IMPACTS OF OWNERSHIP STRUCTURE ON THE FINANCIAL PERFORMANCE OF CONVENTIONAL AND ISLAMIC BANKS IN THE AGENCY THEORY CONTEXT

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Abstract

According to the literature review, the analysis results of the impact of ownership structure (OS) quality on financial performance (FP) within conventional and Islamic financial institutions are contradictory. In our study, we performed a fine differential analysis aimed at resolving this ambiguity. The financial performance and ownership structure variables of conventional and Islamic banks were collected from 16 countries located in three continents: Europe, Asia, and Africa. Two samples were collected that each of them is composed of 63 banks. By using the OLS method, these panel data were compared to the impact of ownership structure on the financial performance between both types of banks in the agency theory framework during the period 2010-2018, giving us 567 bank-year observations in each sub-sample. Results revealed that the ownership structure of conventional banks (CBs) has had an explained ambiguous impact on its financial performance, whereas that of Islamic banks (IBs) has a positive effect. Overall, the impacts of the Chief Executive Officer (CEO) shareholding and the board's chairman shareholding are more significant on the financial performance of conventional banks than those of impacts related to Islamic banks.

Keywords: Conventional Banks, Islamic Banks, Ownership Structure, Financial Performance, Corporate Governance, Comparative Study, Agency Theory

1. INTRODUCTION

At the bank level, the correlation state between OS and performance may differ depending on the economic context, the region, and the sample composition. Many financiers have seen that OS is an essential mechanism of governance demonstrating the ability and vigilance of shareholders to align the executives' interests with their interests in the control and the monitoring of

their banks' transactions (Nam, S. W. & Nam, I. C., 2004). Similarly, Caprio, Laeven, and Levine (2004) considered the OS as a mechanism of governance that helps owners to exercise effective control over the power conveyed to leaders. Restrictive control is needed especially at the time of ownership expropriation of the banks' resources, which depends on the majority of shareholders' rights to profits. Also, some empirical researches were done in industrialized countries. They maintained that commercial banks subject to the control of foreign shareholders are more profitable than commercial banks owned by employee shareholders (Bonin, Hasan, & Wachtel, 2005).

In many countries, banks and other financial intermediaries themselves exercise their governance power over other banks and companies in other sectors, both as creditors and shareholders. In general, empirical evidence suggests that the causality between OS and bank performance is often marked positively in developing countries. Specifically, Guru, Staunton, and Shanmugam (2002) investigated the impact of factors influencing bank performance for Malaysian commercial banks' sample during the period 1986-1995. They concluded that among the internal factors that were tested, only expenditures, liquidity and capital management could affect profitability, and among external determinants, they mentioned the bank size, ownership concentration, and economic factors. The results showed that the cost of management and the ownership concentration had a positive and significant effect on the banks' profitability.

From their part, Molyneux and Thornton (1992) found a positive and significant relationship between OS and bank profitability. More deeply, other researchers, such as Dechow, Sloan, and Sweeney (1996), McKnight and Weir (2009) have shown that the OS represents a factor that can limit the discretionary behavior of managers, particularly, acts and records related to the management of results.

Similarly, Claessens and Fan (2002) studied the bank governance situation in Asia. They stated that agency problems stem from the composition of ownership since other internal control mechanisms are not sufficient enough to ease the agency problems in Asia. One reason is that the bank has resorted to other external mechanisms of governance is to reduce their agency problems. The lack of transparency provokes the relationship sensitivity between governance and the banks' performance, which encourages owners to protect their investments against the spread of transactions subject to interest conflicts.

However, according to the theoretical literature, each OS adopted by a bank is specific to it. The structure composition applied in a bank is different from the structure concerned in the other banks of the fabric. The non-compliance of the owners' interests and the standards of each structural model can lead to a variety of conflicts that can affect their performance. In this sense, Pan (2014) studied the association between banking governance and the FP of a European banks' sample during the period of the Subprime crisis. He expressed that the ownership concentration shows a negative and significant impact on the banks' performance. Also, Pinteris (2002) revealed the existence of a negative, but statistically insignificant relationship between the ownership concentration and the banks' performance. This means that in the case of interest conflicts and agency relationships, even in low tension, the costs of ownership concentration outweigh the negative impact on profits. He stipulated that banks characterized by a highly concentrated OS endured a very high credit portfolio risk because of the increased degree of opportunism. He confirmed that large banks have more dispersed OS than smaller banks.

It seems through the literature review that the previous studies' results analyzing the impact of OS on the FP of conventional and Islamic banks remain quite mixed. The predefined research questions consist of determining at the outset the type of relationship between OS and each banking model (conventional or Islamic), then establishing a comparison between the systems and the effects of interactions. Through the comparison between the impacts of the OS quality, the gap consists to determine in which type of banks the OS has a useful and more significant effect on FP.

Specifically, the first purpose of our study is to resolve the ambiguity of the instability and the contradiction of the OS impacts on the FP as much as possible for each bank type. The second objective is to carry out a deterministic and comparative study that clarifies the capacity of each OS to govern their FP measures and enhances the most useful and powerful for the banks' stakeholders.

The results obtained contribute to attracting the new shareholders to participate in the capital of the most performant banks. Even more, owners and managers may be encouraged by the fact that the criterion of performance guaranteed for them the perennially of the bank and can reduce agency costs, thereby ownership structure is positively affecting the performance of conventional and Islamic banks. Moreover, the high quality of ownership structure can facilitate banks' growth. This implies that this study allows policymakers, investors, directors, and managers to select the most quality of ownership structure between conventional and Islamic banks.

We synthesized the contributions of our research into two points. The first contribution is that we discovered a new dynamic and strategic approach of OS by objective, which improves the governance quality within Islamic and conventional banks. The second contribution is that we put into perspective an original, integrated and multidisciplinary evaluation approach of the OS in conventional and Islamic banks, which were invited for a comprehensive revision of the theory of governance and involved different views and knowledge.

The remainder of the paper is structured as follows. Section 2 explains the impacts of OS determinants and the control variables on conventional and Islamic banks' FP in the review of literature and the hypothesis development process. Section 3 outlines the research method. In Section 4, we developed the discussion of the results. Section 5 contains some concluding comments.

2. LITERATURE REVIEW

2.1. Ownership structure determinants

Since the relationship between the OS and the performance seems ambiguous, it is not possible to definitively decide the correct meaning of this

impact to reduce the confusion. According to agency theory, the causal relationship between OS and FP can be symbolized by two components: the capital's concentration and the shareholders' type (Gebba & Aboelmaged, 2016). Unlike the majority of the old studies that used the ownership concentration, this reason led us to choose the CEO shareholding and the board's chairman shareholding as a criterion for measuring the OS.

2.1.1. CEO shareholding

Highlighting the CEO shareholder in the agency theory context has shown multiple results (Veprauskaite & Adams, 2013; Luo, 2015; Gupta, Han, Nanda, & Silveri, 2018; Saidu, 2019). The conclusions already recorded vary according to the proportion of shares owned by the directors, exceeding the legal period of the mandate starting from the estate as of the designation date, the sample's characteristics and the economic situation. By occupying this research theme Bhagat, Black, and Blair (2004) did not find any evidence to support the association between concentration of ownership and business performance.

Most previous studies have assessed the OS within financial institutions as a governance mechanism. They found a linear relationship between CEO ownership and the FP. Some studies have predicted that in most developing countries the OS is highly concentrated among a very limited number of shareholders. Majority owners of capital have tried to impose their financial interests to the detriment of the minority shareholders' interests, which has developed agency problems and has encouraged the spread of opportunistic behavior (Carcello, Hermanson, & Ye, 2011). In other words, the concept of good governance does not necessarily need to be linked to the shareholders' interests of the bank since they can appoint close members to the board of directors (Beltratti & Stulz, 2012). Similarly, Dhillon and Rossetto (2015) pointed out that the private benefits behind CEO ownership have opposite effects on his wishes to share private information with the board of directors, which can influence the CEO's independence and limit his power. To encourage the CEO to communicate financial information to the board of directors, the institution must optimally perform a revaluation, but with low monitoring intensity when the CEO ownership is weak or when the CEO takes advantage of many privileges of private benefits. Indeed, Iqbal, Strobl, and Vähämaa (2015) studied the relationship between the quality of big bank governance in the US and their systemic risk between 2005 and 2010. They found that banks with strong shareholder and board-based governance structures are associated with high levels of systemic risk. Also, Fahlenbrach and Stulz (2011) found that during the period of the Subprime crisis, when the incentives of bank managers are constantly aligned with the interests of its shareholders, banks are found to be performing better. However, in the same unfavorable environment, banks whose CEOs are favored with higher option compensations do not perform well compared to their counterparts who offered fewer options. Also, Thu, Hung, and Anh (2016) studied the impact of some mechanisms of banking governance on the FP of Vietnamese commercial banks over the period 2008-2014. They revealed that banks with high foreign ownership ratios have low

profitability ratios and vice versa. This result is due to the participation of foreign ownership, which has taken a long time to integrate with the local market. On the contrary, internal ownership is positively correlated with bank performance. Moreover, Onali, Galiakhmetova, Molyneux, and Torluccio (2016) studied the power of the general director, as a mechanism of governance, on the dividend policy of banks for a sample of 109 European banks listed between the years 2005 and 2013. To measure the power of CEO, they used three indicators that are shareholding, a term of office, and forced change of CEO. The results showed that CEO power has a negative impact on the FP and dividend payout ratios. They relegated their finding to the old rooted directors since they have no incentive to distribute the dividends to the minority shareholders.

It is worth noting that the corporate governance literature also argues that increasing the shareholding of CEOs and directors within economic entities can be considered among the most effective control mechanisms. Share ownership gives directors the intention to exercise greater control and aims to reduce moral hazard, limit opportunistic behavior, and minimize information asymmetry between stakeholders in general and between managers specifically in the purpose of achieving better performance (Jensen & Meckling, 1976; Morck, Shleifer, & Vishny, 1988; McConnell & Servaes, 1990). In this sense, Hassoune (2002) studied the volatility of the FP of Islamic and conventional banks of a sample from three regions of the GCC. He found that the directors of IBs play a very important role in creating profitability and maximizing investor wealth.

Other researchers have studied the impact of director shareholding in an agency circumstance, but in a more stable economic environment, they have found opposite results because CEO ownership has not a positive impact on the bank's FP but also makes them more powerful (Saidu, 2019). In this sense, Glassman and Rhoades (1980) have studied the existence of a correlation between the ownership composition and the FP of a sample of US banks. They concluded that the banks controlled by their owners are relatively much more efficient than those controlled by their managers. Moreover, Lee (2002) has revealed that the costs incurred to align the interests of directors with those of external shareholders are a source that can affect the ownership effectiveness. The supplementary expense act facilitates the resolution of agency conflicts since these costs absorb the stimulating effect of control. According to Lee (2002), the banks controlled by the shareholders which engage anyway in activities too risky and highly profitable, are generally characterized by low volatility of profitability and a considerable valorization of the assets.

