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-ICID-

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To What Extent the Practice of Coaching by Sales Managers Contribute to the Improvement of Sales Performance?

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Abstract— Sales management has undergone a transformation in recent decades. This last is characterized by sales managers' adaptation of coaching in their managerial process. This gave rise to a new hybrid form of the sales manager: the sales manager-coach. Several studies conducted, mainly in the United States, accentuate the importance of sales coaching in maximizing business performance. This article is based on a literature review on how and why this change occurs. Then it puts forward a conceptual model on the intrinsic variables of sales coaching that positively influence the behavior of sales teams and consequently sales performance.

Keywords— Coaching, Sales Coaching, Managerial Coaching, Sales Performance, Salesforce Management

I. INTRODUCTION

Sales coaching has been a popular discipline in recent decades that is often integrated in the top management concerns of any business [1].

The sales manager plays an essential role in either the success or failure of an organization ([1], [2]). To improve performance, organizations are increasingly tending to replace salesforce management with sales coaching [3]. Indeed, coaching provides a competitive advantage [4] that allows companies to differentiate themselves from each other with better business performances ([5], [6]). Indeed, several organizations such as AT & T and IBM have replaced the word "manager" with "coach" to demonstrate their commitment to evolve towards a culture where development and growth are highly valued [7].

A study published in 2012 of the social observatory of the enterprise conducted by the French survey company Ipsos aimed at comparing the representations between different generations through their relationship with work, time and career. Indeed, this study has shown that the new generation of employees X and baby boomers, especially salespeople, tends to leave the company if they are poorly accompanied during their professional practice. As a result, some companies adapted mentoring, coaching and tutoring as an

approach to inclusion, transformation of know-how and knowledge produced within the company [8].

It has been demonstrated that today's salesforce no longer needs a manager who only looks after numbers and ratios, by laying behind his screen in his office. It is no longer a question of putting pressure on the team but rather becoming an essential part of its success (Zoltners et al, 2012). The manager observes and reorients his team in real time by playing the role of coach in the field (Barker, 1999). Today's sales manager spends more time in the field than in his own office (Rogers et al, 2012).

This article helps to study this evolution from salesforce management discipline to sales coaching. This mainly involves literature review on the state of this new practice. Subsequently, this work presents a conceptual model demonstrating the influence of the sales manager coach's behavior on sales performance.

II. METHODOLOGY

This research work is based on a literature review on sales coaching and it presents a conceptual model.

This article will answer the following research questions: What is managerial coaching in sales? Are there any relations between the behavior of the sales manager-coach and the performance of companies?

At first, we seek to define coaching, business coaching and sales coaching. From those definitions, we trace the axes of the conceptual model developed. Subsequently, we analyze the different researches conducted on managerial coaching in the sales field and see how the sales manager-coach influences the sales performance of his team. The analysis of these studies helps to define the behavioral variables of the sales manager-coach that influence positively the salespeople's behavior and consequently the sales results.

As a result of the literature review, we will be able to prove or disprove four research hypotheses: The sales manager-coach positively influences the behavior of the sales team;

Coached salespeople have a positive impact on sales performance; The sales manager-coach dialogs with his salespeople, gives them a feedback and sets with them objectives and next steps; The salespeople, once coached, are well oriented towards a defined action plan, more committed and aligned with the sales objectives.

III. LITERATURE REVIEW

A. Definitions

Historically, coaching was used for the first time in England in the 1500s to designate a particular type of transportation since it originally consisted of a practice designed to facilitate the passage of people from one place to another, but without carrying them [7]. Later, organizations adopted coaching after noting its exceptional impact on athlete performance ([12], [13]).

According to the International Coach Federation - ICF, coaching is defined as an interactive process to help individuals and organizations grow faster and produce more satisfying results; by improving their ability to set goals, take actions, come up with better decisions, and make full use of their strengths and abilities.

As for business coaching, the Worldwide Association of Business Coaches - WABC defines it as the process of engaging in a regular and structured conversation with a client (a person or team within a company, an organization, institution or government); The goal is to enhance the client's awareness and behavior to achieve business objectives for both the client and the organization.

Sales coaching is defined by the Corporate Executive Board - CEB as a continuous and dynamic series of interactions between a sales manager and his subordinate, designed to diagnose, correct or reinforce the behaviors specific to that individual.

Of these three definitions, we highlight the three following axes:

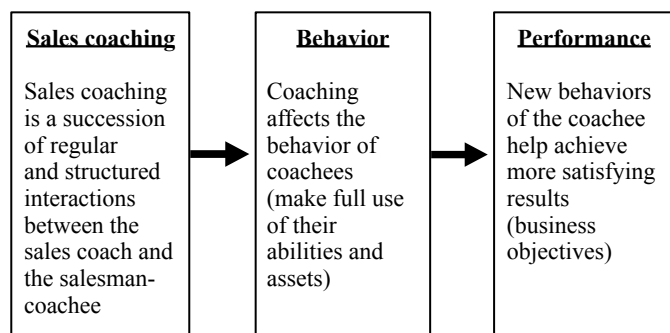


Fig. 1 Axes of sales coaching

B. Manager as Coach

According to the literature review conducted by Hahn and Oh [14], coaching in management takes two forms: executive coaching and managerial coaching. Accordingly, both types of coaching have always been seen as a way to correct poor performance and to link individual effectiveness to organizational performance. However, there is a clear distinction between these two types of coaching in terms of practicing. In managerial coaching, often used interchangeably with the manager as a coach, managers play the role of individual coaching in daily interaction that focuses exclusively on achieving work goals. On the other hand, in executive coaching, the decision-maker is supervised by an external and professional coach with a flexible agenda to adapt to his constraints.

According to the literature review analysis conducted by McCarthy and Ahrens [15], coaching managers are managers who coach in a work context. The individual coached is called a coachee. Managers can coach in a formal context by organizing sessions or informally using a one-off coaching approach, seizing every opportunity for discussion [16].

Coaching adopted by managers has become increasingly popular. Most studies of organizations have shown that line managers can be effective coaches to very effective.

It has been shown that there is a positive correlation between coaching and employee satisfaction, individual performance and the achievement of organizational goals.

C. Managerial Coaching & Coaching Tools Adopted by Sales Managers

Several phases usually structure the sales coaching sessions [17]: organization of coaching-meeting; feedback and restitution of observed actions; identification of needs; formulation of ideas.

In agreement with the literature review conducted by Carter [17], several studies show that coaching is used by managers. As to the work done by Graham & al. (1994) through a study of salespeople who evaluate their managers based on the use of the eight coaching skills advanced by Schelling (1991). The best coaching behaviors that are applied by managers are: to communicate clearly about expectations; provide accurate feedback; suggest ways to improve; develop a close relationship with employees. However, this research focuses only on the employees' vision without considering the perception of managers. At the same time, the study did not look at the impact sales coaching has on business performance. Rich (1998) completes this study by highlighting the three points that build an effective sales coaching: role modeling (sales coach is a model in front of his coachees); supervisory feedback (giving feedback) and trust.

D. Key Coaching Skills Used by Sales Managers

Following the study conducted by McCarthy and Ahrens [15], the key coaching skills used by managers are mainly "listening" (94.6%), "asking questions" (91.6%), "giving feedback" (89.9%) and "setting goals" (77.8%). Only 16.8% indicated that they use specific coaching models. This study was conducted with 580 participants, mainly general managers and human resources managers (according to the authors, they are much more aware of coaching methods than other line-managers).

The main skill of a sales manager-coach is to listen and ask questions. He cannot under any circumstances identify the skills gaps of his team without asking the right questions and listening carefully to the answers. In a study conducted by Wheeler [16], listening behavior was evident in hierarchical statements, such as "I try to listen to what they say". This has shown that they value listening as a behavior that helps them develop the skills of their staff.

Giving formal feedback is the most essential element in a coaching approach ([13], [18], [19]). Many managers prefer not to formalize their feedback, which can generate in their coachees the impression that the action they conducted is not important meaning the feedback neither.

According to Wheeler's [16] literature review, providing individual feedback is one of the most effective coaching behaviors [20]. Indeed, the study by J. Jaworski & al. [21] considers that in the context of sales management & coaching, the positive feedback on productivity is considered to have the most significant impact on performance.

Researchers on sales find that retroactive feedback and follow-up is a difficult process for managers to complete [20]. Conversely, Ellinger & al. [22] consider that feedback is the most frequently adopted coaching behavior. This demonstrates a difference in the use of coaching skills.

Managers must set goals that reflect the needs and internal values of their team members [19]. According to the study conducted by March [20], the coaches who had the best score in coaching style were those who set goals in consultation with their coachees. These managers were evaluated by their salespeople.

E. Behaviors of the Coached Salespersons Improved Thanks to the Coaching Skills of their Sales Manager

There are many salespeople behaviors' that can be impacted by sales manager-coach's interventions. The following behaviors remains the most impacting on performance.

Skills developed: Active listening and questioning help the manager-coach to identify skill gaps (soft skills or technical skills). It allows the feedback to be direct, specific and straight to the point.

Commitment & alignment with objectives: Since we are talking about an organizational framework, it is important to note that organizational objectives must always be aligned with individual objectives. Failure to do so may create a behavior of lack of commitment on the salesperson-coachee's part. Also, the stage where the manager-coach sets with his coachee objectives establishes a climate of confidence in himself and in the company. Thereby, the perspective of achieving these objectives becomes a source of encouragement and challenge for the salesperson.

Optimal orientation of the action plan for achieving the objectives: Who says results says defined and deployed action plan. The transition to action for the salesperson imperatively requires this step.

F. The Impact of Managerial Sales Coaching on Business Performance

All sales managers wish their teams to be efficient. Coaching is the most relevant solution [1] since it allows real-time skill development for sellers. Coaching is designed to positively influence the behavior of the sales team through managerial interventions. When the effectiveness of this method has been demonstrated to solve various blockages, it has been applied in an organizational context. This implementation is particularly appropriate for sales organization where the role of the manager is to maximize the productivity of individuals [2].

In a highly competitive environment, the demand for sales performance has prompted several organizations to seek to automate the sales process, or to make available to its salespeople a range of technological tools, making the sale more and more complex to materialize. At the same time, studies show that learning processes allows for a better mastery of skills. Indeed, coaching strengthens sales skills through feedback and monitoring of changes in real time [23].

Alongside these steps, the coaching of sales supervisors or sales managers has a remarkable influence on the performance of sales teams. The more the company tends to facilitate the coaching of its individuals, the more they develop their skills. The feedback that remains the most important phase of sales coaching serves as a guide for sellers and help pointing their way to business success.

IV. CONCEPTUAL MODEL DEVELOPED

Our study on the different conceptual models on managerial coaching, sales coaching and coaching led us to draw the main lines of the proposed conceptual model.

Several conceptual models involve coaching to act on trust and commitment. Since the research focuses on the identification of a causal relationship, the article looks at a new conceptual model of the manager-coach and examines how his coaching abilities affect the performance of his team.

Part of the conceptual model proposed by Claudio Pousa and Mathieu [24] will form the basis of our research by focusing on the variables of each behavior and measuring their impact on performance.

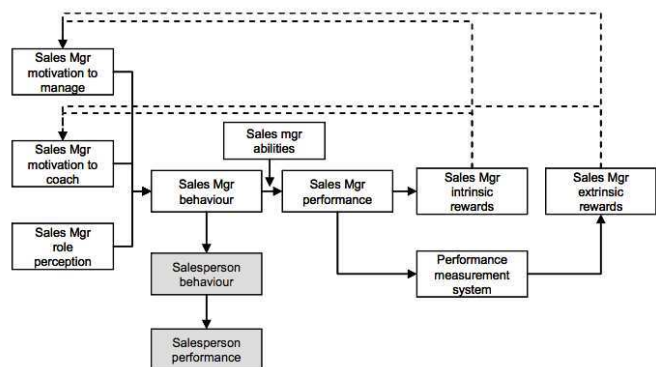


Fig. 2 Conceptual model “Sales Managers’ Motivation to Coach Salespeople: an exploration using expectancy theory” Claudio Pousa and Anne Mathieu [24].

This model is based on Vroom's anticipation theory. The authors assume that the motivation of the salesperson-coach to coach salespeople will influence their behavior. With this behavior, they will achieve a better level of performance. Through this performance, they will receive the results or rewards related to the job. What is most interesting in this model is how the behavior of the sales manager coach positively influences the behavior of his team and consequently the sales performance of the team. The study

presented several equations to measure motivation without focusing on performance.

Our study will complete the analysis by detailing sales managers and salespeople behaviors and their cause-and-effect relationships.

We propose the following conceptual model's equations and conceptual model:

$$B_1 = CS_1^P + CS_2^P + CS_3^S$$

$$B_2 = CS_1^S + CS_2^P + CS_3^P$$

$$B_3 = CS_1^S + CS_2^S + CS_3^P$$

$$P_m = B_1^P + B_2^P + B_3^P$$

Continuous arrows indicate a direct (principal) impact (p)
 Discontinuous arrows indicate indirect (secondary) impact (s)

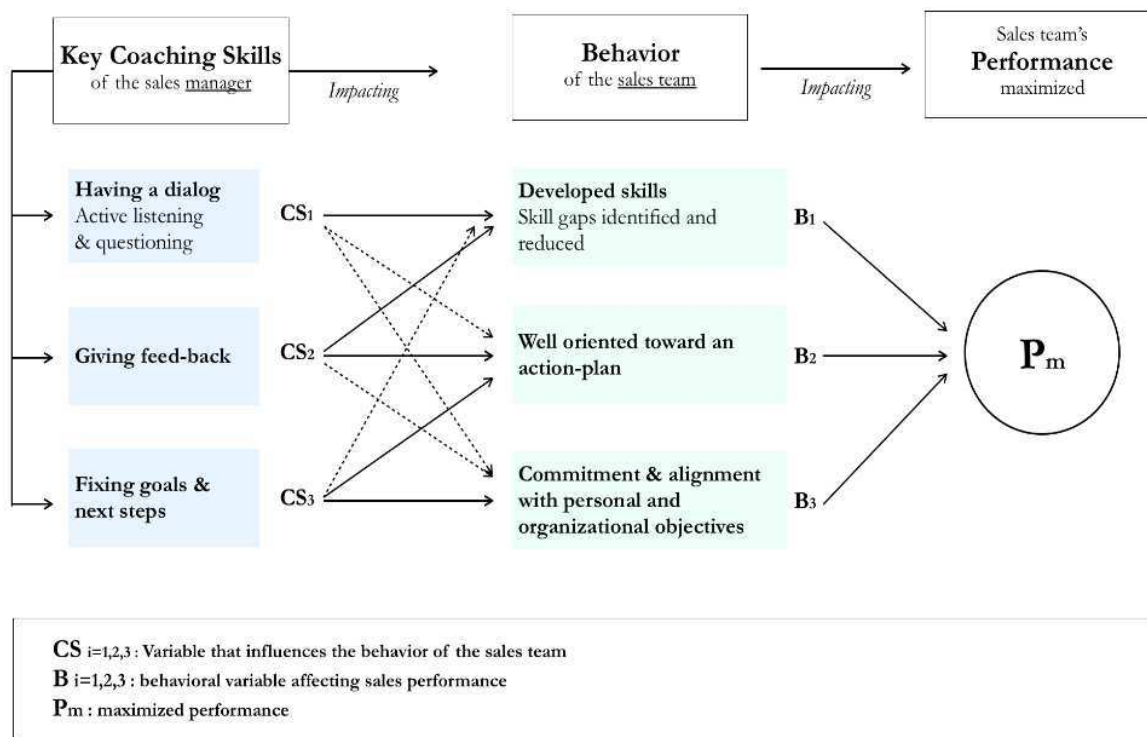


Fig. 3 Developed conceptual model “The impact of managerial coaching on sales performance”.

V. CONCLUSION

Many studies have demonstrated the importance of the coaching approach in the managerial process. In fact, almost 94% of people recommend that their new managers receive training on coaching before starting to manage them [25]. The best way for managers to learn to coach is when they have been coached themselves through effective managerial coaching programs; such as the practice of senior managers coaching junior managers in management, for example ([26], [27]).

The sales team whose main objective is to achieve sales revenues needs to be guided and coached in real time in the field. In this way, the sales manager coach not only controls the amount of work but also its quality of achievement. Several studies confirm the importance of managerial coaching in the development of individuals and the impact it has on their professional performance ([20], [28], [29]).

Nevertheless, the impact of coaching on business performance is not always relevant [30]. However, it should not be overlooked that variables relating to the nature of coachees can also hinder the coaching process. While others come to activate or even accentuate the impact of coaching on business performance: highly coachable, highly competitive salespeople, under the influence of a transformational leadership style [13]; managers motivated to coach [16], an organizational culture that encourages coaching etc ([19], [31]).

Nevertheless, our research proposes a conceptual model based mainly on the sales manager-coach behavior and the resulting positive behavior of the salespeople and consequently the overall performance. Moreover, this conceptual model does not take all the sales manager-coach behaviors but rather focuses on the necessary and most recurrent behaviors. There are other studies focusing fully on behaviors, which remain more exhaustive in this area [14].

It would be recommended to complete this model with a qualitative exploratory study through interviews with manager-coaches and sales-coachees. This step will endorse the behavioral variables selected for the two segments. A quantitative study can also verify the impact of coaching in maximizing sales performance. And thus, validate the business contribution of the coaching approach in the sales manager's managerial process. It would be appropriate to also consider in the study the cultural specificities [32].

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Female social entrepreneurship in Morocco: case of the Casablanca-Settat region.

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Abstract:

During the last two decades, Moroccan women entrepreneurs are starting to implement a new management mode based on participative management. They thus contribute to changing the traditional vision of the company based on the gain, towards another vision meeting the social needs of the company, its environment and human capital. Indeed, Moroccan women who invest in all sectors of activity and especially in services, are also in the VSE (small businesses), agricultural cooperatives, commercial or craft.

Through this paper, we will discuss the forms of success of women's social entrepreneurship in Morocco related to the VSE, the needs for training, support and innovation. But, also, the brakes and limitations related to these companies. Thus, after spreading a review of the literature, we will dwell on the concept of social entrepreneurship, then; we will study these very small women's businesses, their governance and conditions related to communication- marketing, which hinder their performance and growth.

Key words: Female social entrepreneurship, needs, VSE, evolution tracks.

Introduction

In recent times, women have become increasingly involved in the labor market, as men have become increasingly unable to support their families on their own due to structural unemployment and poverty. low wage growth. This has contributed to changing the family structure and improving the position of women in society.

