Innovation Capacities and Barriers: What Impacts on the Financial Performance of Enterprises in Cameroon?

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Abstract

Objective: The purpose of this research is to understand how innovation capacity and barriers affects the financial performance of enterprises, based on an empirical study covering 640 enterprises in Cameroon.

Method: This work is a quantitative study based on a hypothetico-deductive approach and data used is secondary, extracted from a database conducted by the International Development Research Center. With a huge sample of enterprises in Cameroon, data is processed using SPSS for Windows 12.0 software package. An explanatory analysis through the cross sorting, the chi-squared test and the binary logistical regression model is used.

Results: Findings reveal that some aspects of innovation capacity and barrier like new organizational methods of working and decision-making, new techniques or media for product promotion, foreign licensed production technology and the lack of external funding have a positive and significant impact on the financial performance of enterprises in Cameroon.

Original value: In this study, some dimensions of innovation barrier are taken into account, studying how they limit the innovativeness of enterprises and their resultant effects on the financial performance of these enterprises, constituting our major contribution.

Keywords: Innovation, creativity, innovation capacity, innovation barrier, performance.

Capacités et freins à l'innovation : quels impacts sur la performance financière des entreprises au Cameroun ?

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Résumé

Objectif : Le but de cette recherche est de comprendre comment la capacité et les freins à l'innovation affectent la performance financière des entreprises, sur la base d'une étude empirique portant sur 640 entreprises au Cameroun.

Méthodologie : Ce travail est une étude quantitative basée sur une approche hypothético-déductive et les données utilisées sont secondaires, extraites d'une base de données réalisée par le Centre de recherches pour le développement international. Avec un vaste échantillon des entreprises au Cameroun, les données sont traitées à l'aide du progiciel SPSS pour Windows 12.0. Une analyse explicative par le tri croisé, le test du khi2 et le modèle de régression logistique binaire est utilisée.

Résultats : les résultats révèlent que certains aspects de la capacité d'innovation et des obstacles, tels que les nouvelles méthodes organisationnelles de travail et de prise de décision, les nouvelles techniques ou les nouveaux médias pour la promotion des produits, les technologies de production sous licence étrangère et le manque de financement externe, ont un impact positif et significatif sur la situation financière performance des entreprises au Cameroun.

Originalité/ Pertinence : Dans cette étude, certaines dimensions de la barrière à l'innovation sont prises en compte, en étudiant comment elles limitent l'innovation des entreprises et leurs effets qui en résultent sur la performance financière de ces entreprises, constituant notre contribution majeure.

Mots clés : Innovation, créativité, capacité d'innovation, freins à l'innovation, performance.

1. Introduction

The performance of firms has been given significant attention in most countries in the world (Naala et *al*. 2017). This is because of the global perspective that recognises them as a crucial engine to economic growth and development in both developed and developing countries (Agwu and Emeti, 2014). In this sense, many governments have directed an important volume of investment toward policies and programs that improve their performances. Firms are an essential part of the economic fabric due to their number and presence in economic environments. However, these firms are facing a new global environment dominated by intensive competitions, worldwide markets, accruing changes in technology.

Innovation therefore is a key element to maintain the competiveness of companies and encouraging it among firms is a crucial issue for industrialisation and governments. According to Nguyen et *al*. (2019), increased global and regional competitions have led firms to determine to create and sustain competitive edge by engaging in innovation. A fast-changing environment with constant abrupt changes makes it indispensable for firms to build up their capacity to innovate (Nguyen et *al*. 2019). The innovation capacity of firms is one of the fundamental skills for achieving success in any business because it leads to product and process improvements, makes continuous advances that helps firms to survive, allows firms to grow more quickly and be more efficient. According to Gunday et *al*. (2011), it is a critical strength and strategy that helps firms to overcome challenges, generate profit, conquer and increase market shares and edge out competitors. It is a vital factor, which permits companies to build reputation and has proven to be a source that maintains the durability of most century-old firms and a key catalysis in the economic growth of nations (Sahut et *al*. 2009). Innovation appears therefore to be an imperative to gain sustainable competitiveness through increased productivity, good performance, the search for good consumer perceptions and the necessity to encourage it is vital (Chapman et *al*. 2001).

Some of the world's most innovative companies dazzle with new ideas and have proven beyond all doubts how firms are a force for change. For sure, reluctance or inability of firms to create or significantly improve products and services, changing and bringing constant adjustments to methods, taking rapid advantage over opportunities presented and reducing threats will leave them unable to compete and diversify (Koufteros et *al*. 2002). In this regard, innovation is all about adopting better and efficient solutions that increases value to customers. Indeed, it is not exaggerated to say that without a robust and resilient innovation strategy, no company can survive. Otherwise, innovate or perish.

Nevertheless, if innovation has proven to be very important to every firm, it is strange to notice that firms in the Francophone Sub-Saharan Africa in general and Cameroon in particular, still sluggish in carrying out innovation activities. According to the Global Innovation Index for 2018, African countries are globally at the bottom of the scale. It is seen that, among the 126 countries ranked by innovation, Ivory Coast is among the ten worst performing countries with a position of 123. Senegal takes a position of 100, while Cameroon does not figure into the ranking list. More so, Senegal is 114 out of 140 countries ranked in the 2018 edition of the Global Competitiveness Report published by the World Economic Forum, followed by Ivory Coast with a position of 118 and Cameroon 121. Moreover, in Cameroon, the National Institute of Statistics (NIS, 2010) establishes that few companies directs their resources toward innovation. The purchase of innovative machines and equipment represents only 8,3% and innovative programs are 5,9%. The training of personnel with respect to innovation is 4,7%. Furthermore, the 2016 NIS report discloses that only 16,9% of enterprises have an internet connection, 28,2% uses internet for business operations and 5,5% of them have the intranet. This report weaknesses a decline as compared to the 2009 report with 48,9%, 33,9% and 17,4% respectively.