The idea of the emergence of a positive effect exercised by the CEOs who held capital proportions on the banks' FP (Desoky & Mousa, 2016) is the bedrock of the convergence of interests between the leaders and other related parties. Thus, according to Jensen and Meckling (1976), executive share ownership is considered to be a mechanism of governance contributing to reducing agency problems by encouraging executives to act following the interests of other shareholders. As a result, leaders are forced to engage in projects that maximize the value of financial institutions under

their responsibility. In the same area of research, Darkos and Bekiris (2010) revealed that the higher the ownership of the CEO, the more aligned their interests are with those of the shareholders. In other words, when the level of ownership is high, the agency costs decrease and the need for implementing more effective control loses its importance.

Other studies have dealt with the issues of the automatic renewal of a leadership community following the detection of rooting symptoms. The founders of the approach of rooting directors have stipulated that when the managerial ownership increases, the conflicts between the shareholders and the leaders become less acute. The CEO possessing the majority of the capital escape all types of control and can thus manage in optics contrary to the maximization of the bank value. Researchers in this stream have argued that this can lead to entrenchment, especially in cases where directors have high control, unlimited latitude within the institution or excess liberty to act in their interests (Morck et al., 1988; Li, Mangena, & Pike, 2012).

On the same topic, Charreaux (1997) predicted that leaders with a large fraction of the capital react opportunistically to take root using their voting rights. Other researchers have hated the rooting of the leader in the agency theory. They have arrived at a completely different point of view. In this respect, Hirschey (1999) did not validate the hypothesis of CEO rootedness. He showed that the share of securities held by the CEO has no influence either on the market value of the securities or on the FP measures. This result was confirmed by (Simpson & Gleason, 1999). They were interested in the impact of the OS on bank performance. The shares held by the CEO do not have a significant impact on the probability of bankruptcy of the banks. Also, by focusing on the differences between conventional and Islamic banks, Mollah and Zaman (2015) examined the difference between the CEO power within Islamic and conventional banks over the period 2005-2011. They found dissimilar results between the two types of banks. Despite concerns about its independence and limited supervisory capacity, the CEO power has also a significant influence on the performance of IBs. CBs can learn from their Islamic counterparts and pay attention to the factors that motivate its CEOs. Also, the fact that the board shares top-level information on strategic business planning facilitates the decision-making process (Fenghua & Thakor, 2007; Harris & Raviv, 2008). Indeed, in the IBs, the CEO power is diminishing since the Sharia Committee adjusts their role; the advisors are responsible for guiding and training the general directors to apply the rules of Sharia and Fikh Al-Muammalat in daily transactions. The CEO must provide all necessary information on the performance and governance quality that may facilitate the work of Sharia Committee members.

After highlighting the necessary arguments for writing arguments, we have seen that the most appropriate hypothesis for the correlation between these two variables is as follows:

Hypothesis 1 (H1): CEO shareholding has a positive impact on the FP of conventional and Islamic banks.

2.1.2. Board's chairman shareholding

Such a difference between the ownership forms of conventional and Islamic banks implies an inconsistency of interest conflicts and opportunistic behavior. The reality of such a holding situation of the shares proportion by the board chairman as part of the agency theory depends on the bank category, the majority/minority stakeholders and the type of relationship between them. For this reason, the results of previous studies examining the association between board's chairman shareholding and bank performance have sometimes appeared mixed and sometimes paradoxical (Desoky & Mousa, 2016).

Following what has been promulgated in the literature about agency theory, the board's chairman shareholding in the capital of the bank affects not only its independence but also its decisions; that probably results from agency problems more than from the situation where the board chairman is not an owner. But that does not preclude the existence of some research summing up the findings in an assertion provides that the board chairman involvement in a bank's capital decreases interest conflicts with other stakeholders. Holding shares by the board chairman creates material ambitions and financial dissatisfaction with the CEO and other directors. In this sense, Alien and Cebenoyan (1991) founded that executives' and directors' ownership is another mechanism of governance that aligns the interests of boards' directors with the interests of shareholders of the banks' boards. Also, Kallamu (2016) analyzed the impact of the independent shareholder directors on the performance of Malaysian banks between 2007 and 2011. He revealed that the Malaysian central bank is aiming to restructure the boards' composition, so independent directors help boards to reduce agency problems. In other words, the presence of non-shareholder independent directors may not be appropriate for banks with a high level of ownership. For this reason, Kallamu (2016) testified that in banks where directors hold shares, the presence of independent members on the board of directors will improve the FP of banks. Besides, Rowe, Shi, and Wang (2011) analyzed the impact of board characteristics on the performance of Chinese banks. They revealed that ownership of directors has a significantly positive impact on bank performance. Whereas, the percentage of executive directors negatively affects banks' FP.

Returning to the most developed dimension within the framework of agency theory, Htay, Rashid, Adnan, and Meera (2012) studied the impact of the board's chairman shareholding on the performance of a Malaysian banks' sample. They revealed that if the board directors hold shares, they influence the fairness of the accounting and financial information published to the other external parties because they prefer to channel the profits of the banks within themselves, and not to the external shareholders. Thus, the ability to disclose information and the volume of information reported by the director-shareholder remain very limited, in which case directors under his direction could easily hide fraudulent transactions. As a result, Htay et al. (2012) concluded that the smaller the proportion of share ownership held by the board chairman is, the

higher the performance of Malaysian banks is, while its proportionate FP falls.

Moreover, Bhabra, Ferris, Sen, and Yen (2003) are interested in the impact of share ownership by board members on the performance and quality of corporate governance of a Singaporean companies' sample. As a result, they highlighted the existence of a relationship between the board's chairman shareholding and the FP of companies in a developing country. They concluded that Singaporean companies are not protected against the presence of the opportunistic behavior of directors-shareholders with a negative impact on FP. This dynamism is generally visible and common in Singapore much more than the phenomena of this kind detected at the level of American companies. Consistently with the previous studies, Rachdi and Ameur (2011) studied the impact of the board characteristics on the FP of Tunisian banks over the period 1997 to 2006. Empirical results have implied that the board structure plays a crucial role in the FP and risk-taking within banks. Therefore, on the one hand, Rachdi and Ameur (2011) indicated that small boards are associated with strong risk detection capability and increased bank performance. On the other hand, they argued that the existence of independent directors on the board is significantly and negatively associated with the FP, but the independence of the members has no significant effect on risk-taking. Besides, the shareholding of directors has negatively affected the FP of Tunisian banks. Hence, executives have no significant effect on risk-taking.

The theoretical foundations linking the two variables in question have led us to propose the most coinciding hypothesis with the more dominant meaning in the literature.

Hypothesis 2 (H2): The shareholding of the board chairman has a negative impact on the FP of conventional and Islamic banks.

2.2. Main control variables

In our study, we focused on four control variables; we considered that they can explain part of the FP of both Islamic and conventional banks. These variables are bank type, bank age, bank size, and inflation.

2.2.1. Bank type

Many researchers have preferred the establishment of dissimilar reference classes. In this case, the distinction is made between private and public banks (Muda, Shaharuddin, & Embaya, 2013) or between listed and unlisted banks (Aladwan, 2015). At this point, Cornett, McNutt, and Tehranian (2009) tested the difference between the impact of privatization and state participation on the performance of commercial banks in 16 countries from the Far East between 1989 and 2004. The study examined how the bank's shareholding type can affect its performance. They argued that the performance of public and private banks sharply deteriorated over the trial period. In countries where government participation in the banking sector is very important, banks have shown lower performance. Nevertheless, public banks have generated a lower level of profitability and efficiency than private banks. Besides, they found that private banks were more profitable, had more capital base, and had lower credit risk compared to their counterparts before and during the Asian crisis. Faced with this situation, four years after the financial crisis Cornett et al. (2009) detected that the reduction in the cash flow, the capital base and loans' quality granted by public banks was remarkable and higher than private banks. After the crisis, public banks cut off with private banks through cash flow, core capital, and non-performing loans. As a result, public banks recovered their performance to levels similar to those of private banks during the post-crisis period. Furthermore, Srinivasan and Britto (2017) evaluated the financial performance of selected Indian commercial banks representing the public sector private sector for the period from 2012 to 2017. The study showed that the financial performance of private sector banks is relatively better than the public sector banks throughout the study period. Panel data estimations revealed that the liquidity ratio and solvency ratio, and the turnover ratio and solvency ratio are found to have a positive and significant impact on the profitability of the selected public sector and private sector banks, respectively, bearing testimony to the fact that profitability is a function of those ratios.

In the same vein, Farazi, Feyen, and Rocha (2011) assessed the general trends of banking ownership on the banks' FP in the Middle East and North Africa region during the period 2001-2008. The coincidence between bank typology and FP requires the clustering of performance variables into four families. They also analyzed the impact of bank listing on performance by controlling the banks' size and balance sheet structures. The authors have shown that state ownership is more prevalent in non-GCC countries. While ownership structures are stronger and interdependent in GCC countries, this tends to blur the differences between public and private ownership. Results revealed that domestic banks are significantly less profitable than private banks in non-GCC regions, which helps to reduce net interest margins despite their larger sizes. They found that the situation is due to operational inefficiency and weak governance mechanisms. Furthermore, public banks have managed many of the NPL[1] that result in higher loan loss provisions and lower profitability. Moreover, public banks lost market shares in most non-GCC countries, except for Algeria, Libya, and Syria, where financial intermediation dominates. However, in other countries, financial intermediation played a negligible role (Lebanon and Jordan). But it does not prevent that there is an intermediate group of countries where public banks no longer conduct intermediation, while its role remains important (Egypt, Morocco, Tunisia, and Yemen). Foreign banks achieved slightly higher interest margins and profits than domestic private banks, although they are relatively newer in the MENA region. Their sizes have remained relatively smaller in many countries and their investments are higher. They also showed that most of the listed banks are private banks, but a small number of public banks are also listed. They generated higher interest margins compared to unlisted banks because of their small size and balance sheet structures. According to their

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[1] Non-Performing Loan

interpretations, this statement is due to the stricter content of governance standards as well as the information requirements imposed on banks despite the higher costs associated with the listing.

Moreover, Fidanoski, Mateska, and Simeonovski (2013) analyzed the impact of certain governance mechanisms of Macedonian commercial banks on FP during the period 2008-2011. The bank nature was used as a control variable which signed if the bank being tested is a subsidiary of a multinational seat or just a local bank. Results showed that there is no significant association between measures of FP and the origin of the bank (multinational or local).

As an external mechanism of governance, the visibility of the dependence between the typological peculiarities of conventional or even Islamic banks allows us to follow the subordinate parameters and the equivalent specific characteristics (Basuony, Mohamed, & Al-Baidhani, 2014). From the foregoing, we have retained that bank segmentation reduced the market space of possible products. In addition, the user base of banking services will be shared among similar competitors or particularly with the monopolies of each sector. Consequently, segmentation or specialization is not only a factor of minimizing the number of customers, but also a source of strong competition causing a decline in the FP of banks.

According to the previous researches, the best hypothesis we will focus on is:

Hypothesis 3 (H3): The banks' type has a negative impact on the FP of conventional and Islamic banks.

2.2.2. Bank age

The research's depth on the link between the bank age and FP has led to the presence of various conclusions (Staikouras, Mamatzakis, & Koutsomanoli-Filippaki., 2007; Çekrezi, 2015; Talavera, Yin, & Zhang, 2017). A first stream saw that seniority could eradicate the quality of service and limit the controllers' vigilance and restrain the choice of good skills with the desire to improve banking performance. Some studies have shown that the border of the Islamic banking fabric is still limited in the world because of several factors and some have predicted that the demarcation is essentially the lack of support from States and abstinence from engagement in this sector (Ascarya, 2010). They revealed that neglect causes low demand for PLS[2] and related Islamic financial instruments. The second stream of research around this theme justified the constraints by the lack of liquidity in the secondary Islamic markets (Khan, 1995; Iqbal, 1997; Naughton & Naughton, 2000).