However, societal constraints prevent some women from even considering business creation, while systemic barriers mean that many women entrepreneurs remain confined to

small businesses operating in the informal economy.

This not only limits their ability to earn an income for themselves and their families, but also restricts their true potential to contribute to socio-economic recovery, job creation and environmental protection.

Women's entrepreneurship is truly and effectively involved in the economic development of countries. This development is due to the increase and predominance of tertiary activities in the economy (tertiarisation), access to education and especially, higher education for women. Faced with this important surge of

women entrepreneurs, our study will focus on women's social entrepreneurship in Morocco.

1. Problem:

Thus, the essential research question revolves around the following issue: To what extent can female social entrepreneurship in the field of micro-enterprises (very small enterprises) constitute a major lever in the economic and social dynamics in Morocco? and what are the obstacles that hinder its evolution?

Our research methodology starts with an overview of the literature according to the different writings related to the topic, then extract the link with empirical studies dealing with social entrepreneurship, in order to find ways to improve the future. To answer this question, we will focus on several elements including the institutional context, the socio-demographic profile and the difficulties faced by women, heads of small-scale companies. The analysis of the motivation allowing the women to carry out their projects and to undertake actions of creation of values, is necessary to the extent that its comprehension makes it possible to detect the obstacles which slow down the good continuation and or cause a stop of activity, even before it begins. Thus a reflection on the socio-economic profile of women entrepreneurs by confronting several classical theoretical thoughts, will lead us to an explanation of the factors of success or failure of this female career.

2. Review of the literature:

In theory, social entrepreneurship has led to many attempts at definition to approach and define it. For Zahra et al. (2009) social entrepreneurship refers to "the activities and processes undertaken to discover, define and exploit opportunities, in order to increase social wealth through the creation of new businesses or the management of existing organizations in an innovative way". Thus, companies with a "social entrepreneurship" character, are organizations whose goal is to connect their social mission with entrepreneurial action (Oster et al, 2004, Tracey and Phillips, 2007), which differentiates them from the collective enterprises of the social and solidarity

economy, which mainly have a social mission (Fraisie et al, 2015).

In this vision, social entrepreneurship "refers to the increasing professionalization of existing and emerging social and solidarity economy organizations that adopt an entrepreneurial approach and formal management tools, to better meet social needs and on a larger scale." (Dardour, 2012).

In this respect, to distinguish social entrepreneurship from traditional entrepreneurship, it should be noted that social entrepreneurship is characterized by the explicit and clear priority given to its social vocation. Similarly, the social enterprise seeks to respond to social needs expressed in the form of general or collective interests that can not often be met by the private sector or the public sector. With regard to traditional entrepreneurship, the main objective is the pursuit of financial profit, taking into account the needs of the client-consumer, the shareholder or the producer. By contrast, social entrepreneurship can be a complementary activity of a traditional enterprise (Zahra et al, 2009).

Theoretically, there are divergences related to approaches to social entrepreneurship. While the European model is focused on social enterprise and distinguished by a collective approach close to the perspective of social and solidarity economy (Fayolle and Matlay, 2010, Bacq and Janssen, 2011), the American vision highlights rather, the innovative social entrepreneur who develops market activities serving a social mission (Dees and Anderson 2006, Bornstein 2004, Short et al 2009). In addition, social enterprises in developing countries are seen as agents of change that "enable the poor. . . to integrate into the process of economic and social development" (Mair and Marti, 2007: 493).

At the academic level, interest in the social economy has steadily increased as indicated by the number of articles, conferences and seminars devoted to it (Dacin et al 2010, Hemingway 2005, Short et al. 2009, Tracey and Jarvis 2007, Zahra et al., 2009).

Thus, researchers' attempts to model and conceptualize this notion are numerous. Some work has been in the community perspective (Cornwall, 1998), others have been based on institutional theory (Dart, 2004), structuring and

social capital theory (Mair and Marti, 2006), and theory of social network (Peredo and Chrisman, 2006). Nevertheless, it is worth noting the small number of research mobilizing theories of strategic management in particular, the theory of resources and skills or that of leadership (Short et al, 2009).

3. Presentation of the survey site:

Created in 2011, the association "Pour elles" is the culmination of a training program and support for women entrepreneurs of the Casablanca- Settat region, established in collaboration between the German Development Agency, the National Agency for the Promotion of SMEs (ANPME) and the Regional Investment Center. The main mission of the association is to develop entrepreneurship among women, to create businesses, to support and monitor women's businesses in the region. Its objectives revolve around the following orientations: - Defend the interests of its members to help them sustain their businesses. - Assume the role of supervision, assistance, awareness, training, promotion, popularization of concepts, impulse and intermediary. - Encourage the creation of women-led businesses in the region. - To become the essential contact with the public and private authorities of the region. - Support the process of advanced regionalization. - Participate in the promotion of women as economic actors creating wealth.

4. Research results :

This survey was sent to women entrepreneurs in the Casablanca- Settat region to give them a questionnaire containing some data on their leadership, the needs and obstacles that block their daily functions.

64 women agreed to complete the questionnaire. Their age groups are as follows: 21% of women surveyed are between 20 and 35 years old, 53% between 35 and 50 years old and 10% are over 50 years old, while 16% have preferred not to answer. 77% of these women are married and 61% of them have dependent

children. The illiterate women represented 7% of the mother population, they were guided to complete the questionnaire by our research team.

5. Needs and expectations of women heads of very small businesses through the survey:

The survey revealed many needs of women heads of very small businesses. These needs are of endogenous and exogenous nature, specific and transversal needs are grouped around the following points:

4.1: Reorganization and managerial structuring

Some women with a working life of over 8 years expressed a strong need to organize and restructure their company in the following areas: setting up an internal procedure manual, setting up a description of the company position, certification and labeling, acquisition of internal management software adapted to the activity, implementation of analytical accounting, participation in the INDH training program, application of Lean Management, standardization of internal procedures, creation of concept franchise, computerization of companies

4.2: Training and support

Most of the women interviewed expressed a significant need for:

- Training and coaching, about (team management, negotiation, corporate communication, marketing techniques, inventory management, relationship with banks and productivity development ... etc)
- Coaching and coaching sessions for personal development, on common aspects namely: stress management, time management, perception and management of difficulty, surpassing oneself, managing emotions and communication in public, ... etc.
- Other language development needs were expressed, mainly French and English
- Business training to improve technical skills, and especially to make these women's businesses attractive, modern and competitive.

4.3: Financing

Several women have expressed their need to have funds by emphasizing the constraints and difficulties with banks such as:

- Banks do not finance companies in difficulty;
- Banks demand guarantees and mortgages for financing;
- Banks charge very high interest rates;
- Banks do not grant cash facilities to VSEs;
- Banks do not grant discount credits to small businesses.

4.4: Marketing and communication

- The majority of women interviewed expressed the need to make their products and services known to a broader target. They admitted that they do not have a clear and consistent marketing strategy.

- They often use ad hoc, on-site and non-homogeneous publicity campaigns. They need to show their products in fairs, forums, regional festivals, open days or other ... Above all, be accompanied and coached by communication-marketing specialists with new trends in marketing.

4.5: Assistance and mastery of techniques

The majority of women expressed their need to improve their technical skills, and especially to know new practices, new equipment through the benchmarking of some leading companies in their sector of activity. The proposals focused on production and marketing, communication and events

4.6: Human Resources and Skills Development

According to this survey, female VSEs do not have a high rate of supervision and sufficient financial capacity. This influences the quality of the organization, the internal management of the company, and especially the ability to modernize and proactively monitor the evolution of the sector. They also find it difficult to access skilled labor, which directly impacts their competitiveness. These companies have difficulties in retaining their employees because they offer very limited opportunities for change, they do not have the capacity to do

without their team during the training hours in order to honor their commitments, they have not not the means to finance training plans.

4.7: Improving the business climate

The business climate remains to be improved. These companies live in different circumstances, due to many contradictions and some bad practices related to corruption, unfair competition sometimes practiced and related to non-compliance with regulations, quality standards, and hygiene. , market approaches ... etc. The absence of simplified business guides on all the obligations of the entrepreneur in his field of activity (laws, authorizations, sets of documents to produce, industry standards, etc.).

4.8: Networking and Partnership

The results of the study showed that women were increasingly interested in networking and joining professional groups for better access to information and new contacts. This need can be broken down by facilitating women's networking with new partners. We can also facilitate access to specific networks, organize targeted B to B actions by sector of activity. This will make it easier for these entrepreneurs to open up new prospects and new partners.

5. Recommendations:

In order to meet the needs of women CEOs, a number of actions have been proposed and are represented as follows: development of their skills, programming of technical training sessions or qualifying in several sectors of activity , organization of mentoring sessions and individual and collective coaching, ease of access to financing, negotiation of formulas and financing products specific to SMEs / VSEs. To this is added the proposal to organize professional travel missions for the meeting of partners, suppliers and successful companies in the sector of activity in question, the group participation in trade shows and trade fairs, the reorganization, and the computerization of women's structures, the contractualization of the support service for the labeling and certification of certain companies, the establishment of partnership agreements with

organizations and recruitment firms through their networking with partners.

General conclusion:

Modernizing our country involves promoting the values of equality and citizenship. The gender approach has been partially integrated into the various national development programs. That said, Moroccan women represent a key foundation for the implementation and application of any economic and social growth project. Social entrepreneurship in the form of very small businesses remains underdeveloped in most Moroccan regions; the favorable dynamics observed in the creation of companies did not significantly affect the number of women's businesses.

Similarly, nowadays, many women have successfully taken the step of entrepreneurship, some with flourishing businesses, others more "modest", but, they have the common ambition to open the doors of the economic lift of the country. To this will be added a context and a Moroccan environment more and more favorable and equitable to make the female entrepreneurs a lever of growth and creation of wealth. The woman leader of a small business represents a sustainable entrepreneur, which is what emerges from our various interviews with the category of interviewees. They generally manage small and medium structures created to last in time and to succeed a professional career as well as an immediate profitability and spread out over the long term.

In view of this, several public actions can be carried out in favor of the identification and implementation of actions of development of the social entrepreneurship by the woman in Morocco in the matter of the VSEs. On the basis of this study, women's businesses remain a well-founded need for targeted and sophisticated operations that best meet the expectations of this category of companies. Two points remain focal for this type of entrepreneurship, access to a network and access to finance. A second track also consists of stereotypes of the kind that can be brakes upstream of the creation of a company. One of the ways that can stimulate a women's audience is to develop success stories, models of successful women entrepreneurs, who will set

an example and encourage other young students to embark on this adventure. to multiply certain experiments.

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Considerations regarding the main current trends in the banking system

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Abstract— This paper aims to provide information on the current main trends in the banking field. Given the extremely fast pace of change that the banking system is facing, it is important to underline these changes and identify the main effects they can have on banks. In this regard, the following trends were identified in the present paper : the transition to platform-based business models , reimagining the customer journey and increasing customer experience, formally adopting the open banking system model, increasing security and protection against hackers, optimizing the interaction between human and digital resources, as well as the introduction of new rules on business ethics and data protection.

Keywords— banking system, banking services, security, digitization, data protection

I. INTRODUCTION

The current banking system is undergoing an extremely rapid pace of change unprecedented in the global history of banks. Moreover, all analysts' forecasts indicate that radical and accelerated change will continue to characterize the banking system over the coming years, with the ability to adapt and innovate as the main factor that will determine the sustainability of banks in the market. In this paper we discuss the major trends affecting banking and bringing radical changes in the business model adopted by banks.

II. TRANSITION TO PLATFORM-BASED MODELS

The value chain in the banking system can be divided into three main groups of activities:

- a) creation of financial products and services - forms the first set of activities;
- b) identification of the products that best meet the needs of the customer - represents the second set of activities;
- c) delivering value by distributing products and services through the customer's preferred channel - represents the third set of activities.

Currently, the business model based on the vertical integration of these three groups of activities, in which banks create and sell their own products and services directly to customers, is threatened by the emergence of specialized economic actors in a certain category of activities from the value chain. For example, throughout history, banks were the only ones who designed and sold their products. Along the way, they added complementary products by establishing partnerships with various other economic actors such as insurance companies. The digital age has brought to the fore non-bank actors and new types of partnerships based on co-creation and the sale of "white label" products (products that have a brand different from the manufacturer's brand). As banks become businesses based on open platforms, they can offer a much wider range of competing and non-bank banking products, such as movie tickets, cars, and even better interest-bearing deposits from partners.

In addition, as the bank system becomes open and brings along more transparency in the market banking services and products, banks are forced to present the best offer to their customers, whether these offers are theirs or the competitors'. Moreover, some banks have already taken steps to play a more important role in the lives of customers, in particular, by moving from the monolithic business model based on selling their own products, to a business model based on aggregation into one. single store for many financial and non-financial offers. Furthermore, banks have begun to use distribution channels offered by third parties (fintech companies, other banks, other types of partners, etc.) and to integrate them into the already existing distribution mix (branches, mobile channels, agents, kiosks). etc.). Thus, the tendency is towards the transformation of banks into economic agents that distribute a wide range of products through traditional channels and new channels.

The trend towards the business model based on open platforms will be more pronounced in the countries that have already created a legal ecosystem for this model, especially if there is a major pressure from the competitors to go beyond

the traditional business model. In other countries, where the pressure from the newly emerging competitors is lower, the evolution of the business models will be slowed, but it will be in the same general direction. In recent years, innovative banks have begun to enter the adjacent markets, to the same extent that adjacent industries have begun to enter the financial services market. For example, a large bank in Singapore plans to collaborate with a taxi company to popularize its services within its own ecosystem in exchange for access to customers using taxi services. Equally, we can imagine a taxi company that threatens the market of a local bank by offering loans and deposits for employees and customers. Other non-banking platforms such as Amazon, Google, Apple, Alibaba and WeChat will continue to expand their portfolios by offering banking services through selected partners and these partnerships will increase the value offered to customers. The opportunities are endless and the banks that will adopt the platform-based model as soon as possible will be able to significantly improve their market position.

III. RE- IMAGING THE JOURNEY OF THE CLIENTS AND INCREASING CUSTOMERS' EXPERIENCE

Customer experience in the interactions with the banking system has become the main factor influencing their satisfaction, which is why banks are investing more and more money to analyse customer travel and interaction points where customer value can be increased. For example, banks want to advance the beginning of the clients' journey to the moment when the main need is recognized, not as it is now, when the journey begins when the client recognizes the secondary financing need. Thus, the client's journey to a possible mortgage should start not when the client is actively seeking a real estate loan, but when deciding to buy a home. In this way, the customer experience will become much more intuitive and easier as the banks begin to consider the primary needs and purchasing cycle in customer journey design. To sum up, the services addressed to the economic agents will evolve, especially by offering ERP solutions to small and medium-sized enterprises, which will allow the inclusion of banking services in the normal flow of the activities of these enterprises. Banks such as Deutsche Bank or HSBC have created portals where customers of small and medium-sized businesses can interact and trade various assets, and banks will continue to participate in electronic markets that serve a primary need of economic agents.

Moreover, as the platform-based business model is gaining popularity, customer travel within the banking system will tend to start not only on traditional channels, but also on channels offered by third parties, which is why banks do not have to involve mixed teams. in customer journey design (e.g. IT experts, product development, and customer service). Mainly, new technologies will significantly change the customer journey. After the transition from physical to digital channels, followed by the transition to artificial intelligence-based channels, in the coming years, the interactions between customers and banks will be based on augmented or virtual reality. An example of the use of augmented reality is found

in the mortgage sector where banks, after penetrating the cycle of acquisition of real estate, began to superimpose bank information over the digital images of the buildings that customers are interested. Moreover, virtual reality will certainly find its applicability in much more complex interactions such as explaining the difficult to understand concepts in the field of investment and wealth management. In addition, artificial intelligence and data analysis will enable banks to offer more personalized services and dynamic and customized experiences to the clients' context, including their emotional state. The customer journey will continue to be designed for certain types of customers, but data analysis will allow it to be tailored to each individual client, in particular through the real-time response to his needs. Banks will monitor each interaction point more closely and will be able to determine more precisely what the value of each channel is.

IV. OPEN BANKING SYSTEM

In 2018, several countries have formally adopted the model of open banking system, and experts anticipate that other countries will join this trend in the coming years. Initially, the open banking system was conceived to increase competition between banks, especially in the case of highly concentrated systems, but recently it was concluded that the open banking system will have a much greater impact on the whole banking activity. First, as discussed above, in this context, banks are forced to change their business model and adopt one based either on specialization on a certain category of activities in the value chain, or on aggregating more offers from banking and non-banking partners.

Although banks have not made significant progress in this direction at the moment, it is clear that the trend towards open banking will mature quickly, not only because there is now a legislative system that allows the opening of the bank's operating systems to third parties, but also due to the increasing pressure exerted on the market by non-banking competitors. While banks that will adapt their technologies and business strategies to the new reality will benefit from considerable benefits in the era of open technologies, those that will be harder to adapt (small and medium-sized banks) will become increasingly vulnerable because they will lose their customers in favor of more advanced competitors and will be threatened by acquisitions or mergers. Thus, all types of banks need to improve their offer and value proposition in order not to lose their customers and market relevance.

As banks adopt an open model, the KPIs used in banking will need to be adapted to the case where the bank is a manufacturer, a distributor, a retail market or a combination of the three. The indicators used by banks to analyse the efficiency of digital and physical channels, such as traffic or number of visits, will no longer be relevant if a third party distributes the bank's products. In the era of open banking, banks will gain customers through techniques and methods that are very different from traditional sales and marketing campaigns, and this requires the creation of new methods to measure performance. For example, for personal finance

management services, measuring the number of registrations will no longer be relevant, but quantifying how customers benefit from services will prove to be an appropriate measure of the success and rate of service adoption. Moreover, indicators such as net promoter score, quality of services and new revenue streams will become more important.

Even in regions where the open banking system has not yet been legally regulated, banks and companies providing financial services have begun to adopt the "application programming interface" (API) economy. The banks that have launched their own API stores have between 5 and 60 APIs for various aspects of the operating systems and the tendency for collaboration will increase in the coming years, as digital companies, fintech companies and other creators develop applications that include real-time banking services. Most banks currently offer APIs that run on fictitious data, but as they develop their ability to effectively control data processed through APIs, APIs will run on the basis of real data. .