However, evidence from literature shows that some factors might be responsible for the low innovativeness of firms. These factors otherwise referred to as innovation barriers are many among

which are, limited number of skilled employees, government instability, insufficient financial resources, inconsistent policies, lack of educational background, lack of transparency and corruption, inadequate finance, difficulty in accessing credit, lack of experience and lack of managerial expertise.

To our understanding, innovation barriers refers to elements that will hamper the ability of firms to adopt and exploit existing resources and knowledge and equally to develop new ones for the development and sales of products and services to satisfy human wants. Understanding these barriers is useful as it enables firms to grasp it so as to develop policies and programs in view of correcting them. This will go a long way to encourage and assist managers in promoting a culture of innovation. On the same line, Amara et *al*. (2016) on their side infer that it is important to understand these barriers because it helps to improve theories that explain the reasons why some firms are reluctant to innovate or engage in innovation.

Extant literature of the connection between innovation capacity and firm performance shows that in general, innovation leads to better performance. Despite these remarkable results, it is worth noting that in the context of the francophone sub-Saharan Africa, there is little specific research done to measure the impact of innovation capacities on firm financial performances. Furthermore, empirical research has devoted less attention on the impact of the limiting factors of innovation on firm financial performance, especially in these countries. Thus in the merit to fulfil this gap, this research therefore takes an empirical step to mobilize innovation capacity dimensions and to shed light on an important but un-addressed aspect. That is, innovation limiting factors and their impacts on firm financial performances. The remainder of this paper is organised as follows. In the next segment, we review the related literature attached to the subject leading to the formulation of hypotheses (2). Then, the methodology used (3), the interpretation of the study findings and discussions in detail connecting them with theories and past studies (4). In the last section, the conclusion talks of the limits, managerial implications and future perspectives.

2. Literature review

In recent years, financial theories have become rich in corporate performance. The current characteristic of the economic context justifies such cheerfulness towards companies in difficulties. Innovation capacities are facts, which call for measures to foster firm performance. The difficulty of defining the concept of performance and delimiting its field of application has led to a multitude of study angles retained by the literature. Performance can be approached in a commercial, financial, operational and social angle. The identification of a financial path let us to focus on the factors that could improve it. In this point, it would be necessary to present the different theories (2.1), and then synthesize the empirical literature that links the various concepts (2.2).

2.1. Theoretical foundations

Here, we will explicitly present the various theories, which explain the subject under review. From what follows, we will present in turn the Schumpeter's Creative Destruction (2.1.1), the Open Innovation Model (2.1.2) and the Resource-Based theory (2.1.3).

2.1.1. Schumpeter's creative destruction

Schumpeter, an Australian economist, considered innovation as the critical dimension of economic change and believed that economic change takes place due to innovation, entrepreneurial activities and market power. He focused on how market innovations affect capitalist systems. In his book Capitalism, Socialism and Democracy (1942), Schumpeter invented the term creative destruction, which he defined as a "process of industrial mutation that incessantly revolutionise the economic structure from within, incessantly destroying the old ones, and incessantly creating new ones". In simple terms, creative destruction takes place when something new replaces something older. Creative destruction is an important economic concept that can explain many of the dynamics of

industrial change, such as the transition of a competitive market structure to a monopolistic one or vise-versa. Schumpeter also focused his attention on understanding which companies can innovate better and linked this ability to the size of the firm. He pointed out that due to their flexibility; small firms are in better position to innovate in comparison to large firms that can suffer from their bureaucratic structures. However, he later changed his idea and stated that lager firms with monopolistic power that have better resources and market power could have an advantage to develop innovations.

2.1.2. Open Innovation Model

Chesbrough (2003a) first introduced open innovation model paradigm around 15 years ago, which emerged as an alternative model of innovation. This model assumed that firms can and should use external and internal ideas, internal and external paths to market, as firms look to advance their technology. The open innovation model can be considered as the opposite of the traditional, vertically integrated model where, internal R&D efforts of a firm lead to products development internally and distributed afterword. Chesbrough defined open innovation as "the use of purposive inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation". In his book, "Open Innovation-The New Imperative for Creating and Profiting from Technology", published in 2006, the author explains how in the 20th century, firms profited from innovations that were the outcome of heavy instruments in internal R&D of firms. Nevertheless, with the changing time towards the end of the 20th century, many factors combined to cause the closed innovation process to break up in the U.S. He revealed two main factors, which was the rise in the number and mobility of knowledge workers, and the growing availability of private venture capital. In the meantime, the increase in the number and mobility of knowledge workers made it hard for companies to safeguard their proprietary ideas and expertise, a peak in the availability of private venture capital urged the financing of new firms and commercialization of new ideas that would otherwise be found useless in corporate research laps.

2.1.3. The Resource Theory

The foundation of the firm's competitive advantage was developed in the 1980s based on the analysis of external factors related mainly to inter-industrial differences and market structures. The end of the 80s marked the emergence of a new approach explaining the factors of competitive advantage of firms by the valorisation of internal resources, namely the Resource-Based View (RBV) whose main pioneers are Wernerfelt (1984), Barney (1991, 2001), Peteraf (1993), Amit and Shoemaker (1993). This theory states that the organization uses its internal resources for a sustainable competitive advantage. Wernerfelt (1984) sees the company as a complementary set of resources and capabilities that are specific to it and therefore give it a competitive advantage over its competitors. In addition to tangible resources, the resource approach focuses on the potential of intangible resources to participate in the value creation process at the firm's level. These intangible resources include the reputation of the firm, the knowledge and expertise of its staff, its personal and organizational networks.

