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Social institutions, corporate governance and firm-performance in the MENA region

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ABSTRACT

The purpose of this paper is to examine the impact of social institutions, firm-specific corporate governance and ownership characteristics on firm performance in the MENA countries. The analysis uses a unique set of financial and governance data from 225 companies listed on the stock exchanges of eleven countries in MENA region for the period 2007–2017. Regression models are used to test the research hypotheses. The results show that the relationship between corporate governance and firm performance depends on the measurement used for firm performance. Some firm-specific governance characteristics, such as board size and insider and institutional ownership, are robust predictors of firm performance in various models of analysis. Investors should be aware of the impact of firm–specific corporate governance and ownership characteristics on firm performance. Furthermore, the differences of economic and non-economic social factors among countries will likely affect the firm performance. Moreover, regularity authorities in the MENA countries should consider the unique features of religion and other social heterogeneity conditions when introducing control mechanisms. The paper adds to the literature on corporate governance by providing interesting new findings, which document that the relationship between corporate governance and firm performance in the MENA region countries differs in accordance with the performance measure used. Most importantly, these new findings document a significant role for social and governance institutions, whose mitigating impact however varies in accordance with the performance measure used.

1. Introduction

Corporate ownership structures and governance practices have been identified as critical predictors of corporate activity and firm performance. The incentives and the ways in which corporate governance and ownership structures and corporate performance.

However, comparative studies of corporate governance and performance reveal substantial differences among countries (Charkham, 1994). Some of these variances may be due to ownership forms, and political structures (Thomsen and Pedersen, 2000), institutional differences (North, 1990), cultural differences (Hofstede and Hofstede, 2001), in addition to specific characteristics of the board (Finkelstein and Hambrick, 1996). For instance, the social and regulatory environment in which firms operate affects the influence of corporate governance on corporate performance. The theory emphasizes the effect of regulatory and judicial systems,

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socio-cultural norms, beliefs, and values on firm structure and behavior (North, 1990; Douma et al., 2006). Further, Allen (2005) reveals that in the deficiency and absence of comprehensive markets, the valuable properties of interact with firm performance has been extensively studied in the literature (Bahgat and Bolton, 2008 2013; Douma et al., 2006; Gedajlovic and Shapiro, 2002; Jensen and Meckling, 1976; McConnell and Servaes, 1990; Morck et al., 1988; Shleifer and Vishny, 1986; Thomsen and Pedersen, 2000). The results of most of these studies reveal significant relationship among the board characteristics, ownership structure characteristics shareholder control and dominance do not inevitably apply and firms that pursue broader interests may outperform them. Emerging countries are especially important in this respect because they do not readily follow the norms and are described by greater "imperfections" in the markets for products, capital, and managerial talent. This results in the appearance of institutional voids that raise the important policy challenge of identifying proper institutional intervention to bridge these institutional voids thereby providing firms with great opportunity to outperform (Khanna and Palepu, 2000; Douma et al., 2006).

The subsequent international debate has largely focused on the extent to which the role of corporate governance in predicting corporate performance exhibits cross-country similarities, irrespective of national characteristics, such as culture, institutions and geography. The aim of this paper is to contribute to this debate and investigate the role of corporate governance and ownership characteristics of firms for their performance under the influence of diverse social factors in the Middle-East and North Africa region (henceforth MENA). The latter region has its own unique socioeconomic characteristics observed in its geography, shared Islamic religious values, social conflicts and the role of the state. A join firm level and country-level multi-dimensional approach is taken to studying the relationship between corporate governance and firm performance.

The MENA countries have witnessed a period of high economic growth in the last two decades. New investment opportunities have been created the prosperity from the exploitation of oil resources that resulted in increased savings. The enormous flow of funds into the banking system and corporations has led to increased demands from lenders and investors to raise standards of corporate governance (Hussain and Mallin, 2002; Mohamed et al., 2009, 2013). Meanwhile, to fund growth and to benefit from the globalization of business there has been a need for access to international capital. A number of countries in the MENA region have witnessed a period of political and economic instability over the last few years. Governments in these countries started applying a transformational reforms program, targeted at encouraging the economy, improving the environment of the country's business and acting a stable and comprehensive development. The reforms aimed first to rebalance macroeconomic aspects and improve governance and investment climate. Responding to developments across the world of capital markets regulation, regulatory authorities in the MENA countries in association with international agencies have consequently considered the design of new regulatory frameworks to improve corporate governance (Mohamed and Basuony, 2017).