On the same topic, they defended the same argument, despite they argued other arguments, Mohamad, Hassan, and Bader (2008) compared the efficiency of costs and profits of two banks groups, a CBs' sample and another of IBs. They argue that the newer banks had better cost efficiency and profit efficiency similar to that of the old banks. This could be because the new banks have learned from the experiences of the old banks. Furthermore, the attempts of the new banks aimed at offering the customers of the old CBs higher interest rates than the rates offered by the old ones of the same group

and to discuss with the customers of the IBs of the same class the percentages of higher profits. Even more, Alharthi (2016) found the same results in the MENA region; the new Islamic and classic banks work better than the older banks.

Similarly, Jemric and Vujcic (2002) tested the effectiveness of a CBs' sample in Croatia between 1995 and 2000. Results revealed that the new Croatian banks are more efficient than the old ones. The problem of old banks was mainly due to the non-performing portfolio containing either non-efficient or non-profitable products. Furthermore, the inefficiency of the old banks compared to the new banks' amounts to the excess of the employees' number and the assets costs fixed too high. Moreover, Kraft and Tirtiroglu (1998) revealed that the conventional Croatian banks recently established in the banking market are less efficient than the old ones, regardless of whether they are private or state-owned; but they have offered higher profitability than that generated by the old banks.

On the contrary, Fidanoski et al. (2013) analyzed the impact of some mechanisms' quality of banking governance in Macedonia on FP during the period (2008-2011). They concluded that there is no significant relationship between banks' age and profitability. However, results showed that there is a positive and significant relationship between the banks' age and the capital requirement (capital adequacy). This indicates that the trends behind the capital increase are aimed at injecting liquidity overtime to cover the decline in profitability. In addition, Huang and Wang (2015) concluded that firms with limited experience in terms of time are more sensitive in performance than those with much experience. Experienced companies tend to adopt risky investment policies that can better manage profits and increase their variability.

Nevertheless, another current found the opposite; IBs are steadily improving over several decades of contemporary history. The difference in the results of previous studies is largely due to the selective rooting of IBs in some areas compared to others. Moreover, they have a long history in some countries compared to other countries where Islamic financial activity started only recently (Samad, 2004a). This method of financing has now become a dynamic segment and an integral part of the global financial industry. Besides, Basuony et al. (2014) tested the impact of bank age on the FP of both conventional and Islamic banks operating in the seven Arabian Peninsula countries[3], they found that bank age has an important role on the PF of banks (Ghafoorifard, Sheykh, Shakibaee, & Joshaghan, 2014).

Over time, IBs have experienced high growth rates in terms of capital, size and especially number around the world, in Muslim countries as well as in non-Muslim countries. From their part, Olson and Zoubi (2008) observed that there were Western multinational banks that have introduced Islamic windows and divisions intended to offer Islamic products and services within their conventional sectors or with the institutions of reciprocal exchanges, such as HSBC, BNP Paribus, Commerz Bank, Standard Chartered, Citicorp, Bank of America, Deutsche Bank, Merrill Lynch, ABN AMRO, Pictet and

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[2] Profit and Loss Sharing

[3] Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, and Yemen

Co, UBS, Barclays, Royal Bank of Canada, American Express, Goldman Sachs, Kleinwort Benson, ANZ Grindlays and Flamands. Indeed, Al-Hares, AbuGhazaleh, and El-Galfy (2013) stated that until the date of his study, 20 Islamic financial institutions were created in the United States, 30 Islamic institutions operate in the United Kingdom, and 20 institutions have adopted the Islamic financial trend in the rest of Europe.

Over the years, the Islamic financial model has expanded and has been on a gradual upward trend. Success has spread throughout the world and not only in the Muslim world. Currently, IBs are located in Asia, America, Europe, the Middle East, and Africa. Countries accepting the practice of Islamic finance in its territories are in a number of fifty-seven countries[4]. In addition, Bilal and Abbas (2015) reported that Bahrain and Malaysia are in the process of becoming regional hubs for Islamic financial service providers (Samad, Gardner, & Cook, 2005). Besides, bank age helps the banks to learn new things with time and they can benefit from their reputation and long experience (Muda et al., 2013; Alshehri, 2016).

Moreover, international banks around the world consider the growth of Sharia-compliant Islamic banking products an opportunity for profit (Siddiqui, 2008). The Islamic financial system has changed over time from a simple system limited to the deposit at the creation of new hedging and investment derivatives. Driven by an increasingly sophisticated and dynamic demand, IBs are becoming more pragmatic and their practices are gradually coming closer to those of traditional finance, which is why they have entered other new markets, such as insurance and mutual funds (Olivier & Krassimira, 2008). For these reasons, we have seen that the most appropriate hypothesis is the following:

Hypothesis 4 (H4): The banks' age has a positive impact on the FP of conventional and Islamic banks.

2.2.3. Bank size

In most cases, the studies' results on the relationship between size and profitability are mixed or contradictory (Terraza, 2013; Laeven, Ratnovski, & Tong, 2014; Muriithi & Waweru, 2017; Obilikwu, 2018). There is not a uniform decision in the literature on the interdependence between banks' size and FP. Some financiers have found the bank size one of the determinants of FP whether in conventional or Islamic banks (Isik & Hassan, 2003; Shah & Jan, 2014; Fahad, 2014; Alex & Ngaba, 2018; Odundo & Orwaru, 2018; Irawati, Maksum, Sadalia, & Muda, 2019). Otherwise, other finance researchers have criticized this confirmation, as it is valid only in the banks of scale. Big banks are trying to reduce these costs since they are more exposed to political costs and regulatory controls (Watts & Zimmerman, 1978; Cooke, 1989), but that there is another current which suggested that the bank size is not a determinant of FP of BIs (Alshehri, 2016).

The first stream saw that large banks disclose more information about the governance quality and the financial situation as evidenced by studies of (Cooke, 1989; Hamid, 2004; Parsa, Chong, & Isimoya, 2007; Pahuja & Bhatia, 2010). Also, the size has generally been used to capture the ability of banks to adopt and to exploit economies of scale in their transactions and their tendency to maximize profits. The goal of profit maximization is found at some level to seek an optimal bank size. At the bottom of this theme, Boyd and Runkle (1993) concluded that there is a statistically significant relationship between size[5] and bank profitability. Moreover, Yung (2009) conducted a study whose main purpose was to analyze the impact of governance on the performance of 23 banks in Hong Kong during the period 2005-2007. Results revealed that bank size is positively correlated with FP. Indeed, large banks are more exposed to investment risks than small banks. Similarly, in his comparative study between conventional and Islamic banks in the MENA region, (Alharthi, 2016) reported that CBs with a larger size perform better than smaller commercial banks. He stated that the benefits of the loans have improved efficiency significantly. About IBs, the author also concluded that large IBs have proven more effective than smaller ones. In another context, Hassan Al-Tamimi and Charif (2011) assessed the impact of bank size on the performance of commercial banks in the UAE over the period 1996-2005. As a result, they confirmed that large banks operate more efficiently than smaller banks.

Furthermore, Delis and Papanikolaou (2009) analyzed the effect of macroeconomic banking determinants on the efficiency of European banks. The determinants chosen to clarify the effects on efficiency are the bank size, the sectoral concentration and the degree of economic investment. They introduced the semi-parametric model proposed by (Simar & Wilson, 2007). They found that the bank size and the external investment environment act positively on the banks' efficiency. It is worth noting that the concentration of the sector has a statistically negative effect on efficiency. Similarly, Saeed (2014) surveyed the impact of the bank's specific variables, sector variables and macroeconomic factors on the profitability of 73UK commercial banks during the period (2006-2012). From the regression analysis, the author founded that bank size is positively related to ROA and ROE.

Indeed, Salas and Saurina (2002) studied the association between macroeconomic and individual variables relating to a sample of Spanish banks during the period (1985-1997). They found that the size of banks is significantly associated with non-performing loans, indicating that the size of commercial banks has influenced its performance.

In addition, Williams and Nguyen (2005) tested a heterogeneous sample of commercial banks in the South Asian region. They found that the CBs' sizes are much higher compared to the sizes of their IBs' counterparts. They also revealed that the commercial bank size was positively and significantly correlated with bank efficiency regardless of the model studied. They unveiled that big banks were more profitable than smaller institutions while considering the profit quality of

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[4] Algeria, Tunisia, Egypt, Morocco, Switzerland, Ethiopia, Mauritania, Nigeria, Turkey, Botswana, South Africa, United Arab Emirates, Cameroon, Syria, France, Chad, Germany, United Kingdom, Kenya, Saudi Arabia, Oman, Pakistan, Libya, Russia, Gambia, Indonesia, Iran, Bangladesh, Ghana, Sudan, Denmark, Afghanistan, Brunei, Tanzania, Kazakhstan, Bahrain, India, Guinea, Liberia, China, Senegal, Jordan, Iraq, Malaysia, Mauritius, Luxembourg, Lebanon, Trinidad and Tobago, Qatar, Canada, Kuwait, Sri Lanka, Azerbaijan, Palestine, Thailand, Yemen, and the United States

[5] Measured by total assets of the deposited money banks divided by GDP and stock market capitalization divided by GDP.

strong institutions extended. Indeed, other researchers have found consistent results. In this sense, Bertay, Demirgüç-Kunt, and Huizinga (2013) revealed that the bank size has a positive and statistically significant effect on banks' FP. This implies that big banks enjoy better profits than smaller banks. This amounts to the large shares of the banking markets held by the big banks. Moreover, this advantage is due to the economic technique of scale approved for the marketing of the services and products offered. In the same vein, other researchers have shown that "Bank Size" positively improves profitability in favor of banks as it reduces the cost of goods and services (Smirlock, 1985; Pasiouras & Kosmidou, 2007; Kipesha, 2013).

In the second stream, other studies have found more or less intermediate conclusions; Chukwuogor and Wetmore (2006) examined the comparative performance of US commercial banks for the period (1997-2002). They classified commercial banks as small, medium, or large according to the assets' size. They stipulated that small banks have made more efficient profits than large banks and less efficient than medium-sized banks. However, since 1999, profit efficiency has deteriorated in small banks more than in medium and large banks. Also, Mohamad et al. (2008) compared a sample of CBs with another sample of IBs. The results did not show any significant difference between the average cost scores of large and small banks for each type of bank. However, big banks have generated their revenues more efficiently. This evidence has indicated that the banks' size affects their profit efficiency, but not their cost-effectiveness. Furthermore, the study revealed that there are no significant differences between the cost efficiency of banks with different asset sizes and bank flows. Moreover, there is no difference between the big CBs and the big IBs. Large IBs are slightly more efficient than conventional large banks in terms of costs, while large CBs are slightly more efficient in terms of profits. Moreover, the results also implied that the small banks in each sector are evolving as well as the big banks, even though their asset level is the lowest. But small IBs have had slightly higher costs and revenues than smaller CBs.