However, there are some impediments such as having multiple API standards even in the same country, which causes innovation to slow down (e.g. fintech companies cannot use the same solution for APIs of multiple banks due to incompatibility of standards). These impediments will disappear as the legislation in the field has developed (e.g. API brokerage legislation) and banks will adopt the standards that appear in the industry instead of developing their own standards. However, banks must accurately monitor the level of access offered to developers and other partners in order to avoid the situation where they take advantage of information to take over the bank's customers. Thus, it is advisable for banks to maintain a balance between the access offered to innovators and the need to protect their own market position.

V. INCREASING SECURITY AND PROTECTION AGAINST HACKERS

Recent years have shown that the banking sector needs to increase its protection measures against cyber-attacks. A study estimates that losses from these attacks in the year 2018 amount to \$ 1.6 billion and will increase to \$ 6 billion by 2021 [1]. In this context, the measures contained in the latest legislative acts such as MiFID II and the GDPR are very welcomed as they will lead to a change in the security of the banking system at a global level. Following the implementation of the GDPR regulation, banks will improve their data security and exercise appropriate control over the vulnerability or value of information. In addition to data protection, banks will also implement measures against malware and ransomware attacks, especially now that the use of artificial intelligence and machine learning will increasingly expose banks to cyber-attacks. For example, attacks on artificial intelligence will include exploiting AI solutions used by banks (e.g. chat robots) to influence banking activities. Banks need to protect themselves against hackers who intend to enter erroneous data into the bank's system to influence AI agents and have them recommend products that are not in line with customer requirements and needs in order to affect the bank's reputation. Moreover,

analysts believe that attacks on biometric authentication and crypto wave will intensify, an evolution that could adversely affect activities within the banking system as well [2].

Soon, hackers are likely to move from deterministic to eloquent probabilistic techniques to exploit vulnerabilities in the banking system, especially now that banks are publishing APIs that allow the free flow of data between partners. Large banks have already started system security audits, especially on attacks based on artificial intelligence, and have increased control over all applications in the internal ecosystem. Additionally, more and more banks are resorting to cloud-based security technologies because they enable real-time protection solutions. At the same time, banks are increasingly investing more money in training sessions on data security for all employees, in particular to prepare for attacks targeting unknown vulnerabilities of the applications used. In the near future, banks are expected to invest more and more money in tools that will enable them to cope with persistent advanced attacks through a combination of data leak prevention, user behavior analysis, data access management and security solutions based on cloud technology.

VI. OPTIMIZING THE INTERACTION BETWEEN HUMAN AND DIGITAL RESOURCES

Generation Z, the generation that has been exposed to technology since childhood, has entered the labour market. It is estimated that by 2020, this generation will represent 36% of the global workforce [3] =. The increase in the penetration rate of the new technologies goes in parallel with the tendency of transformation in the labour market where more and more employees with technical skills are entering.

In the case of the banking system, these trends are manifested as follows: the need for employees with new knowledge is one of the direct consequences of the radical changes in the financial services sector. On the one hand, digital technologies help banks identify new sources of value creation, and, on the other hand, increasing the complexity of cyber-attacks requires protecting the existing value. Thus, the demand of professionals specialized in security and digital security is growing in the banking sector.

Likewise, banks now need data analysis specialists and artificial intelligence specialists to contribute to the development of new products and services. The need for specialists is highlighted by the fact that, in recent years, banks have invested considerable amounts in joint ventures, centers of excellence and various collaborations with industry and the academic environment for different innovations [4] . Banks have come to compete for professionals and in order to attract them they must change their recruitment and selection practices by adopting new and innovative methods. Moreover, banks need to change their policies on promoting and rewarding staff in order to retain their employees for years to come. On the other hand, banks will also invest in process automation, one of the pillars on which the digital transformation of the banking sector is based, which is expected to lead to a decrease in the number of employees doing routine work, without a significant addition [5]. To

reach their goal, banks will increasingly employ more automation experts and consultants who can build process automation plans and ensure their implementation. For the automation of front-office and back-office operations to work, banks need to hire experts who fully understand the implications of automating a set of processes and who can make appropriate choices regarding the balance between automated and manual processes and between centralization and decentralization of activities.

The transformation of the banking system depends to a large extent on access to the right workforce. To cover the difference between the need for specialists and the supply on the labour market, banks will have to work much more closely with the academic environment to adapt the curricula to the needs of the banking system. Furthermore, banks will work with universities and the integration of practical projects based on actual needs of the banking system. On the other hand, banks will need to improve the skills of the current workforce.

The banking system made the transition from the manual system to the automatic data processing system in about 10 years, but that does not mean that the current workforce has the ability to fully understand how applications currently used by banks work. Hiring experts in artificial intelligence, security or automation for reorganization projects is only effective if they are allowed access to clear information on how processes in the banking system work.

In addition to knowledge about the business model, digital transformation also requires knowledge about customers and a clear interest from the entire organization and stakeholders. Thus, banks will continue to attract the workforce that understands the business, industry, customers and the organization itself. This will prove difficult especially because of the large differences between the generations that are now active in the labour market.

Now, banks must face the challenge created by the entry into the labour market of Generation Z, the mix between Generation Z, Millennials and Baby Boomers at the level of employees and customers and the extension of the definition of banking activities. To adapt new business models to them and the expectations of new generations of employees, banks will begin to engage in projects and redefine organizational practices (e.g. bureaucracy will need to be reduced, strict and hierarchical structures will be replaced by flat structures such as those in digital companies, training opportunities will have to include digital aspects such as training available on mobile devices, feedback will be offered to employees in real time, not periodically, etc.).

VII. BUSINESS ETHICS AND DATA PROTECTION

Consumer data protection is no longer just a concern of the banking system. The Facebook scandal of 2018 has shown that data can be exploited for purposes that are not purely financial in nature. Banks have been entrusted with finances and customer data from the beginning, but so far, banks have not actually realized that customer data is as important as money and that it needs to be protected, even if their

disclosure does not have a direct effect on the financial situation of customers.

In accordance with the new GDPR laws, businesses must protect customer data and ensure that they are aware of the manner and purpose of using the collected data. On the other hand, the open banking system and PSD2 made it necessary to trade data between banks and their partners (e.g. application developers, non-banking companies providing financial services, etc.), which exposes banks to the risks associated with data sharing. In this context, banks are in a difficult situation where they are forced to protect customer data at the same time as these data are becoming increasingly vulnerable due to the fact that more and more businesses have access to them. Thus, banks are forced to choose between compliance with new regulations and the need for innovation.

Overall, the innovative processes introduced in the banking system were followed only by regulations, but in the case of open banking, the regulations appeared before the banks developed their activities and supported the innovation. The free movement of data was not only beneficial for banks because it allowed them to build new customer-centric solutions through collaboration with developers and fintech companies; it also allowed fintech companies to identify new opportunities in the banking industry. Through partnerships with fintech, banks have overcome the limitations imposed by their technological systems and gained greater agility and the entire banking system has been exposed to a much faster rate of innovation than in the past. Moreover, the financial services sector has begun to attract human capital with different skills and perspectives in the banking industry, which enables the pace of innovation to be sustained. However, the evolution towards platform-based systems places greater responsibility for the safe sharing of data on banks' shoulders. Thus, they will have to exceed the minimum-security standards required by data protection legislation and take comprehensive measures to protect customer data.

If these measures are not implemented effectively, banks risk losing their reputation, market value and customers. In addition, it is important for banks not only to protect hard-earned data, but also to find ways to monetize this data in order to cover the loss of revenue caused by the departure of some customers to fintech companies. Thus, the use of encryption mechanisms, security standards, third-party authentication processes and real-time processing of transactions will have to be combined with a data governance policy based on customer consent management for the use of data by bank partners.

VIII. CONCLUSIONS

The purpose of this paper was to present the main trends currently used in the banking system. In this sense, we identified the most important trends as following: transition to business models based on platforms, re-imagining the journey travelled by customers and increasing customer experience, formally adopting the open banking system model, increasing security and protection against hackers, optimizing the

interaction between human and digital resources, and introducing new rules on business ethics and data protection.

It is obvious that these trends will continue to change as technology progresses. Technological advancement lead and continues to lead to radical changes concerning not only the concept of money, but also contracts and deals which can be conducted between parties, particularly through means of electronic communication. These changes must be taken into account by commercial banks in the market in order to increase the capacity of adaptation and innovation to provide a high degree of sustainability.

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International Tourism demand in *Ahhagar* destination in Algeria: using panel data econometric technique

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Abstract— The aim of this research is to study the determinants of the foreign demand on the tourism services in Ahaggar region- Algeria- for the period 1999-2012. We used a range of economic and non-economic variables, which can affect tourism demand to any tourist destination, such as per capita income in the tourists' home countries, relative price, the real effective exchange rate, in addition to dummy variables reflect the security situation in the region. The data were analyzed using panel data econometric techniques (fixed/random effects model). The study concluded that per capita income in the tourists' home countries had a positive impact on the flow of tourists to the region; whereas security chaos in Tunisia and Libya 2011 and Mali in 2012 had a negative impact; but the real effective exchange rate, the relative price and internal security risk (the kidnapping of 32 foreign tourists in 2003) had only secondary effects.

Keywords— tourism demand, per capita income, relative price, exchange rate, dummy variables, panel data

I. INTRODUCTION

The tourism is a key component of new economy, which is driving growth in most of countries in the world (Aswad, 2013), by economic and social development forms (Bouzahzah, 2012). The increasing importance of the tourism sector in terms of its contribution to the national product, the employment and the balance of payments creates the need to investigate the determinants of tourism flows within a specific country (Proenca and Soukiazzi, 2005). Also can observe economic effect on society resultant from profitable market segment and pulse matching tourism, infrastructure development and creating jobs (Kurtzman, 2005)

Algeria is an almost virgin tourist destination, which are unfortunately not been sufficiently exploited in contrast to other Mediterranean countries; it is full of historical and archaeological treasures that should be discovered. These advantages allow it to become a primordial destination of coastal tourism, green tourism or cultural and historical tourism (Harouat, 2012), and despite the inclusion of tourism investments in the national development plan, it did not incite as much attention as the other sectors. Ahhagar is one of the most important tourist destination in Algeria essentially

targeted by international tourists (Harouat, 2012), especially from Europe. For this purpose it is important to identify and measure the impact of the main determinants of the international tourism flows in this destination, by estimates a econometric model for tourist demand of seven principals European countries (France, Germany, Italy, Spain, Austria, Switzerland, Belgium), using panel data econometric analysis.

The remaining of the paper is organized as follows. Section 2 provides a review of the literature on the demand of tourism explaining the theoretical and empirical aspects. Section 3 explains the specification of the demand function of tourism to estimate and analyses the data. Section 4 presents the results from the panel estimations of the demand function of tourism. The final section concludes.

II. THE DETERMINANTS OF TOURISM DEMAND LITERATURES REVIEWS

Along with the phenomenal growth in demand for tourism in the world over the past two decades is a growing interest in tourism research (Song & Li, 2008). Empirically, a number considerable work has been published on the determinants of International demand tourism, with the use of multiple methods and econometric techniques since the first studies on tourism demand appeared in the year 1960, great advances have been realized , Because of the availability of data and improved econometric techniques (Bouzahzah, 2012).

A. Definition of Tourism Demand

Song and Witt (2000) define tourism demand as the amount of a set of tourist products that the consumers are willing to acquire during a specific period and under certain conditions, which controlled by the explanatory factors used in the demand equation (Proenca and Soukiazzi, 2005).

B. Tourism demand Factors

It is evident that tourism demand could be affected by a wide range of factors, such as economic, attitudinal and political factors, but the majority of the econometric studies tend to

examine the demand for tourism by focusing predominantly on economic factors. Income and prices play important roles in determining tourism demand (Song, 2010). Reported by Vanhove, (2011), Middleton in 2009 summarizes the determinants of tourism demand under 10 headings:

1. Economic factors and comparative prices
2. Demographic factors
3. Geographic factors
4. Socio-cultural attitudes to tourism
5. Mobility
6. Government/regulatory
7. Media communications
8. Information and communication technology
9. Environmental concerns and demand for more sustainable forms of tourism
10. International political developments and terrorist actions.

C. *Tourism demand modelling and forecasting methods*

Tourism demand modeling and forecasting methods can be broadly divided into two categories: quantitative and qualitative methods. In their study, Song and Turner (2006) concluded that the majority of the published studies used quantitative methods to forecast tourism demand. The quantitative forecasting literature is dominated by two sub-categories of methods: non-causal time-series models and the causal econometric approaches. The difference between them is whether the forecasting model identifies any causal relationship between the tourism demand variable and its influencing factors (Song & Li, 2008).

III. THE SPECIFICATION OF THE DEMAND FUNCTION OF TOURISM

A. *The Model*

The purpose of this paper is to study the international demand for tourism in *ahhagar* destination in Algeria, as a destination place for main tourism sending countries, especially from Europe, like France, Germany, Italy, Spain, Austria, Switzerland, Belgium, A panel data approach is used to estimate the demand function of tourism in *ahhagar* for a period of 14 years (1999-2012). Annual data is preferable in order to avoid seasonality problems, which are dominant in this sector.

Based on the literature review, this study takes as principle determining of international tourism demand in *ahhagar* (ITA): income (IC), relative price (RP), exchange rate (CH) and dummy variables to evaluate the effect of external shock. Having defined the variables to include in the model, we are now able to present the full specification of the demand function of tourism in *ahhagar* destination in Algeria in a log linear form:

$$\ln ITA_{it} = \alpha_i + \beta_1 \ln IC_{it} + \beta_2 \ln RP_{it} + \beta_3 \ln CH_{it} + \beta_4 D03 + \beta_5 D11 + \beta_6 D12 + \mu_{it}$$

Ln ITA_{it} Means the logarithm of tourism arrivals from seven principle markets (France, Germany, Italy, Spain, Austria, Switzerland, Belgium) (Source Tourism Directorate of *Tamenrasset*, Algeria);

Ln IC_{it} Is the logarithm of Income (per head) (Source perspective monde);

Ln RP_{it} Is the logarithm of report of the price consumer index in the country of destination and origin;

Ln CH_{it} Is the logarithm of the real effective exchange rate: Report of the price consumer index countries of destination and origin adjusted nominal exchange rate;

D03 Dummy variable to capture the effect of the Internal risk (The kidnapping of 32 European tourists 2003);

D11 Dummy variable to capture the effect of the External risk (Revolutions in Tunisian and Libyan in 2011);

D12 Dummy variable to capture the effect of the External risk (War in Mali 2012);

μ_{it} is the stochastic error.

The data are organized in a panel form with *i* = 7 and *t* =14, years giving a total of 98 strongly unbalanced observations.

IV. ESTIMATION RESULTS

The Equation is estimated by using the panel data estimation methods technique (fixed / random effects), using EViews, the results are reported in Table 02 refers to fixed effect model, Table 03 refers to random effect model .

TABLE01 : ESTIMATION OF THE DEMAND FUNCTION OF TOURISM IN AHHAGAR _FIXED EFFECTS

<i>LnITAD</i>	COEFFICIENT	PROB.
CONST	-99.07777	0.0141
<i>LnICD</i>	9.437726	0.0038
<i>LnRPD</i>	2.004672	0.5410
<i>LnCH</i>	-1.386164	0.5128
D03	0.363582	0.2660
D11	-0.394799	0.3201

D12	-1.776581	0.0001
R²	0.748813	
NUMBER OF OBSERVATIONS	91	
NUMBER OF GROUPS	07	
OB PER GROUPS	14	
DURBIN-WATSON STAT	1.728161	

TABLE 02 : ESTIMATION OF THE DEMAND FUNCTION OF TOURISM IN AHHAGAR_ RANDOM EFFECTS

LnITAD	COEFFICIENT	PROB.
CONST	-11.90697	0.5732
LnICD	2.331469	0.1501
LnRPD	0.971675	0.7653
LnCH	1.631891	0.3599
D03	0.424190	0.1936
D11	-0.444762	0.2622
D12	-1.736063	0.0001
R²	0.235194	
NUMBER OF OBSERVATIONS	91	
NUMBER OF GROUPS	07	
OB PER GROUPS	14	
DURBIN-WATSON STAT	1.479671	

that is $Prob > Chi2 = 0.0420$ is more than 0.05; we must accept the hypothesis, so the appropriate model is fixed effect.

V. CONCLUSIONS

The result of FEM suggests that Income (IC) is statistically significant, the positive sign of coefficient implies that an increase in Income (per head) in sending countries (France, Germany, Italy, Spain, Austria, Switzerland, Belgium), will result to an increase in tourist arrivals to ahhagar, The temporary increase in the income of these tourists can be oriented to the spending goods and \ or other services like tourism to ahhagar destination.

Also, the relative price $[(RP)]$ _ statistically not significant, the positive sign of coefficient implies that an increase relative price will result to an increase in tourist arrivals (France, Germany, Italy, Spain, Austria, Switzerland, Belgium) to ahhagar, Contrary to what is expected, this result proves that the tourists are not sensitive to prices of ahhagar destination.

In accordance with economic intuition the real effective exchange rate (CH) has a negative impact and statistically not significant, on tourist arrivals that an increase the real effective exchange rate will result to a low in tourist arrivals to ahhagar destination. This result proves that the tourists (France, Germany, Italy, Spain, Austria, Switzerland, and Belgium) are sensitive to real effective exchange rate of ahhagar destination.

The dummy variable D03 of Internal risk (The kidnapping of 32 European tourists in 2003) has a negative impact but statistically not significant. This result proves that the tourists (France, Germany, Italy, Spain, Austria, Switzerland, and Belgium) are not sensitive to internal risk in 2003.

The dummy variables D11 of the External risk revolutions events in Tunisian and Libyan in 2011, has a negative impact and statistically not significant. This result proves that the tourists (France, Germany, Italy, Spain, Austria, Switzerland, and Belgium) are sensitive to the External risk of Revolutions in Tunisian and Libyan in 2011.

The dummy variables D12 of the External risk of War in Mali 2012, has a negative impact and statistically significant. This result proves that the tourists (France, Germany, Italy, Spain, Austria, Switzerland, and Belgium) are sensitive to the External risk of Revolutions in Tunisian and Libyan in 2011 and War in Mali 2012.

