

Absorptive capacity and value in the banking industry: A multiple mediation model

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Abstract

Firms continually look new ways to get the best results. This study focuses on the relationship between absorptive capacity (ACAP) and value, proposing a multiple mediation model to analyze this relationship. The study's contribution to the literature is to examine empirically, and in greater depth the antecedents and determinants of this variable. Thus, the research fills a gap in the literature through the analysis of the mediating role of knowledge stock (KS) and knowledge application (KA). This study applies variance-based structural equation modeling via partial least squares to a sample of 151 branch office managers from the Spanish banking industry. The results show that both the direct effect and indirect effect, through the mediation of KS and KA, are significant in the relationship between ACAP and value.

Keywords: Absorptive capacity; value; banking industry; knowledge management

1. Introduction.

The Spanish banking industry (SBI) is a highly knowledge-intensive sector and is therefore appropriate for identifying, analyzing, and evaluating different learning processes. The increasingly intense competition within this industry is forcing banks to recognize the need to seek new ways of leveraging their organizational knowledge. In addition to the competition within the industry, the relative intangibility of their products and services prompts the need to capture and retain customers by offering them something extra, and building a strong relationship.

Furthermore, the complex competitive environment in which banking firms operate leads to an increase in the demand for superior value (Sánchez et al., 2009). Therefore, more and more firms see value as a key factor when looking for new ways to achieve and maintain a competitive advantage (Woodruff, 1997).

In this article, a reference to value means the firm's outcomes in relation to their stakeholders (i.e., their internal customers or employees and their external customers). A firm's external and internal organizational capabilities are vital for increasing that value. Thus, a firm should focus on improving those capabilities that view customers (both internal and external ones) as a key component, to maximize and then absorb the value created (Martelo-Landroguez et al., 2011).

Although most of the literature refers to value creation, understanding value from the perspective of the value of the stakeholders for the firm also receives attention from researchers (Payne & Holt, 2001). This stream of research focuses on the value of the stakeholders for the firm. Therefore, the focus is not only on the creation of value for the stakeholders but also on the value outcome that can derive from delivering superior value by managing knowledge.

In the SBI, new products and processes demand new competencies, or at least a new combination of competencies. These new skills and capabilities are requirements for creating new products or launching new services, and are the likely results of the acquisition, assimilation, and exploitation of new knowledge. This idea is what Cohen and Levinthal (1990) refer to as absorptive capacity (ACAP). These authors state that ACAP is a result of individual skills, prior knowledge, firm-specific competencies (i.e., internal capabilities), and access to knowledge sources outside the firm; that is, external linkages (Leal-Rodríguez et al., 2013). Thus, managers need a framework to facilitate the influence of several knowledge management (KM) aspects (e.g., ACAP, knowledge stock- KS, and knowledge application - KA) on the firm's value. Nevertheless, a gap exists in the literature concerning this issue. No study reports an empirical test of the links between ACAP, KM processes, and their consequence on value.

This study addresses the gap in the literature by focusing on the link between a firm's ACAP and value operating two ways: researching, on the one hand, the direct effect between ACAP and value; and, on the other hand, the indirect effect considering the multiple mediating role of another two processes of KM: KS and KA. The specific research question is: Does ACAP by itself affect value, or does it need other capabilities in order to jointly facilitate firm's appropriation of the value created?

2. Theoretical background and research hypotheses

2.1. The relationship between absorptive capacity and value

Cohen and Levinthal (1990, p. 128) initially define ACAP as “the ability of recognizing new external knowledge, assimilating and applying it to commercial ends.” Therefore, this concept refers to a key element within the organizational learning process. These authors also suggest that this capability is critical for any firm that seeks

the attainment of sustainable competitive advantage, business performance, or innovative results. Cohen and Levinthal (1990) also suggest that ACAP depends largely on the level of prior knowledge that the firm already possesses.

Although extensive literature concerning ACAP exists, this topic only arouses significant interest in the academic community in light of Zahra and George's (2002) reconceptualization. The roots of this reconceptualization lie in the distinction between potential absorptive capacity (PACAP) and realized absorptive capacity (RACAP).