However, in the third research path, integrating the notion of interest's conflict and asymmetric information, the analysis of the "Bank Size" impact on FP in the agency theory context has shown a negative result. Nevertheless, other studies have demonstrated the opposite. They have signaled the presence of a negative and significant correlation between size and FP. Unlike the first stream, researchers have explained results found otherwise. They predicted that the larger the bank, the lower its performance will be (Srairi, 2009). Opponents have justified the negative association by the peculiarities of large-scale institutions; they are less creative and less innovative than the others because they market their products and services at scale. Moreover, based on the outlook for agency parameters, they expected large banks to incorporate more complex transactions. As a result, they contain more agency problems, more accounting manipulations, and more audit sophistries. In this case, size makes the task of control more complicated and requiring more diligence (Noubbigh, 2010).

OS in abnormal context led the agency theory to consider the impact of many actions and reactions of all the intermediates on the FP. This

relation depends on bank size. Some reflections in the literature have established preventive and proactive explanations linking the "Size" as a control mechanism with that of performance. In a study conducted to assess the impact of firm size on future earnings forecasts, Bhushan (1994) announced that in large companies, executives are under great pressure to carry out manipulations and management of results. Through these in-depth preliminary acts, the executives aim to show the shareholders the desired results a priori anticipated by the analysts. To approving the same idea, Skinner and Sloan (2002) carried out a similar study, but on a sample of the CBs. They stipulated that the banks that did not face the managements of the forecasts and with the pre-analyses carried out tailor-made will suffer the consequences of aggressive accounting and result in management choices. By inference, they concluded the presence of a negative correlation between the CBs' size and FP.

In a different context, Akhtar, Ali, and Sadaqat (2011) tested the impact of specific banking factors on profitability for a Pakistani sample of IBs during the period 2006-2009. They noted that the IBs' size has negatively affected their performance, while debt seems a positive stimulator and a driving force of Islamic performance. Going further, according to Benston, Hanweck, and Humphrey (1982), large banks delimit their product portfolios offered to a category of selected customers. Size negatively affects banks when they become extremely important because of the bureaucracy (Ben Naceur & Omran, 2008), the complexity of operations and the length of the informative circuit.

In addition, Jaber and Alkhawaldeh (2014) investigated the impact of internal and external economic factors on the profitability of Amman-listed commercial banks over the period 2007-2012. They found that overall external factors are positively associated with profitability, while internal factors are negatively related to profitability. In particular, they stated that the bank size negatively affected the profitability of the commercial banks in Jordan.

Also, Ulussever (2018) compared the impact of governance quality on the performance of Islamic and conventional banks in 16 countries over the period 2005-2011. He concluded that the bank size has a negative and significant impact on the value of IBs, but it has no significant impact on the performance of CBs.

In the same vein, Jemric and Vujcic (2002) studied the impact of size on the efficiency of Croatian banks between 1995 and 2000. The findings have shown that small banks are technically more efficient to the extent that they have made fewer nonperforming loans. However, the big banks are on average efficient only in case of returns to scale. Also, according to the theory of legitimacy, the larger the economic entity is, the more socially, legally and politically it is exposed to stakeholders, and the more it needs to prove and justify its transparency and legitimacy to the public (Patten, 1991).

The analysis of this impact in the agency theory framework has led us to move beyond the consideration of size as a simple control variable. In this study, our proposal assumes this variable as a mechanism of governance that is bearable to other independent variables. It provides information to bankers, financiers, and economists on the bank

weight, its degree of development and the economic situation of countries from opportunistic behavior in large multinationals widely extended. Size is a very useful mechanism of governance in many cases and especially situations of radical changes in banking systems, such as the development of the banking sector, the extension of such a bank, liquidity mismanagement or results' management of large banks and information asymmetry in the event of diseconomies of scale. The problems mentioned are essentially attached to the big banks. Also, since they can directly or indirectly affect the FP of banks, we have expected a negative relationship between size and profits. Therefore, we have tested whether the banks' size is harming the performance of Islamic and conventional banks. This is why our hypothesis took the following formulation:

Hypothesis 5 (H5): The banks' size has a negative impact on the FP of conventional and Islamic banks.

2.2.4. Inflation

Despite some studies have revealed that there is no relationship between CBs and FP (Aspal, Dhawan, & Nazneen, 2019), other studies have thought that IBs are not involved in transactions testing the confrontation between inflation and interest rates. Inflation has an insignificant relationship to net interest margin and general banking fees. In principle, the practice of interest is prohibited and non-interest expenses are much more limited. Other studies have concluded that the stability of IBs stems from the fact that inflation, rate of return, and other economic factors fluctuate (Cihak & Hesse, 2010). In this sense, Ramadan (2011) studied the impact of bank-specific economic variables and macroeconomic variables on the profitability of Jordanian IBs between 2000 and 2010. He stated that inflation does not have a significant effect on the profitability of assets and the profit margin of Jordanian IBs. Otherwise, the inflation impact on non-interest expenses is very deep insofar as the revenues of CBs are mainly based on direct and indirect interest, fees and commissions. This results in a very influential effect on the performance of CBs. To ensure these levels of efficiency, CBs adjust their interest rates upward to change other operating income to ensure the corresponding benefits in the event of an increase in the inflation rate. However, this causes a slowdown in the growth of non-interest expenses. Also, CBs will suffer a fall in demand for investment loans and especially consumption. This could be a signal of credit risk (Imane, 2014).

Several previous studies have found a positive association between inflation and banks' FP (Tan & Floros, 2012; Kipesha, 2013; Khan, Shahid, Bari, Anam, Shehzad, & Siddique, 2014; Chioma, Adanma, & Clementina, 2014). The revenues' cost as a measure of the profitability of IBs as well as CBs is not influenced by changes in the inflation rate (Gul, Irshad, & Zaman, 2011; Fahad, 2014). They thought that the increase in the inflation rate causes a rise in the valuation of the bank without affecting the demand for credit, therefore, inflation will not decrease commercial activities and it will have no negative effect on the banks' performance. The growth of the inflation rate is always associated with high-interest rates on loans, so banks will be more likely to maximize their income. In this sense, Gul et

al. (2011) conducted a panel study in Pakistan to examine the relationship of bank-specific characteristics and macroeconomic indicators on banks' profitability over the period 2005-2009. Therefore, they found that inflation has a positive impact on all measures of profitability.

Although inflation is a necessary macro-economic measure to evaluate the FP of banks, Rashwan and Ehab (2016) have designed a comparative study aimed at assessing the performance between conventional and Islamic banks during the period 2009-2014. The results discerned the existence of a non-significant impact of inflation on non-interest bank charges and the net interest margin of IBs. Otherwise, inflation significantly altered non-interest expenses and the net interest margin of CBs. This impact contributed to the slowdown of the growth of non-interest expenses and the stimulation of the net interest margin of CBs once the inflation rate rises. In terms of operating revenues, the results showed that inflation had a positive and significant effect on income in both types of banks. Nevertheless, inflation has no significant impact on the profitability of the assets and equity of Islamic and conventional banks. On the same theme, Alharthi (2016) has indicated that inflation influences the effectiveness of Islamic and conventional banks in a negative and significant way, while it has significantly improved the efficiency of two types of banks.

However, other researchers have predicted that inflation will affect the value and the FP of banks (Ongore & Kusa, 2013; Umar, Maijama, & Adamu, 2014), the cost of debt of all economic agents (Zermeño, Martínez, & Preciado, 2018) and financial development (Khan, 2015). In this sense, Bashir (2000) confirmed that IBs are the least affected by inflation. Indeed, he pointed out that there is no significant relationship between the return on equity of IBs and inflation, but has shown that inflation has significantly affected the return on capital of CBs. Also, Ben Naceur and Omran (2008) revealed that macroeconomic development policies and financial indicators do not have a significant impact on the CBs' performance. They predicted that if inflation is not anticipated in advance, then the adjustment reaction of their interest rates will be delayed and in vain. Moreover, management costs will increase faster than incomes, so, inflation will adversely affect the profitability and efficiency of the banking business.

Furthermore, Fahad (2014) has established a comparative study whose objective is to assess the FP of conventional and Islamic banks in Bangladesh throughout the period 2008-2012. He stated that liquidity and bank size showed a positive and significant impact on the performance of CBs. However, credit risk, GDP per capita, bank concentration and inflation have had a negative and significant impact on the FP of IBs. Similarly, Saeed (2014) studied the impact of internal and external economic indicators on the profitability of UK commercial banks during the period 2006-2012. He revealed that inflation has a negative impact on the CBs' profitability.

From the above, inflation affects the traditional banking sector by its influence on the credit demand and distribution market. Any increase in inflation leads to a decline in the banks' real rate of return. While in the case of IBs, the prices growth of

products and services led to a slowdown in investment. By inference, inflation affects the demand for investment credits. Moreover, the rise in risk is targeting IBs to revise their credit distribution procedures. These two reasons explain the sources of the negative effect of inflation on the IBs' performance.

Hypothesis 6 (H6): Inflation harms the FP of conventional and Islamic banks.

3. EMPIRICAL METHOD: DISCRIMINATION BETWEEN THE OWNERSHIP STRUCTURE IMPACTS ON THE FINANCIAL PERFORMANCE OF CONVENTIONAL AND ISLAMIC BANKS

3.1. Methodological aspects

The methodology applied in our exploratory study is a demonstrative comparison by resorting to modeling. The data analysis for this study focused on associations between mechanisms, relationships between shareholders, and individual behaviors to explain correlations and relative answers. This helps to identify the impact factors affecting the relationships between basic FP measures and the influences due to the concept of OS. The research plan to be followed to answer the questions already mentioned began with the clarification of the data sources, then we quoted the variables to be modeled, finally, we exposed our objective models.

3.1.1. Data collection

The choice of banks is limited to countries whose banking systems incorporate both Islamic and conventional banks over the period 2010-2018. Two populations are made up of 1,788 conventional

financial institutions and 467 Islamic financial institutions. Countries covered in our work are Egypt, Bangladesh, Indonesia, Pakistan, Malaysia, Turkey, United Kingdom, Bahrain, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, South Africa, and Sri Lanka. However, we have excluded all specific financial institutions subject to particular regulations. The tested samples include only purely conventional or Islamic banks. Besides, due to difficulties in the collection of information on FP and OS, we excluded banks marked by some missing observations, variables or data. We also removed the multi-type mutated banks (Islamic-conventional window banks and conventional-Islamic window banks). These three conditions led us to eliminate 1,725 conventional financial institutions and 404 Islamic financial institutions. Subsequently, we have reduced the banks' number remaining for each bank type based on some qualitative and quantitative filtering criteria (samples equality, activity type, similarity of origin country, bank width), each CB has its Islamic equivalence in terms of capital and size taken from the same country. This restriction reduced the size of our samples to 63 banks each. Finally, after several elimination and deletion steps, we obtained two pairs of equal samples (n1 = n2).

3.1.2. The measurement of the variables to be tested

3.1.2.1. Endogenous variables

The main variable to explain was represented by four dependent variables: profitability, efficiency, liquidity, and solvency. Table 1 shows the parameters we worked on, the symbols and the relative reports.