To decide between fixed or random effects Hausman specification test has been applied where the null hypothesis is that the preferred model is random effects vs. the alternative the fixed effects. The result of Hausman test show

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An Empirical Investigation of Volatility in Prices during Pre and Post-Recession in India

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Abstract

Volatility in the prices of agricultural products has become a grave global concern in the present context and this calls for imminent and significant attention for seeking plausible solutions. Price volatility is a general feature of competitive markets and it indicates important signs to producers and consumers. However, the efficacy of this system breaks down due to economic shocks. After any economic crisis there is often a steep and unpredictable increase in the prices of agricultural products. This anomaly needs the intervention of policy makers and strategists who must enlist measures to contain the price volatility. High volatility also has harmful and negative impact on poor people in a developing country, more so when they have to spend 70 percent of their income in procuring the food itself. According to FAO estimates, due to global financial crisis, around 80 million people have become malnourished. The financial crisis of 2007–2008, also known as the global financial crisis, is considered by many economists to have been the worst financial crisis since the great depression of the 1930s. Recession is an economic instability caused through the variation of aggregate demand and aggregate supply in economy. Due to the process of globalization it has both direct and indirect adverse impact on rest of the other countries in the world, be they the developed or the developing countries. In macroeconomics, the concept of volatility refers to an uncertain movement of a random variable over a period of time. Volatility in agricultural commodity prices assumes a lot of importance because the uncertainty entailed is one of the major factors that affect the income security of producers and traders and it threatens the performance of agriculture as well as the welfare of the consumers. According to World Bank Report 2013, 1.2 million people are still living below 1.25 USD per capita per day. India's success in addressing food inflation, therefore, has important implications for global food security. Price rise adversely impacts the income and has substitution effect on food consumption by the poor, consequently, leading to serious implications on the household welfare. Price volatility can also have strong implications for food security policies such as public distribution system and minimum support price or procurement price that serve as safety nets for producers as well as consumers. This study attempts to examine the extent and graph of fluctuation of food prices in pre and post-recession from 2002 to 2015. The study maps normal volatility or more volatility of prices in wheat or rice in a stipulated timeframe. The research has elementally focused on the prices of two food crops which are wheat and rice because these two crops are staple crops of the country and help in meeting a significant proportion of the daily calorie needs of the people. The data has been taken from the reliable and authentic data sources such as MOSPI data set. The monthly data has been taken for the time period from 2002 to 2015 in context of the Indian economy. Furthermore, this time period has been divided into two sub-categories, in pre and the post-recession period. The main purpose of this study is to examine the impact, if any, of external shocks such as global financial recession on the volatility of food prices in Indian economy. To fulfill this aim, we have applied the ARCH/GARCH (GARCH.1.1) Model. To conclude, in the pre-recession period, the volatility in price of wheat and rice has increased with high rate but the volatility on prices of wheat is higher as compared to prices of rice. This is largely due to the influence by (own shock) or due to the past information about prices of agriculture commodities. Further, in the post-recession period, volatility on food prices of wheat and rice is largely influenced by the global financial crisis and past information about the prices of agriculture commodities. This study aims at a more conclusive approach by enunciating some suggestions and recommendations for policymakers which are: Concerted efforts are required by all stakeholders to ensure more investment in agricultural sector including agribusiness. Pivotal shift in policy by the governments in the wake of looming economic volatility is essential with the key focus on food security and trade policy that effectively stems the adverse impact of price rise on the consumers and producers. It is imperative to ensure the timely availability and accessibility to good quality seeds, eco-friendly fertilizers, sensitisation on irrigation techniques for farmers, providing subsidies as and when required to the target groups. Public Distribution System (PDS) also needs a more efficacious and equitable approach.

Keywords: Food Price Volatility, Financial Crisis 2008, Augmented Dickey Fuller Test, ARCH/GARCH Model.

Introduction

Volatility in the prices of agricultural products has become a grave global concern in the present context and this call for imminent and significant attention for seeking plausible solutions. Price volatility is a general feature of competitive markets and it indicates important signs to producers and consumers. However the efficacy of this system breaks down due to economic shocks. After any economic crisis there is often a steep and unpredictable increase in the prices of agricultural products. This anomaly needs the intervention of policy makers and strategists who must enlist measures to contain the price volatility. High volatility also has harmful and negative impact on poor people in a developing country, more so when they have to spend 70 percent of their income in procuring the food itself. According to FAO estimates, due to global financial crisis, around 80 million people have become malnourished.

The financial crisis of 2007–2008, also known as the global financial crisis, is considered by many economists to have been the worst financial crisis since the great depression of the 1930s (Temin, P., 2010). It began in 2007 with a crisis in the subprime mortgage market in the US and developed into a full-blown international banking crisis with the collapse of the Investment Bank Lehman Brothers on September 15, 2008 (Mark, W., 2012). Recession is an economic instability caused through the variation of aggregate demand and aggregate supply in economy. Due to the process of globalization it has both direct and indirect adverse impact on rest of the other countries in the world, be they the developed or the developing countries. Furthermore, according to Verma N M P, ed., 2013, recession is an economic instability that touches every person, the economy, and society in totality. It ultimately also affects other economies depending upon the volume of cross-country integration openness and trading. Also, in macroeconomics, the concept of volatility refers to an uncertain movement of a random variable over a period of time. Volatility in agricultural commodity prices assumes a lot of importance because the uncertainty entailed is one of the major factors that affect the income security of producers and traders and it threatens the performance of agriculture as well as the welfare of the consumers (World Bank, 1997 and OECD/FAO, 2011).

The macroeconomic objectives are growth rates, unemployment reduction, price stabilization, qualitative change in livelihood pattern, consumption and maintaining a nice sustainable balance. In other words, accomplishing good living standard, stability in the economy, a secured economic environment and long term sustainability are top most macroeconomic aims (NMP. Verma, 2017).

Theoretically, the linkages between agriculture and macroeconomic policies and factors are analyzed through world market price, global conditions, exchange rate, trade (tariff and non-tariff barriers) and sectoral policies viz. support price, marketing and procurement (Schuh, 1974; In and Mount, 1994; Mamingi, 1996; Schiff and Valdes, 1998). With its origin in 1950s in the Latin American context, an enduring debate does exist between “structural” and “monetary” economists. Despite structuralists’ belief that rising prices are essential for economic growth, monetarists view it as detrimental to economic progress (Ramadas, S. et al., pp. 19, 2014).

The global price hike in 2007-08 led to a sudden realisation to closely watch the price volatility and its impact on domestic prices (Minot 2014; OECD, 2010). Price volatility and inflation though are different phenomena yet are strongly interwoven and affect the welfare of both the producers and consumers (HLPE, 2011). The excessive changes in food prices create a situation of uncertainty that can have a drastic impact on the food supply chain investments and social development (OECD 2010). According to the latest estimates, the share of food in consumption expenditure in rural India is about 49% and about 69% of the Indian population lives in rural areas (*Census 2011*, Registrar General of India). Food price volatility vis-à-vis economic growth remains a controversial topic in both theoretical and empirical economics, (Wodon et al., 2008). Food grains account for about four-fifth of the calorie intake and a very high share of the total budget of the poorest households. High prices would undermine the purchasing power, resulting in inadequate access to food and calorie consumption and thereby push millions into poverty (Nasurudeen et al., 2006). India is a developing economy in which many people are dependent on agriculture for livelihood. In india, which has a population of 1.25 billion and which still has the largest number of poor and malnourished people in the world, ensuring food security for the masses is one of the prime concerns of the government policy (S. Saini and A. Gulati., 2016). It may be worth noting that an average Indian household still spends about 45% of its total expenditure on food (NSSO, 2013). According to World Bank Report 2013, 1.2 million people are still living below 1.25 USD per capita per day. India’s success in addressing food inflation, therefore, has important implications for global food security. Price rise adversely impacts the income and has substitution effect on food consumption by the poor, consequently, leading to serious implications on the household welfare. Price volatility can also have strong implications for food security policies such as public distribution system and minimum

support price or procurement price that serve as safety nets for producers as well as consumers (Mittal & Sethi, 2011). Another significant fact to note is that nearly 22% of the population still lives below the poverty line, as estimated by the Planning Commission based on Tendulkar Poverty Line (Planning Commission, 2014).

Hence, in the framework of reasons posited above, it is imperative for every economist and policymaker to know of food prices volatility while deliberating on strategies. This Study attempts to examine the extent and graph of fluctuation of food prices in pre and post-recession from 2002 to 2015. The study maps normal volatility or more volatility of prices in wheat or rice in a stipulated timeframe. The research has elementally focused on the prices of two food crops which are wheat and rice because these two crops are staple crops of the country and help in meeting a significant proportion of the daily calorie needs of the people.

The remaining study is organised as follows: Section 2 enlists the review of literature. Section 3 focuses on the research methodology, objectives and hypothesis. Section 4 underlines the models and results which we have used: Augmented Dickey Fuller (ADF) test and ARCH/GARCH Model. Section 5 enunciates the conclusion and suggestions.

Review of Literature

Broad results describe evidence in favour of significant interactions between macro economy and agriculture over a period of time. Nevertheless, the relative importance of various factors impacting agriculture differs across countries, sectors and commodities, which could be due to different time periods considered, specification of variables and choice of the model. And the conclusions indicate that the performance of agriculture, and also of the economy as a whole would not be the same in a situation of any change in exogenous factors, which in due course may also affect the overall economic system by the various channels. Such exogenous impulses, if happen, may positively influence growth as in the case of technological breakthroughs or may have adverse impact in a situation of global recession or hike in international oil price. Such shocks often cause unpredictable changes in the aggregate demand and short run aggregate supply, thereby inducing fluctuations in the short run growth rate (Bhattacharya and Kar, 2007). Further, Walsh (2011) found that food inflation is generally higher and more persistent than non-food inflation in many countries. This finding is of particular concern to developing countries such as India and has serious implications for food security, because food occupies a large share of the consumption basket in these countries. On the other hand,

(Khan and Senhadji, 2001), estimated the threshold of inflation to be 1–3 percent for industrial countries and 11–12 percent for developing countries. There appears to be greater agreement about the negative effects of inflation on poor populations (Easterly and Fischer, 2001). Mishra and Roy (2011) showed that food inflation in India is concentrated in a few commodity groups such as milk, fruits and vegetables, eggs, meat, and fish (EMF), and cereals. They mainly attributed this inflation to production shocks compounded by excessive government intervention in the country's food markets. Chand (2010) argued that most of India's food inflation is due to production shocks. He recommended augmenting buffer stocks, improving storage facilities, and dovetailing trade policy with production scenarios in the country. Gopakumar and Pandit (2014) built a structural simultaneous equation model for cereals that incorporated procurement. Using this model, they showed that demand-side management is more important than supply-side management. Nair and Eapen (2012) debated that production shortfalls and the cost of production played a major role in the inflation seen between January 2008 and July 2010 and that demand-side factors played little role.

Objective of This Study

- To examine the food price volatility of rice and wheat in pre and post-recession period in context of Indian economy.
- To examine if there is any impact of global financial crisis on food price through the examples of price volatility in wheat and rice.

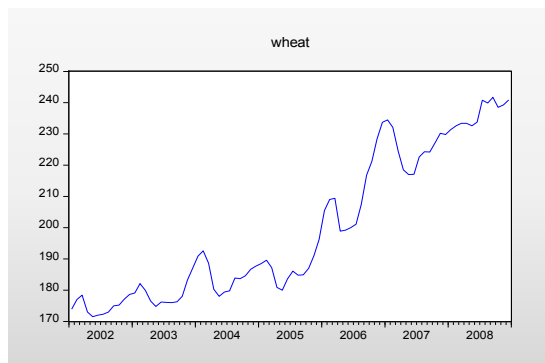
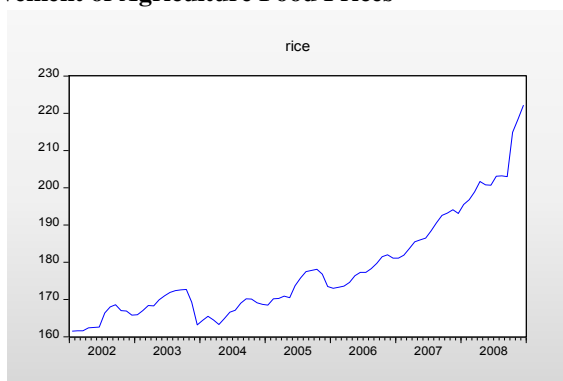
Data Source and Methodology

We have used secondary time series dataset from (MOSPI) 2002-M1 to 2015-M12 for 14 years and we have taken two agriculture commodities which are rice and wheat. Research methodology is the whole process of research such as identifying a research problem, data collection and the analysis of data which is called the blueprint of research. According to Mugenda (2003), data analysis is the process which starts immediately after data collection and ends at the point of interpretation and processing. This study is based purely on the secondary data. The secondary data was used for the analysis because the verification process is more rapid and the reliability of information and conclusion is greatly enhanced. The secondary data also provided satisfactory evidence to test the hypotheses of this study. Finally, it was readily available and, hence, convenient to use (Ghauri, et al., 2002). Time series data is profiled on wheat and rice. The data has been taken from the reliable

and authentic data sources such as MOSPI data set. The monthly data has been taken for the time period from 2002 to 2015 in context of the Indian economy. Furthermore, this time period has been divided into two sub-categories, in pre and the post-recession period. The main purpose of this study is to examine the impact, if any, of external shocks such as global financial recession on the volatility of food prices in Indian economy. To fulfill this aim, we have applied the ARCH/GARCH (GARCH.1.1) Model. To avoid the spurious or nonsense regression, the study applies the Augmented Dickey-Fuller test for the stationary of data. Dickey (1976) & Fuller (1976) describe that all the variables are non-stationary at a level, but they are made stationary after the first differentiation.

Pre-Recession Period (2002-2008)

Movement of Agriculture Food Prices



Data Source: MOSPI, INDIA

Augmented Dickey Fuller Test for Stationary
Table 2: ADF Test for Differences First Order Data, (2002, M1 to 2008, M12)

Variables	ADF Value DF-T Statistics	Critical value of Mackinnon in levels of significance		Result of Test	Stationary or non Stationary
		1%	5%		
Rice	-6.606338	-3.5122	-2.8972	H0 is rejected	Stationary

Wheat	-5.486071	-3.5122	-2.8972	H0 is rejected	Stationary
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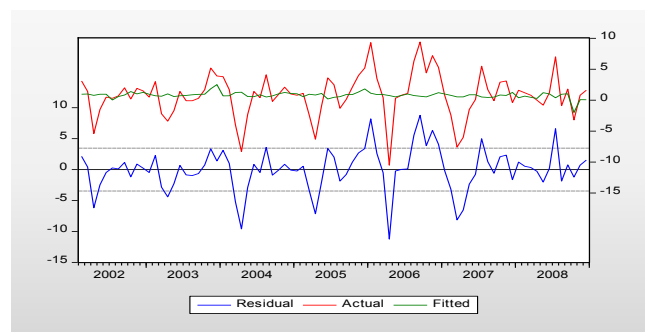
Table 2 describes the Augmented-Dickey Fuller test result and it tells us that data are non-stationary at the level, but we have converted them into first differentiate at order. Now all variables are stationary at level one. The prices of wheat and prices of rice are integrated at the same order. All variables are stationary at 1% level of significance.

ARCH Model

The Autoregressive Conditional Heteroscedasticity (ARCH) method offers an approach to model a change in variance in a time series that is time dependent, such as increasing or decreasing volatility. An extension of this approach named, Generalized Autoregressive Conditional Heteroscedasticity (GARCH), allows the method to support changes in the time dependent volatility, such as growing and declining volatility in the same series

For the application of ARCH/GARCH model, two conditions must be fulfilled such as clustering volatility and ARCH effect. Since the present study fulfills these conditions, we are applying ARCH/GARCH model.

Volatility of Wheat Price Figure 1



Volatility of Rice Price Figure 2

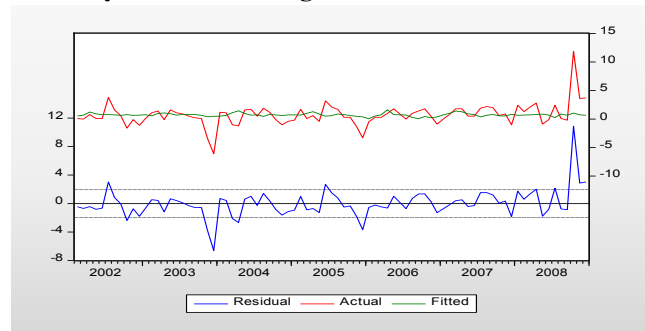


Table 3 ARCH LM Test Summary Statistics

Variables	Obs* R-Squared	t-statistics	Prob.
Ln Rice	58.59799	194.5101	0.0000
Ln wheat	57.52126	82.8671	0.0000

Table 3 shows that the arch effect is there. According to Tsay (2005), the LM test was employed. The test statistic is defined as Obs.R2 and follows a chi-square distribution with q degrees of freedom. Apart from this, according to Engle, 1982, if the value of test statistic is greater than the critical value then the Chi-square distribution indicates the evidence of ARCH (q) effects.

GARCH 1.1

Simultaneous Estimation of the Mean and Variance Volatility Equations

Variables	Ln Rice			Ln Wheat		
Mean equation	Coefficient	Std. Error	P. value	Coefficient	Std. Error	P. value
AR (1) Q1	0.589676	0.016127	0.0000	1.398384	0.024470	0.0000
Variance equation						
ARCH	1.295833	0.507417	0.0107	1.252563	0.619723	0.0433**
GARCH (1.1)	0.088977	0.074131	0.2300	0.092559	0.088808	0.2973

Result of mean equation shows that there is positive and significant relationship between prices of rice and wheat: Mean equation; $y = \alpha_0 + \beta_1 + \varepsilon_t$ (1.1)

Where: y is the dependent variable, α_0 constant coefficient, β_1 independent variable and ε_t is the residual term.

Model 1

$$LRICE = Constant.Coeff. +$$

$$\beta_{LWHEAT} + \varepsilon_t$$

$$LRICE = Constant.0.899676 + \beta_{0.0893440} + \varepsilon_t$$

This means regression equation shows that positive relationship between price of wheat and price of rice indicates fluctuation in increasing way. If there is one percentage change in rice prices then there is 0.89 percent change in price of wheat.

Variance Equation: (1.2) : $h_t = constant_{coef.} + h_{t-i} + e_{t-2}^2 + \varepsilon_t$

Where:- h_t = variance of the residual equation (1.2) derived from equation (1.1), it is also called as current day's variance or volatility of dependent variable. h_{t-i} = previous day's residual variance or volatility of dependent variable. It is known as GARCH term. e_{t-2}^2 = previous period squared residual derived from equation (1.1). It is also called previous day's price information about volatility. It is ARCH term and ε_t = error term.

