characteristics that influence the choice of an appropriate prospector strategy and the intent of using MAS information. Besides, the moderating role of internal locus of control (ILOC) in such relationships was also examined in this research. The sample in this study includes CEOs of large and mid-sized companies in Vietnam. To test the hypotheses, we used the PLS-SEM method. The results indicate that all the effects are significant, except for the direct impact of age on financial performance and the moderating role of ILOC between education and the choices of prospector strategy. This study contributes to the accounting research field by confirming the role of managers' characteristics, recognizing the important role of MAS and helping managers in designing MAS suitable with the specific characteristics of CEO. As a result, managers can operate firms more effectively.

1. INTRODUCTION

Accounting information is useful information helping managers in their decision-making (Demski, 2013). MAS is a sub-control element of "an overall organisational control package" (Otley et al., 1995, p.421) and a controlling & planning system that concentrates on reducing expected performance gaps before implementing the strategy and in the process of implementing the selected strategy (Downs, 1967). Therefore, MAS information is extremely important for the managers implementing strategies. However, the extent of MAS information use by managers in making decisions related to strategy implementation and performance improvement depends on several factors and also on the general context (Chenhall, 2003).

Demographic characteristics have an essential role not only in the results obtained from making managerial decisions but also for the level of success in implementing strategies (Jespersen & Bysted, 2016). Some researchers have studied how technically oriented education of top management impacts on their style of using interactive MAS (Wijesinghe & Samudrage, 2016). Others have studied how younger generation of managers with a different education is using innovative MAS in their strategy building (Naranjo-Gil et al., 2009; Wijesinghe & Samudrage, 2016). However, in an emerging market such as Viet Nam, with rational resources in many perspectives, the use of innovative MAS is not suitable but traditional MAS is rather used instead. However, research studies concerning age and educational background of Vietnamese managers and their impact on the use of traditional MAS is very limited (Hiebl, 2014). In addition, studies investigating the use of MAS information are often not concerned with the financial performance achieved by organization (Naranjo-Gil & Hartmann, 2006; Wijesinghe & Samudrage, 2016). Notably, in Hambrick (2007) two moderator variables were updated in UET, but more recent studies have not really paid attention to this. For example, Hambrick & Finkelstein (1987) indicated that ILOC has a moderator's role, but has not been interested in management accounting research (Wangrow et al., 2015).

Hambrick & Mason (1984) were the first to introduce UET. Then, UET was reinforced and supported by Hambrick & Finkelstein (1987), Hambrick et al. (2005), Hambrick (2007) and Hiebl (2014). Recently, in the field of management accounting, UET has been used more actively but still, in a very limited scope (Hiebl, 2014; Zor et al., 2019). This study examines two characteristics (education background and age) that affect the choice of strategies, using MAS information and financial performance of businesses. The moderating role of ILOC is also considered.

This research contributes to management accounting literature in many different ways. In the proposed framework, the authors examine the linkages between age and education background, MAS information use, the choices of prospector strategy, and financial performance for empirical analysis. The ILOC's moderating roles on some relationships are also examined. We used PLS-SEM to test the hypotheses (Wold, 1980). The measurement model and the structural model are assessed during the analysis process through two steps.

The next two sections present the background theory. Based on that, the theoretical model is presented. These sections end with the hypotheses to be tested. Following are the results and discussion. Limitations and directions for further studies are presented in the final section.

2. LITERATURE REVIEW

2.1. Upper Echelon Theory (UET)

After 1984, UET has much attention by researchers because demographic characteristics and psychological characteristics affecting the decision of high managers (Liem & Hien, 2020; Nielsen, 2010).
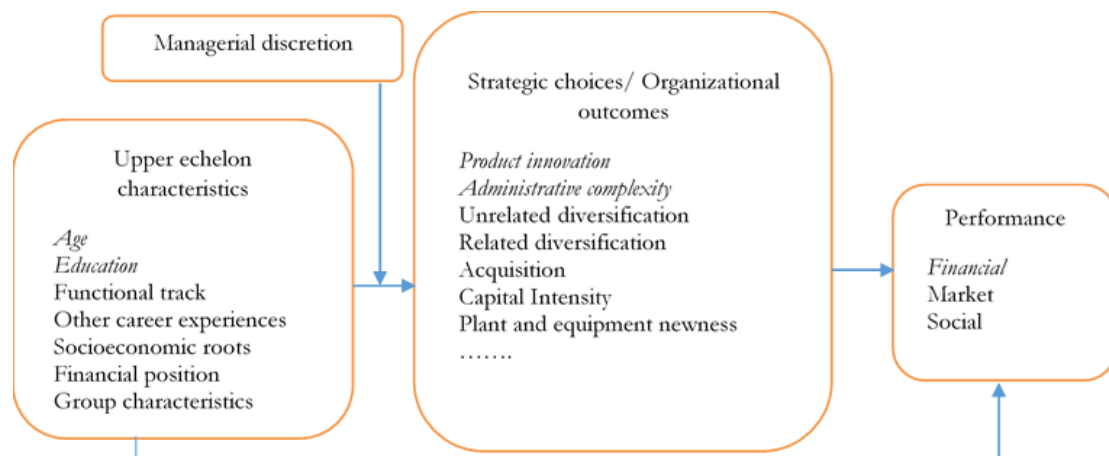
Figure 1. Model of UET (Adjusted from Hambrick & Mason, 1984 and Heibl, 2014)