The present work draws on Zahra and George's (2002) view, which suggests that ACAP encompasses four distinct but complementary capabilities: acquisition, assimilation, transformation, and exploitation. According to Barney (1991), the conjunction of different capabilities leads firms to achieve superior performance, which frequently results in competitive advantage.

In accordance with this theory, PACAP and RACAP encompass different capabilities. PACAP involves acquisition and assimilation capabilities. This capacity makes the firm open to the acquisition and assimilation of external knowledge (Lane & Lubatkin, 1998). PACAP captures a firm's capacity to evaluate and acquire external knowledge (mainly from market, competitors, and external customers). Nevertheless, this capacity does not always lead to knowledge exploitation (an internal customer issue or view). Conversely, RACAP deals with the capabilities of transforming and exploiting. PACAP and RACAP are essentially distinct concepts, and consequently may draw on different structures, objectives, and strategies (Leal-Rodríguez et al., 2014).

Jansen et al. (2003) develop a new model drawing on a model Van den Bosch et al. (1999) propose, and on the inclusion of some of the improvements Zahra and George (2002) provide. On the one hand, three different capabilities—coordination, system, and

socialization capabilities—are the antecedents of ACAP in this model. On the other hand, the model of ACAP is an antecedent of the firm's adaptation and performance.

Similarly, several studies posit a relationship between the firm's ACAP and performance. Fiol (1996) argues that the potential of organizations to generate and capture the benefits of their innovation outcomes depends on the previous accumulation of knowledge. The emergence of KM therefore enhances the reciprocity between innovation and knowledge in the sense that innovative efforts are a result of the firm's endeavor and investment in knowledge and knowledge workers. Similarly, outcomes from innovation processes in terms of new products and processes contribute to create new knowledge. They contribute by developing a set of capabilities that extract benefits deriving from value creation (Prajogo & Ahmed, 2006). Ensuring the sharing of relevant knowledge among organizational members is crucial to effectively absorb and exploit knowledge (Spender, 1996). This result provides a better comprehension and mutual understanding (Garvin, 1993).

Several studies propose that the ability to exploit effectively external knowledge is a critical factor for the companies that have an interest in achieving innovation outcomes and higher benefits (Cohen & Levinthal, 1990). A company's ACAP performs as the enabler that permits turning knowledge into new products, services, or processes to support innovation and, therefore, the firm's ability to restrict competitive forces (Leal-Rodríguez et al., 2014; Newey & Zahra, 2009).

According to Damanpour and Gopalakrishnan (2001), innovation is nowadays a crucial element when attempting to obtain and sustain competitive advantages, being product/service innovation a key component of firm's value creation and value appropriation processes. These authors argue that innovative firms tend to be more adaptable to changes, are more flexible, and are more able to exploit opportunities than

their competitors. Firms that foster an innovative approach can deal better with the volatility and high dynamism of their environment, and are thus able to achieve and sustain long-term competitive advantages. In this vein, following the strategy of proactively embracing innovation contributes to differentiating the firm from its competitors, hence improving its business performance and market value (García-Zamora et al., 2013; Jansen et al., 2006).

This study posits that firms that want to stay in the market place have to consider both internal and external customers. To do so, firms try to provide the marketplace with a range of products or services that give value to these stakeholders. Therefore, superior performance is not an end in itself, but a result from providing superior value to stakeholders (Slater, 1997). By analyzing their customers (internal and external), firms should be able to improve their outcomes.

The literature demonstrates the possibility of viewing value both from the customer's perspective and from the firm's perspective. Some authors focus on perceived value (the customer's perspective), while others focus on value creation and appropriation (the firm's perspective) (Martelo-Landroguez et al., 2013). This study refers to value as the firm's outcomes in relation to their stakeholders (i.e., the firm's perspective).