Volatility in prices of rice = constant 1.30E-05+ h_{t-i} . 0.08887+ e_{t-2}^2 1.295833 + ε_t

Variance equation (1.2) indicates that volatility in prices of rice is largely influenced by own shock such as ARCH term but volatility from GARCH term did not contribute to the volatility of prices of rice.

Model 2

Mean equation (1.1) $LWHEAT = Constant.Coeff.+$

$$\beta_{LRICE} + \varepsilon_t$$

$$LWHEAT = Constant.-0.850755 + \beta_{1.398384} + \varepsilon_t$$

This means regression equation shows the positive relationship between price of wheat and price of rice and this denotes fluctuation in increasing way. If we will make one percent change in the price of rice then there will be 1.39 percent change in the price of wheat.

$$h_t = constant_{coef.} + h_{t-i} + e_{t-2}^2 + \varepsilon_t$$

Volatility in prices of wheat = constant - 3.45E - 05

$$+ h_{t-i}. 1.252563 + e_{t-2}^2 0.092559 + \varepsilon_t$$

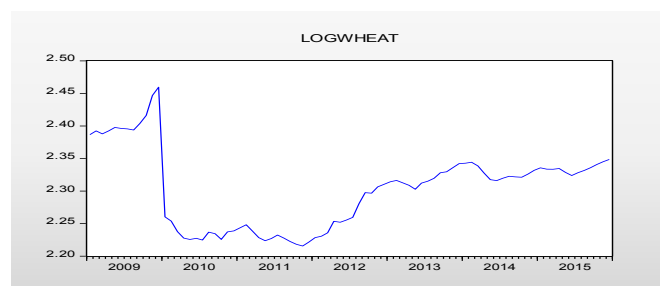
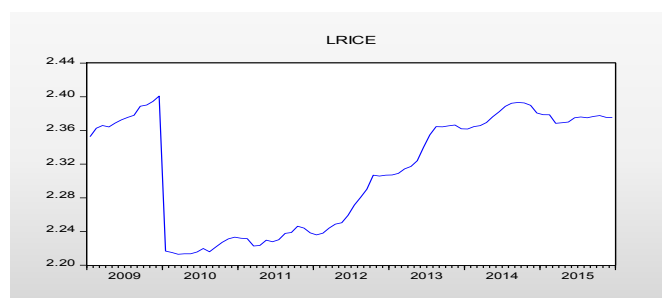
Variance equation (1.2) indicates that volatility in prices of wheat is largely influenced by own shock such as ARCH term but the volatility from GARCH term is not contributing in the volatility of prices of wheat.

Table 4: Model Adequacy Checking in the Squared Residual

	Mean	Mod. Skewness	Kurtosis	Jarque-Bera Prob.
Ln rice	1.1.	0.049814	3.653482	0.465479
Ln wheat	1.1	-0.468650	3.452417	0.150225

Post-Recession Period (2009 To 2015)

Movement of Food Prices (2009 to 2015)



Data Source: MOSPI

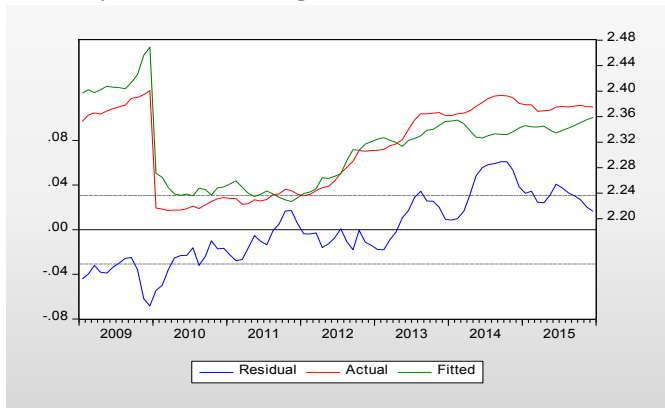
In the post-recession period we have found structural breaks on both series, we also mentioned here break date: the same break date on both variables such as LOGWPI and LOG WEHAT (2010M1). Therefore, to capture the impact of structural breaks we have used the dummy variable. Define dummy variables such as (0, 1). 0 = No impact of recession on volatility of agriculture food prices. 1 = there is impact on volatility of agriculture food prices

Table 2: ADF Test for Differences First Order Data, (2009, M1- 2015, M12)

Variables	ADF Value DF-T Statistics	Critical value of Mackinnon in levels of significance		Result of Test	Stationary or not-Stationary
		1%	5%		
Rice	-8.889381	-3.512290	-2.897223	H0 is rejected	Stationary
Wheat	-6.818177	-3.513344	-2.897678	H0 is rejected	Stationary

Table 2 describes the Augmented-Dickey Fuller test result and it tells us that data are non-stationary at the level, but we have converted them into first differentiate at order. Now all variables are stationary at level one. The prices of wheat and prices of rice are also integrated at same order. All variables are stationary at 1% level of significance.

Volatility of Rice Price Figure 1



Volatility of Wheat Price Figure 2

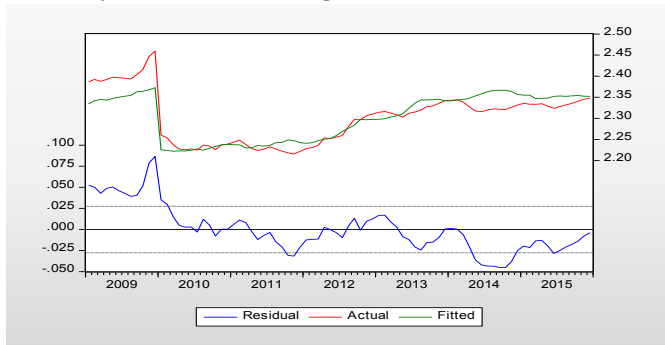


Table 3 ARCH LM Test Summary Statistics

Variables	Obs* R-Squared	t-statistics	Prob.
Ln Rice	52.17402	137.0953	0.0000
Ln wheat	56.78075	175.4147	0.0000

Table 3 shows that the ARCH effect is there because null hypo is accepted. In the alternative hypothesis there is no arch effect.

Garch 1.1: Simultaneous Estimation of the Mean and Variance Volatility Equations

Variab les	Ln Rice	Ln Wheat

Mean equation	Coef.	Std. Error	P. value	Coef.		Std. Error	P. value
				Dum Wheat	0.0		
AR(1) Q1	1.408129	0.035969	0.0000*	0.674343	0.015960	0.0000*	
Dummy rice	0.084451	0.005429	0.0000*	Dum Wheat	0.062923	0.002199	0.0000*
ARCH	1.130951	0.555353	0.0417**	1.307833	0.577280	0.0235**	
GARCH(1.1)	0.113015	0.092411	0.2213	0.101077	0.086566	0.2430	
Dummy wheat	5.70E-05	6.87E-05	0.4070	Dum my rice	1.75E-05	3.21E-05	0.5849

Mean Regression Equation (1.1)

$$Lrice = Constant \cdot Coef. + \beta_1 Lwheat + \beta_2 dummyrice + \epsilon_t$$

$$Lrice = Constant \cdot -1.001170 + \beta_1 1.48129 + \beta_2 0.844451 + \epsilon_t$$

This mean regression equation shows the positive relationship between price of wheat and price of rice and this means that there is fluctuation in increasing way. If we will make one percent change in the price of rice then there will be 0.67 percent change in the price of wheat. Apart from this, there is significant impact of dummy variable on prices of rice which showed fluctuations in increasing way.

Variance Equation: (1.2) Derived from Equation (1.1)

$$\text{Volatility in prices of rice} = constant_{4.47E-05} + h_{t-1} - 0.113015 + e_{t-2}^2 1.130951 + dum wheat_{5.70E-05} + \epsilon_t$$

Variance equation (1.2) indicates that volatility in prices of rice is largely influenced by own shock such as ARCH term but the volatility from GARCH term is not contributing in the volatility of prices of rice. Exogenous variable of dummy variable has not contributed significantly.

Model 2

Mean Regression Equation (1.1)

$$Lwheat = Constant \cdot Coef. + \beta_1 Lrice + \beta_2 dummyrice + \epsilon_t$$

$$Lwheat = Constant \cdot 0.796264 + \beta_1 0.674343 + \beta_2 -0.062923 + \epsilon_t$$

This mean regression equation shows the positive relationship between the price of wheat and price of rice which means that it is fluctuating in increasing way. If we will make one percent of change in wheat prices than 0.67 percent change will be there in the price of rice.

Variance Equation (1.2) Derived from Mean Equation (1.1)

$$h_t = constant_{coef.} + h_{t-1} + e_{t-2}^2 + dum wheat + \epsilon_t$$

$$\text{Volatility in prices of wheat} = constant_{2.05E-05} + h_{t-1} - 0.101077 + e_{t-2}^2 1.307833 + dum rice_{1.75E-05} + \epsilon_t$$

Variance equation (1.2) indicates that volatility in prices of wheat is largely influenced by own shock such as ARCH term but the volatility from GARCH term is not contributing in the volatility of prices of wheat and there is no significant impact of dummy variable of rice on the fluctuations of wheat prices.

Table 4 Model Adequacy Checking in the Squared Residual

Variable	model	Skewness	Kurtosis	Jarque-Bera Prob.
Ln rice	(1.1)	-0.549737	4.192622	0.010006
Ln wheat	(1.1)	0.268219	4.076552	0.079517

Conclusion and Suggestions

To sum up this present study it is evident that in the pre-recession period, the volatility in price of wheat and rice has increased with high rate but the volatility on prices of wheat is higher as compared to prices of rice. This is largely due to the influence by (own shock) or due to the past information about prices of agriculture commodities. Further, in the post-recession period, volatility on food prices of wheat and rice is largely influenced by the global financial crisis and past information about the prices of agriculture commodities. This study aims at a more conclusive approach by enunciating some suggestions and recommendations for policymakers which are:

- Concerted efforts are required by all stakeholders to ensure more investment in agricultural sector including agribusiness.
- Pivotal shift in policy by the governments in the wake of looming economic volatility is essential with the key focus on food security and trade policy that effectively stems the adverse impact of price rise on the consumers and producers.
- It is imperative to ensure the timely availability and accessibility to good quality seeds, eco-friendly fertilizers, sensitisation on irrigation techniques for farmers, providing subsidies as and when required to the target groups.
- Public Distribution System (PDS) also needs a more efficacious and equitable approach.

As emphasized in the study earlier, volatility in the food prices can have a most debilitating effect on the world's population leaving a significant share of our people malnourished. Hence, it is hoped that the strategists will work towards weaving effective safety nets to counter price volatility.

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Constrained Knowledge Multiplier Led Market Imperfections in Developing Economies

NMP Verma¹

Abstract

The present paper confines to contemporary discourse on growing imperfection in the goods and service markets with special focus on developing market economies. One of the emerging economic problems are related to growth of imperfect market. The reason of imperfect market is poor interactive performance of knowledge among the three agents' producers, government, and households. The reasons of poor interactions depend on percentage of literacy, awareness, knowledge disseminations channel, technology and their frequent updating. Therefore market needs perfections for efficient performance through these mechanisms. The purpose of this paper is to highlight imperfections in market of developing economies and some factors which restrain knowledge multiplier to work swiftly. The constrained knowledge multiplier affects supply of goods and services, demand of goods and services and trade cycle along with resultant price level. These cause occasional deficit or surplus in the market and bring volatility. The paper primarily is a theoretical one. In the beginning, it highlights theories of knowledge generation and factors portraying its multiplication. Then a critical analysis is done to highlight mixing of polluted knowledge because of ethical erosion, optimizing motive of profit and minimization of cost strategy. In the end, the paper discusses how knowledge generation should be standardized through quality improvement, better consumer literacy, producer's ethical values, labor relations and government regulations. Lastly, some views have also been given for future directional approaches and strengthening the discourse.

Keywords: Market Imperfections, Knowledge Multiplier, Developing Economies

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Introduction

Developing economies are facing chronic problems of larger population size, low employment and income generation, low human development index, lower empowerment of women, low per capita income, low literacy rate, poor enrolment rate, use of old and obsolete technology, lower productivity in sectors and subsectors, weak transporting networks, weak IT logistics and infrastructure base and many other in addition to low capital and large labor. A good size of population is poor. Their consumption behavior is mainly of necessary goods and services. Income inequality is also very high as measured by Gini coefficient. Since the people are living in such an environment, the interactive behaviour of people is also of low level. Not only the above, even knowledge generation, have its dissemination and transmission remained at the lower ebb. Market is a place where three agents producers, business and households are supposed to have complete knowledge. Unfortunately market is not transparent in developing economies and whatever producers are doing, what government machinery are doing and what households are doing hardly perfectly known to each other. If there is no transparency and understanding, market will remain constrained, knowledge multiplier will remain low, interactive synergy will be non-amicable and hence economy will not grow rapidly. Therefore in this paper, importance of knowledge generation and subsequently its transmission is highlighted. Secondly, knowledge multiplier is slow in developing economies and thirdly, rationality will be analyzed for fast market behaviour. Ways to improve the knowledge for smooth, secured, and sustained market is also strived to be covered in the paper.

Stages of Knowledge Formation

There are a few theories relating to knowledge origination, generation, and multiplication such as Blank Slate, Empiricist, Paradigmatic, Innovative imaginative and Rationality.

Blank Slate: British philosopher John Locke said that human minds are empty. Ideas begin by sensation. It grows denser through revision of thoughts. All persons are born with zero idea in brain. However, they acquire knowledge through experience. The mind is a "blank slate" at birth unable to process any data. This is added up through sense organs. The human brain is born blank. It also emphasizes on the freedom of individuals to author their own opinions. People are free to analyze the content of an object. However, the basic features of the human species cannot be altered. Thus self made mind leads to the doctrine of "natural" rights. Thus Locke's idea of tabula rasa is often viewed similar to Thomas Hobbes's arguments of human nature, in which human being is endowed with inherent mental content—especially selfishness. Ahead of it, Freud depicted personality traits as

being formed by generational fluctuations. People lack freedom. Genetic influences on personality are quite low. In Freudian psychoanalysis, individuals' attributes are also largely determined by prevalent environment (Verma, 2015).

Empiricist Theory: After birth, the second stage, a baby mind starts working through visual and audible modes. The sense organs and work organs start working. Empiricist theoretically opined that experience improves and refines knowledge. People learn through their perceptions. Error brings perfection in knowledge. Perfection in knowledge without experience is hardly possible. Occasionally, hereditary genes may be also exceptionally be considered as a store of knowledge. There are at least three types of empiricists – classical, radical, and moderate. Classical empiricists reject the value of knowledge by birth. The mind in post birth period grows with data and reasoning prevailing around. Radical empiricists feel that knowledge is obtained through sensing. It is almost impossible to say about something which is hardly sensed. Statements which we give are justified if supported by our experiences. Radical empiricists prevent religious, or spiritual contributions in knowledge generation. We also realize increasingly that no matter how central beliefs and world views are, culture itself does not furnish the last word on contexts (NMP Verma and Asha Srivastava: 2012). Locals focus on variables like ecology, technology, socioeconomic and cultural; adds in knowledge diversity. Understanding these changes practically and fundamentally are required for regionally perceived responses. Rational thinking and deliberation on crucial issues like early ageing, marginalization, malnutrition and the rise of unequal economy within the global economy take on different thinking. Moderate empiricists agree that in some cases, the senses do not ground our knowledge. Unknown knowledge basically comes to us through experience and indepth thinking. Important knowledge is obtained through books, reports, electronic and print media and interaction with younger or older people. For collecting data, proper method is required. To learn difficult things we need special expertise and knowledge.

Paradigmatic Theory: Paradigm theory was developed by Kuhn (1962). It shows an example that forms the base of a method of fundamental research. Kuhn hardly maintained the value of paradigm as appropriate for social thinkers. He classified the social science knowledge and brought the concept of natural sciences. He observed that social scientists normally having subjectivity and hence disagrees on certain fundamental concepts. It was accepted that there cannot be paradigms in social sciences. It is true to mention that classifications in the social disciplines do not depend on paradigm. Developing digital tools for research, individual or collaborative, proves to be of competitive importance. The libraries and documentation centres, archive materials for dissemination of knowledge. Bilingualism or even

multilingualism may be promoted if we look at domestic and global market demands. Appropriate funding is definitely required for getting success. Programmes and schemes enhance the mobility of ideas and reduce the negative brain drain. There are heterogeneity among regions, countries and institutions relating to access to knowledge. This needs to be of less disparity. As a consequence, equality in knowledge spread is feasible.

Innovative Theory: The need of society is diverse and dynamic and so is the market need. The academicians' deliberations on aggregate demand and supply in the market, pre market operations, post market operation, innovation at every stage of production and processing are crucial issues of innovation. Schumpeter in his contribution on innovation felt that innovation is the most relevant factor for generating market power. Knowledge is not static. It is dynamic and keeps on improving. Knowledge is not always permanent. As human need arises, curiosity to add knowledge also rises. It improves through historical knowledge and some addition to it. Invention is a new search or creation of a new product or technology. Opposite to it is innovation which refers to bring changes to the existing product or the process by introducing new ways or ideas. Thus invention is all about creating or designing some items, innovation is the process of turning a creative idea into practice. New technology production is invention and its adoption is innovation. Schumpeter (1934) linked innovation to business cycle of the economy. Thus it is clear that invention is confined to R&D of an industry but innovation is a broader term spread all over the industry. This theory can be analyzed in a different way now. Fundamental knowledge generation is invention and make this knowledge adaptable by economic agents in the market is innovation. Thus invention is knowledge generation and innovation is knowledge multiplication. If the multiplier of practicality of innovation is high then knowledge multiplier will be also very high. It will benefit all concerned and even those who are feeling concerned after awareness. Market gets imperfection because knowledge does not multiply quickly in developing nation. This is because of a few factors such as lower level of illiteracy in general and of consumers in particular, drop-out ratio in educational enrolment, lack of education infrastructure, insecurity for girls and mindset of dependence on government. For innovation entrepreneurship is required. Somehow in developing and in SAARC countries entrepreneurship is lacking. People do not want to take risky knowledge. That is why knowledge transmission gets constrained.

Imaginative Potentials: Knowledge breeds from imagination. Imagination involves knowledge and creativity. For example, while sitting under an apple tree Isaac Newton observed that apple falls on ground. This prompted him to think about these phenomena and later he propounded a new theory that earth has some gravitational power which attracts

apple down to earth. At that time, Newton faced a static situation and so it was easy to conclude. But market situations are dynamic in nature and it changes very quickly among the imagination of producer, distributor and households including the government. Because of this dynamism, it is not easy to imagine and conclude a result. As we can see contemporary economic theories assign a very little role to imagination because economic activities are a dynamic process. Apart from imagination there are many factors which define the process of economic activity.