However, the method of measuring values and perceptions is complex and inaccurate. As a result, observation and measurement based on upper managers' demographics characteristics is used as an alternative method (Hambrick & Mason, 1984). Managerial discretion has been updated for UET (Hambrick, 2007; Hambrick et al., 2005) and the relationship between upper managers and strategic choices/outcomes is moderated by managerial discretion.

2.2. Demographic characteristics of managers

The age of managers (Colombelli, 2015) and their education background (Damanpour & Schneider, 2006) are considered to be the easiest factors to be observed and measured but they have a strong influence to the behavior of managers. More specifically, self-confidence, information use, risk-taking ability in decision making of upper managers are influenced by their age (Hambrick & Mason, 1984). The education background is considered as a representative factor to build the psychology, which influences the way upper managers are awarded by the world around them and have appropriate information processing (Finkelstein et al., 1996; Hambrick & Mason, 1984). The difference in academic background between business-oriented senior executives (economics, business, law, etc.) and other Non-business-oriented administrators (e.g. like engineering, physics and medicine, etc.) explains why many senior executives know the problems, have more knowledge or have better ways to solve the problems (Song, 1982).

2.3. Prospector Strategy

Research by Miles et al., (1978) divided organizational strategies into four categories: Defender, Prospector, Analyzers, and Reactors. Prospectors with characteristics like to respond quickly to environments, create and exploit new product and market development. They are also more dynamic than organizations in the same industry. During the analysis of each strategic trait, Miles et al., (1978) evaluated prospector strategy with the highest level of risk because this strategy needs a lot of corporate resources, and if the business does not control and not provide good supervise observation the financial harm will be potentially occurred.

2.4. Management accounting system (MAS)

Organization's outcome, a complex administrative or an aspect of organizational structure are characteristics of MAS (Chenhall, 2003; Chenhall & Morris, 1986; Strauß & Zecher, 2013). MAS has four

dimensions including broad scope, timeliness, aggregation, and integration (Chenhall & Morris, 1986; Liem & Hien, 2020). In prospective of scope, MAS would not only contain helpful information helping managers run organization, financial information in nature and essential history but also provide information that is external, non-financial, and future oriented. Characteristic of timeline information related to the frequency of reporting and rapid feedback (Liem & Hien, 2020). The aggregation of information according to functional areas is characteristics of aggregation information, and finally, integration relates to the information sharing between sub-units (Liem & Hien, 2020). UET believes that the use and design of a MAS can be expected to be influenced by the characteristics of the upper managers.

2.5. Internal Locus of control (ILOC)

ILOC is defined by the latitude of managerial action of decision maker (e.g., a top manager) in a known circumstance (Hambrick & Finkelstein, 1987). Leaders will have a wider range of options when they have higher discretion (Campbell et al., 2012), with a broader latitude of action (Hambrick & Abrahamson, 1995). Demographic characteristic of CEO, choice of strategy and a complex administrative system are moderated by managerial discretion's role (Liem & Hien, 2020). Reflecting managerial discretion by individual factors are less studies (Wangrow et al., 2015). This study concentrated strategic behaviour (Powell et al., 2011), so characteristics of individual level is chosen to represent for managerial discretion. In characteristic of CEO, locus of control (LOC) is the psychological characteristics of managers that have an impact on their decision (Hambrick & Finkelstein, 1987; Liem & Hien, 2020). Two components in LOC are: internals and externals of LOC. CEOs have propensity with ILOC believes their own actions and efforts will affect to their livesand these characteristics will explain behavirors in strategic leadership (Liem & Hien, 2020). From above reasons, this research chooses ILOC as a modesrate variable between characteristics of CEO and using MAS, choices of prospector strategy.