However, value creation alone is insufficient to succeed in the marketplace. A firm's ability to restrict competitive forces to enable the appropriation of some of that value that the firm creates in the form of profit is also necessary (Mizik & Jacobson, 2003). Thus, value appropriation involves the development of a set of capabilities to extract benefits that stem from value creation. In other words, value appropriation focuses on the appropriation of market rents that the possession of specific differential resources or capabilities generates (Mocciaro & Battista, 2005). Although most authors

focus their attention on the barriers to imitation of competitors, firms must focus on the retention of value in the organization (Bowman & Ambrosini, 2000).

The key idea is to know if firms are able to capture the value that they create for their internal and external customers. Firms that fail to pay enough attention to value appropriation are unlikely to achieve competitive advantages and capture the benefits of their innovations (Mizik & Jacobson, 2003). Mocciaro and Battista (2005) posit that a period must exist in which the firm may pursue value appropriation to seize the fruits of the firm's innovations through an increase in the efficiency of the firm's resource allocation.

Value appropriation focuses on restricting competitive forces and extracting benefits from the marketplace (Han et al., 1998). According to Bowman and Ambrosini (2000), idiosyncratic ways of doing things allow firms to offer more value to their stakeholders, and could help firms to achieve higher benefits.

H1. Absorptive capacity has a positive relation with value.

2.2. KM and value: the mediating roles of knowledge stock, and knowledge application

Scholars broadly discuss the relationship between KM and the value for the internal and external customer (Despres & Chauvel, 1999; Gebert et al., 2003; Kaplan & Norton, 2004; Rezgui, 2007). In addition, Vorakulpipat and Rezgui (2008) suggest that a description of knowledge as a source of value creation is possible.

In terms of organizational processes, Gebert et al. (2003) suggest that KM processes have inherent value-creation capabilities. In this context, Vorakulpipat and Rezgui (2008) define KM as a set of processes that allow firms to use what they know to create value for the customers, and then create new knowledge from the value-creation process. In the case of KM, the reference is to the internal aspect of the creation

of value. Firms carry out a number of internal processes aiming at creating and capturing value from the market. Therefore, these processes are critical to organizational success (Chou, 2005; Van den Hooff & Huysman, 2009). Without them, companies may not take advantage of the knowledge they possess (Ipe, 2003).

Drawing on Cohen and Levinthal (1990), organization ACAP is not only the organization's acquisition of information and knowledge but also the organization's ability to exploit this acquisition. Acquisition capacities and exploitation capacities are therefore path dependent. An organization can exploit new knowledge only if this organization can acquire and stock this knowledge. These capacities become stronger through two complementary KM processes, namely KS and KA.

KS, or knowledge base, stems from the concept of organizational learning, where the firm is a learning system resulting in the accumulation of knowledge. Organizational members possess, acquire, and accumulate knowledge through experimentation, the observation of stimuli, and the interpretation of the results. Ravasi and Verona (2001) point out that a knowledge base always exists in a firm, either as individual or collective knowledge, in firm routines, databases, knowledge bases, intranet, etc. In a sense, some authors assimilate KS to the organizational memory concept, whose definition can be the persistent representation of knowledge and information from the firm's history (Chou et al., 2007).

According to the knowledge-based view (KBV), a firm's existing knowledge base sets up its scope and ability to understand and apply new knowledge to decision-making, problem-solving, or innovation (Ahuja & Katila, 2001). Knowledge breadth and depth are two distinct dimensions of the KS that reveal both the structure and content of the knowledge a firm holds. Knowledge breadth refers to the extent to which the firm's knowledge repository contains distinct and multiple domains. Knowledge

depth concerns the knowledge's level of sophistication and complexity in key fields (Zhou & Li, 2012).

To perform better, firms must fulfill two requirements: a broad knowledge base, and deep knowledge base (Leal-Rodriguez et al., 2013). On the one hand, a firm with broad knowledge accumulates expertise across a variety of disciplines and heterogeneous market domains through its extensive knowledge exploration (Prabhu et al., 2005). In addition to knowledge sharing, a broad KS provides the sharing process through which the firm can connect and integrate its broad knowledge. On the other hand, a firm with a knowledge depth is likely to benefit from market and customer knowledge acquisition. This firm with a deep knowledge base, and know-how about existing technologies and markets can develop core competencies and firm-absorbing value.