Barney (1991) points out that the model proposed by the RBV for the analysis of the competitive advantage of the firm, is based on two fundamental assumptions. Firstly, companies within the same sector of activity are rather heterogeneous, especially with regard to the strategic resources they control. This model assumes that these resources are not perfectly mobile across firms. The researcher groups the company's resources into three categories: physical resources, human resources, and organizational resources. Barney's (1991) goal was to determine the conditions under which these resources constituted the main source of sustainable competitive advantage of the enterprise, a competitive advantage that will help to hold the firm to its environment for fear of being in a situation of failure. His analysis shows that a resource has to be characterized by four attributes in order to cause differences in firm performance and create sustainable competitive advantage. Definitely, it should be valuable, rare, not perfectly imitable by

competitors and not substitutable. This gives stability to the firm in the market and allows the firm to position itself against competitors.

A resource is valuable when it allows the company to develop and implement strategies that improves the efficiency and effectiveness of its business. This allows the firm to seize opportunities and neutralize the risks of its environment. Moreover, a resource value can only contribute to the creation of a competitive advantage if it is rare. That is to say, sole to the company or only present among some competitors. In this sense, a company that does not seek to have unique or unusual value runs in a risky situation as it would face several competitors and will hardly maintain its market position. The third attribute, which is imperfect imitability, is added to the first two so that the competitive advantage created by a valuable and rare resource becomes sustainable. Indeed, competitors must not be able to reproduce perfectly or own the same resource specific to the company.

Finally, a strategic resource must be non-substitutable. Amit and Shoemaker (1993) assert that all the resources and capabilities of the enterprise, which are difficult to imitate, and to be traded are known as the strategic assets of the company. Among these strategic assets, the author cited technological capacities of the company, its efforts in R&D, the speed of development of new products, its brand image, its access to various distribution networks, the quality of its relations with customers and suppliers. This stock of strategic assets allows the company to gain a competitive advantage and realize future economic benefits.

2.2. Empirical Literature Review

Motivated by increasing competition in global markets, companies have started to understand the importance of innovation since instantly changing technologies and severe global competition rapidly wear away the value of existing product and services. The Oslo's OECD manual describes different levels of innovation like new products, new processes, organizational and marketing innovations.

A large number of studies focusing on the innovation levels-performance provide a positive appraisal of higher innovativeness resulting in increased corporate performance (Calantone et *al*. 2002). As to Subramanian and Nilakanta (1996), many of these researches embrace more or less a positive association between innovation levels and firm performance. However, they mention that there are also some studies indicating a negative link or no link at all.

Pett and Wolff (2009) conducted some research for the effects of product and process innovation on firm performance. They indicated that particular product improvements are positively associated with firm growth. Feng et *al*. (2021) on their part found that service innovation has a significant positive impact on firm performance. Additionally, that the relationship between service innovation and firm performance is influenced by measurement moderators (economic region and performance measurement), and contextual moderators like firm type, innovation type, customer factors and attitudes toward risk. Lin and Chen (2007) associated innovation levels with increased firm's sales even though the link was weak. In addition, Johne and Davies (2000) mentioned that marketing innovations increased sales by increasing product consumption and yield additional profit to firms. Based on the above, we formulate the following hypothesis.

H1: Innovation levels significantly affects the profitability of enterprises in Cameroon.

In today's competing environment, companies must add, comply and change their business strategies to succeed and equally to survive the over changing market condition. Regardless of which industry sector, business strategy or product a company possesses, a key measure for improving business performance is to use quality. However, what is perceived to be a quality item to one, may not be judged as a quality instrument by others. Consequently, creating standards for quality assessment and overall compliance is an important component of organizational management. Many quality systems and principles are created to ensure a uniform standardized method for quality

control. These standards are the International Organization Standardization (ISO) amongst others (Ismyrlis and Moschidis, 2015).

Some scholars strongly defend the implementation of the ISO in the U.S due to finding that point out to increased financial performance of companies who implement ISO certification versus those who did not. Firms who were ISO 9000 certified experienced "significant increased financial performance three years after the certification" (Corbett et *al*. 2005). On the other hand, some American studies showed evidence against ISO certification. Dunu and Ayokanmbi (2008) research showed evidence that revenues and operating income improved following ISO 9000 certification. However, when the ratio of revenues to assets and operating income to assets were analysed, these financial improvements disappeared. This was a demonstration that an increase in revenues is not necessarily linked to ISO certification. From this brief literature review, we can formulate the following hypothesis.

H2: The characteristics of standardized certifications significantly affect the profitability of enterprises in Cameroon.

Confronted to uncertainty, companies are finding themselves facing a high rate of uncertainty to knowledge. Thus, firms do not innovate on their own, but rather it is becoming necessary for them to interact with other organizations in order to attain, develop and exchange different types of knowledge, information and other sources. A stream of literature in industrial organization theory has taken a theoretical perspective to focus on the relationships between R&D cooperation, R&D investment and inter-firm knowledge flows, termed "knowledge spillovers", distinguishing more specifically between partnership with competitors, suppliers, customers and universities and research institutes. Belderbos et *al*. (2004) fine heterogeneity in the determinants to establish R&D collaboration with different partners.