Table 1. Description of variables to explain

FP measurement	Rating for CB	Rating for IB	Measurement	Previous studies
Profitability ratio	Rtc	Rti	Marginal Profit/Total Revenues	Sujan, Bhowmik, Islam, Kaium, and Al Masud (2013); Ogbeide and Akanji (2018); Haddad, El Ammari, and Bouri (2019b).
Liquidity ratio	Ltc	Lti	Net Loans/Total Assets	Moin (2013); Olson and Zoubi (2008); Al-Hares et al. (2013); Haddad, El Ammari, and Bouri (2020).
Efficiency ratio	Etc	Eti	Operating Income/ Average Total Assets	Garcia-Appendini and Montoriol-Garriga (2013); Rashid, Khaleequzzaman, and Jabeen (2015); Haddad, El Ammari, and Bouri (2019a).
Solvency ratio	Stc	Sti	Total Loans/Total Deposits	Olson and Zoubi (2008); Onakoya and Onakoya (2013); Haddad, El Ammari, and Bouri (2019c).

3.1.2.2. Exogenous variables

Throughout the remaining part of this work, banks' FP is explained by two determinants of OS. The

predominantly independent variables have been described in Table 2 as follows:

Table 2. Description of the OS explanatory variables

Internal governance mechanism	Rating for CB	Rating for IB	Measurement	Previous studies
Ownership structure	CEO Shareholding of the CB (ACDIRc)	CEO Shareholding of the IB (ACDIRi)	Binary variable: 1: if the director holds shares in the capital of the bank 0: if not.	Al-Hawary (2011); Kim, Rasiah, and Tasnim (2012); Pan (2014)
	Board's chairman shareholding of the CB (ACDCAc)	Board's chairman shareholding of the IB (ACDCAi)	Binary variable: 1: if the board chairman holds shares in the capital of the bank 0: if not.	Alien and Cebenoyan (1991); Htay et al. (2012); Kallamu (2016)

3.1.2.3. Measurements of control variables

Table 3 displays the list of control variables supported by some previous studies that employed the same variables and their measures.

Table 3. Description of control variables

Control variable	Rating for CB	Rating for IB	Measurement	Previous studies
Bank type	TYc	TYi	A qualitative variable takes 3 forms: 1: if the bank is a commercial bank 2: if the bank is an investment bank 3: if the bank is a universal bank	Subika, Feyen, and Rocha (2011); Kim et al. (2012); Charles, Darne, and Pop (2015).
Bank age	AGc	AGi	Age of conventional / Islamic bank for each year	Kraft and Tirtiroglu (1998); Jemric and Vujcic (2002); Fidanoski et al. (2013).
Bank size	TAc	TAi	The logarithm of the book value of total assets of conventional / Islamic bank at the end of each year	Al-Hawary (2011); Akhtar et al. (2011); Batir, Volkman, and Gungor (2017).
Inflation	INFc	INF	The rate of inflation in the country of origin of the conventional / Islamic bank object of study	Ramadan (2011); Pan and Pan (2014); Alharthi (2016)

3.1.3. Presentation of models to estimate

In this sub-section, we aim to detail and symbolize the basic models that will allow us to answer the questions already mentioned in the theoretical part. Also, it is necessary to present the standard models to reassess several times the FP and each time the dependent variable will be changed according to the case of the estimations of the conventional or Islamic financial institutions. In what follows, as it appears in Table 4, we have moved to the exhibition of adequate models best suited to our data while explaining the meaning of all the constitutive variables.

Table 4. Approximation of models to be estimated related to conventional and Islamic banks

Model type	Conventional models of multiple regressions are of the following form:	Islamic models of multiple regressions are of the following form:
Association between profitability and OS	$LnRtc = a_0 + \alpha_1 ACDIRc + \alpha_2 ACDCAc + a_3\,TYc + \alpha_4 LnAGc + \alpha_5 LnTAc + \alpha_6 LnINFc + \varepsilon_t$	$LnRti = \beta_0 + \beta_1 ACDIRi + \beta_2 ACDCAi + \beta_3 TYi + \beta_4 LnAGi + \beta_5 LnTAi + \beta_6 LnINFi + \varepsilon_t$
Association between efficiency and OS	$Etc = \alpha_0 + \alpha_1 ACDIRc + \alpha_2 ACDCAc + \alpha_3 TYc + \alpha_4 LnAGc + \alpha_5 LnTAc + \alpha_6 LnINFc + \varepsilon_t$	$Eti = \beta_0 + \beta_1 ACDIRi + \beta_2 ACDCAi + \beta_3 TYi + \beta_4 LnAGi + \beta_5 LnTAi + \beta_6 LnINFi + \varepsilon_t$
Association between liquidity and OS.	$Ltc = \alpha_0 + \alpha_1 ACDIRc + \alpha_2 ACDCAc + \alpha_3 TYc + \alpha_4 LnAGc + \alpha_5 LnTAc + \alpha_6 LnINFc + \varepsilon_t$	$Lti = \beta_0 + \beta_1 ACDIRi + \beta_2 ACDCAi + \beta_3 TYi + \beta_4 LnAGi + \beta_5 LnTAi + \beta_6 LnINFi + \varepsilon_t$
Association between solvency and OS	$LnStc = \alpha_0 + \alpha_1 ACDIRc + \alpha_2 ACDCAc + \alpha_3 TYc + \alpha_4 LnAGc + \alpha_5 LnTAc + \alpha_6 LnINFc + \varepsilon_t$	$LnSti = \beta_0 + \beta_1 ACDIRi + \beta_2 ACDCAi + \beta_3 TYi + \beta_4 LnAGi + \beta_5 LnTAi + \beta_6 LnINFi + \varepsilon_t$

3.2. Econometric validation of models

The performance of conventional and Islamic banks depends on the systematic use of explanatory variables. Interdependence between the determinants of OS forced us to test also the correlation between the explanatory variables one by one.

3.2.1. Effect specification test

The formatting of the panel data requires the specification of the generating process and its composition through the distinction between homogeneous or heterogeneous moderation of the variables. The heterogeneity of the model is a central notion of panel econometrics (Hsiao, 1986). A panel is homogeneous if the dynamic properties of these variables are strictly identical whatever the country considered. Moreover, the heterogeneity of a model supposes its validity to test the presence of a unit root in the dynamics of a variable observed on several individuals. Applying this principle to the context of our theme involves using our proposed models to look for unitary roots in the dynamics of each explanatory variable and the performance for each type of bank in 16 countries. However, this poses a limit to generalize the roots of infinity of topics and economic variables. The specification test aims to find out whether the estimated individual coefficients are all identical to the theoretical model coefficient where there are features peculiar to each bank that differentiates them from each other. For this reason, we made use of two complementary tests: The first is the homogeneity Hsiao test to ensure the existence of an individual effect in the panel data; the test follows a Fisher distribution while using the Fisher test to compare the coefficients, while the second is the Hausman test that identifies the nature of the effects detected.

The hypotheses of the Hsiao test are formulated as follows:

H_0 *(null hypothesis): The model is homogeneous* $(Fc < Ft)$

H_1 *(alternative hypothesis): The model is heterogeneous* $(Fc > Ft)$

If the critical F is greater than the theoretical threshold (5% for example), we reject the null hypothesis of homogeneity, otherwise, it will be accepted. The balance sheet of the Hsiao test is shown in Table 5. From this Table, we found that the four performance regressions for the CBs' profitability, efficiency, liquidity, and solvency display calculated Fisher statistics greater than the value of the theoretical statistic (1.37). Therefore, we

have agreed with the alternative hypothesis, our models of the CBs' performance are perfectly heterogeneous. Indeed, all models relating to the performance of IBs have shown calculated Fisher statistics higher than the theoretical F value. In this case, we rejected the null hypothesis of the presence of constant effects between IBs in all the countries in the sample. Also, we emphasize that our panels related to Islamic performance measures are heterogeneous. In conclusion, these models are containing individual effects. By deduction, whatever the combinatorial catalyst effect, is specified fixed or random in our sample subjects, it reflects heterogeneity only of the average level, but which preserves the hypothesis of homogeneity of the other parameters of the model and in the particular autoregressive root.

Table 5. Homogeneity test of the models

CBs				IBs			
Model	*Fc*	*Ft*	*Decision*	*Model*	*Fc*	*Ft*	*Decision*
LnRtc	7.87	1.37	Heterogeneous model	LnRti	4.09	1.37	Heterogeneous model
Etc	11.41	1.37	Heterogeneous model	Eti	2.90	1.37	Heterogeneous model
Ltc	13.53	1.37	Heterogeneous model	Lti	14.19	1.37	Heterogeneous model
LnStc	2.03	1.37	Heterogeneous model	LnSti	11.33	1.37	Heterogeneous model

Source: Hsiao test (1986)

The next step is to perform a second test to specify the effects of the linear models. The most common test for solving this kind of problem is the Hausman test. This test makes it possible to identify the sources of heterogeneity, to stabilize these effects, to specify the model to be tested and to decide on the best method of estimation. This test revealed the type of effect wavers the correlation between variables measuring bank performance and explanatory variables. The Hausman test assumes the independence between the errors and the explanatory variables so that the two estimators are unbiased; this allows us to discriminate between the coefficients of a fixed estimate and that of a random estimate of the same model from a statistical difference test between the estimators (Hausman, 1978). The hypotheses of the test are as follows:

H_0 *(null hypothesis): There is no systematic difference in coefficients (random effect)*

H_1 *(alternative hypothesis): There is a difference between the coefficients (fixed effect)*

The decision rule is established as soot if the p-value is below the confidence threshold (5%), we confirm the presence of a fixed effect, otherwise, the Hausman test does not differentiate the random and fixed-effects models. At first, in this case, the random effect is effective if there is no correlation between the errors and the explanatory variables, if not, we confirm the presence of a fixed effect posterior. The results of the Hausman post-estimate test on each model are presented in Tables 6 and 7.

A reading of the summary table of the Hausman tests explaining the CBs' FP, the test of χ^2 performed from the model estimates showed a low level of risk equivalent to the profitability, the efficiency and the liquidity models (Table 6) and the efficiency and the solvency of IBs (Table 7). This deduction corroborates that the models mentioned are more suitable with the fixed-effect models than the random-effects models since all the p-values are well below the best threshold of 1%. In this case, the hypothesis of no systematic difference between the coefficients of the two models is rejected. The STATA estimator measures the variation of each observation relative to the average of the individual effects that are eliminated while using the estimator on new variables.

Table 6. Hausman test of the CBs' sample

Model type	χ^2	*Prob > χ^2*	*Effect type*
LnRtc	20.36	0.0011<1%	Fixed effect model
Etc	17.54	0.0036<1%	Fixed effect model
Ltc	14.90	0.0098<1%	Fixed effect model
LnStc	8.02	0.1550>10%	Random effect model

Table 7. Hausman test of the IBs' sample

Model type	χ^2	*Prob > χ^2*	*Effect type*
LnRti	11.33	0.0453>1%	Random effect model
Eti	15.95	0.0070<1%	Fixed effect model
Lti	12.36	0.0301>1%	Random effect model
LnSti	22.33	0.0005<1%	Fixed effect model

Conversely, based on the Hausman test results, we have resolved, a priori, that other models, more precisely, that have matched the solvency of CBs (Table 6) as well as the models relating to profitability and liquidity of IBs (Table 7) explains a random effect. The probabilities of the statistic tests for these measurements are at the tolerable risk threshold (1%). Indeed, in the absence of the autocorrelation problems related to these three models, we have supported the random effects models considering that they are more appropriate to model the individual effects.