Prior research suggests that in the search process that underlies co-creation innovations, maintaining a balance between depth and breadth is critical to successful innovation (Katila & Ahuja, 2002; Prajogo & Ahmed, 2006). The size and structure of an organization's KS can determine how well this organization manages knowledge resources and creates capacities (Yayavaram & Ahuja, 2008). However, without KA, other processes of KM make little sense because firms generate, acquire, store, and share knowledge to apply that knowledge, and make the company more competitive.

Little research exists on KA. According to Gold et al. (2001), authors assume KA, because they do not make KA explicit. For example, Nonaka and Takeuchi (1995) discuss a firm's ability to create knowledge, and they seem to assume that once the firm creates knowledge, the effective application of knowledge takes place.

The basis of the firm's competitive advantage does not reside in knowledge itself but in its application (Alavi & Leidner, 2001). Following Martelo-Landroguez et

al. (2011), if an organization wants to capitalize on its knowledge, that organization must understand how the creation, sharing, and application of knowledge occur.

According to Grant (1996), the critical source of competitive advantage is the integration of knowledge and not knowledge itself. The processes through which companies integrate knowledge are fundamental to their ability to create and sustain competitive advantage. In general, a need exists to use organizational knowledge in a company's processes, products, and services. If a company cannot easily find the adequate knowledge in the right way, this company struggles to maintain its competitive advantage (Bhatt, 2001).

One of the more common ways of KA is to adopt the best practices of a company leader, to find the relevant knowledge, and apply this knowledge (O'Dell & Grayson, 1998). KA implies the use of knowledge that the ACAP phase generates, and that the stock and transfer phase preserves and shares. Therefore, KA involves the internalization of knowledge in the company.

From the KA process, the organization can receive feedback if the firm needs that knowledge, or if the circumstances of the environment change in such a way that the ACAP process becomes obsolete and needs renovating.

Thus, this study argues that KS and KA processes have positive mediation effects in the ACAP-Value relationship:

H2. Knowledge stock positively mediates the relation between absorptive capacity and value.

H3. Knowledge application positively mediates the relation between absorptive capacity and value.

H4. Knowledge stock and knowledge application sequentially mediate the relationship between absorptive capacity and value.

3. Method

3.1. Data collection and sample

The Spanish banking industry provides an appropriate context to test empirically the above research hypotheses because banking activities demonstrate learning capabilities.

Two main reasons prompt the choice of the Spanish banking domain as a target for study: First, the necessity for intimacy between service providers (managers in the branch office) and customers in their commercial relationships. Banking is a trust-based service, and these relationships tend to endure for long periods. Second, the banking service is an ideal platform for learning because two or more individuals often work together with different resources and complementary capacities. These issues are learning facilitator factors (Fenwick, 2007).

Only 15 banks meet the study's requirements (i.e., banks serving the general public). Data collection follows a snowball sampling method with key respondent methodology, in accordance with the suggestions of an expert panel consisting of 15 eminent academics and 10 general bank managers. The unit of analysis is branch-office managers from the 15 banks operating in Spain in 2013. Surveying took place over a period of two months, from September 2013 to November 2013. In total, 307 branch-office managers received telephone and mailing invitations to participate in the study, a process that yields a total of 153 questionnaires. Two of these questionnaires were unsatisfactory and therefore do not appear in the final sample. Analysis therefore relies on the data from 151 valid questionnaires (49.18% response rate).

3.2. Measures

The foundations of the survey design are in the theoretical review in Section 2. This study uses and adapts scales from previous studies in which the items and responses appear on a seven-point Likert scale ranging from 1: “I completely disagree” to 7: “I completely agree”.