Some authors have examined the effect of different cooperation types, but have produced ambiguous result. Faems et *al*. (2004) used cross-section data from the Belgian Community Innovation Survey (CIS) in 1992 and found a positive association between university cooperation and their share in firm sales of innovative products new to the market. From the above, we formulate the third hypothesis as follows.

H3: Information knowledge significantly affects the profitability of enterprises in Cameroon.

Many studies on innovation capacities have concentrated all their works in analysing the impact of these capacities on firm performances. However, neglecting to take in to account the factors might hinder innovation processes. Only a few study interested to innovation barriers, which were primarily focused on technological innovations. We argue that understanding the factors that act as barriers to innovation is vital.

The study conducted by Hadjmanolis (1999) identifies the role of financing problems in the development of new products and the role of bureaucracy as the greatest barriers to the innovation process. Other studies using the CIS data for industrial firms have identified the high costs and the lack of funding as the most frequently encountered obstacles, which are responsible delays. Despite the importance of the barriers to innovation process, some authors argue that with the digital revolution, some barriers have already declined (Euchner, 2015). The following hypothesis can thus be established following the above arguments.

H4: The factors of innovation barriers significantly affect the profitability of enterprises in Cameroon.

3. Methodology

This part presents the population, sample constitution; statistical tools used (3.1), the operationalization of variables (3.2) and the method of data analysis (3.3).

3.1. Population and sample of the study

The population of our study consists of various enterprises in Cameroon comprising Very Small Enterprises (VSEs), Small Enterprises (SEs), Small and Medium Size Enterprises (SMEs) and Big Enterprises (BEs) operating in both the formal and informal sectors. The sample of this research is extracted from a database conducted by the International Development Research Center (IDRC)[1] in collaboration with CIRES Policy Analysis of Economies Cell (CAPEC), Economic and Monetary Research Laboratory (LAREM) and the Center of Studies and Research in Economics and Management (CEREG) in 2014and the information collected concerned the period ranging from 2011 to 2013. The aim of the survey was to outline the various determinants of firm performance in the Francophone sub Saharan Africa: Case of Cameroon, Ivory Coast and Senegal, in order to obtain estimates of performance indicators amongst which was the innovation capacity.

The survey specifically took place in the cities of Douala, Yaounde and Bafoussam justified by the fact that it presents more than 60% of companies in Cameroon (NIS, 2009, 2016). The sample of this study was made up of 650 enterprises out of which 640 were actually surveyed giving a total coverage rate of 98.46%. Specifically, 250 formal enterprises (172 BEs, 58 MEs and 20 VSEs/SMs) were obtained. For those in the informal sector, it was decided that a minimum of 400 enterprises should be surveyed. The following table gives a breakdown of the formal and informal enterprises according to the sector of activity and type of enterprises.

Table 1: Sample constitution of formal and informal enterprises

	Formal enterprises								**Informal enterprises**				
	BEs		**MEs**		**SMs/VSEs**		**Total**			**MEs**	**SEs**	**VSEs**	**Total**
Sector	**A**	**R**	**A**	**R**	**A**	**R**	**A**	**R**	**A**	**R**	**R**	**R**	**R**
Primary	2	4	3	2	5	0	**10**	**6**		0	0	2	**2**
Secondary	70	37	25	24	5	10	**100**	**71**		2	11	95	**108**
Tertiary	100	85	30	24	10	19	**140**	**128**		3	36	286	**325**
Total	**172**	**126**	**58**	**50**	**20**	**29**	**250**	**205**	**400**	**5**	**47**	**383**	**435**

Source: SPSS database

A = number of companies planned and
R = number of companies identified and surveyed.

Actually, of the 250 formal enterprises, 205 were identified and surveyed giving a percentage rate of 82%. With regard to informal businesses, the minimum required was reached and exceeded. 435 informal production units were surveyed. The above Tables equally give a breakdown of the companies surveyed according to the sectors and formalities. Out of the 100 formal enterprises in the secondary sector planned, 71 were identified and surveyed giving a percentage of 71%. In the tertiary sector, 120 formal enterprises were investigated out of the 140 planned, giving a coverage rate of 85.7%

The survey frame used for formal sector enterprises was the inventory of Cameroon companies from the NIS (2009). Whereas, no sampling frame is finding for the informal sector because they do not have repertories. The sample of formal enterprises was done using the cut-off

[1]See the report on Cameroon by Nembua and Kamga June 2015.

method while the reasoned choice method was used to select the investigated units for informal enterprises. We have chosen to work on secondary data because the subject under study well fitted with the existing database and it was appropriate for us to use it, equally for its simplicity, convenience and cost effectiveness.

3.2. Operationalisation of the research variables

This part presents the different variables used to build our theoretical model and the representation of the econometric model (3.2.1). After our variables well identified and presented, we will then operationalize (3.2.2).

3.2.1. Variables and econometric model presentation

In this research, we have only one dependent variable: the financial performance of enterprises "FIN_PER" and one independent variable: Innovation Capacity "INN_CAP". This variable can be divided into four dimensions: Innovation Levels "INN_LEV", characteristics of Standardized Certification "STA_CER", Information knowledge "INF_SOU", factors of Innovation Barriers "INN_BAR". The first dimension can further be broken into four: product, process, organizational and marketing. Thus, innovation Levels "INN_LEV" = Product "PROD" + Process "PROS" + Organizational "ORG" + Marketing "MARK".