3.2.2. Verification of multicollinearity problems: Variation Inflation Factor test

The multicollinearity test is performed to prevent the instability risk of the coefficients estimated by the least-squares' method. It also makes it possible to see if the matrix of the exogenous variables is regular. Any linear regression calls for the presence

of collinearity and multicollinearity problems will be integrated into the same model, between the exogenous variables.

The verification of multicollinearity in a linear regression requires the use of some statistical tests, the most commonly used of which are: Pearson's correlation coefficient, Spearman's correlation coefficient, Variance Inflation Factor (VIF) (Hair Jr., Black, Babin, Anderson, & Tatham, 2006), Farrar's Test, and Glauber, etc. All of these tests are based on a similar approach subject to the same basic assumptions, based on the detection of the

intersection and the orthogonality of the dependent variables.

H_0 *(null hypothesis) There is a correlation between the exogenous variables.*

H_1 *(alternative hypothesis): There is no correlation between the exogenous variables.*

The VIF includes all possible factors for influencing uncertainty in coefficient estimates. A VIF greater than 5 confirms the presence of a multicollinearity problem (O'Brien, 2007).

The outputs of our VIF test are shown in the table below.

Table 8. Variation Inflation Factor of the two samples

CBs					IBs				
Variable	*VIFLnRtc*	*VIFEtc*	*VIFLtc*	*VIFLnStc*	*Variable*	*VIFLnRti*	*VIFEti*	*VIFLti*	*VIFLnSti*
ACDIRc	1.14	1.14	1.12	1.12	ACDIRi	1.25	1.26	1.26	1.26
ACDCAc	1.31	1.33	1.26	1.26	ACDCAi	1.12	1.18	1.16	1.16
TYc	1.29	1.28	1.22	1.22	TYi	1.29	1.23	1.23	1.23
LnAGc	1.20	1.20	1.22	1.22	LnAGi	1.16	1.18	1.18	1.18
LnTAc	1.13	1.13	1.15	1.15	LnTAi	1.26	1.20	1.20	1.20
LnINFc	1.13	1.11	1.18	1.18	LnINFi	1.11	1.07	1.07	1.07
Average VIF	1.20	1.20	1.19	1.19	Average VIF	1.20	1.19	1.19	1.19

Based on Table 8, the overall mean VIF analysis of all models did not show any value exceeding the maximum threshold (5). The average minimum value is recorded at the level of the CBs' efficiency model equal to (1.11) by the variable (LnINFc), while, the minimum average value is recorded by the efficiency, liquidity, and solvency of IBs (1.07) which has been registered through (LnINFi). In addition, the highest VIF recorded by the variable (ACDCAc) at the model level corresponding to the efficiency of CBs, equal to (1.33), in contrast, in the case of IBs, the highest VIF is familiar with the variable (TYi), recorded at the level of the IBs' profitability model (1.29). In this way, we concluded that all models lack multicollinearity problems.

4. INTERPRETATION OF THE COMPARATIVE RESULTS BETWEEN THE OWNERSHIP STRUCTURE EFFECTS ON THE FINANCIAL PERFORMANCE MEASURES OF THE CONVENTIONAL AND ISLAMIC BANKS

Before judging the impacts of the OS quality, we must be regrouping the separate impacts provided by the OS determinants and the effects generated by the other control variables. In the second part, it is advisable to model the partial measures of FP with all the variables. To do this, we have established multiple linear models.

4.1. Analogical study between the impacts of the ownership structure quality on the financial performance of each banks' type

To correctly decide the individual significance of the variables, we referred to the student statistic. When the estimated statistic's probability is less than one of the reference significance thresholds, we have selected the variable in question. Otherwise, the effect of the variable is considered insignificant. The list of Tables from 9 to 16 summarizes the coefficients of the different explanatory variables estimated by the model of each sample (see Appendix).

The OS may have a positive or negative influence on the banks' FP depending on the situations encountered. So far, we have checked the significance of the variables that explain the OS quality in each model. In the next step, we established a comparative study of the impact between similar models, which highlights the importance of the OS in their existence. Finally, we made a comparison between the pre-established signs (expected) and the signs already found.

From the foregoing, the mono-analysis already carried out showed an ambiguity of confirmation or assertion of the hypotheses from a single FP measure. Moreover, not all tested variables revealed significant impacts on performance measures. The resolution of the incompatibility of the signs led us to establish a state of reconciliation between the determinants' impacts specific to each bank type. This approach consists in focusing on the significant partial impacts and then to determine the definitively significant impacts. The objective is to compare the cumulative and significant impacts of the banks' types.

4.2. Analogical study between the depths of the significant effects of ownership structure quality on the financial performance

4.2.1. Two-dimensional differential analysis between ownership structure impacts on the financial performance: Inter-models analysis and cross-banking typology

To better appreciate the depth of the difference between the impacts of the OS on the FP of each type of bank, we have moved to a comparative analysis between the impacts of the combined effects of two banks' models. Before determining the combined impacts, we distinguished the individual OS impacts on each FP measure relative to the CBs' group separately from the individual OS impacts on each FP measure of IBs' group. Subsequently, we performed a comparison between the impacts collected from both types of banks.

4.2.1.1. CEO shareholding

According to Table 17, ACDIRc recorded a positive combined effect on the FP of CBs. The more shares the CEO holds, the better the CB becomes. Holding a proportion of a bank's capital stock encourages CEOs to positively impact FP. Participation in the capital of a bank of which they have been part constitutes for them an incentive mechanism and an additional incentive aimed at them to maximize the profits of the bank to acquire more dividends. Also, share ownership gives them a more detailed and in-depth understanding of the information on which they can objectively base their decisions (Adams & Ferreira, 2007). In these circumstances, the banks with high participation of their CEOs have facilitated their access to capital markets because of the loss of economic agents' confidence. This symptom is a good sign for international capital holders and depositors. Economic agents have facilitated the collection of resources that are difficult to access local markets. Besides, the shareholding of CEOs protects the bank's interests against doubtful borrowers through the introduction of a banking

risk diversification policy. In fact, CEOs' shareholding also protects the borrowers' interests by giving them advice on the proper selection of opportunities and the avoidance of risk concentration. However, although indebtedness is the most common form of financing at the level of CBs, the strong CEO shareholding allows enriching the conflicts of interest between the CEO and the leasers of banks. The main reason for conflicts is the inability of the bank to honor its commitments, which may threaten its continuity.

It is worth noting that if the CEO of the bank is a shareholder, he/she can exercise an opportunistic behavior on solvency in two directions. In addition, the director tries to delay the recovery time of his/her credits on the banking market and to negotiate interest rates into a win and benefit from the lowest rate. Moreover, the CEO of a CB wants to maximize his/her dividends. Therefore, he/she optimizes the management of available resources to the detriment of solvency. For this reason, solvency has had a negative and significant effect, while the impact of the CEO shareholding on profitability is positive and significant.

Table 17. Summary of the CEO shareholding impacts on FP of conventional and Islamic banks

Variable	LnRtc/LnRti	Etc/Eti	Ltc/Lti	LnStc/LnSti	Cumulative effect	Decision
ACDIRc	+*	+*	-*	+*	+	*H1* accepted
ACDIRi	+	+*	-*	-	Neutral effect	Blurred effect

*Note: - negative impact, + positive impact, * significant impact*

However, as shown in Table 17, based on the result corresponding to the cumulative impact of ACDIRi on the various parameters of the FP of IBs, we noted that the existence of a CEO shareholding within the IBs showed a fuzzy effect on FP. In this case, the CEOs of IBs should carefully consider the interactions between different performance measures to maximize the value of banks (Hassan & Bashir, 2003).

More accurately ACDIRi revealed a negative effect on liquidity accompanied by a boost in profitability. This reflects the existence of directors' opportunistic behavior of IBs. The latter tended to improve the profitability of its banks to maximize its remuneration, profit-sharing benefits, and equity profits. This does not take into account problems of moral hazard such as the possibilities of results management, misappropriation of funds and deferral of the distribution of profits. However, holders of Islamic investment accounts are more able to invest their funds rather than the directors and shareholders of IBs since they are mainly interested in the services offered by IBs, rather than sharing the ownership of the IBs. As a result, investors are more interested than shareholder directors in the bank's compliance with Islamic laws and principles.

Since investors do not have any formal voting rights, they influence the decision-making power of directors through shareholder management oversight (Archer, Karim, & Al-Deehani, 1998) to the extent that the benefits of shareholders are determined by the profits made by investors. When the CEO holds a majority stake in the bank capital, a conflict of interest will be created between investors and the CEO in such an IB. Also, investment

accounts with IBs are generally more accessible than equity investments. In similar contexts, the publication of negative information questions the transparency of the financial statements and raises doubts about the delegation of authority to the CEO and his/her commitments.

4.2.1.2. Board's chairman shareholding

According to the results found, Table 18 revealed that ACDCAc is negatively related to the CBs' performance. The variable concerned affected the quality of control. It limited the technical efficiency of advice in CBs by its reverse impact as a shareholder. This illustration has implied that board directors threaten depositors' funds by making very risky loans. The widely debated and often criticized issue, in this case, is the dominance of opportunistic behaviors on the board chairman's ability to control as a responsible director within an internal governance mechanism. As a result, the board chairman of CBs has weakened the disciplinary effect of other directors and managers. The board chairman usually pursues a risk-taking behavior. In other words, it is possible to manage the accounting result and manipulate a large part of the profits. However, going back to the literature review, we found that the ownership of foreign shareholders in the capital of their banks reduces the risk of revenue management (Bonin et al., 2005; Zhong, Gribbin, & Zheng, 2007). In contrast to the managing of the board's chairman shareholding, the external shareholders pursue more conservative credit distribution strategies than those approved by the other types of shareholders.

Table 18. Summary of the shareholding of board chairman impacts on FP of conventional and Islamic banks

Variable	LnRtc/LnRti	Etc/ Eti	Ltc/Lti	LnStc/ LnSti	Cumulative effect	Decision
ACDCAc	+*	+	-*	-*	-	H2 accepted
ACDCAi	+	+*	+*	+*	+	H2 rejected

*Note: - negative impact, + positive impact, * significant impact*

Nonetheless, from the results shown in Table 18, the analysis of the effect emanating from the board's chairman shareholding on the FP of IBs has shown that this body of governance is positively associated with FP. First, the positive impact is due to the lack of opportunistic behavior between the board chairman and other stakeholders. The advantage is not the result of chance, but rather the result of a relational harmonization due to the balance between the stakeholders' interests. Within IBs, the distribution of profits between depositors and the bank is fair regardless of the type of internal or external shareholder (Aziz, Husin, & Hashmi, 2016). The aim is to increase credibility and develop generally accepted Islamic socio-economic values such as justice and equality. Second, the board chairman has a great knowledge of accounting and financial data, which allows them to ensure a better quality of control and management operations. The shareholder in the field of IBs has great expertise in the field of risk-taking as well as useful information for profitable investment choices. Therefore, the cumulative characteristics of CEO and shareholder encourage the board chairman to make the best choices of investment projects compliant with Sharia provisions.

4.2.2. Two-dimensional differential analysis between the impacts of control variables on the financial performance: Inter-models analysis and cross-banking typology

To better appreciate the difference's depth between the impacts of control variables on FP for each bank type, we collected the individual effects of each control variable on FP. The objective is to obtain purely combined impacts for each bank model. Then, we proceeded to the comparative analysis between the combined impacts of the control variables on each measure of FP relative to the CBs' group apart from the combined impacts of the control variables on each FP measure of the IBs' group.