The contribution of this paper has three folds: first, it focuses on the MENA region in a consistent way by using a large sample of companies from the member countries; second, it considers the role of diverse firm-specific and industry-based information in predicting corporate performance, using both accounting-based and market-based performance measures; and, third, and most importantly, it considers the controlling impact of a wide range of national factors that reflect a country's overall development, its institutions, social structures and religion. In addition to emphasizing the role of institutions in explaining the interaction between corporate governance conditions and corporate performance, the paper takes an overall behavioral and cultural perspective that goes beyond the significance of financial accounting information.

The results show that the relationship between corporate governance and corporate performance in the MENA region depends on the measurement used for firm performance. Further, firm-specific governance characteristics, such as board size, insider and foreign ownership, are more robust predictors of firm performance, whilst board composition, CEO duality, ownership concentration and institutional ownership are significant predictors in accordance with the model used. Finally, and most importantly, the results show that the significance, direction and magnitude of the corporate governance effect is mitigated by the impact country-level economic and non-economic factors. The policy implications are that the improved performance of firms in the MENA region depends not only on the improvement of firm-level of corporate governance policies but also on the consideration of national economic and non-economic factors in predictable ways, the impact of which that should be properly assessed in each country.

The structure of this paper is as follows: Section 2 reviews the literature, Section 3 refer to the research methodology used for the analysis, Section 4 explores the power of firm-specific corporate governance and ownership characteristics in predicting firm performance, Section 5 extends the analysis to include the controlling impact of national level factors and Section 6 concludes the paper.

2. Literature review and hypotheses development

2.1. Background

Most international evidence has shown that a firm's performance is boosted by good corporate governance (Brickley and James, 1987; Weisbach, 1988; Rosenstein and Wyatt, 1990; Byrd and Hickman, 1992; Lee et al., 1992; Brickley et al., 1994; Chung et al., 2003; Akbar et al., 2016). However, a number of studies have reported a negative impact of measures of what is considered good corporate governance on firm performance (Bathala and Rao, 1995; Hutchinson, 2002) or no significant relationship at all (Prevost et al., 2002; Park and Shin, 2003; Singh and Davidson, 2003; Young, 2003a,b; Detthamrong et al. (2017).

These contradictory results have yielded many explanations. Some have argued that the data used are generally restricted in scope because they are either publicly available data or survey data. Others have pointed out that the nature of performance measures may contribute to this inconsistency. These measures include, but not limited to, use of restrictive accounting-based measures, or use of volatile market-based measures, (Gani and Jermias, 2006). Still others have argued that the relationship between corporate governance and firm performance were mostly considered by the theoretical and empirical literature using only a subset of predictors at

a time (Krivogorsky, 2006). For instance, Hermalin and Weisbach (1991) and McAvoy et al. (1983) studied the correlation between board composition and performance, while Kaplan (1989), Hermalin and Weisbach (1991); Cole and Mehran (1998), Himmelberg et al. (1999), and Demsetz and Villalonga (2001) studied the relationship between insider ownership and firm performance.

Most of the studies examine the relationship between corporate governance and firm performance from the perspective of standard agency theory. However, in the emerging markets, the agency theory perspective does not solely account for the diverse relationship between corporate governance and ownership structures and firm performance (Hoskisson et al., 2000). Agency theory only provides a partial explanation and some support merging agency and resource-based theories with institutional theory (Eisenhardt, 1989; Oliver, 1997; Basuony et al., 2014). Therefore, to attain a richer and more comprehensive understanding of the impact of corporate governance on firm performance in emerging markets, several studies adopt multi-theoretic approach by combining agency theory, resource-based theory and institutional theory (Hillman and Dalziel, 2003; Lynall et al., 2003; Douma et al., 2006).