Given the objectives of our study, we here present the model specification of this research.

$$FI\_PER = \boldsymbol{\beta_0} + \sum \boldsymbol{\beta_i X_{it}} + \boldsymbol{\varepsilon_i} \quad \ldots\ldots(1)$$

Where:FI_PER = financial performance, β_0 = constant, β_i= regression coefficients, X_i = innovation capacities and barriers, ε_i = error term

The complete empirical form of the model, which permits to verify the impact of innovation capacities and barriers on the financial performance of companies in Cameroon, is as follows:

$$FI\_PER = \beta_0 + \beta_1\ INN\_LEV + \beta_2\ STA\_CER + \beta_3\ INF\_SOU + \beta_4\ INN\_BAR + \varepsilon_i \quad \ldots\ldots(2)$$

$$FI\_PER = \beta_0 + \beta_1\ (PROD + PROS + ORG + MARK) + \beta_2\ STA\_CER + \beta_3\ INF\_SOU + \beta_4\ INN\_BAR + \varepsilon_i \quad \ldots\ldots(3)$$

3.2.2. Variables operationalisation

The purpose here is to present the variables related to this study and to highlight the indicators of measure to capture them. To do this, we will firstly present the dependent variable (3.2.2.1), and in a second time the independent variables (3.2.2.2).

3.2.2.1. The dependent variable: Financial performance

Table 2 illustrates the operationalization of the dependent variable. The major challenges measuring financial performance lies at three levels. In the first place, it is the validity of the construct of financial performance. The second is the relationship between the purpose of the study and the proper definition of financial performance, which allows a suitable measure of the variable to be given. The last challenge is to know how financial performance is measured. In line with previous research, a financial measure by ratio is retained. We therefore use the profitability ratios.

3.2.2.2. The independent variables: Innovation capacity factors

Table 3 represents the operationalization of innovation capacity factors that affects the level of financial performance. This variable is comprised of four dimensions, which are Innovation Levels "INN_LEV", characteristics of Standardized Certification "STA_CER", Information knowledge "INF_SOU" and factors of Innovation Barriers "INN_BAR". However, in order to carry out a more in-

depth study, we opted for a decomposition of the first dimension into four components. Thus, innovation levels "INN_LEV" = Product "PROD" + Process "PROS" + Organizational "ORG" + Marketing "MARK".

We were inspired by the Oslo's OECD Manual (2005) to measure the variable INN_LEV. Several items has been used to measure each of its components. To measure the STA_CER variable, we took inspirations from the research of Chatzoglou et *al*., (2015) on investigating whether or not ISO certification improves business financial performance. Equally we relied on Petra and Dries's (2013) study showing how patenting and license increases firm financial performance. The INF_SOU variable measurement is inspired on the work of Belderbos et al., (2004). Finally, in measuring the INN_BAR variable, we were inspired by Oslo's OECD Manual (2005) and by the work of Madeira et al., (2017).

Table 2: Dependent variable measurements

Variable	***Items***	***Measurements***	***Authors***
Financial performance	Profitability ratio	Net profit/owned capital	Bharadwaj (2000), Huang and Liu (2005), Aral and Weill (2007)

Source: Authors

Table 3: Independent variables measurement

Variables	***Components***	***Items***	***Measures***	***Authors***
Innovation levels	Product	Some of your product innovations introduced between 2011 and 2013 were they…. New for your market or significantly improved	Yes/no	Oslo OECD Manual (2005), Gurhan et *al*., (2009), Schumpeter (1934).
		New only for your company or significantly improved	Yes/no	
	Process	Between 2011 and 2013, did your company introduce any new or significant improvements concerning your… Manufacturing or production processes	Yes/no	
		logistical methods	Yes/no	
		Support activities	Yes/no	
	Organizational	Between 2011 and 2013, did your company introduce the following organizational innovations? New modes of operation in the organization of procedures	Yes/no	
		New organizational methods of working and decision-making	Yes/no	
		New methods of organizing external relations with other companies or organizations	Yes/no	

	Commercial	Between 2011 and 2013, did your company introduce the following commercial innovations? Significant changes in the appearance of a product	Yes/no	
		Use of new techniques or new media for product promotion	Yes/no	
		New methods (or significant changes in methods) of sales or distribution	Yes/no	
		New pricing strategies for your products (goods or services)	Yes/no	
Standardized certification		Does your company have an internationally recognized certification?	Yes/no	Chatzoglou et *al*., (2015), Tze et *al*., (2015), Petra and Dries's (2013)
		Does your company uses foreign licensed production technology?	Yes/no	
		Have you obtained a license or a patent during the last two years?	Yes/no	
Information knowledge		Between 2011 and 2013, were the following information knowledge used for your innovation activities? Personal knowledge (Company, Group)	Yes/no	Belderbos et *al*., (2004), Fossas-Olalla et *al*., (2010).
		Market knowledge (Suppliers, Competitors, Consultants)	Yes/no	
		Institutional knowledge (Universities, Public R&D Organizations)	Yes/no	
Innovation barriers		Between 2011 and 2013, which of the following acted as a hindrance to your innovation activities? Lack of internal financial means	Yes/no	Oslo's OECD Manual (2005), Madeira et *al*., (2017), Mohieddine (2014).
		Lack of external financial means	Yes/no	
		High innovation costs	Yes/no	
		Difficulties in finding partners for cooperation	Yes/no	
		Demand uncertainty	Yes/no	

Source: ***Authors***

3.1. Method of data analysis

The data extracted is analysed using statistical technique specifically the explanatory statistics following a multi-varied analysis (logistical regression) of data to see whether or not deviation of the actual observer leads to the acceptance or rejection of the null hypotheses formulated for the course of the study and to measure it reliability. To this effect, a "logit" model is used. The dependent variable noted "FI_PER" is coded into a binary variable, and measured using a variation in the profitability ratio. The variable is coded (1 and 0), 1 for an increase in profitability and 0 for a fall in profitability. This initiative is adopted so as to better apply our estimation method. The dependent variable in this model follows the Bernoulli low of parameter p (p being the average probability for the event to happen) when the event is repeated ones, or a Binominal (n, p) if the event is reaped n

times(Le Cam, 1960). The p probability parameter here is a function of a linear combination of the explanatory variables (Y: f(Y) = a + bX).