To assess ACAP, this study adapts the scale (eight items to measure PACAP and seven items to measure RACAP) from the Jansen et al.’s (2005) study. Building on the previous works of Chou et al. (2007), four items to measure organizational memory make up the scale for KS. For the KA variable, this study relies on the ten-item scale of Gold et al. (2001). Finally, because of the conceptual difficulty of the variable *value* and that a specific scale to measure this variable does not exist, this study adapts a scale that measures effectiveness. Effectiveness and value are constructs that closely relate in the literature (Garriga, 2014; Gong, 2011). Thus, considering effectiveness as a proxy of the value variable is possible. For this reason, the scale to measure value comprises twelve reflective items from Quinn and Rohrbaugh (1983). Research shows that perceived measures of effectiveness can be a reasonable substitute for objective measures of performance and have a significant correlation with them (e.g., Geringer & Hebert, 1989; Venkatraman & Ramanujam, 1987).

3.3. Data analysis

To test the research model and hypotheses, this study relies on the use of the partial least squares (PLS) technique, a variance-based structural equation modeling (SEM) method. PLS is an appropriate technique for this study due to the following (Roldán & Sánchez-Franco, 2012): (1) the sample ($n = 151$) is small; (2) the focus of the study is the prediction of the dependent variables; (3) the research model is considerably complex according to the type of relationships in the hypotheses; and (4)

this study uses latent variables' scores in the following analysis of predictive relevance.

This study uses SmartPLS 3.0 software (Ringle et al., 2014) for the PLS analysis.

4. Results

Two phases comprise the analysis and interpretation in a PLS model: (1) the assessment of the reliability and validity of the measurement model, and (2) the evaluation of the structural model.

4.1. Measurement model

The results show that the measurement model meets all common requirements. First, individual items are reliable because all standardized loadings are greater than 0.7 (Table 1). Second, because all composite reliabilities and Cronbach's alphas are greater than 0.7 (Table 2), the model satisfies the prerequisite of construct reliability. In addition, the scores for average variance extracted (AVE) surpass the threshold of 0.5 (Table 2). Consequently, these latent variables achieve convergent validity.

Finally, all variables attain discriminant validity. Confirmation of this validity comes from both the comparison of the square root of AVE versus correlations (Table 2), and the cross-loadings analysis (Table 1) (Roldán & Sánchez-Franco, 2012).

Table 1 here.

Table 2 here.

4.2. Structural model

As Henseler et al. (2009) comment, the use of bootstrapping (5000 resamples) produces standard errors and t-statistics to assess the statistical significance of the path coefficients. Concurrently, calculation of the bootstrapping confidence intervals of

standardized regression coefficients forms part of the analysis. All the direct effects in Figure 1 are significant, with the exception of b_1 (KS on value). The percentile bootstraps at a 95% confidence interval and bias-corrected confidence interval also have this outcome (Table 3). These results support H1.

In addition, the results confirm that the structural model has satisfactory predictive relevance for the value variable ($Q^2 = 0.40$). Tests on the mediation hypotheses (H2, H3, and H4) use an application of the analytical approach that Hayes et al. (2011) describe.

Table 3 here.

Figure 1a shows the total effect (c) of ACAP on value. Figure 1b indicates the total effect of ACAP on value as the sum of the direct (c') and indirect effects ($a_1b_1 + a_2b_2 + a_1a_3b_2$). The estimation of the latter uses the product of the path coefficients for each of the paths in the mediational chain.

Figure 1 here.

The use of bootstrapping allows for the testing of the mediation hypotheses (Preacher & Hayes, 2008). This study's 5000 resamples generate 95% confidence intervals (percentile) and bias-corrected confidence intervals for the mediators.

As Figure 1a and Table 4 show, ACAP has a significant total effect on value ($c = 0.74$; $t = 16.46$). When adding the mediators (Figure 1b), ACAP decreases its influence, but maintains a significant direct effect on value (H1: $c' = 0.39$; $t = 3.95$). Therefore, this result supports H1. The results also show a partial mediation between ACAP and value because the indirect effects of H3 and H4 are significant. However, they fail to support H2 (Table 4).

Table 4 here.