2.6. Hypothesis development

2.6.1. Age, education background and choices of prospector strategy

When age rises, flexibility falls. Besides, conservatism and resistance to change rise (Wiersema & Bantel, 1992). Upper managers are less oriented towards big changes in organizations because of great level of risks. Especially, managers of higher ages are not capable for risky strategies (Seo & Sharma, 2018) because they have been reduced their ability to assess new ideas quickly and integrated to make decisions to actions (Hambrick & Mason, 1984). In contrast, younger upper managers have propensity to take risk and tend to implement new projects that can promote their careers in the future (Finkelstein et al., 1996). Upper managers with younger ages are more suited to higher risk strategies (Hambrick & Mason, 1984). Therefore, lower age CEOs will favor to choose a risky strategy like prospector strategy (Miles et al., 1978).

H1a: *The lower age of CEOs has positive impact on choices of prospector strategy.*

Based on UET, the strategies selection in the typologies of Miles et al. (1978) will be influenced by the CEO's education background (Hambrick & Mason, 1984; Pavlatos, 2012). A person with technically oriented education background generally has a different cognitive base compared to a person with business oriented (Hambrick & Mason, 1984). However, the ability to excellently plan finances and effectively control business resources tends to favor managers with a business orientated background education (Naranjo-Gil & Hartmann, 2007). In addition, they can also offer a good use of accounting information from a system administrative complexity (Rasid et al., 2014). So that, with business orientated education background, CEOs will have the ability to control risks better than uppers managers with non-business orientated

education background. The above characteristics of business-oriented managers are essential for the choosing and pursuing of a risky strategy. As a result, uppers managers with business orientated education background will have more confidence and assertiveness in choosing prospector strategy.

H1b: *CEOs with the more business orientated education background have positive impact on choices of prospector strategy.*

2.6.2. Age, education background and use of MAS information

The higher the age of the managers, the lower the ability to use information and confidence to make decisions. Although, the searching for better information and the assessing the accuracy of information is better. At the same time, higher age CEOs take more time to make decisions (Taylor, 1975) so they don't need accounting information timely, broad scope, integrated and aggregated because they need long time to carefully consider before making decision, and they are more suitable to style of interactive use of MAS (Wijesinghe & Samudrage, 2016). In the same view, decision-making, controlling and performance evaluation is significant negatively associated with CFO age (Pavlatos, 2012). In addition, to react quickly and create profits for businesses, CEOs must take risks in the decision-making process. This risk-taking is appropriate for CEO lower age so they are more risk management implementation (Lee & Moon, 2016). Four perspectives of MAS have positive relationship with risk management activities (RMA) (Rasid et al., 2014). Besides, MAS provides information that is broad in scope, integrated, aggregated and be provided timely (Chenhall & Morris, 1986).

H2a: *The lower age of CEOs has positive impact on using MAS information.*

Most upper managers are trained and provided with basic knowledge in the areas of accounting and finance, or generally the business sector. However, there are still differences in using MAS information to implement the strategy, which depend on the level of the main academic background that they have prepared for their career (Hiebl, 2014). Managers with a business orientated are more confident to use of financial information. Since, this type of MAS information related with administrator of organizations (Finkelstein et al., 1996; Song, 1982). Besides, with perceived environmental uncertainty, the timelier, integrated and aggregated accounting information helps managers timely response to the fluctuation of environment (Chenhall & Morris, 1986). In contrary, managers with the propensity of technical orientated are positively related to use MASs with interactive style, positive use of innovative MASs (e.g. ABC, BSC, benchmarking) (Naranjo-Gil et al., 2009) and negative influence on using traditional MAS (Wijesinghe & Samudrage, 2016).

H2b: *CEOs with the more business orientated education background have positive impact on using MAS information.*

2.6.3. Age, education background and financial performance

Higher age managers have less tolerance for both health and well-being (Child, 1974) or at least they are not good in creating new ideas or learning new decision-making behaviours (Chown, 1960). In contrast, lower age managers try to create new things, solve problems and make decisions in a new way, as well as accepting risks, which lead to a sudden financial change of organization (Hambrick & Mason, 1984). Therefore, business performance is much higher or lower than the industry average because it depends on the success of the pursuing strategy (Hambrick & Mason, 1984). In summary, lower age managers may be more taking risk, fast to accept new ideas and take actions, in the other face, higher age managers have more experience and more time to develop powerful parties. All of these advantages are necessary for decision making to achieve high performance. A recent research indicated that the higher age managers have positive impact on firm performance (Wei et al., 2005).