4. Interpretation of findings and discussions

4.1. Interpretation of findings

To provide an in-depth study, it was necessary to carry out a multivariate analysis. The advantage of this analysis is that it takes in to account the relationships that might exist between the explanatory variables and indicates the direction of the sign, contrary to the chi-squared test. To this effect, a "logit" model was used. The dependent variable noted "*FI_PER*" is binary and measured using a variation in the profitability ratio. We were inspired by the literature in order to measure innovation capacity. Four dimensions were retain; the innovation levels (4.1.1), the characteristics of standardized certification (4.1.2), information knowledge (4.1.3) and the factors of innovation barriers (4.1.4). Right here, we will see in turn the influence of each of these dimensions on the financial performance of enterprises in our samples.

4.1.1. The impact of innovation levels (product, process, organizational and marketing) on financial performance

Product innovativeness is measured here through two items, knowingly: introducing products that are new or significantly improved to the market and introducing products that are new or significantly improved only to the company. As regard process innovation, three items were used, knowingly: introduction of new or significantly improved production processes, introduction of new or significantly improved logistical methods and the introduction of new or significantly improved support activities. For organizational innovation, three items were equally used; new modes of operation in the organization of procedures, new organizational methods of working and decision-making and new methods of organizing external relations with other companies. Finally, as regard marketing innovation, four items were used, namely: significant changes in the appearance of products, the use of new media for product promotion, new or significant changes in methods of sales or distribution and new pricing strategies for products(Oslo OECD Manual, 2005; Gurhan et *al*., 2009). It will be question here to see the influence of each of these aspects on financial performance. The following table present the coefficients of the regression.

Table 4: **The results of the logit estimation: the impact of innovation levels (product, process, organizational and marketing) on financial performance**

	A	E.S.	Wald	ddl	Sig.	Exp(B)
Product innovation						
Innovation market (Yes)	,164	,206	,634	1	,426	1,178
Innovation company (Yes)	-,076	,189	,160	1	,689	,927
Process innovation						
Production process (Yes)	-,024	,209	,013	1	,910	,977
Logistical methods (Yes)	,118	,227	,269	1	,604	1,125
Support activities (Yes)	,293	,224	1,701	1	,192	1,340
Organizational innovation						
Mode of operation (Yes)	,028	,193	,022	1	,883	1,029
Organizational method (Yes)	,387	,188	4,230**	1	,040	1,472
Relation methods (Yes)	-,460	,265	3,016*	1	,082	,631
Commercial innovation						
Significant modifications (Yes)	,130	,208	,392	1	,531	1,139
New media used (Yes)	,462	,236	3,839**	1	,050	1,588

New changes in sale mode (Yes)	-,245	,226	1,170	1	,279	,783
New pricing strategies (Yes)	,081	,191	,179	1	,673	1,084
Constant	-,409	,166	6,075**	1	,014	,665
	Chi-squared=19,607* (p=0,075), -2log-likelihood = 864,731 R^2 of Cox & Snell=0,030 R^2Nagelkerke = 0,040 N= 640					

****, * : Significance at the respective threshold of 5% and 10%**

The results of the model's estimation reveal a negative and significant value at 5% threshold for non-specified factors (constant). Moreover, the WALD statistic is globally significant at 10% threshold and displays a Nagelkerke R-squared of 0.040 confirming our first hypothesis and there are three significant variables identified. According to Nagelkerke's R-squared, it is concluded that the variables identified to characterize product, process, organization and commercial innovations account for only 4% of the financial performance of companies in the sample.

From this table, we observe that there is a significant relationship between organizational innovation and the probability of having a good financial performance. This link is positive and significant at 5% threshold when organizational innovation is measured by new organizational methods of working and decision-making. This link is negative at 10% threshold when organizational innovation is measured by new methods of organizing external relations with other companies. In addition, regarding marketing innovation, we observe that there is a positive and significant relationship at 5% threshold between marketing innovations and financial performance when measured by new techniques or media for product promotion.

4.1.2. The influence of the characteristics of standardized certification on financial performance

In this sub-section, the purpose is to examine whether there exists a relationship between financial performance and the characteristics of standardized certification. To undergo this verification, standardized certifications are measured using three items, which are international certifications, the use of foreign licensed production technology and the acquisition of a license or a patent (Chatzoglou et *al*., 2015;
Tze et *al*., 2015 ; Petra and Dries's 2013). The following table display the regression results between the characteristics of standards and certification and financial performance.