5. Discussion

Through an empirical study of 151 branch offices in the Spanish banking industry, this study examines the relationship between ACAP and value for the internal and external customer. Specifically, the analysis focuses on the relationship between ACAP and value with the mediating effects of KS, KA, and the sequential effect of KS and KA.

The study's first contribution is to deepen into the relationships between some KM processes and value for the internal and external customer but from the perspective of the value outcome that can derive from delivering superior value resulting from managing knowledge (i.e., considering the value as appropriation or capture). The approach herein is to place ACAP at the beginning of the process, as a main antecedent of value, while KS and KA play mediating roles between ACAP and value. The results show that KA, to a greater extent, and KS, to a lesser extent, partially mediate the effect of the knowledge absorption capacities on value.

Banks traditionally center their efforts on improving ACAP levels in order to achieve the appropriation of the value. The results of the model with only the total effect (Figure 1a) indicate that the greater the ACAP level, the greater the value these firms achieve ($R^2 = 0.55$). The ACAP, by itself, gives rise to an increase of the value, as the study shows in the value of $c' = 0.39$, which is positive and significant. This result supports H1, and corroborates the idea that ACAP continues to be a fundamental target for financial firms.

As a second contribution, this study finds a way for managers to achieve better outcomes for banks through the capture and creation of value from the joint development of the absorption systems, storage, and application of knowledge. The structural model shows that the positive effect that ACAP has in the generation of KS

does not lead to a significant effect in the increase of value ($H2 = a_1b_1 = 0.01$ ns).

However, to the extent that KS causes greater KA, a multiple mediation effect takes place through these two variables—KS and KA ($H4 = a_1a_3b_2 = 0.07$). Finally, the most important indirect effect that this study detects is that which occurs via KA. Thus, when ACAP gives rise to KA, this KA generates a significant increase in value ($H3 = a_2b_2 = 0.26$).

In summary, the fact that a storing of the absorbed knowledge occurs and this knowledge increases the firm's knowledge base is not, by itself, a value increase (Alavi & Leidner, 2001; Cohen & Levinthal, 1990). H2 reflects this effect, showing that if firms store and do not apply the knowledge, then there isn't a superior value appropriation of the value created (Jiménez-Jiménez et al., 2011).

6. Conclusions and limitations

This study focuses on the effect of the critical processes of KM in value. This study considers value as the firm's outcomes in relation to their internal and external customers. Value is a topic of increasing interest for firms, because all the companies wish to find out ways to increase the creation and appropriation of value.

The study shows that ACAP is an antecedent of value, and KS and KA play a mediating role with different results. The results support that ACAP affects value directly and indirectly through KA, and through the multiple effect of KS and KA, but not through the mediating role of KS. Therefore, firms have to apply the knowledge they absorb to achieve a superior value. If firms store but do not apply the knowledge, they cannot achieve a superior value.

This topic is very interesting and useful for managers. They must understand that information systems and business-intelligence systems must capture information and

knowledge for its application within the firms, and they should consider knowledge in decision-making processes.

This study has some limitations. First, results offer only a snapshot of current processes instead of measures of the same process over time. Second, although drawing on relevant, useable scales from the literature guarantees that the constructs' definition is as precise as possible, the constructs can credibly act only as proxies for an underlying latent phenomenon, which is itself only partially measurable. Third, the model in this study is general and fails to capture the possible moderating effects of environmental turbulence and uncertainty. Prior research shows that the effect of cognitive factors on individual, group, and organizational performance can vary substantially with environmental conditions. Fourth, the cross-sectional (rather than longitudinal) design of the study might misrepresent variables that refer to lengthy processes, the effects of which only become apparent over long periods. Finally, this study takes place in a specific geographical context (Spain) and economic sector (the banking industry); for this reason, researchers must be careful about generalizing these results and conclusions to other scenarios or different contexts.