Imagination is the ability to conceptualize a mental image about some items; that is not through the five senses. It is the ability of the mind to make mental scenes, objects, or events that do not exist nor is present or have occurred in the past. Everyone possesses some degree of imaginative ability. The imagination is reflected in various degrees in different people. In some, it is highly developed while in others it is observed in a weaker form. Historically, the hominids made basic levels of imagination in their tool making abilities, group hunting skills, social interaction, and colonization. Their level of imagination was limited with respect to their brain size and their thinking. As modern humans are evolved, scientists have reported an increase in brain quality, advancement in technical skills and creativity and a development in social complexities. Farming, old tool making ability, complex language structuring, the performance of social rituals and the display of art and craft; all requires frequent thinking, development of thought and mental interaction i.e. Imagination. It permits us to explore possibilities beyond the constraints of our social environment and our facts, into a world of dreams, where creativity and invention are at their strongest. The major difference between creativity and imagination is that imagination is thinking of something – whether it's an object, place, time, etc. – that is not present, while creativity is doing something meaningful with your imagination. Thus imagination may be unproductive sometimes but creativity is productive and knowledge augmenting..

Rational Knowledge: Rational expectations theory defines expectations as being the best estimates of the future that uses all available information. It is all perfect information that helps estimate optimal prediction or forecast. It is assumed that predicted outcomes do not differ systematically from the market balancing results. As a result, rational expectations do not differ systematically or predictably from equilibrium results. That is, it assumes that people do not make systematic errors when predicting the future, and deviations from perfect foresight are only random. In an economic model, this is typically modeled by assuming that the expected value of a variable is equal to the expected value predicted by the model. For example, suppose that P is the equilibrium price in a simple market, determined by supply

and demand. The theory of rational expectations says that the actual price will only deviate from the expectation if there is an 'information shock' caused by information unforeseeable at the time expectations were formed. In other words, *ex ante* the price is anticipated to equal its rational expectation: Rational expectations theories were developed in response to perceived flaws in theories based on adaptive expectations. Under adaptive expectations, expectations of the future value of an economic variable are based on past values. For example, people would be assumed to predict inflation by looking at inflation last year and in previous years. Under adaptive expectations, if the economy suffers from constantly rising inflation rates (perhaps due to government policies), people would be assumed to always underestimate inflation. Many economists have regarded this as unrealistic, believing that rational individuals would sooner or later realize the trend and take it into account in forming their expectations. The rational expectations hypothesis has been used to support some strong conclusions about economic policymaking. An example is the policy ineffectiveness proposition developed by Thomas Sargent and Neil Wallace. If the Federal Reserve attempts to lower unemployment through expansionary monetary policy economic agents will anticipate the effects of the change of policy and raise their expectations of future inflation accordingly. This in turn will counteract the expansionary effect of the increased money supply. All that the government can do is raise the inflation rate, not employment. This is a distinctly New Classical outcome. During the 1970s rational expectations appeared to have made previous macroeconomic theory largely obsolete, which culminated with Lucas (1973). However, rational expectations theory has been widely adopted as a modeling assumption even outside of New Classical macroeconomics thanks to the work of New Keynesians such as Stanley Fischer. If agents do not (or cannot) form rational expectations or if prices are not completely flexible, discretionary and completely anticipated economic policy actions can trigger real changes. Rational expectations are expected values in the mathematical sense. In order to be able to compute expected values, individuals must know the true economic model, its parameters, and the nature of the stochastic processes that govern its evolution. If these extreme assumptions are violated, individuals simply cannot form rational expectations and then knowledge would be full of errors. Therefore rationality plays a crucial role in purity of knowledge derivation with forecasting.

Knowledge Multiplier Channel: Schools, colleges, universities, and institutes are linked to education and knowledge multiplication so is family and society. In the present structure there is a qualitative differences in teaching/research. Given the income inequality in the system there is hierarchy of educational system. For example in India

this needs to be standardized. So should be evaluation process of examination materials and systems. It is important to reinstate the significance of the social sciences by not only highlighting its increasing relevance for a job in the rapidly expanding subsectors, but by pointing to its necessity in laying the foundations for an analytical and creative mindset. It is often presumed that only natural and physical phenomena lend themselves to scientific inquiry, and that knowledge pertaining to the social sciences cannot be, by their very structure so "scientific". But it is necessary to understand that the social sciences stick to scientific inquiry just as much as the natural and physical sciences do. The methods employed by social sciences are analytical and unique to those of the natural and physical sciences (NMP Verma, Asha Srivastava, 2009).. It is through this non-coercive and participatory mode that children and teachers stand best chance of making teaching and learning interesting as well as enjoyable. All the diverse disciplines of social science have distinct methodologies that often justify the preservation of boundaries. The boundaries of disciplines need to be well thought and a plurality of approaches may be applied in order to understand a given phenomenon (NCERT, 2006).

Knowledge Application

There is enough peoples` perception that social sciences carry little value. As a consequence, during the classroom-transaction, both faculties and students feel uninterested to comprehend its social relevance. From the initial stages of education, people brief students that the technical education, economics, management, and key basic science subjects are superior to the social sciences, and are the major field of meritorious students. Therefore, there is need to highlight that the social sciences are essential to provide social, cultural, developmental and analytical skills required to adjust to an increasingly integrating economy and to handle political and economic realities. Science hardly transmits information which is required to be memorized for examinations. The textbooks are considered to be unconnected to daily socioeconomic values. In addition, social science is believed to provide irrelevant details. It is also felt that the examination rewards varies largely with evaluation by different teachers. There is a perception that not many desirable job options are open to students specializing in the social sciences. Job potentiality of social science disciplines in corporate sector has not gone up. Any effort to address the information burden the social sciences will have to review the contemporary evaluation system. Additionally, it is largely felt that the social sciences are deprived of the 'skills' required to function in the real world. This gives the impression that the subject is redundant. It is important to enhance the importance of the social sciences by not only highlighting their increasing relevance for jobs in

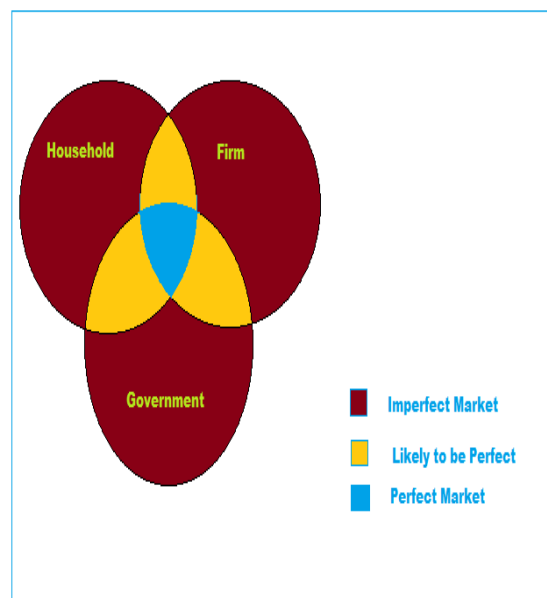
the rapidly expanding sectors, but also by pointing to their indispensability in laying the foundations of an analytical and creative mind relating to employment, distribution of asset and wealth, governance and safety. This is urgently required in the growing capitalist environment and ethical erosion. This may further improve employability for the students and scholars of other discipline. The social sciences deal with a normative responsibility in order to create and widen the popular base for human values. It suggests what should happen in the society. Given these, social science teachings should aim at inculcating a critical moral and mental strength to make the society aware to the social factors that destroys these values. These are possible through the discussion on these numerous indicators. here is also a need to choose subthemes where different disciplinary focuses can facilitate an in-depth and multiple understanding. Here consensual deliberations and consequent conclusions are essential.

Knowledge Transmission

One of the criticisms of state financing of higher education has been that it exacerbates inequality within society in temporal and spatial manner because students in higher education come from the most socially disadvantaged backgrounds. Although no single model of financing higher education is appropriate still India has to balance the challenges of higher education access with higher education funding. The balance in the division between state and private funding is also related to other important dimensions within each society. These dimensions include the proportion of students seeking higher education and the social background of students as well as scholars; the resource and taxation structures; the drivers of disparities; the fiscal policy of the government; the nature of students' educational loan facilities; and the externalities in higher education. In the context of an emerging national focus on quality in education, providing high quality teacher education is seen as the most important single parameter for meeting out the challenges and wider access to teacher education (NCERT, 2006; Alamelu et.al.2012). The idea and information they generate can therefore make a precious contribution to the formulation of effective policies to shape our world for the greater good. Yet, social scientific knowledge is at risk in developing nations. The huge disparities in research capacities across Indian states and the qualitative heterogeneity in knowledge creation hamper the capacity of understanding about the market. While we may be building a rational and transparent knowledge society', it is one that looks very different depending on one's regional perspective. Social scientists produce work of outstanding quality and tremendous practical value, but, social scientific knowledge is often the least developed in those parts of the world where it is most keenly needed. Such educational divides reproduce themselves in each generation, in our institutions and in our

methods of creating and using knowledge. All such findings are definitely challenging – they emphasize that without conscious and coordinated efforts. The global social science structure is fractured and lacks pluralism (Shapere, D. 1964).

Consumers, Firms and Government Interface: As mentioned above the three market agents try to interact in the market as per knowledge availability. Given in the figure below, brownish colour shows imperfect market because this space is in no interactive zone. Yellow colour shows likely to be perfect market because two agents interact to that extent. Blue colour shows complete interactions among the three agents. Here all agents have complete knowledge about the market. The market is heavily constrained because of knowledge deficit. Knowledge multiplier worked very slowly. A very small space shown bluish is transparent, and perfect. Thus developing nations face a big challenge of knowledge formation relating to market. In numerical terms bluish multiplier carries perfect knowledge and hence value 1, yellowish has one about fourth knowledge hence knowledge multiplier value is about 0.25. Brownish has knowledge deficit of two third in firm, households and the government. Here, multiplier hardly works and its value would be almost zero.



Conclusion and Policy Options: The paper discusses around key parameters for knowledge formation and augmentation with reference to market agents namely consumers, producers and the government. The paper theoretically derives stages of knowledge origination, formation, and augmentation. At the stage spurious knowledge is also created that wrongly interferes in the market economy. Further there are enough knowledge deficits in developing economies because of

enrolment deficiency, dropout rate because of helping the household, paying less attention to workable and behavioral quality knowledge and interactive shortages. As a consequence consumers have very poor information about the market price, quality of products, profit margins, and logistics. Producers always try to hide information from consumers and government in order to enhance profit. The government machinery often have connivance with the firm for revenue sharing and support each other. Thus there is always larger scope of imperfect market building. This fabrication needs to be broken for establishing market transparency and perfection. That is why, knowledge multiplier works very slowly in developing economies. World digital databases are essential tools for overcoming knowledge divides. A critical analysis highlights mixing of polluted knowledge because of ethical erosion, optimizing motive of profit and minimization of cost strategy. The knowledge generation should be standardized through quality improvement, better consumer literacy, producer's ethical values, labor relations and government regulations. In future faster economic growth it is essential to make market almost perfect through knowledge generation and making multiplier to move quicker.

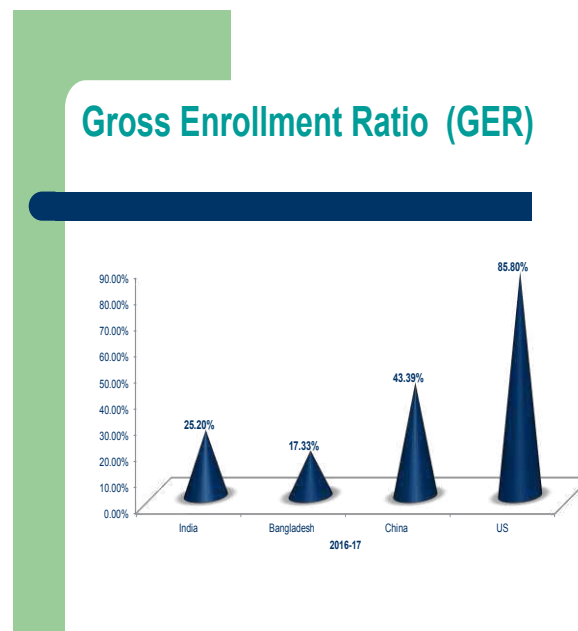
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Appendix Table



Using Neuromarketing and AI to collect and analyse consumer's emotion: Literature review and perspectives

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Abstract— In the actual era, the human being has decided to go beyond his own intelligence, for a better understanding of the world, and an easier life style, hence he created Artificial Intelligence. Robots, smartphones, machines and softwares, that once were a pure creation of sci-fi writers imagination over a decade before, are becoming gradually essential to our daily life, and the fact that the economy, especially marketing, profits from it, is inescapable. Given that Neuromarketing, is mainly based on technological tools, its combination with AI could certainly improve it, to collect and measure the consumer's emotion with more accuracy. In this paper, we present a literature review of Neuromarketing and AI, and the current usage of AI in marketing studies with different technologies, and as we found out that few academics and scientific articles take an interest on the topic, we will be giving some perspectives and guidance questions for future researches and experimental studies.

Keywords— Neuromarketing-artificial intelligence-emotions-Feel Data-digitalization.

I. INTRODUCTION

Henceforth, it is inevitable not to mention artificial intelligence (AI), regardless of the topic or the situation; it is becoming gradually an indispensable element of our daily lives. Moreover, its impact on the human life style is notoriously growing, and expected to be involved in changing the civilisations in the very near future [1], and it is likely to change the way, marketers measure and analyse consumer's behaviour. Neuromarketing is known to be the application of neuroscience tools and techniques in marketing studies, in order to understand consumer's behaviour, by analysing the brain's reaction to marketing stimuli [2], and as it's mainly a result of a combination between marketing and new technologies (Eye tracking, facial recognition, etc.), AI may make Neuromarketing more interesting from the point of view of measurement accuracy, in fact, it has been demonstrated that an Artificial Intelligence based system, can be effective enough to assure the extraction and recognition of all sort of emotions of individuals, regardless of gender and race [3]. The role of motions is very significant in our daily lives and communication, and in today's globalization, intensified by the rapid and continuous improvement of the

digital and the virtual world, developing a properly constructed marketing strategy that will have a positive emotional influence on the public, has become very challenging for companies [4]-[5]. We believe that combining AI, which is continually improved, with Neuromarketing tools and techniques, may help marketers to collect and measure consumer's emotions with more accuracy and reliability, to better understand his/her decision making process.

II. NEUROMARKETING

Neuromarketing is the application of neuroscience methods and knowledge in marketing and its traditional approaches [6], and it is considered an interdisciplinary field, combining psychology, neuroscience, and economics [7]. Patrick Georges and Michel Badoc [8], in their book *Le Neuromarketing en Action*, show us that today and future marketers, need to understand what can explain the difference between the declarative and the purchasing behavior, which is often an emotional perception and not rational. The book's authors emphasize the limitations of traditional market research methods, since these studies are based essentially on the declarative; what the questioned person states, which may be different from his actual thinking.

From another point of view, this time from a professional, The Neuromarketer Dr. A.K Pradeep [9] explains in his book *The Buying Brain* how recent advances in brain monitoring and measurement capabilities, digital technologies and computational power allow scientists to delve deeply into the functioning of the human brain. Pradeep provides insights into brain function and progress in Neurotesting and Neuromarketing that allow marketers to directly appeal to the thoughts and the feelings of the consumer. His work is recommended to product developers, designers, marketers, and digital marketers who are looking for ideas on the emerging field of Neuromarketing in their innovation strategy.

III. ARTIFICIAL INTELLIGENCE

Artificial Intelligence (AI) can be defined as the creation of computer systems called intelligent, as they are composed of analytical processes whose goal is to propose solutions and algorithms that enhance our daily lives, and also learn the human behaviour via data collection [10]. In this section we will present the literature review of AI, the actual state of its application in marketing studies and digital marketing, and its potential combination with Neuromarketing for Feel Data measurement.

A. AI and marketing

AI focuses on proposing and developing of automated computer based solutions to problems that normally require intelligence when done by humans [11]. In a marketing context, there are plenty of problems and questions that require a particular intelligence and judgments capability, in order to assess these problems with a high guarantee of success.

As we said before, few academics and scientific articles have been focusing on this topic, in fact, a simple research in Scopus using marketing and AI as keywords in related journals, results in a surprising finding: the number of articles and paper discussing the topic is very low, below 50 [12].



Fig. 1. Published papers (1972–2011) on artificial intelligence/intelligent systems applied to marketing (Source: Scopus, May 2012)

Although, recent researches show that AI is a real exploitable opportunity to empower the analytical methods for an array of marketing issues [13]. In fact, the integration of AI to marketing studies has allowed the achievement of better Mass Data Analysis, a better understanding of consumer’s behaviour, before, during and after the buying moment, and the improvement of user experience [3].

B. AI and the extraction Emotional Data

Advances in new technologies have led marketers to become closely interested in exploiting intelligent computed-based systems, to extract and measure consumer’s emotions when exposed to marketing stimuli, to which we refer as Feel Data or Emotional Data. Methods as Eye-tracking, facial expressions recognition and EEG, became “famous” due to the emergence of Neuromarketing, a multidisciplinary field which has allowed marketers to focus their analytical efforts on consumer’s emotion, as the latter to be considered a fundamental element of his/her decision making process [14]. Recently, new AI based systems have been developed for the extraction of emotions from facial expression, and they’ve

been demonstrated to be very effective [3]. Nowadays, researchers can chose between in an array of tools, in labs or online to conduct marketing studies, using facial expression recognition, very effective in term of results, and efficient in term of cost (SmartFace, Facetales, id3 technologies, etc.)

IV. AI AND NEUROMARKETING

Many academics and professionals keep their sceptical perception of Neuromarketing, stating that it has many limitations [15]. Nevertheless, and taking into consideration the emergence of AI, and its combination with Neuromarketing, some limitations may disappear, and Neuromarketing tools and methods would be more accessible, especially in term of usage and costs. Similarly to AI, Neuromarketing did not arrive yet to its maturity in term of research and theoretical frameworks, and likewise, scientific papers discussing the integration of AI in Neuromarketing studies are very few, but in perspective, it’s very promising. Tools and techniques as EEG, Eye-tracking would tend to be more accessible to conduct marketing studies.