Table 5: **the logit regression results: the influence of the characteristics of standardized certification on financial performance**

	A	E.S.	Wald	ddl	Sig.	Exp(B)
International certifications (ISO) (Yes)	,137	,179	,585	1	,444	1,147
Foreign licensed production technology (Yes)	,310	,172	3,248*	1	,072	1,363
Obtained a license or a patent (Yes)	-,075	,183	,169	1	,681	,927
Constant	-,290	,155	3,503*	1	,061	,748

	Chi-squared=4,398 (p=0,222), -2log-likelihood = 881,423 R^2 of Cox & Snell=0,007 R^2Nagelkerke = 0,009 N= 640

*** : Significance at 10%**

From the readings of the above table, one can notice that the model reveals a negative and significance for the non-specified factors (the constant) at a threshold of 10%. Furthermore, the WALD's statistics attesting the specification of the model is not globally significant and displays a Nagelkerke R-squared of 0.009. This hypothesis is rejected due to the non-significance of the global model. However, there is one significant variable, which is the use of foreign licensed production technology. According to Nagelkerke's R-squared, it is observed that the variable identified to characterize standardized certifications account for only 0,9% of the financial performance of the companies in the sample. From the table, we can see that there is a significant and positive relationship between the characteristics of standardized certification and financial performance at a threshold of 10%. This relationship exists only when standardized certifications are measured using foreign licensed production technologies.

4.1.3. The influence of information knowledge on financial performance

In order to verify whether there exist or not any relationship between information knowledge and financial performance for companies in our sample, we have used three variables to measure the information sources namely; personal knowledge, market knowledge and institutional knowledge(Belderbos et *al*., 2004; Fossas-Olalla et *al*., 2010). The following table displays this information.

Table 6: **The logit regression results: the influence of information knowledge on financial performance**

	A	E.S.	Wald	ddl	Sig.	Exp(B)
Personal knowledge (Yes)	,184	,181	1,034	1	,309	1,202
Market knowledge (Yes)	,408	,180	5,141**	1	,023	1,504
Institutional knowledge (Yes)	-,499	,257	3,769*	1	,052	,607
Constant	-,325	,157	4,301**	1	,038	,723
	Chi-squared=8,217* (p=0,084) -2log-likehood = 877,604 R^2 of Cox & Snell=0,13 R^2Nagelkerke = 0,170 N= 640					

****, * : Significance at the respective threshold of 5% and 10%**

The above table gives us several informations. It is observed that the factors of constant variables have a negative and significant value at a threshold of 5%. In addition, the WALD statistics is significant at a threshold of 10% meaning that this model is globally significant. The estimation results above displays that the Nagelkerke's R-squared is 0,17 and we take note that two variables are significant. Based on to Nagelkerke's R-squared, we can conclude that the variables characterize information knowledge explains at 17% the financial performance of companies in the sample. One can notice from the table that there exist a significant relationship between innovation sources or knowledge and the probability of having a good financial performance. This link is positive and significant at a threshold of 5% if the information knowledge is measured using market information knowledge (suppliers, consumers, competitors, consultants). More so, the link is negative and

significant at a threshold of 10% if the information knowledge is measured using institutional information knowledge (universities, public organisms of R&D).

4.1.4. The influence of factors of innovation barrier on financial performance

Innovation activities are sometimes hindered by some limiting factors called innovation barriers and are likely to negatively affect the financial earnings of companies. We examine the relationship that exists between these factors and firm's financial profitability. In so doing, we have measured the innovation barrier factors via five variables, which are the lack of internal financial funding, lack of external financial funding, high innovation costs, difficulties in finding partners for cooperation and demand uncertainty(Oslo's OECD Manual 2005), Madeira et *al*., 2017; Mohieddine, 2014).
The following table displays that.

Table 7: **the influence of factors of innovation barrier on financial performance**

	A	E.S.	Wald	ddl	Sig.	Exp(B)
Lack of internal financial funding (Yes)	,212	,182	1,355	1	,244	1,237
Lack of external financial funding (Yes)	,427	,181	5,574**	1	,018	1,533
High innovation costs (Yes)	-,507	,258	3,868**	1	,049	,602
Difficulties in finding partners for cooperation (Yes)	,062	,207	,089	1	,766	1,063
Demand uncertainty (Yes)	-,291	,203	2,059	1	,151	,747
Constant	-,281	,160	3,099*	1	,078	,755
	Chi-squared=10,292* (p=0,067), -2log-likelihood = 875,530 R^2 of Cox & Snell=0,16 R^2Nagelkerke = 0,21 N= 640					

****, * : Significance at the respective threshold of 5% and 10%**

We can learn from the above table that the values of the constant variable factors are negative and significant at a threshold of 10%. The chi-squared model attesting the specification of the model is globally significant and displays a Nagelkerke R-squared of 0.21. The fourth hypothesis is then accepted and out of the five identified factors of innovation barrier, two are significant, which are the lack of external financial funding and high innovation costs. According to Nagelkerke's R-squared, it is observed that these variables identified to characterize innovation barriers account for 21% of the financial performance of the companies in the sample. There is a significant relationship between the factors of innovation barriers and the probability of having a poor financial performance following the above table. This link is positive and significant at 5% threshold when the factors are measured by the lack of external financial funding. On the other side, the link is negative at 5% threshold when it is measured by high innovation costs.

4.2. Discussions of results

Carefully looking at the relationship between innovation levels and financial performance, findings reveal that on the one hand, the probability of having a good financial performance increases when companies opts for new ways of organizing work and taking decisions. On the other hand, it also reveals that the chances of having a good financial performance decreases when companies opts for new methods of organizing external relations with other companies. Therefore, companies should direct more energy in implementing new methods of organizing work and to take decisions and

spend less or nothing in the implementation of new methods of organizing external relationship with other companies. This result joins the work of Gunday et *al*. (2011), who found that organizational innovation was crucial to improve upon the financial performance mediated by production, innovative and marketing performance. In addition, findings suggest that the chances of good financial performance increases when firms introduce new techniques or media for product promotion. This result equally joins the work of Gunday et *al*. (2011). So therefore, for companies to increase their chances of making more profits, they should rather think more on developing new strategies and techniques for the adverbs of their goods and services. Therefore, the overall financial performance seems to be explained by organizational and marketing innovations in the Cameroon context.