Since its inception, corporate governance has informed the institutional tradition of studying organizations by using themes of control and coordination that fall within the domain of corporate governance, which is broadly defined as being concerned with the implicit and explicit relationships between the corporation and its constituents, as well as the relationships between these constituent groups (Bradley et al., 1999). With its insights into the nature of authority and control structures, institutional theory provides important contributions to scholarship on corporate governance through its unique position. However, the reverse is also true: corporate governance presents a particularly attractive field for institutional theory and an opportunity to clarify and refine it because of its concerns with the control of the corporation.

To address some of the aforementioned problems, the analysis of the role of corporate governance in determining firm performance should take a multivariate approach. The present study adds to the literature by employing both market-based and accounting-based measures of firm performance. The study progresses further by testing the relationship between both measures as well as selected firm-specific governance and ownership variables. In addition, firm-specific financial variables were also included. Finally, the analysis is further subjected to the controlling impact of a wide range of country-level economic and non-economic factors that mitigate the impact on firm-specific characteristics. The firm-level hypotheses testing is presented in the next section.

2.2. Hypotheses development at the firm level

2.2.1. Board size

According to organizational theory boards with large number of members take comparatively longer time take to decisions (Steiner, 1972). Jensen (1993) highlighted board size as a value-relevant attribute of corporate boards. Empirical studies have shown that the market values firms with relatively small board sizes (Lipton and Lorsch, 1992; Yermack, 1996; Sanda et al., 2005; Eisenberg et al., 1998). It is also argued that the chief executive officer appears to have power and control when the size of the board is too large (Cheng, 2008; Eisenberg et al., 1998; Jensen, 1993; Singh and Davidson, 2003; Yermack, 1996; Mohamed et al., 2017). Large boards also suffer from high coordination cost and processing problems which lead to difficulty in reaching decisions. Furthermore, smaller boards reduce the possibility of free riding and therefore have more potential for performance improvement. The impact is also affected by sectorial characteristics. For instance, Staikouras et al. (2007) report that there is a negative relationship between board size and firm performance in European banks, whereas Huang (2010) reveals that a positive relationship between the size of the board and firm performance in Taiwan.

H1. There is a significant negative relationship between the size of the board and firm performance

2.2.2. Board composition

An important hypothesis of corporate governance is that a higher quantity of nonexecutive directors (NED) in the board implies higher board independence in making decisions (John and Senbet, 1998). However, the association of board composition and corporate performance is not clear, in terms of both theory and empirical evidence. On the one hand, stewardship theory declares that executive directors (inside) are more acquainted with a firm's activities and, consequently, are in a good situation and position to control and monitor top management. Further, CEOs may be unenthusiastic to share information with more independent boards, thus may lead to reduce shareholder value (Adams and Ferreira, 2007). On the other hand, agency theory contends that NEDs may act as "professional referees" to ensure that competition among insiders encourages actions consistent with shareholder value maximization (Fama, 1980; Demsetz and Lehn, 1985). Outside directors can be active in protecting interest of shareholder by taking some efficient and effective decision control (Cotter et al., 1997; Weisbach, 1988). Previous studies reveal that there is a positive relationship between the outside directors and firm performance (Huson et al., 2001; Rosenstein and Wyatt, 1990; Weisbach, 1988), while others indicate a negative one (Agrawal and Knoeber, 1996; Yermack, 1996; Bahgat and Black, 2002; Klein, 2002). Therefore, others state that a mix between inside and outside directors can be considered as an effective of corporate board (Baysinger and Butler, 1985; Baysinger and Hoskinsson, 1990; Baums, 1994; Fama and Jensen, 1983).

H2. The relative size of non-executive directors in the board has a positive relationship with firm performance

2.2.3. Leadership

Significant degree of consideration has been devoted to the critical ability of the board to monitor executives and removing non-performing CEOs. From an agency perspective, Jensen (1993) states that the failure of the boards in top management to respond

quickly in decisions may be due to a lack of independent leadership. Thus, CEO duality is viewed as problematic, given that the CEO acquires prevailing effect on decisions of the board by leading the group of persons in control and charge of evaluating and monitoring his performance (Berg and Smith, 1978; Brickley et al., 1997). This indications to the idea that the two professional positions would be held by different two distinct persons. However, there is also the dispute, particularly with respect to smaller firms, that when the CEO also chairs the board, s/he can afford the chance to carry out decisions without unnecessary impact of bureaucratic structures. For instance, previous studies reveal that there is a positive relationship between CEO duality and corporate performance (Rechner and Dalton, 1991; Sanda et al., 2005) while, Daily and Dalton (1992) indicates that there is no relationship between CEO duality and corporate performance.