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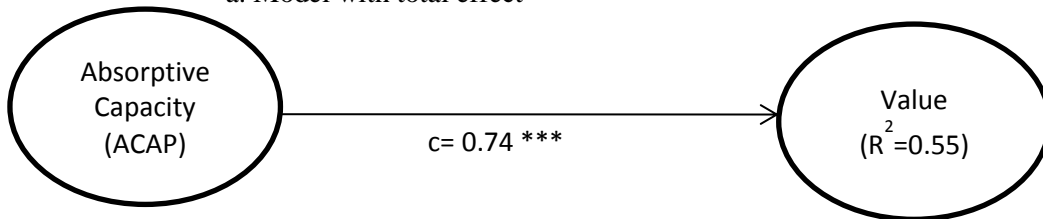
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Figure 1. Structural model

a. Model with total effect



b. Model with a three-path mediated effect

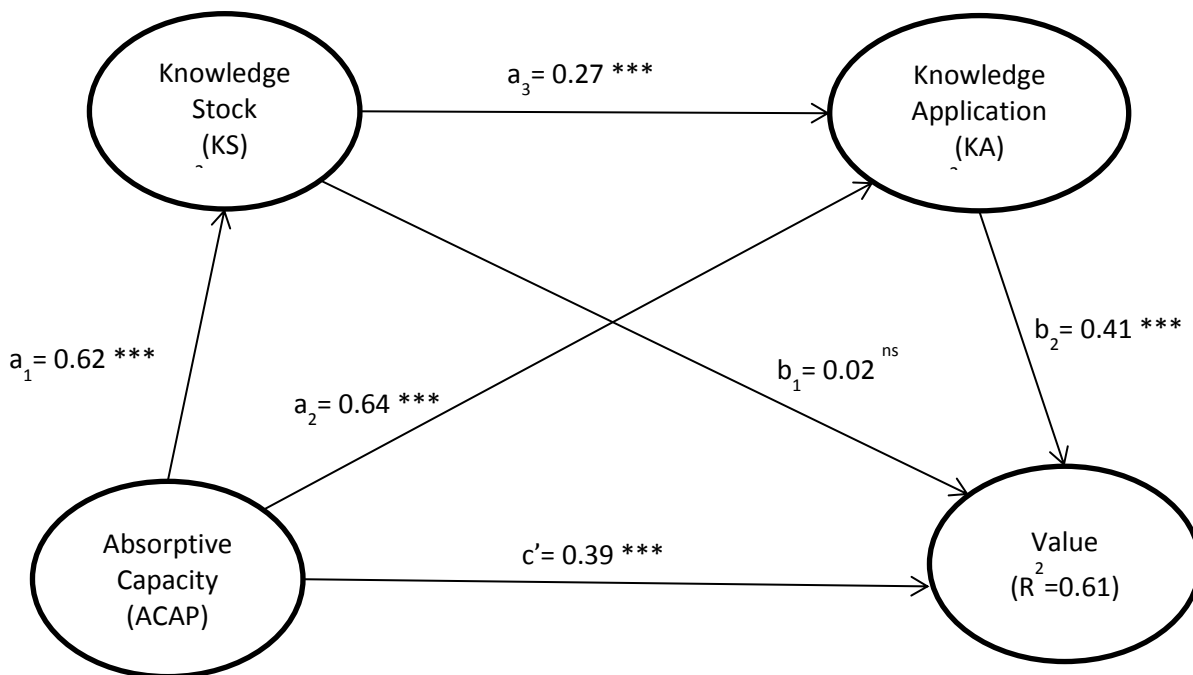
H1= ACAP -----Value (c')H2= ACAP -----KS-----Value ($a_1 b_1$)H3= ACAP -----KA -----Value ($a_2 b_2$)H4= ACAP -----KS-----KA-----Value ($a_1 a_3 b_2$)*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$ ns: not significant (based on $t(4999)$, one-tailed test)