4.2.2.1. Bank type

Referring to Table 19, the classification of traditional banks by sector of activity and its characteristics into three categories (commercial, investment, and universal banks) harmed its FP and particularly on its liquidity and solvency. However, there is a sectorial differentiation of each type compared to the other. Commercial banks are for-profit credit institutions. They engage in financial transactions with individuals, businesses, and public authorities. Their main activity is financial intermediation. They collect funds from surplus resources agents to grant loans to economic agents seeking financing remunerated at a rate of interest receivable higher than credit interest rates. In contrast, investment banks do not receive deposits from individuals. They collect liquidity from central banks, other banks, and financial markets. Investment banks' customers are mainly formed by legal entities, companies, and investors. Its services are particularly aimed at large companies deal with market activities, intermediation, and participation in major projects. While universal banks oppose specialization, they offer all types of financing and services and allow consistency across all segments of the banking market. Universal banks cover deposits, lending, market, financial engineering, and investment financing activities. Therefore, the specialization of traditional banks delimits the activity scope of each category of the family compared to other families of competing banks. The differentiation is from possible integration sectors, the number of targeted customers, the range of commercial services, and the number of products offered. Also, after taking into account the dimensions of agency theory, we discovered that the organizational structure and hierarchical harmony within CBs are full of gaps and imperfections in terms of the level of activity distribution, tasks' complementarity, directors' independence, competence and expertise of planning, etc. Besides, CBs suffer from a weak governance structure, which is very open to risks and highly exposed to manipulation. Moreover, they are intended for a very diversified customer base, but it is not stable since CBs are located in areas of strong competition or they are located in multi-competitive regions.

Table 19. Summary of bank type impacts on FP of the conventional and Islamic banks

Variables	LnRtc/LnRti	Etc/Eti	Ltc/ Lti	LnStc/ LnSti	Cumulative effect	Decision
TYc	+*	-*	-*	-	-	H3 accepted
TYi	+	-*	-*	-	-	H3 accepted

*Note: - negative impact, + positive impact, * significant impact*

Similarly, based on Table 19, the IBs' diversification into three categories according to their characteristics has negatively affected their FP and more specifically their efficiency and liquidity powers. The essential argument for generating this impact is the absence of dynamic organizational systems, the stability of Sharia norms, the stagnation of formal rules and the standardization of the functional methods of all IBs' categories guided and controlled by the same religious norms. Each type of IBs has not maintained a specific policy of maximizing liquidity and improving efficiency. All IBs have adapted the same original methods of managing liquidity and efficiency risks. Similarly, they followed a targeted marketing policy. The particular customers to attract are different from

ordinary customers. Islamic banking products are intended primarily to attract the attention of an unchangeable and highly stable customer base in so far as they are withdrawn after their certainty and with their conviction. This implies that typical structuring has reduced the customer base and relative market share for each category of IBs. This specific and systematic harmony exposes IBs to the risk of liquidity reduction and the risk of investments' inefficiency, which negatively affects FP. Therefore, we concluded that IBs are more conservative than CBs in terms of control quality and a number of governance mechanisms.

4.2.2.2. Bank age

As shown in Table 20, the CBs' ages have boosted its FP. More precisely, banks' ages have positively

influenced CBs' efficiency and solvency. As empirically verified, the older the CBs are, the more efficient they become. The number of experience years provides CBs with the immunity to withstand all serious variations in FP, conflicts of interest, accounting manipulations and financial falsifications as well as the determinants of previous crises. Seniority makes it easier for banks to quickly adapt to contextual changes, immunize against financial risks and learn more about resource mobilization, the attraction of the deposits, and the gain of vigilance against the contingency factors, their customers' satisfaction and the customers' loyalty to the other banks. In addition, older banks are accustomed to the economic and financial disruption of the sector. Also, they are more adaptable to interest rate adjustments as a function of the change in the inflation rate.

Table 20. Summary of the bank age impacts on FP of the conventional and Islamic banks

Variables	LnRtc/LnRti	Etc/Eti	Ltc/ Lti	LnStc/ LnSti	Cumulative effect	Decision
LnAGc	+	+*	+	-*	+	H4 accepted
LnAGi	+	+	+*	+*	+	H4 accepted

*Note: - negative impact, + positive impact, * significant impact*

Identically to their conventional counterparts, according to Table 20, IBs' age has had a favorable impact, which implies that the sustainability of IBs has a positive effect on FP. So, the oldest IBs in our sample were the most efficient and the most solvent. We can conclude that the earlier the activity of Islamic banking begins, the better it is. Although the IBs activity is mainly based on investment, seniority has provided IBs with a wealth of experience that allows them to make the most liquid and solvent investment choices. In addition, Sharia policymakers' practice of project selection brings IBs closer to the most efficient sectors compared to other highly competitive sectors. Moreover, the former IBs have benefited from a combination of liquidity, investment, and partnership in major projects and investment networks.

4.2.2.3. Bank size

At the level of CBs, Table 21 illustrates that the overall impact of the banks' size has negatively affected FP. In our case, the size was a selection factor for projects with poor FP. The choice of the least profitable projects is directly reflected in its impact on liquidity and especially on the CBs' efficiency. This implies that the financial risk of the

chosen investments has been very low. The majority of large CBs tend to choose the least risky and least profitable projects. Therefore, they have selected the least liquid projects and especially the least effective ones. The riskier investment choices have declined, the weaker financial risks are, and as a profit, FP has declined. However, positive profitability attracts attention from the opportunistic behaviors of other stakeholders who can negatively impact the banks' liquidity and efficiency. Also, a low-risk level requires fewer risk provisions and fewer guarantees against investment failure. For this reason, the size impact on banks' efficiency and liquidity is negative. All other things being equal, poor project appraisal or a deviation from the contingency circumstances cause a diversion and a large loss of future cash flows that could threaten the sustainability of the banks. In small banks with traditional activities (Loans and Deposits), the practice of good governance limits excessive risk-taking. This consequence is not feasible in big banks. Insurance of better governance quality is difficult especially in the banks of which they have a complicated structure, a very diversified product range, some digital operations difficult to enumerate and an overlap of activities.

Table 21. Summary of the bank size impacts on FP of the conventional and Islamic banks

Variables	LnRtc/LnRti	Etc/Eti	Ltc/Lti	LnStc/LnSti	Cumulative effect	Decision
LnTAc	-	-*	-	+*	-	H5 accepted
LnTAi	-	+*	+*	+*	+	H5 rejected

*Note: - negative impact, + positive impact, * significant impact*

In contrast, Table 21 indicates that the IBs' size has a cumulative, positive, and significant effect on FP. Moreover, this impact stems from positive and significant unit effects on efficiency, liquidity and solvency capacity. IB size favors its cumulative liquidity, which makes its activities efficient and increases its solvency capabilities even though the overall profitability is negative. This impact is explained by the large size of IBs. They have more access to low-cost sources of financing, which will

have a positive impact on banks' liquidity. Moreover, large banks have benefited from a scale economy, allowing them to reduce their operating expenses and costs, and therefore this deduction leads to improved efficiency and liquidity. Also, the larger the IBs' size, the more diversified their target investment sectors and product lines, and the more they multiply the number of their subsidiaries and agencies so that they will have more accumulated liquidity and less solvency risk.

4.2.2.4. Inflation

According to Table 22, inflation harmed the FP of CBs. Inflation directly affects the profitability, liquidity, and solvency of CBs, except for efficiency that depends on the banks themselves. However, although the data collected are annual inflation rates, the analysis of the evolution of the rates showed that during the study period, we encountered two economic phenomena; a period of continuous decrease in the inflation rate (deflation) between 2010 and 2012, followed by a period of inflation in 2013, then another major deflation between 2014 and 2015, ended by gradual inflation between 2016 and 2018. The successive variation in prices on the markets reflects a disturbance in the general economic situation of the countries constituting our samples. Although our study period was chosen after a period of crisis, the economic climate is characterized by uncertainty. During the periods (2010-2012) and (2013-2015) as recorded in Table 23, CBs went through a deflationary situation,

prices declined in the market for products and services respectively by a rate of 1.41% and 4.72%. This opportunity has encouraged customers to take advantage of the opportunity and spend even more, so they withdrew more funds. As a result, a fall in the inflation rate led to a rise in the rate of real profitability, the banking activity has undergone a rescheduling of its operations, thus causing an increase in its performance. In 2013 and after 2016, CBs have received a shock of their activity, the average rate of inflation recovered respectively by 0.83% and 2.03%, but it remained always lower than the beginning rate. An increase in the inflation rate led to a decline in the rate of real profitability, which affected the banking activity by its influence on the credit distribution market. As a result, CBs lost a part of their activity levels. Nevertheless, in 2018, banks in our conventional sample recovered from a further rise in prices. This resulted from a decrease in the granting of loans which led to a further decrease in bank profitability.

Table 22. Summary of the inflation impacts on the FP of the conventional and Islamic banks

Variable	LnRtc/LnRti	Etc/Eti	Ltc/Lti	LnStc/LnSti	Cumulative effect	Decision
LnINFc	-*	+*	-*	-*	-	*H6* accepted
LnINFi	-	+	-*	-*	-	*H6* accepted

*Note: - negative impact, + positive impact, * significant impact*

Table 23. Evolution of the price change rate

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Average inflation rate	8.74%	8.38%	7.33%	8.16%	4.63%	3.44%	3.80%	5.22%	5.47%

Source: World Bank

As for the results displayed in Table 23, the average inflation rate for the 16 countries tested over nine years is too variable between 2010 and 2018 (8.74% in 2010, 4.63% in 2014 and 5.47% in 2018). Like CBs, we confirmed that the FP of IBs was negatively impacted by inflation (see Table 22). Nevertheless, the degree of negative impact on FP is a little weak compared to CBs since two measures have shown non-significant impacts (profitability and efficiency). The difference between the two impacts is that IBs were less affected by the change in the rate of inflation. More specifically, inflation affected the liquidity and solvency of IBs. Unlike CBs (Sufian & Habibullah, 2009a), the inflation impact on the IBs' performance is indirect, the performance of banking activity is mainly based on investment returns. Between 2010-2012 and 2013-2015, IBs recorded a continuous annual deflationary effect respectively of 1.41% and 4.72%. The fall in the inflation rate led to a decrease in prices, which encouraged investors to launch new projects. The decline normally generates a recovery of bank performance due to lower investment costs, but this decrease is periodic. However, in 2013 and after 2016, the rise in the inflation rate slowed investment, which resulted in higher revenue costs. In this case, the economic agents postponed their future investments. In general, investors prefer periods when prices fall as much as possible to minimize investment costs. As a result, the rise in inflation brought the decline of the profitability rate and the real value of liquidity, which filled the demand and credit-granting activity since the decrease in profitability generates a very high

investment risk. This economic situation caused a slowdown in activity level that ended with a decrease in the profit margin made by the projects. By inference, IBs suffered a depreciation of their total performance; any increase in the inflation rate results in a decrease in investment rate insofar as inflation causes an acceleration of their business' costs. In 2018, the economic situation, in general, showed a further significant rise in prices. Notwithstanding the inflation growing, this caused opacity of the economic situation and ambiguity of the economic environment. The loss of confidence created an unfavorable economic climate that forced investors to fill their investment initiatives and curb the holders of capital to participate in high-risk projects because of the decline in future cash flows. In this topic, El-Hawary, Grais, and Iqbal (2007) have argued that the predominance of less risky and low-profitability assets results in a portfolio diversification advantage of the bank. As a result, such a reality has led to a decrease in the IBs' profitability.