H3a: *The higher age of CEO has positive impact on firm financial performance.*

The researches in medical, managers 's medical education toward take care and improve health for patient rather than the improvement financial performance of overall organization (Kurunmäki, 2004). Top managers with a non-business orientated education are more favour with the technical and operational process of the organization than managers with business orientated education. They are good at improving the content of processes (Finkelstein et al., 1996) and less towards improving the efficiencies of finance (Song, 1982). They also little focused on gains controls and efficiencies. In contrast, inclined toward the detailed control of outcomes of activities and processes has a positive relationship with manager in business education (Armstrong, 1987), because of the confidence, rely on distant and financial controls when managing the organization (Finkelstein et al., 1996; Song, 1982).

H3b: *CEOs with the more business orientated education background have positive impact on firm financial performance.*

2.6.4. Choices of prospector strategy and financial performance

Based on UET, the influence of choices strategy on performance is clearly shown. Therefore, there is a sufficient ground to indicate that a specific strategy like the choices of prospector strategy impact on firm financial performance. However, several studies had conflicting results about the choices of prospector influence on financial performance. Some researchers indicated that both financial performance and non-financial performance is influenced by prospector strategy (Köseoglu et al., 2013). In contrast, choices of strategy do not statistically significant influence financial performance (Chong & Chong, 1997). Starting from these conflicts, however, relying on a positive mind set, choosing an innovative strategy like prospector strategy to meet the uncertainty environment impact on performance.

H4: *The choice of prospector strategy have positive impact on firm financial performance.*

2.6.5. Choices of prospector strategy and use MAS information

Organizations pursuing prospector strategy, information on a wide range of issues and timelier, integrative, aggregated and broader information areuseful for day-to-day decisions (Bouwens & Abernethy, 2000; Chenhall & Morris, 1986). Besides, to face with prospector strategy's risk mess, risk management activities is supported by MAS information (Soin & Collier, 2013). In risk measurement, the more aggregated, reported and monitored about the risk, the more important roles of MAS, because in decision making process, MAS provide information for managers help them reduces the uncertainty (Winter, 2007). Risks deal with future events while broad scope MAS, which are future oriented, timely information, are required to respond to risk. Moreover, data integration is a key advantage for risk management, aggregated information summarizes informationthat expedite decision-making process (Rasid et al., 2014). The impact of certain decisions can be determined.

H5: *Choice of prospector strategy haspositive impact on use MAS information.*

2.6.6. Use MAS information and financial performance

Financial performance is impacted directly by using MAS information. Manager's knowledge can be having from MAS information when information can be processed and converted into knowledge of managers. At that time, for competitive advantages, MAS information becomes a unique strategic resource of managers. MAS can support managers' decisions to response to dynamic of environmental such as predicting the change of customer's need, facing to competitor's actions, continuously launched new products (Chenhall & Morris, 1986). MAS is not only one part of management control system (Collier, 2015) but also "can be used to compare and contrast the results obtained by each activity" (Otley, 1980, p.64) "when implementing the strategy, thereby promoting the search for the wrong cause" (Downs, 1967),

helps managers making decisions to change the allocation and the use of resources (Collier, 2015, p.39). So, with the useful features of MAS information help CEO to make decisions, that enhance the organization's performance.

H6: *Using MAS information has positive impact on firm financial performance.*

2.6.7. The role of Internal Locus of control

To have better in coping with complex and unstable environments, CEOs need higher ILOC (Miller & Friesen, 1982) so that performance degradation will be minimized because they manage better in emotional exhaustion, reducing depersonalization, and increasing professional (Sirén et al., 2018). Moreover, with the difference of leadership abilities, CEO can use persuasion more often to influence others' behaviour, and they trust in their capacity to influence the environment (Boone et al., 1996). In Wangrow et al. (2015)'s review indicated that because of the riskiness of this strategy, the more firms' choice and pursuing prospector strategy, the more managerial discretion. Therefore, the more the confidence of CEO, the more the prospector strategy is choiced by CEO. Based on H1a, H1b; as lower age of CEO and education background of CEO are business, CEO increases choices of prospector strategy so that relationship between lower age, business orientated education and choice of prospector strategy greatly increases when ILOC of the CEO increases.

H7a: *CEO with the more ILOC propensity, lower age impact on choice of prospector stratey will be stronger.*

H7b: *CEO with the more ILOC propensity, business orientated education background impact on choice of prospector stratey will be stronger.*

When executing the selected prospector strategy, control system to control whether or not the work is being done according to the plan and timely action if work didn't like they expected. However, this system must suitable with their characteristics. When information is relevant and when it is not useful for managers oriented on ILOC (Lefcourt, 1982). Between different parts of the organization, the ability of MAS can be synthesized and integrated information (Collier, 2015, p.42). So, MAS is seen as a preeminent technology from the creation of strategies to implementing them and providing clear accountability for integrating diverse activities (Otley et al., 1995), also we can say that if the more increase of ILOC's moderate role, MAS information is perceived to be useful and relevant by CEO. Based on hypothesis (H2a, H2b), above, as lower age of CEO and education background of CEO are business orientated, CEO increases using frequency of MAS information so that the relationship between lower age, business orientated education and using MAS information increases when ILOC of CEO increases.