Fig. 2. EEG device, developed by NeuroSky. (MindWave Mobile+)



Fig. 3. Eye-Tracking device developed by Artinis

V. CONCLUSIONS

AI is changing our life style gradually, the way we interact with the world around us, and companies are aware of such upcoming change, thereby, marketers need to rethink their traditional methods of approaching the consumer, and analyzing his/her behavior. The integration of AI in Neuromarketing studies, through a scientific combination with traditional marketing researches, is expected to provide a deeper understanding of consumer’s behavior toward ads, branding and the appreciation of the product/service in all its components. In our future research, we will explore the

strength of facials expressions recognition, using AI based tools, in extracting and analyzing consumer's emotions in front of marketing stimuli.

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Banking Business Models: A Literature Survey

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Abstract — This theoretical study examines the business model concept of banking systems based on a critical analysis of the research studies published in the specialized literature. The year 2011 marks a turning point; the study of Ayadi et al. regarding the banking business models is considered to be a pioneer and has covered a number of 26 banks in Europe, representing more than half of the EU banking assets during the period before and after the crisis (2006-2009). Subsequently, numerous studies appeared that were made available by researchers and supervisory institutions, studies that use and develop the terminology of the banking business model, mainly to enable a better understanding of banks' resilience at times of economic or financial crisis. While the first research on business model study analyzed banks based on financial indicators, recent studies use business model terminology to understand the resilience of banks under challenging; even the European Central Bank refers to this concept to assess the total risk of banks in extreme cases.

This study presents an elaborate summary of several specialized studies on banking business models and provides the necessary knowledge for a better understanding of this concept, and the results contribute to the organized and integrated synthesis of published studies.

Keywords— business models, banking business models, the concept of business models, banking, banks, retail banking.

I. INTRODUCTION

The concept of business model is widely debated in the literature, both from the company's competitive success and for the management science. The concept is compared to scientific methods, "Begins with a hypothesis, which is tested in practice and revised when necessary" [1], it is closely related to the concept of value, value offered to customers, but also how to capture value for a company, describes the architecture of the revenues, costs, and profits associated with the company that delivers this value. A successful business model needs to be differentiated and efficient, copying the model is quite easy, while business model innovation is a competitive advantage if the model is difficult to replicate. In pursuit of this idea, the business model is a tool that helps to understand how a company operates, is seen as a link between technology and economic value and helps to achieve the added value.

In classic banking business models, banks maximize profits by differentiating between the interest rate on loans granted and the interest rate on attracted deposits, but the current models are much more complex, with banks being involved in a variety of activities both in terms of the structure of the assets that generate profits and the structure of

the financing sources attracted. The first researches regarding the study of the business models in banking analyzed the banks and grouped them based on indicators from the balance sheet or the profit and loss account, while more recent studies use and develop the terminology of the business model to better understand the resilience of banks at times of crisis. In this regard, the European Central Bank refers to the concept of business model, in addition to governance, capital risk, liquidity risk, and financing, in order to assess the total risk of banks and refers explicitly to the viability and sustainability of business models. The supervisory authorities assess the potential impact of the bank on the financial system and in the extreme case, recommend adapting the business model to become more profitable. An overview of the main studies regarding the business models of banks is made, starting with the study of Ayadi et al. [2], which initially covered a total of 26 banks and was subsequently extended to a total of 2542 banks. At the same time, we analyze several works related to banking business models starting with 2011 and until 2018, the grouping of these models is done using quantitative and qualitative methods and it is noted that the market is sufficiently fragmented and the evolution of the business models of banks it is extremely dynamic, as banks are either conservative from this point of view or they change their business model depending on the economic context.

II. THE CONCEPT OF BUSINESS MODELS

The concept of business models has reached a global impact, both for the competitive success of the company and for management science. The business model is defined as a conceptual tool that helps to understand how a company operates, and it is a description of the value that the company offers to one or more customer segments. It is an architecture of the company and the network of partners, and it can be used to analyze and evaluate the ability to generate long-term profits [3]. Zott and Amit [4] define the business model as a model in which a company conducts its business activities thus offering added value to shareholders and encourages "companies to have a systemic and holistic thinking in designing business models instead of focusing on isolated choices."

Joan Magretta [1] compares the business model with the scientific methods "starts with a hypothesis, which is tested in practice and revised when necessary." Each business model can be divided into two parts, the first part includes activities related to doing something, designing, raw materials, manufacturing, while part two includes sales activity,

respectively finding customers, distributing the product, trading.

Richardson [5] summarizes the concept of a business model around the concept of value: a) the value proposition is defined as the offer of a company to the clients and the reason for which they are willing to pay: the offer, the target group, the strategy for the acquisition of the clients and obtaining a competitive advantage; b) the value creation and delivery system is the way in which a company will create and deliver this value to customers: resources and capabilities, organization defined by the system of activities and processes, the delivery network through the connection with suppliers, partners and customers; c) the value capture system represents the way in which the company makes a profit: the sources of income, the business economy.

The business model provides data that demonstrates how a business creates and provides value to customers and describes the architecture of revenues, costs, and profits associated with the company that delivers this value [6]. A business model defines how the company creates and delivers value to customers and then transforms the revenue obtained into profits. Teece believes that in order to develop a successful business model it needs to be differentiated and efficient, because copying the model is quite easy, and the innovation of the model can be a competitive advantage if the model is difficult to replicate by both new operators but also by the existing ones, this innovative model being more likely to make a profit. Timmers [7] presents the business model as the architecture for the flows of information, services, and products, including the description of the parties involved and their role, the description of the potential benefits for the commercial actors, but also the description of the sources of income.

A business model is a conceptual tool to help understand how a business operates and can be used for performance analysis, comparison and evaluation, management, communication and innovation [3]. The business model is seen by Chesbrough and Rosenbloom [8] as a mediating factor between technology and economic value, as construction that integrates the technical potential and helps to achieve the added value. The business model offers a framework, *"which takes the technological and potential characteristics as inputs and transforms them through the intermediary of customers and markets into economic outputs."*

Doganova and Eyquem-Renault [9] define the business model as a *"narrative and computing device that allows entrepreneurs to explore a market and plays an important role by contributing to the construction of the technical-economic network of innovation."* The main argument that the business model works both as a computer and as a narrative device is that it allows entrepreneurs to explore a market to bring a new product, a new business, an innovation, and the function of the business model cannot be limited to a business plan. The narration and the calculation that the entrepreneur performs are addressed to third parties, such as clients or investors. Going forward, Baden-Fuller and Morgan

[10] suggest that *"business models have a multivalent character as models, these can be found as examples of role models that can be copied or presented as descriptions of a business and we can think of them not only in terms of the characteristics observed within a taxonomy but also as types of abstract ideals in a business typology"*.

Based on the analysis of the definitions of the business model, the perspectives and components of the specialized literature, Wirtz et al. [11] identifies a number of 681 articles on business models and summarizes the concept of the business model as a simplified and aggregated representation of the relevant activities of a company. In addition to the architecture of value creation, the strategic components, as well as those of the customers and the market, are taken into account in order to achieve the objective of generating or ensuring the competitive advantage. To accomplish this last goal, *"a current business model should always be considered critical from a dynamic perspective, it may be necessary for the evolution of the business model or the innovation of the business model, due to internal or external changes over time."*

Analyzing all these definitions, we can highlight the main groups of understanding of the term business model, so the concept is described as a) a model of an organizational system [10], b) an abstract feature of an organizational unit [3], [6]. In all definitions, there is a central role of the concept of value [5] such as value proposition, value creation and delivery, but also value capture, and subsequently, the value network is added [4].

III. STUDY ON BANKING BUSINESS MODELS

The current business models are much more complex, the activity of banks is much more complex, the sources of profit are much more diversified and include commissions received for the provision of banking services or trading activities, loans granted to consumers natural and legal persons, but also to non-financial companies and other banks. Banks choose different business models, strategically engage in different intermediation activities, and choose their balance sheet structure to match their business objectives. In a competition that seeks to maximize profit, banks choose a business model to capitalize on the strengths of the organization. Shiller [12] notes that the recent crisis was not due to the classic model of banking activity, but to new business models and brings into question the moral hazard that banks are supposed to solve.

Supervisors regularly evaluate and measure risks for each bank, so the Supervisory Review and Evaluation Process (SREP) within ECB also refers to the business model concept, besides governance and risk management, capital risk, liquidity risk and financing, to assess the total risk of banks and refers explicitly to the viability and sustainability of business models [13]. The President of the European Central Bank, Mario Draghi refers to the complexity of the business model in a dynamic context and refers to the need for banks to adapt their range of activities in a continually macroeconomic environment: *"Banks should do more to adjust their business models to lower growth rates, to an*

environment dominated by low-interest rates and to a consolidated international regulatory framework" [14].

In 2011, in the paper entitled *Bank risk during the financial crisis: do business models matter?*, Altunbas et al. [15] analyze the crisis period of 2007-2009 and focus on two-thirds of the banks in the European and American banking system listed on the stock exchange and how risks are associated with business models. Given that risk analysis is a complex phenomenon, several different risk indicators such as capital, assets, sources of financing and sources of income are considered in order to analyze the likelihood of saving a bank, the systemic risk and the degree of the resort to facilities of central bank liquidity. The conclusions of the study show that the business models of banks characterized by large size, less capital, high dependence on short-term financing and aggressive growth of loans had a higher degree of risk exposure, while business models characterized by a base solid deposits and a diversified degree of income have associated a lower degree of risk.

In the report entitled *Business Models in European Banking: A Pre-And Post-Crisis Screening*, Ayadi, Arbak and De Groen [2] present the results of the first accounting exercise for the business models of the 26 largest European banks in 2006-2009. The report presents the empirical background of the various business models and their implications on systemic stability, bank performance, risk characteristics, efficiency, and governance. In order to identify the business models, six indicators are used, calculated as a percentage of assets, namely: 1) customer deposits showing the percentage of private and non-bank clients' deposits in the total balance sheet and indicates the dependence on several traditional financing sources; 2) trading assets are non-monetary assets, other than loans. A high value indicates the size of investments that are prone to market risks and liquidity; 3) loans granted to banks that measure the level of interbank activity and refer to risk exposures due to the interconnectedness of the banking system; 4) the total exposures of derivative financial instruments measure all the positive and negative exposures of the derivatives, this being one of the key exposures of the banks with large volumes of the investment and trading activity; 5) corporate equity refers to the ability to cope with potential losses by providing an image of the bank's attitude to risk; 6) Internal activity measures cross-border activity. Banks that are more internally oriented will face less cross-border risks, instead there is the risk of concentration. Based on these indicators, three business models are identified, namely: Model 1) Retail banks - banks that provide services to individuals and small businesses. Banks have as their primary source of financing customer deposits and maintain a relatively high level of capital absorbed by the loss. Model 2) Investment banks - Banks tend to engage predominantly in investment activities; trading assets and derivative exposures exceed 50%. Model 3) Wholesale banks - banks that provide services to legal entities and large companies. Banks are strongly oriented towards wholesale (wholesale) and tend to be more oriented towards a domestic activity.

The studies of Ayadi, Arbak and De Groen continued, and in 2012 they published the work "Regulation of European Banks and Business Models: Towards a New Paradigm?" [16] which extend the number of banks analyzed from 26 of European banks to 74 banks in the period 2006-2010. In 2014 Ayadi and De Groen published the report "Banking Business Models Monitor 2014 Europe" [17], extending the analysis to 147 European banks, which represent about 80% of the total assets of the European banking system. In 2016, the report "Banking Business Models Monitor 2015 Europe" [18] is launched, the analysis is extended to 2542 banks and banking groups between 2005-2014, 1859 banks from 19 countries in the euro area, 334 banks from 9 non-euro area countries and 349 banks in EFTA countries (Switzerland, Norway, Iceland, and Liechtenstein). This study uses five indicators calculated as a percentage of assets (% of assets) to identify business models: loans to banks, loans to customers, trading assets, debt, derivatives exposures. Five business models are identified using the clustering method: Model 1) Retail-focused banks - banks focused on providing services to individuals and small businesses; Model 2) Retail-diversified banks (type 1) - diversified banks providing services to individuals and small businesses. Model 2 has relatively more trading assets and bank loans, respectively 30.9% and 10.3% respectively compared to model 1, and the financing is comparable, with a relatively high dependence on customer deposits; Model 3) Retail-diversified banks (type 2) - diversified banks providing services to individuals and small businesses. Model 3 has more assets and liabilities than Model 1 and significantly larger trading assets. The main difference from the other retail models is the debt-based financing; Model 4) Wholesale banks - banks that provide services to legal entities and large companies; Model 5) Investment banks - investment banks. The authors concluded that investment banks and wholesale banks are more financially oriented, tend to focus on system-level risk, and are less resilient in times of crisis, while retail-oriented banks contribute more to the real economy, maintain a constant level of financial performance, contribute less to the risk level of the system, and are more resistant to extreme stress.

In the study entitled *Bank Business Models*, Roengpitya et al. [19] analyzes the European banking system, focusing on 222 banks from 34 countries in the period 2005 - 2013, the objectives of this study were to define and characterize the business models of banks, to analyze the performance of these business models and to follow how banks have changed their business models before and after the crisis. According to the study, three business models are identified, namely: 1) The Retail-funded model is characterized by a high share of loans in the balance sheet and high dependence on stable financing sources, including deposits; 2) The wholesale-funded model has an asset profile similar to the profile of banks in the first category, the main differences referring to the financing mix; 3) Capital market-oriented model: it is oriented towards capital markets, the banks in this category own half of their assets in the form of marketable securities and are mainly financed from wholesale markets, with assets

and liabilities accounting for about one fifth of the balance sheet. Starting from the previous study, in 2017, Roengpitya et al. [20] extend the analysis on 178 banks in 34 countries (North America, Europe, Asia, Emerging Countries) during 2005-2015 and identify four business models: 1) Retail-funded model; 2) The wholesale-funded model; 3) Traded-oriented model; 4) The universal model: the banks in this group have a moderate loan portfolio, but they have a relatively large portfolio of marketable securities. Although they have excellent financing of primary deposits, they are quite active on the interbank market, both as debtors and as creditors. The findings show that the retail-funded business model had a consistently stable performance [19], and the global financial crisis has forced banks to re-evaluate their business models. While the wholesale-funded model was very popular during the crisis, many banks abandoned this model in the first five years after the crisis in favor of the retail-funded model [20].

Kohler [21] analyzes the European banking system in 15 countries between 2002 and 2011 and includes a significant number of unlisted banks, more than two-thirds of the unlisted banks being savings banks and cooperative banks. The business model of a bank is represented by its share of revenues that do not come from an interest in total revenues and the share of financing without deposits in total liabilities. The conclusions of the study indicate that the difference between the nature of the income and the nature of the financing affects the stability of the banks, and it is essential to distinguish between the business models when analyzing the impact of the income obtained less the income obtained from the interest and the financing except for the deposits on the bank risk. The business model is very different between the types of banks, the cooperative banks and the savings banks are oriented to the retail, while the commercial and investment banks are more oriented to the investments. Banks must follow different strategies, become more stable, and increase their risk-adjusted return. While investment-oriented banks will be less profitable and riskier if they increase their non-interest income, retail banks will be more stable and profitable.

In 2016, Mergaerts and Vander Vennet [22] analyzed 505 European banks from 30 countries in the period 1998-2013, and this analysis focuses on the concept of business models to evaluate the performance of banks and shows that there are two important strategies for business models, namely retail and diversification. Four indicators are used to investigate the impact of business models on bank performance: return on equity (ROE), return on assets (ROA), net interest margin (NIM), and stability. This analysis shows that there is a strong dependence between the retail model and a higher degree of profitability and stability. The improved performance of retail banks can be attributed to the dependence on customer deposits, while the low level of income diversification can affect profitability. Diversification is associated with business models that have a diversified structure of assets and revenues and is associated with an improvement of the risk-income trade-off. The impact on banks' stability depends on

how the leverage is adapted in response to this compromise, so if banks that overestimate the benefits of income diversification, they may lead to lower stability. The findings show that retail-oriented business models appear to work better in the long run, because they have a high degree of profitability in terms of ROA and NIM and have a lower degree of vulnerability in times of crisis and manage to monitor properly lending and credit risk. Banks that have a business model based on diversification are more profitable, but not much less stable in times of crisis.

Farne and Vouldis [23] define the concept of the business model as "being the set of activities carried out by banks." In order to identify the business models, the set of variables also includes the "choice variables" which reflect the strategic choices of the banks' management regarding the activities in which they are involved, these choices being reflected in the composition of the balance sheet. 365 banks from 19 European countries are analyzed, for each bank a set of 1039 variables is defined, and four business models are identified: 1) Wholesale funded banks are big banks, the assets are mainly made up of loans, being characterized by the most significant use of derivatives for risk coverage and trading; 2) Securities holding banks are banks that have a relatively large portfolio of securities, being financed with deposits and not using derivatives at all, being the most heterogeneous model; 3) Traditional commercial banks: the banks in this cluster have loans in the area of assets more significant than the other banks, financing most of the deposits and using derivatives mainly to cover their risks; 4) Complex commercial banks have a significant percentage of loans in the assets area and are financed mostly from deposits, both loans and deposits being smaller than those of traditional banks, and using financial instruments for commercial purposes. This model is a hybrid, a combination of model 1 and model 3.

The risks, the solvency, the performance indicators, the sources of income of these business models are considered as "outcome variables", meaning that they are the result of the "choice" variables, reflecting the banks' choices regarding the activities in which they are involved. The study shows that the two models that depart from the classic definition of the intermediation model, namely wholesale funded and securities funded, are at a critical risk - profitability level, while the two commercial bank models hold less risky assets, and traditional commercial banks perform better than complex ones, taking into account the risk of their portfolio.

Hryckiewicz and Kozłowski [24] analyzed 458 significant banks in 65 countries from 2000 to 2012 to identify business models according to bank assets and funding sources. Four business models have been identified, two traditional models, a non-traditional model and a model that is a combination of traditional and non-traditional activities. The main characteristics of the traditional models, called the specialized model and the diversified model, are represented by the high share of loans granted to households and companies having as the primary source of financing the deposits, the specialized model having a larger volume of credits in total assets and short-term financing to the diversified model that has

traditional funding sources. The results show a consistent pattern in both the pre-crisis and the crisis periods. Also, both specialized and diversified banking business models have the least impact on systemic risk. The non-traditional model, the investment model, is the riskiest compared to the other business models. Given that the primary source of financing for these banks is on the banking market, the possibility of lack of financing makes this model have the most significant impact on systemic risk, and the interconnectivity of these banks has a multiplier effect in case of systemic risk.