Table 1. Loadings and cross-loadings for the measurement model

	ACAP	Value	KA	KS
PACAP	0,96	0,68	0,76	0,59
RACAP	0,96	0,73	0,78	0,61
VAL1	0,62	0,82	0,60	0,43
VAL2	0,65	0,87	0,65	0,48
VAL3	0,63	0,84	0,58	0,40
VAL4	0,59	0,80	0,59	0,37
VAL5	0,65	0,87	0,67	0,50
VAL6	0,60	0,86	0,60	0,38
VAL7	0,58	0,83	0,61	0,42
VAL8	0,53	0,80	0,58	0,38
VAL9	0,56	0,81	0,61	0,47
VAL10	0,65	0,84	0,66	0,55
VAL11	0,54	0,71	0,58	0,46
VAL12	0,65	0,84	0,63	0,51
APK1	0,65	0,68	0,81	0,58
APK2	0,72	0,66	0,91	0,63
APK3	0,76	0,73	0,93	0,61
APK4	0,66	0,64	0,86	0,53
APK5	0,67	0,64	0,88	0,54
APK6	0,71	0,66	0,89	0,56
APK7	0,73	0,64	0,89	0,62
APK8	0,61	0,49	0,78	0,50
APK9	0,76	0,64	0,88	0,58
APK10	0,74	0,71	0,90	0,61
STK1	0,70	0,62	0,73	0,86
STK2	0,35	0,30	0,38	0,79
STK3	0,54	0,44	0,55	0,89
STK4	0,46	0,42	0,51	0,91

Table 2. Construct reliability, convergent and discriminant validity coefficients

	Mean	SD	CR	CA	AVE	ACAP	Value	KA	KS
ACAP	4.45	1.12	0.96	0.91	0.92	0.96			
Value	5.28	1.26	0.96	0.96	0.68	0.73	0.82		
KA	5.11	1.08	0.97	0.96	0.76	0.80	0.74	0.87	
KS	4.47	1.02	0.92	0.89	0.75	0.63	0.54	0.66	0.86

Notes: Mean = the average score for all of the items included in this measure; S.D. = standard deviation; CA = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted. Diagonal entries are the square root of the average variance extracted. Off-diagonal elements are correlations among constructs

Table 3. Construct Effects on endogenous variables

Effects on endogenous variables	Direct effect	t-value (bootstrap)	Confidence intervals (percentile 95%)	Confidence intervals (bias corrected)	Explained variance
ACAP -> Value (c')	0.39***	3.95	(0.22:0.53) sig	(0.22:0.53) sig	30.55%
ACAP -> KA (a ₂)	0.63***	10.72	(0.53:0.73) sig	(0.53:0.72) sig	51.00%
ACAP ->KS (a ₁)	0.63***	12.31	(0.54:0.71) sig	(0.54:0.71) sig	39.20%
KA -> Value (b ₂)	0.41***	3.92	(0.24:0.60) sig	(0.24:0.59) sig	28.85%
KS -> Value (b ₁)	0.03 ^{ns}	0.44	(-0.07:0.12) nsig	(-0.07:0.11) nsig	1.52%
KS -> KA (a ₃)	0.26***	3.98	(0.16:0.38) sig	(0.15:0.37) sig	17.70%

***p<0.001 **p<0.01 * p<0.05 nsig: not significant (based on t(4999), one-tailed test).

sig: significant direct effect

Value: Q²: 0.402

Table 4. Summary of mediating effect tests

	Coefficient	t-value
Total effect of ACAP on VAL(c)	0.74***	16.46
Direct effect of ACAP on VALH1(c')	0.39***	3.95

Indirect effects of ACAP on VAL	Point estimate	Percentile 95%	Percentile 95% confide
		confidence interval	interval bias correcte
H2= a_1b_1	0.01	(-0.036:0.08)ns	(-0.038:0.08)ns
H3= a_2b_2	0.26	(0.13:0.44)sig	(0.13:0.43)sig
H4= $a_1a_3b_2$	0.07	(0.02:0.16)sig	(0.02:0.15)sig
Total	0.35	(0.11:0.68)sig	(0.11:0.67)sig

*** $p < 0.001$ (based on $t(4999)$, one-tailed test).

sig: significant effect

ns: not significant