H7c: *CEO with the more ILOC propensity, lower age impact on using MAS information will be stronger.*

H7d: *CEO with the more ILOC propensity, business orientated education background impact on using MAS information will be stronger.*
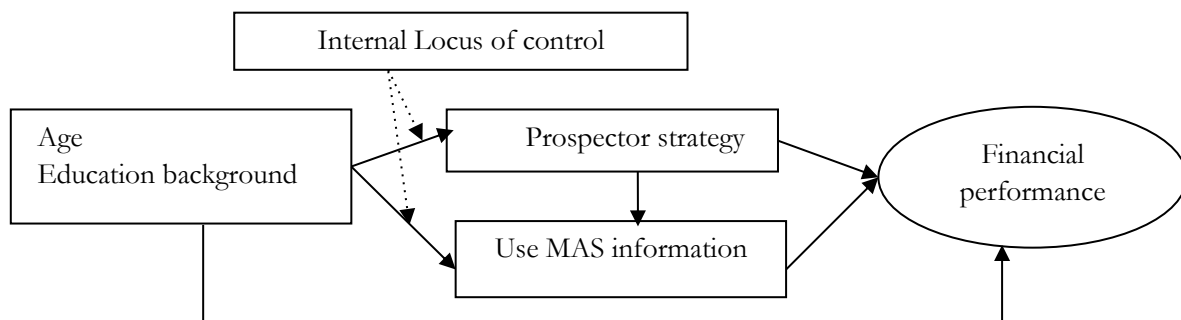
Figure 2. Proposed model of research
Source: Own elaboration

3. METHODOLOGY

3.1. Measurement

The exact age is used to measure the age of CEO (Pavlatos, 2012). The measurement of Naranjo-Gil et al. (2009) is used to measure CEO's educational background. Each CEO was asked to state their educational background in years of studies (college, bachelors, master degrees and courses attended) in two streams: (1) business orientated and (2) non-business orientated. Following, the variable "educational background" is measured by dividing the years studied in business programs with the total years of studies.

The MAS is adapted from the scale of Chenhall & Morris (1986), Agbejule (2005). As such, CEO was required to indicate the rate "extent of use" of MAS information in four perspectives consist of integration (four items), broad scope (four items), aggregation (three items) and timeliness (four items) in each organization. Prospector strategy is measured using the scale of 1-7 from (Segev, 1987). This research based on Mueller & Thomas (2001)'s measurement of LOC was adapted from the scale of Rotter (1966)'s. Firm performance is adapted from the scale of Calantone et al. (2002). This measurement scale includes five indicators: Return on sales (ROS), Return on investments (ROI), Sales growth, Return on assets (ROA) and Overall profitability.

3.2. Sample and data

This study is conducted in Vietnam, an emerging economy. A data set of 234 large and medium firms is featured. To have enough characteristics of CEOs and firms. E-mail surveys are then distributed to CEO from different Vietnamese business organizations.

CEOs of business organizations in Vietnam are chosen to send e-mails surveys. Based on e-mail addresses is collected from websites of businessperson association, department of planning and investment, and websites of businesses. 2,500 surveys were distributed to CEOs. An invitation letter with a link to the web-based survey was sent to CEOs' email addresses. This method has weaknesses of response errors (respondents provide inaccurate data) and non-response errors (target respondents do not reply). Non-response may cause a problem in the estimates of a survey if there are systematic differences between respondents and non-respondents. To deal with this problem, appropriate procedures were carried out, such as contacting the right person, following-up by sending reminder emails. Reminder mail was sent to the respondent every 2 weeks for 2 months after sending, in order to encourage feedback. Out of the 562 managers who clicked on the link to participate, only 317 answered the questions; 287 out of these 317 participants completed the questionnaires and submitted them; 38 responses from CEOs in small enterprises were excluded; 15 missing cases were removed from the data. Finally, 234 cases were used for data analysis providing a response rate of 41.8% (234 eligible responses/562 cases agreed to participate).

4. EMPIRICAL RESULTS

We used SPSS24 for basic statistical analysis. To be primarily for path analysis, we used Partial least squares-structural equation modelling (PLS-SEM) (Wold, 1980).

4.1. Respondents Profile

A data set of 234 large and medium firms is featured. The sample is restricted to this kind of firm only as it possesses sufficient financial resources to operate and the need to design a management accounting system.