The above findings go consistent with the theories we summoned as innovation is considered as the critical dimension of economic change. More specifically, Creative destruction revolutionizes the economic structure from within, where new processes replace old ones. Chesbrough (2003) postulates moreover that firms should be able to use both internal and external ideas to develop new ideas and create new products; and also to modernize the channels through which these products will reach the market. Otherwise he saw that bringing about innovation in marketing was fundamental.

Moreover, as far as standardized certifications are concerned, a company would have a probability of seeing her financial performance varying at the rise if only if she opts for the production of goods and services under a technology certified by foreign licenses. This finding corroborates with the work of Petra and Dries's (2013) whose study was carried out to analyse the impact of patenting on licensing, innovation and financial performance for both SMEs and large firms.

As far as the influence of information knowledge on financial performance is concern, findings are understood in two points. In the first point, the probability of having a good performance increases when the company goes toward market information knowledge. That is, in Cameroon, companies no matter their sizes would have a probability of seeing their financial performances or profits increase if they choose to have as source of information for their innovation activities, suppliers, consumers and competitors. This finding corroborates as much to the work of Fossas-Olalla et *al*. (2010), who focused particularly on suppliers as a source of information and found a positive and significant link to financial performance. In the second point, these findings reveal that the chances of having a good financial performance would decrease if companies in Cameroon choose universities and other public R&D organisms as information knowledge. This finding is contrary to the work of Belderbos et *al*., (2004) who saw that having as source of information other organisms of R&D would likely increase financial performance. The open model can be reflected again here where information concerning newness or innovativeness should be shared from internal and external sources for accurate and acceptable changes.

Finally, regarding the influence of factors of innovation barrier on financial performance, findings show that on the one hand, that the profits of companies would decline because of lack of external funding to finance innovation activities. Therefore, in order to increase the probability of having a good financial performance, companies should choose for external sources of finance (borrowing from financial institutions or accompanied by public grants for example). On the other hand, these results reveal that the probability of a company to see her financial profitability increase will only be if the costs of innovation decreases. In other words, the profits of companies in the sample would fall when the innovation cost increases. These two variables corroborate perfectly well with the work carried out by Madeira et *al*., (2017), who found a significant negative value for innovation cost and a significant positive value for the lack of external funding but when related to innovation performance.

5. Conclusion

In this work, we mainly sought to highlight some innovation capacity and barrier factors that affects the profitability of enterprises in Cameroon. Thus, the object of this study was to understand how innovation capacities and barriers could affect the financial performance of enterprises in Cameroon. To achieve our ends, the literature review helped us to mobilise several theories like the Schumpeter's Creative Destruction, the Open Innovation Model, and the Resource-Based theories. These theories and the empirical review made it possible to formulate four hypotheses; innovation levels significantly affect the profitability of enterprises in Cameroon, the characteristics of standards and certifications significantly affect the profitability of enterprises in Cameroon, information sources for innovation significantly affect the profitability of enterprises in Cameroon and the factors of innovation barriers significantly affect the profitability of enterprises in Cameroon. According to the findings of this study, the content of the survey instruments that were used to test the hypotheses is reliable. Hence, the internal consistency and stability of the constructs show significant support for reliability. In addition, the findings of this study support five variables. New organizational methods of working and decision-making, new techniques or media for product promotion, foreign licensed production technology, market sources, lack of external funding all have positive and significant relationship with the firm's financial performance, which provides further evidence and strength to support previous literature.

In spite of the importance of innovation capacity on firm financial performance, empirical research has devoted less attention on the impact of the factors of innovation barriers on firm financial performance, especially in developing countries. This study takes an empirical step to shed the light on an important but un-addressed aspect. That is, the impact of innovation limiting factors on firm financial performance in a developing country. Thus, this study is considered among the first attempt to connect the limiting factors of innovation capacities with the overall financial performance of companies in Cameroon. This study shows that some aspects of innovation capacities have positive and direct effects on the probability of achieving financial performance. Consequently, firms should enhance their performance through improving these aspects. Therefore, the findings of this study provide important contributions to the existing literature.

Notwithstanding the awareness of strength of this communication, it is not without weaknesses. Firstly, financial performance is measured by subjective perceptions of managers because the exact number of profit accomplished by the company is difficult to be acquired as they are considered sensitive information for many companies. On the same line, measuring financial performance using only one indicator of financial ratios or indicators do not take into account non-financial or intangible indicators such as customer and employee satisfaction or improved take of decision thus, financial measurement might not reflect reality and it is only a short term measure.

According to the findings of this study, there are several starting points for further studies. Firstly, we considered only three aspects of innovation capacity related to firm financial performance and therefore, other factors or aspects might explain the dependent variable. Future studies could identify these aspects for a more serious and in-depth study. Secondly, this study investigated the link between innovation capacity and financial performance only. Performance being a multi-dimensional concept, further studies should consider a wider aspect of performance measurement like the social, commercial, organizational aspects. Thirdly, they should equally extend their sample to the ten regions of Cameron in order to ensure easy generalization. Lastly, they can carry out a comparative study between innovation barriers and innovation capacity on firms overall performance in order to understand which aspect weighs more in the Cameroon context.

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