However, even though the investment strategies of the banks were mostly responsible for the systemic nature of the recent crisis, in the countries where the dominant model was the investment one, the crisis had a higher amplitude, but it was of short duration compared with the countries where the model is a traditional one, they have seen a smaller decrease, but the crisis lasted a more extended period. The results of the study show that the impact of this model on the systemic risk was not a big one during the crisis period, because, although they hold securities under the pressure of the decrease, the financing from deposits improved this pressure. The study also shows that individual risk is not a relevant predictor for systemic risk, because systemic risk is closely linked to the financing structure, while the individual risk is rather related to asset structure.

Starting from Stigler's concept of survival, Chiorazzo et al. [25] study 546 small US banks (with assets between \$ 500 million and \$ 10 billion) over the period 1997 - 2012. The concept of "surviving bank" is simple: if at the end of the period analyzed, the bank still exists in the market then we can say that it survived, while a bank that no longer exists in the market, regardless of whether it went into bankruptcy or was acquired by to another, it did not survive. The study focuses on the business models of US banks and differentiates between traditional and non-traditional banking models. Thus, the business model is determined using four indicators, namely: a) lending relationship: a traditional bank maintains the long-term lending relationship, because a stable lending relationship determines the borrower to purchase other banking products and services; b) deposit relationship: in a traditional model, deposits are the primary source of financing, and the stability of these deposits encourages the bank-depositor relationship, and in the long term the depositors will purchase other products and services; c) traditional activities: a traditional bank has as its primary source of income, interest income and commission income related to the provision of financial services; d) branch network: the traditional model implies the existence of online services, automatic payments through various channels, while the branches represent an important essential for the physical contact with the clients, necessary to build lasting relationships.

Basically, a business model is a traditional statement if it exceeds the sample average for at least three indicators if it exceeds the sample average for a maximum of one indicator, the model is a non-traditional one, and the rest of the models are defined as ambiguous. The study shows that during the

period analyzed, banks with a traditional model are more efficient and have a 19% higher probability of survival than non-traditional models, and in the more stressful economic periods, respectively 2006 - 2012, the traditional model has 23% more chances of survival.

In 2018, Cernov and Urbano [26] achieved a standardized classification of the business models of banks in the European Union, analyzing 5292 banks in 27 EU Member States and Norway. The classification method combines a qualitative classification of credit institutions by business models (qualitative classification), with the subsequent validation of the classification using quantitative indicators (quantitative classification) based on the data existing on December 31, 2015. Following this exercise, four major categories of business models were identified, and 11 subcategories, the classification of banks by this mixed approach allows much better and more granular identification of the business models at European Union level. The identified business models (universal banks, retail oriented, corporations and other specialized business models) are defined according to three dimensions, namely: a) activity: defining the type of activities in which the institution is involved and which is reflected mainly in the balance sheet of assets; b) financing: defining the sources of financing the activity; c) legal structure: defining the characteristics of the institution related to the property and the legal structure. The conclusions of the study show that the market of the banking system in the European Union is still fragmented with many national specificities, and the use of quantitative methods without the qualitative ones is not sufficient for complete identification of the business models.

IV. CONCLUSIONS

We can highlight the concept as being described either as a model of an organizational system or as an abstract feature of an organizational unit, in all the studies having a central role of the concept of value, such as value proposition, creation, and delivery of value for shareholders. , but also the value network.

Analyzing the studies related to the banking business models, the conclusions are that the performance of the models as retail banking were superior to the other models, the banks that changed their business model with the retail model improved their return on equity, banks with a traditional model are more viable and the traditional model is a "survivor".

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ESG information and investment decisions: Discrepancy between the discourse and the reality of practices in Tunisia

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Abstract— The purpose of this paper is to highlight the problem of the gap between the political discourse displayed and the reality of socially responsible practices, by analysing whether Tunisian investors integrate ESG information into their investment choices. An experiment is conducted with 120 financial professionals. The results show that only governance information is considered in short-term investment choices, reflecting the disconnect between the discourse and actual ESG communication practices.

Keywords— Discrepancy, ESG Information, Experimentation, Tunisia.

I. INTRODUCTION

In Tunisia, ESG is becoming a growing concern (Ben Rhouma, Demolli, Moisson and Boyer, 2011). Several reforms have been launched in favor of Corporate Social Responsibility (CSR) and constitute a real incentive to engage in a socially responsible approach. Some companies devote part of their annual reports to ESG information. However, this communication remains voluntary and depends on the free choice of the leader and his attitude (Diouani and Khelif, 2013).

Research dealing with the Tunisian context has identified the delay of Tunisian companies in the field of ESG communication and, consequently, supported the idea of the disconnect between the discourse - CSR is an essential component of the performance overall - and existing socially responsible practices. In fact, despite the increased interest of the Tunisian legislator in the notion of CSR through the implementation of many programs, companies' ESG communication practices seem very minimalist in terms of annual reports (Frimousse, Mansouri and Peretti 2006, Khemir and Baccouche 2010). In this sense, Chakroun (2012) pointed out that the voluntary disclosure policy in the annual reports of Tunisian companies is considered by financial analysts to be reduced.

The objective of the present research is to highlight the problematic of the contrast between the displayed discourse and the reality of socially responsible practices by analysing the integration of ESG information into decision making choices.

II. LITERATURE REVIEW

The previous literature dealing with the gap between the political discourse displayed and the reality of socially responsible practices remains generic. Research related to the analysis of the usefulness of ESG information for different partners of the company, including financial partners, is based on the assumption that if financial information is provided by companies to serve information needs of their different users, the ESG information, too, must play the same role insofar as it is likely to provide information on the extra-financial aspects of corporate performance. They have yielded different results depending on whether they are conducted in the context of developed or emerging countries.

In the Australian context, Deegan and Rankin (1997) have shown that environmental information is important for shareholder decisions but not for brokers and analysts. Thompson and Cowton (2004) found that credit analysts in UK banks place an interest in the annual report despite its inadequacy as a source of information on companies' environmental impacts. In the UK context, Lorraine, Collison, and Power (2004) received a negative reaction from the financial market as a result of negative environmental disclosure. The results of the study by Holm and Rikhardsson (2008), carried out in the Danish context, prove that, whatever the investment horizon, environmental information has a positive influence on investment decisions.

By examining the perception of CSR information by Australian institutional investors, Teoh and Shiu (1990) have obtained that they appreciate the commitment of companies in a CSR approach but consider that the CSR information provided in the annual reports does not matter for their investment decisions. Adams and Frost (2008) have successfully demonstrated that UK and Australian companies integrate environmental and social indicators into their strategic planning, performance determination and risk management decisions. Saghroun and Eglem (2008) found that environmental and social information is of moderate interest to French financial analysts, concluding that the full integration of sustainability criteria by analysts in the reasonable future is yet to be achieved. The results obtained

by Cohen, Holder-Webb, Nath and Wood (2010) reveal that information about economic performance is the most important position for investment choices by retail investors, while Corporate governance and CSR information rank second and third, respectively. Ioannou and Serafein (2010) have shown that socially responsible companies are the subject of more favourable recommendations by financial analysts than those who are not. van der Laan Smith, Adhikari, Tondkar and Andrews (2010) have shown that the disclosure of CSR information significantly impacts the behavior of US, Japanese, French and Swedish investors. Eccles, Serafeim and Krzus (2011) found that the financial market places a high value on ESG performance and policies. More recently, Cheng, Green and Chi Wa Ko (2015) have shown that investors are more willing to invest in companies whose ESG indicators are of high strategic relevance.

Like developed countries, emerging countries have been the focus of research analysing the use of CSR-related communication. In conducting a reaction study in Egypt, Wahba (2008) showed that the financial market rewards companies that adopt an environmental responsibility strategy. The results of Xu, Zeng and Tam's (2012) study reveal that communication about environmentally damaging events has a small impact on the Chinese stock market. Chen, Chen, and Wei (2003) found that communication about governance does not play an important role in reducing informational asymmetry in emerging stock markets such as Asia. In Tunisia, two studies have analysed the ESG information communication on the information receiver side, namely that of Zrandini and Fedhila (2003) who have succeeded in demonstrating that societal information is perceived as being useful for decision making. credit, and that of Khemakhem and Turki (2007), who concluded that environmental information affects investment decisions.

Indeed, the majority of studies conducted in this context have focused on the evaluation of ESG communication on the information issuer side (Frimousse et al., 2006, Baccouche, Errais and Mzoughi, 2010; Khemir and Baccouche, 2010). Although there is strong awareness of CSR on the part of the Tunisian government, this research has shown that ESG communication practices are marginal, disparate and lack informational input, thus failing to contribute adequately to the analysis of fund allocation opportunities both in terms of return and risk. Something that could explain the fact that the financial actors are not necessarily in favour of the communication of information ESG, privileging the financial aspect to the detriment of the socially responsible aspects.

III. MATERIALS, METHODS AND RESULTS

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A. *Materials and Methods*

In our study, we used an experiment survey. This method has been used by several previous studies in different contexts (Sah et al., 2010; Chang and Wei, 2011; Locke et al., 2015) to identify the effect of the disclosure of specific

information on market decisions or investment decisions. Its advantage lies in its ability to analyse the behaviour and attitudes of individuals (Milne and Chan, 1999). It allows manipulation of the independent variable (ESG information) according to the experimental treatments in order to observe the consequences on the dependent variable (investment decision) kept constant (Alewine, 2010). The experiment requires the preparation of an experimental protocol, writing experimental documents and the constitution of the research sample.

The aim of the experimental protocol was to understand, in retrospect, the influence of a specific experimental treatment on a test group. For this purpose, it was important to divide the participants into a control group and experimental groups. The control group (G1) had to have similar characteristics to the experimental groups. Its behaviour served as a reference to analyse the effect of each of the three ESG dimensions. The difference between each experimental group and the control group was that the experimental group was subjected to an experimental treatment which, in our case, consisted of providing them with environmental, social or governance information. For our research, we conducted an experiment based on four groups, including a control group, which were measured after treatment. Based on the recommendations of Libby et al. (2002) and Evrard et al. (2003) to overcome the biases created by external variables, we have taken all measures in this research to have homogeneous groups with common and identical characteristics, such as age, level of education, occupation, level of experience, etc. All the information provided to the participants in the study was assumed to be constant except for the ESG information that was the independent variable. All information provided to the participants in the experiment are assumed to be constant with the exception of environmental, social and governance information that constitute the independent variable.

The experimental documents¹ provided to the different groups of participants were in three parts. The first was a brief presentation of the study. The second contained the same financial information and variable ESG information depending on the experimental treatment. The third is related to questions about the investment decision and about the demographic characteristics of the participants.

The financial information² contained in the experimental documents was compiled from annual reports of two real companies listed on the stock market, whose identity we concealed. We changed the names of the companies in order to avoid the risk that participants might identify them, thus possibly influencing their investment decisions. Both companies were in the chemical industry.

ESG information provided in the experimental documents was selected from the results of an exploratory factor analysis³. This analysis was made using data collected from a

¹Were pre-tested with 17 students enrolled in the Master Internal Audit and Management Control

²Were communicated to the three groups

³These results are not presented in this paper

questionnaire survey which aimed to identify how financial professionals perceived the usefulness of ESG indicators from the G3.1 Guidelines of the Global Reporting Initiative (GRI). The GRI Guidelines are most often used as a model because it is the most widely used reporting framework around the world (McGraw and Katsouras, 2010). They are becoming the norm for reporting on sustainability. McGraw and Katsouras (2010) consider these guidelines as complete and exhaustive, which explains their use in several academic studies.

Like several previous studies (Elias, 1972; Hendricks, 1976; Sah et al., 2010), our sample was composed of 120 from experienced professionals. These responses were divided evenly between the different experimental treatments, namely: Control group (30 investors), Environmental (30), Social (30) and Governance (30). The experimental phase was conducted at the participants' places of work.

B. Results

Means comparison tests are implemented to test the hypotheses. From Table I, we find that the average amount invested decreases by 5,000 monetary units (m.u) when environmental information is reported. The non-parametric tests don't seem significant. Thus, we can conclude that environmental information has no influence on short-term investment decisions.

**TABLE I
 RESULTS OF NON-PARAMETRIC TESTS FOR THE SHORT-TERM ENVIRONMENTAL PLAN**

Treatment	N	Mean	Mean difference	Non-parametric tests		
				Mann-Whitney	Kruskal-Wallis	Sig.
C	29	4.9695	0.02775	-0.024	0.001	0.981
E	28	4.9418				

Table II shows that investors seem to value environmental information when making long-term investment choices by investing an additional 10,000 m.u when environmental information is provided. On the other hand, the results of the statistical tests are not significant. Therefore, we can conclude that environmental information also has no influence on the investment decisions of long-term experts.

**TABLE II
 RESULTS OF NON-PARAMETRIC TESTS FOR THE LONG-TERM ENVIRONMENTAL PLAN**

Treatment	N	Mean	Mean difference	Non-parametric tests		
				Mann-Whitney	Kruskal-Wallis	Sig.
C	24	4.9560	0.01432	-0.287	0.082	0.774
E	28	4.9417				

Table III indicates that social information has a positive influence on the short-term investment decisions. In fact, the average amount invested in the short term has increased by 6,500 m.u in the presence of social information. However, no

statistical test is significant. As a result, it can be argued that social information has no influence on investment decisions of short-term experts.

**TABLE III
 RESULTS OF NON-PARAMETRIC TESTS FOR THE SHORT-TERM SOCIAL PLAN**

Treatment	N	Mean	Mean difference	Non-parametric tests		
				Mann-Whitney	Kruskal-Wallis	Sig.
C	29	4.9695	0.05746	-1.162	1.351	0.245
S	28	5.0270				

As shown in Table IV, we find that the average amount invested in long-term decreases by 4,000 m.u in the presence of social information. However, non-parametric test results are not significant. Therefore, we can conclude that social information has no influence on the long-term investment decisions.

**TABLE IV
 RESULTS OF NON-PARAMETRIC TESTS FOR THE LONG-TERM SOCIAL PLAN**

Treatment	N	Mean	Mean difference	Non-parametric tests		
				Mann-Whitney	Kruskal-Wallis	Sig.
C	24	4.9560	-	-0.633	0.401	0.527
S	24	4.9296	0.02626			

According to Table 5, the average amount invested in short-term as part of the corporate governance treatment is significantly higher by 4,000 m.u than that invested in the control treatment. The Mann-Whitney and Kruskal-Wallis tests are significant at the 10% level. This result confirms that corporate governance information has a positive influence on short-term investment decisions.

**TABLE V
 RESULTS OF NON-PARAMETRIC TESTS FOR THE SHORT-TERM CORPORATE GOVERNANCE PLAN**

Treatment	N	Mean	Mean difference	Non-parametric tests		
				Mann-Whitney	Kruskal-Wallis	Sig.
C	29	4.9695	0.09293	-1.709	2.919	0.088
G	23	5.0625				*

According to Table VI, corporate governance information significantly and negatively influences the average amount invested in long-term. Indeed, investors tend to reduce their investment by 4,000 u.m when information related to corporate governance is communicated. Non-parametric Mann-Whitney and Kruskal-Wallis tests are not significant.

**TABLE VI
 RESULTS OF THE NON-PARAMETRIC TESTS FOR THE LONG-TERM CORPORATE GOVERNANCE PLAN**

Treat-	N	Mean	Mean	Non-parametric tests
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ment			differ- ence	Mann- Whitney	Kruskal- Wallis	Sig.
C	24	4.9560	-	-1.635	2.673	0.102
G	29	4.8221	0.13399			

IV. DISCUSSION

Given the results of parametric tests, only the information pertaining to corporate governance is taken into account in the investment choices of finance experts in Tunisia. Neither environmental information nor social information seems to affect the investment choices of novice and experienced financial players in the short or long term. In this sense, van Duuren, Plantinga and Scholtens (2015) have shown that investment fund managers focus more on governance than on environmental and social dimensions. Zwaan, Brimble, and Stewart (2015) found that pension fund members have a preference for governance over environmental and social dimensions. For Sahut and Pasquini-Descomps (2015), the ESG dimensions do not affect financial performance in the same way.

Experienced financial professionals tend to reward, in the short term, the company that demonstrates good corporate governance practices. This appears in accordance with the study by Chang and Wei (2011) that showed that the most experienced investors integrate more governance strength in their investment choices than the inexperienced ones. This interest in corporate governance information may be justified by the fact that corporate governance is directly related to financial performance (Brown and Caylor, 2004). This result can only motivate Tunisian companies to give more importance to their governance mechanisms.

Environmental indicators have no informational content for Tunisian financial actors. This result is consistent with the results of the study by Chan and Milne (1999). Moreover, it is contradictory with the results of the study by Holm and Rikhardsson (2008). Similarly, the communication of social information does not significantly affect investment decisions. This result seems consistent with the results of Teoh and Shiu (1990).

In the end, our results seem consistent with the reality of the ESG communication of Tunisian companies, which, compared to financial communication, seems very small, despite the strong awareness of CSR on the part of the government. This confirms the idea of a discrepancy between the discourse and the reality of ESG practices. Indeed, although there are real attempts to implement CSR policies in the Tunisian context, the integration of ESG dimensions does not yet seem to be entering the vocabulary of investors who, like companies, also seem reluctant to use and integrate extra-financial information into their investment choices, which reflects a significant gap between the discourse and the real practices observed in terms of CSR.

V. CONCLUSIONS

In Tunisia, and indeed in several emerging countries, there is a gradual awareness of the relevance of ESG themes. The

various national and international initiatives implemented by Tunisia form a "powerful incentive" for the consideration of ESG dimensions in companies' strategic approaches and consequently their integration into market investment decisions. stock. Despite the international and national measures adopted and the desire to be in tune with the changes in the world, the integration of the concept of CSR into managerial policies and investment decisions remains modest. This highlights a clear decoupling between legislative and incentive mechanisms and the reality of GSS practices in Tunisia.

The results of the experiment highlight a significant influence of information on corporate governance on the investment choices of financial experts. Tunisian financial actors do not seem to be sensitive to the environmental and social dimensions. Their behaviour reveals a real difference between the discourse and the real practices. This demonstrates a lack of market maturity that makes integration of environmental and social dimensions more difficult. This large disconnect between discourses and facts refers to a need for learning and must be filled in order to make CSR credible.

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