Table 1

Demographic characteristics

Gender	Freq.	%	Education Background	Freq.	%
Male	147	63	Pre-undergraduates	18	8
Female	87	37	Undergraduates	123	53
Total	**234**	**100**	Post-graduates	93	40
Tenure (years)			**Total**	**234**	**100**
1-5	27	12	**Age**		
6-10	82	35	18-29	15	6
11-15	67	29	30-49	93	40
15-20	48	21	50-64	98	42
>20 years	10	4	>64	28	12
Total	**234**	**100**	**Total**	**234**	**100**

Source: Own development

Table 1 show that, the final sample reflects 63 percent of male CEOs and 37 percent of female CEOs. CEOs have an average working time of 12 years. This shows that they have enough degree of influence over the organization in which they are working. The sample comprises 8 percent pre-undergraduates, 53 percent undergraduates, and 40 percent post-graduates. it shows most CEO education background are undergraduates. The age ranges from 30-64 for the highest percentage of the respondents.

4.2. Measurement model

Harman's single factor test was employed to evaluate the common method bias. All measurement constructs, we accompanied Un-rotated factor analysis (Excluding education and age) extracted 7 factors. The first factor accounts for 35.12% (<50%) of the total cumulative variance of the 7 factors is 76.6%. Thus, the Common method bias in this study is not a serious problem (Podsakoff et al., 2003).

Internal reliability is used to assessed scale reliability, Cronbach's alpha and rhoA is used to evalue composite reliability (Dijkstra & Henseler, 2015; Nunnally & Bernstein, 1994; Sarstedt et al., 2017). Outer loading of items greater than 0.7 and AVE of contructs greater than 0.5 are acceptable (Hair et al., 2016) are conditions of convergent validity. Bootstrapping 5000 timses was performed to test the results of the measurement model and to test the research hypothesis (Hair et al., 2016).

Table 2

Reliability and convergent validity of the scales

Construct	Cronbach's alpha	CR	rhoA	AVE
1. Age	1.000	1.000	1.000	1.000
2. Aggregation	0.767	0.851	0.763	0.581
3. Broad scope	0.896	0.928	0.898	0.763
4. Education	1.000	1.000	1.000	1.000
5. Financial performance	0.834*	0.884*	0.866*	0.787*
6. Integration	0.873	0.911	0.892	0.807
7. MAS information	0.878	0.922	0.891	0.759
8. Prospector strategy	0.863	0.901	0.887	0.786
9. Timeline	0.841	0.876	0.857	0.728

Note: * Reject ROS
Source: Own development

The test results of reliability and convergence value in Table 2 show that the cronbach's alpha, Composite reliability coefficient is in the range [0.7; 0.95] and rho coefficient greater than 0.5. This shows

the scales for measuring the concepts in the model to reach reliability. the AVE and outer loadings values are used to evaluate the convergence value of the scale. ROS variable has outer loading = 0.46 <0.5, so remove this variable from the Financial performance. The test results show that the AVE value of the scales are greater than 0.5 and the outer loadings of the observed variables are greater than 0.7, so the scales reach convergence value (Figure 3).

Cross-loading factor coefficient, HTMT ratio and Fornell-Larker criterionis is used to evaluate discriminant values of concepts (Dijkstra & Henseler, 2015; Hair et al., 2016). Test results cross-loading show, Cross-loading coefficient in its structure is much larger than in other structures. Besides the results of Fornell-Larcker criterion (Table 3) and factor HTMT (Table 4) present that the scale ensures discriminating value.

Table 3

Fornell-Larcker criterion

Constructs	1	2	3	4	5	6	7	8	9
1. Age	**1.000**								
2. Aggregation	0.312	**0.917**							
3. Broad scope	0.346	0.611	**0.873**						
4. Education	0.629	0.305	0.316	**1.000**					
5. Financial performance	0.546	0.215	0.149	0.285	**0.695**				
6. Integration	0.226	0.636	0.662	0.305	0.068	**0.897**			
7. MAS information	0.362	0.638	0.661	0.368	0.185	0.622	**0.812**		
8. Prospector strategy	0.625	0.393	0.408	0.655	0.544	0.291	0.438	**0.886**	
9. Timeline	0.428	0.647	0.651	0.396	0.239	0.630	0.697	0.487	**0.900**