5. CONCLUSION

The presence of a non-significant compounded impact of the CEO shareholding of conventional and Islamic banks on the FP provides the failure of this mechanism to stage their roles in an effective behavioral attitude especially those directly associated with the centers of decisions. Similarly, the absence of significant individual impacts generated by one of the OS determinants or any of the other control variables on the conventional or

Islamic banks' performance fails of this determinant/mechanism of governance to emphasize their roles in an effective attitude. Jointly, line managers are required to improve performance and maximize profits of banks, however, the lack of performance affects the credibility and feasibility of the implementation. As a result, this finding leads to two conclusions: there is one or more substitutable determinants/ mechanisms of the lost impact, or there is a complete failure of the governance system that requires a revision.

Although the movement of activities, exchanges, and contracts within banks are dynamic, conventional control structuring methods do not become more efficient to ensure a good quality of governance and a better level of performance. Besides, the perceived aspects of the old governance mechanisms are stable, whereas the actual corporate governance regimes are dynamic and they change over time (Wintoki, Linck, & Netter, 2012). Consequently, the classical mechanisms do not allow us to respond to dynamic relational and functional structures. It is necessary then to highlight a new system adaptable to the organizational structure of the banks according to the specific characteristics of the Islamic or conventional banking institution.

As we have exposed the scientific values added to the literature of the financial governance of the conventional and Islamic banks, the criticism of our research has revealed that the data are concerned only in a few countries simultaneously containing conventional and Islamic banks. For that, the results obtained are not necessarily representative of the exhaustive and real financial situation of all banks of each type operating around the world. Since the banks' performance is strongly affected by internal and external evolutionary factors, our conclusions are valid only on the selected samples and the period of our study. Consequently, the differences between the literature result in differences in banks' sizes, non-exhaustive numbers of two-sample' banks, periods of study, and origin countries.

Explaining the limits of our research has allowed us to explore new future perspectives by proposing a more advanced synthetic view. Future research could expand the issues explored in our paper, so further enrichment is needed. This is why we have opened reflection on possible questions on this topic and the related issues to be explored. The research paths appear to be multiple on this theme. They mainly concern deepening the theoretical research paradigm and developing new procedures, auditing, control, and governance techniques and the enriching of the banks' evaluation chain. The development of this approach can focus on examining our research difficulties, the problem of non-availability of data on Islamic and conventional banks, also the lack of a comprehensive global database containing data from listed and unlisted banks. However, it seems that the contextual precision has brought elements of reflection likely to enrich the literature in this field. The creation of a global platform (Big Data) makes it possible to increase the sampling size and to cover more countries in future studies. Indeed, a large base will provide more future results more generalizable on this theme.

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APPENDIX

Table 9. Regression results of the OS impacts on the CBs' profitability

LnRtc	Coefficient	Std. Err.	Z	P>|z|	[95% Conf. interval]		Decision
ACDIRc	0.4755846	0.0525308	9.05	0.000***	0.3726261	0.5785431	H1 accepted
ACDCAc	0.3976352	0.0998714	3.98	0.000***	0.2018907	0.5933796	H2 rejected
TYc	0.119113	0.0423303	2.81	0.005***	0.0361472	0.2020789	H3 rejected
LnAGc	0.1621196	0.0454817	3.56	0.000***	0.072977	0.2512622	H4 accepted
LnTAc	-0.0493477	0.0979862	-0.50	0.615	-0.2413972	0.1427018	H5 rejected
LnINFc	-0.2231928	0.0238251	-9.37	0.000***	-0.2698891	-0.1764965	H6 accepted
Constant	2.120484	0.3397314	6.24	0.000	1.454622	2.786345	-

*Note: *** correlation is significant at the 0.01 level.*

Table 10. Regression results of the OS impacts on the IBs' profitability

LnRti	Coefficient	Std. Err.	Z	P>|z|	[95% Conf. interval]		Decision
ACDIRi	0.0401876	0.058156	0.69	0.490	-0.073796	0.1541713	H1 rejected
ACDCAi	0.0364081	0.064134	0.57	0.570	-0.0892923	0.1621085	H2 rejected
TYi	0.1196447	0.0410895	2.91	0.004***	0.0391107	0.2001787	H3 rejected
LnAGi	0.2896096	0.0403766	7.17	0.000***	0.2104729	0.3687463	H4 accepted
LnTAi	-0.2646369	0.1374953	-1.92	0.054***	-0.5341226	0.0048489	H5 accepted
LnINFi	-0.4494731	0.0328132	-13.70	0.000***	-0.5137858	-0.3851604	H6 accepted
Constant	2.9022	0.318793	9.10	0.000	2.277377	3.527023	-

*Note: *** correlation is significant at the 0.01 level.*

Table 11. Regression results of the OS impacts on the CBs' efficiency

Etc	Coefficient	Std. Err.	Z	P>|z|	[95% Conf. interval]		Decision
ACDIRc	0.1942061	0.056155	3.46	0.001***	0.0841443	0.3042679	H1 accepted
ACDCAc	0.0520437	0.0944604	0.55	0.582	-0.1330954	0.2371827	H2 rejected
TYc	-0.1977136	0.0582611	-3.39	0.001***	-0.3119033	-0.0835239	H3 accepted
LnAGc	0.2191731	0.045672	4.80	0.000***	0.1296577	0.3086886	H4 accepted
LnTAc	-0.7279103	0.0988708	-7.36	0.000***	-0.9216936	-0.5341271	H5 accepted
LnINFc	0.2770626	0.0310374	8.93	0.000***	0.2162303	0.3378949	H6 rejected
Constant	-3.215325	0.3049575	-10.54	0.000	-3.813031	-2.61762	-

*Note: *** correlation is significant at the 0.01 level.*

Table 12. Regression results of the OS impacts on the IBs' efficiency

Eti	Coefficient	Std. Err.	Z	P>|z|	[95% Conf. interval]		Decision
ACDIRi	0.0015455	0.0009081	1.70	0.089*	-0.0002343	0.0033253	H1 accepted
ACDCAi	0.0028715	0.0010394	2.76	0.006***	0.0008342	0.0049087	H2 rejected
TYi	-0.0002366	0.0005971	-0.40	0.002***	-0.001407	0.0009337	H3 accepted
LnAGi	0.0086876	0.0007524	11.55	0.000***	0.007213	0.0101622	H4 accepted
LnTAi	0.0098982	0.0033608	2.95	0.003***	0.0033111	0.0164852	H5 rejected
LnINFi	0.0029824	0.0006453	4.62	0.000***	0.0017176	0.0042471	H6 rejected
Constant	-0.0393684	0.007051	-5.58	0.000	-0.0531882	-0.0255486	-

*Note: * correlation is significant at the 0.10 level; *** correlation is significant at the 0.01 level.*

Table 13. Regression results of the OS impacts on the CBs' liquidity

Ltc	Coefficient	Std. Err.	Z	P>|z|	[95% Conf. interval]		Decision
ACDIRc	-0.0242592	0.0113422	-2.14	0.032***	-0.0464896	-0.0020289	H1 rejected
ACDCAc	-0.0595978	0.0129346	-4.61	0.000***	-0.0849492	-0.0342464	H2 accepted
TYc	-0.0229816	0.0102339	-2.25	0.025***	-0.0430398	-0.0029235	H3 accepted
LnAGc	0.0408646	0.0101021	4.05	0.000***	0.0210647	0.0606644	H4 accepted
LnTAc	-0.025676	0.0191403	-1.34	0.180	-0.0631903	0.0118383	H5 rejected
LnINFc	-0.0677669	0.0077436	-8.75	0.000***	-.082944	-.0525898	H6 accepted
Constant	0.7455678	0.0641508	11.62	0.000	0.6198345	0.871301	-

*Note: *** correlation is significant at the 0.01 level.*

Table 14. Regression results of the OS impacts on the IBs' liquidity

Lti	Coefficient	Std. Err.	Z	P>|z|	[95% Conf. interval]		Decision
ACDIRi	-0.0290847	0.0104638	-2.78	0.005***	-0.0495933	-0.008576	H1 rejected
ACDCAi	0.0483708	0.0122229	3.96	0.000***	0.0244144	0.0723273	H2 rejected
TYi	-0.0476289	0.0088589	-5.38	0.000***	-0.0649921	-0.0302657	H3 accepted
LnAGi	-0.045777	0.0087286	-5.24	0.000***	-0.0628847	-.0286692	H4 rejected
LnTAi	0.3048453	0.0212675	14.33	0.000***	0.2631619	0.3465288	H5 rejected
LnINFi	-0.0513763	0.006651	-7.72	0.000***	-0.064412	-0.0383406	H6 accepted
Constant	0.1643811	0.0608899	2.70	0.007	0.0450391	0.283723	-

*Note: *** correlation is significant at the 0.01 level.*

Table 15. Regression results of the OS impacts on CBs' solvency

LnStc	Coefficient	Std. Err.	Z	P>|z|	[95% Conf. interval]		Decision
ACDIRc	0.1139856	0.0247266	4.61	0.001***	0.162449	0.0655223	*H1* accepted
ACDCAc	-0.0040311	0.0255813	-0.16	0.875	-0.0541696	0.0461075	*H2* rejected
TYc	-0.0142717	0.0137713	-1.04	0.300	-0.0412629	0.0127196	*H3* rejected
LnAGc	0.0394661	0.0189036	2.09	0.037**	0.0024157	0.0765164	*H4* accepted
LnTAc	0.0738973	0.0263525	2.80	0.005***	0.0222474	0.1255472	*H5* rejected
LnINFc	-0.107604	0.0135956	-7.91	0.000***	-0.134251	-0.080957	*H6* accepted
Constant	-0.1667908	0.0838698	-1.99	0.047	-0.3311726	-0.0024091	-

*Note: ** correlation is significant at the 0.05 level; *** correlation is significant at the 0.01 level.*

Table 16. Regression results of the OS impacts on IBs' solvency

LnSti	Coefficient	Std. Err.	Z	P>|z|	[95% Conf. interval]		Decision
ACDIRi	-0.0773454	0.0733139	1.05	0.291	-0.0663472	0.221038	*H1* rejected
ACDCAi	0.2768014	0.074651	3.71	0.000***	0.1304882	0.4231146	*H2* rejected
TYi	-0.121117	0.0458903	-2.64	0.008***	-.2110604	-.0311736	*H3* accepted
LnAGi	-0.1772519	0.0450398	-3.94	0.000***	-.2655283	-.0889756	*H4* accepted
LnTAi	1.121581	0.1960655	5.72	0.000***	0.7372996	1.505862	*H5* rejected
LnINFi	-0.2963016	0.0442308	-6.70	0.000***	-0.3829923	-0.209611	*H6* accepted
Constant	-1.766628	0.3945176	-4.48	0.000	-2.539868	-0.9933877	-

*Note: *** correlation is significant at the 0.01 level.*