Source: Own development

Results from run bootstrap 5.000 times, factors have statistically significant, with a significance level less than 5% (p-value < 0,05, test t 2-tails).
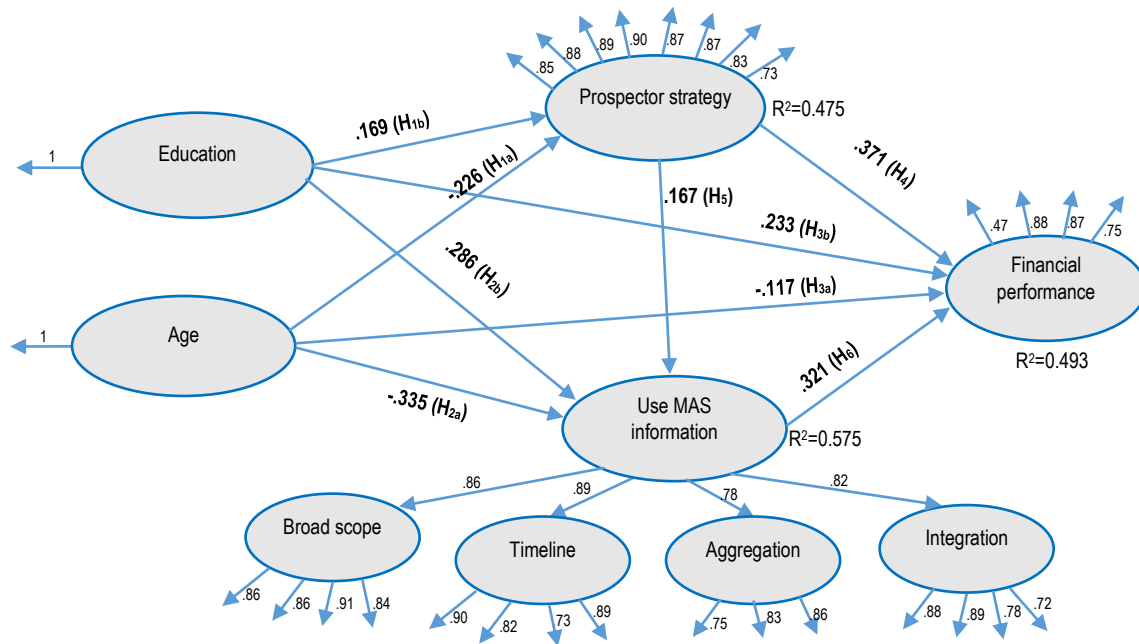
Table 4

Heterotrait-Monotrait Ratio (HTMT)

Constructs	1	2	3	4	5	6	7	8	9
1. Age									
2. Aggregation	0.312								
3. Broad scope	0.369	0.786							
4. Education	0.629	0.318	0.334						
5.Financial performance	0.670	0.253	0.232	0.374					
6. Integration	0.226	0.913	0.839	0.317	0.188				
7. MAS information	0.368	0.895	0.934	0.375	0.255	0.880			
8. Prospector strategy	0.842	0.418	0.439	0.669	0.679	0.307	0.454		
9. Timeline	0.442	0.781	0.712	0.410	0.274	0.768	0.749	0.513	

Source: Own development

4.3. Structural model

Variance-inflating factor (VIF) is used to evaluated multicollinearity between independence variables. The scale of Prospector strategy had VIF = 0.253 (lower 0.5), so it appeared multicollinearity but trivial, can be acceptable (Hair et al., 2016). The remaining scales have VIF<2, so they didn't appear to be

multicollinearity.

Figure 3. The results of theoretical model analysis by PLS-SEM
Source: Own development

R^2 value is calculated to assess the predictive capability of dependence variables (Hair et al., 2016). The results in table 5, R^2 value of MAS information is 0.575, Prospector strategy is 0.475 and Financial performance is 0.493, which can be considered to have an enough level of prediction (Hair et al., 2016). Besides, predictive relevance (Q^2) is also used to evaluate the out-of-sample predictive power. The factor Q^2 of dependence variables is greater than 0. Consequently, it supports the predictive power of the model. Results of testing the theoretical model with bootstrap 5.000 times in model PLS-SEM show, exclude the relationship between Age and Financial Performance is not statistically significant. Besides, the remaining relationships in the theoretical model are statistically significant with reliability greater than 95% (Table 5).

Table 5

Hypotheses testing results

Relationships	Coefficient	t-value	p-value	Hypothesis
H1a: Age → Prospector strategy	-0.226	6.375	0.000	Support
H1b: Edu → Prospector strategy	0.169	2.508	0.037	Support
H2a: Age → MAS information	-0.335	8.817	0.000	Support
H2b: Edu → MAS information	0.286	4.861	0.000	Support
H3a: Age → Financial Performance	-0.117	1.101	0.271	Reject
H3b: Edu → Financial Performance	0.233	4.623	0.000	Support
H4: Prospector → Financial Performance	0.371	6.422	0.000	Support
H5: Prospector → MAS information	0.167	5.029	0.000	Support
H6: MAS information → Financial Performance	0.321	6.978	0.000	Support
R^2MAS information = 0.575	Q^2MAS information = 0.356			
R^2Prospector strategy = 0.475	Q^2Prospector strategy = 0.357			
R^2Financial performance = 0.493	Q^2Financial performance = 0.315			

Source: Own development

Testing the moderator of Internal Locus of control is a major objective in this research. To test the role of the moderator variable, first, evaluating the measurement model in the presence of the Internal locus of control variable. The results indicate that the measurement concepts are reliable and valuable. Next, to assess the impact of the moderator variable, the two-stage approach (Chin et al., 2003) was applied. The first phase was used to estimate the main impact model, while the second phase multiplied the moderator variables and exogenous variables to measure interaction terms (Age x Internal locus of control; Edu x Internal locus of control; Age x Internal locus of control; Edu x Internal locus of control).

Table 6

Tests for moderating effects

	Coefficient	R^2	p-value
Age → Prospector strategy	-0.215	0.493	0.000
Age x ILOC → Prospector strategy	0.102		0.000
ILOC → Prospector strategy	0.257		0.000
Edu → Prospector strategy	0.122	0.420	0.043
Edu x ILOC → Prospector strategy	0.039		0.203
ILOC → Prospector strategy	0.197		0.000
Age → MAS information	-0.316	0.592	0.000
Age x ILOC→ MAS information	0.096		0.024
ILOC → Prospector strategy	0.215		0.000
Edu → MAS information	0.264	0.576	0.000
Edu x ILOC→ MAS information	0.125		0.000
ILOC → Prospector strategy	0.278		0.000

Source: Own development

Results in Table 6 shows that the ILOC does not play a moderator role in the relationship between Education and Prospector strategy (p- value = 0.203 > 0.05, Reject hypothesis H7b – See table 6). The remaining hypotheses are statistically significant (p-value < 0.05).

5. CONCLUSION

5.1. Theoretical implications

In this study, some theoretical implications as follows: Firstly, the impact direct between demographic characteristics (age, education) of CEO and choices of prospector strategy (Hambrick & Mason, 1984; Song, 1982; Wijesinghe & Samudrage, 2016), MAS (e.g. Wijesinghe & Samudrage (2016); Naranjo-Gil et al. (2009); Pavlatos (2012), financial performance (Hambrick & Mason, 1984; Hiebl, 2014) was examined. However, the impact of age on financial performance is not significant. This result agrees with research of Hambrick & Mason (1984) and Bertrand & Schoar (2003) because they concluded that higher or lower performance depends on the success of chose prospector strategy. This study also supports for positive influence of MAS on financial performance.

Secondly, the moderator role of ILOC between age, education and choices of prospector strategy; use MAS information was tested, which had not been examined in previous studies. Although, the moderate role of ILOC of CEO in relationship between education background and choices of prospector strategy is not supported but this study provides. Further, through empirical evidence, the result in this study indicated the importance role of CEO's ILOC in decision making choices of prospector strategy to enhance the financial performance of firms in an emerging economy like Viet Nam.

Finally, this study helps to reduce the shortage of researches at age, education of CEO/strategy/accounting interface (Hiebl, 2014; Naranjo-Gil & Hartmann, 2006, 2007; Pavlatos, 2012;

Zor et al., 2019). More obviously, model representsthe combination between age and education of CEO, a personality characteristic (ILOC), and a marketing variable (choices of prospector strategy) and an accounting variable (the use of MAS) in the theoretical model.

5.2. Managerial implication

The model of Hambrick and Mason was reinforced by this study 's result. So, this study also confirmed the applicability of UET in Vietnamese environment. There are some managerial implication: Firstly, with the CEO 's ILOC, it enhanced: (1) the negative effect from age to the choice of prospector strategy, from age to use MAS information; (2) the positive effect from education background (business orientation) to the choice of prospector strategy, from education background (business orientation) to use MAS information. It showed that the demand for using MAS information is also affected by CEO's ILOC. Therefore, when designing MAS in a firm, beside CEO 's demographic characteristics, MAS designer need to pay attention to ILOC (a psychological feature). In addition, when the organization was determined to pursue the strategy prospector, this type of strategy must be suitable with CEO 's demographic characteristics (lower age and business orientation) and ILOC. Secondly, to gain competitive advantages, designing and using MAS will help to make implication the clearly way to implement it. In this view, CEO 's business orientation education background combine with suitable stratey (prospector strategy) is basic to make it become reality by enhance firm performance. Finally, two benefit from the results of this study are: (1) CEO 's designing and using MAS will be guidance and (2) towarding enhanced performance, prospector strategy should be suitable with CEO 's characteristics (age, education background, ILOC).

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