H3. The separation of the CEO and the board chair has a positive relationship with firm performance

2.2.4. Gender diversity

Board diversity refer to the specific attributes and characteristics of the members in the board of directors such as gender, nationality, age, education and experience. According to the stakeholder theory, females on the board delivers more attention and focus on the needs and interests of stakeholders which in turn lead to enhance board performance which lead to better performance of the companies (Carter et al., 2010; Adams et al., 2015). From agency theory, the existence of females on the board diminish the domination role of the males in the decision making (Fauzi and Locke, 2012; Hillman, 2015). Many researches mentioned that females are multi-task and could have different tasks in the board, and are better monitors than men (Adams and Ferreira, 2009; Carter et al., 2010).

H4. Th: There is a significant positive relationship between gender diversity and firm performance

2.2.5. Ownership concentration

The structure of ownership establishes an element of a firm's governance structure and have to, therefore, influence corporate performance. Ownership concentration differs according to the extent of legal protection of minority shareholders across countries (La Porta et al. (1998)). In the so-called Anglo-Saxon countries, dispersed ownership structures prevail which is justified by the relatively superior investor protection mechanisms. On the other hand, in the so-called continental European and many Asian countries, large block holders control the majority of voting rights directly and indirectly (Krivogorsky, 2006) own the majority of listed issuers. In developing countries where the stock markets are weak, large concentration of ownership is more evident. Prior studies in developing countries find a positive relationship between ownership concentration and corporate performance, which is explained by the fact that concentrated ownership structure protects the interests of investors and other stakeholders (Sarkar and Sarkar, 2000; Khanna and Palepu, 2000; Ehikioya (2009); Shahwan, 2015; Ducassy and Guyot (2017)).

H5. There is a significant positive relationship between ownership concentration and firm performance

2.2.6. Institutional ownership

Institutional investors and large shareholders can be consider as possible and potential mitigators of agency problems due to their stronger incentive to monitor managerial behavior and firm performance (Claessens et al., 2000; Demsetz and Lehn, 1985; Denis and McConnell, 2003; Shleifer and Vishny, 1997; La Porta et al. (1999). Moreover, intuitional shareholding, particularly financial institutions, can be effective in minimizing principal-agent conflicts in investee firms because they have the required skills and resources for doing so (Kaplan and Minton;, 1994, Shleifer and Vishny, 1997; Ehikioya (2009). Their heightened power in voting and control improves the decision-making and risk-taking process thereby enhancing performance, particularly as regards financial institutions (Maury, 2006). Institutions in such situations and conditions assist as additional monitoring devices on the process of operations for the organization. Previous literature report a positive relationship between institutional ownership and corporate performance (Guercio and Hawkins, 1999; Smith, 1990).

H6. Institutional ownership has a positive significant relationship with firm performance

2.2.7. Insider ownership

Increasing the level of insider (director) ownership in effect may incentivize a well alignment of interests between owners and executive managers thereby reducing agency costs. If, instead, insider ownership decreases, the incentive is created to appropriate higher amounts of resources (Jensen and Meckling, 1976). Empirical evidence has reported mostly a positive association between director ownership and firm performance (Subrahmanyam et al., 1997; Cole and Mehran, 1998). However, any such beneficial effect of inside share ownership on firm performance may wane if such ownership gives rise to abuse and entrenchment at the expense of other performance monitoring mechanisms (Morck et al., 1988; McConnell and Servaes, 1990; Hermalin and Weisbach, 1991).

H7. Insider ownership has a significant positive relationship with firm performance

2.2.8. Foreign ownership

Foreign ownership, particularly institutional ownership, matters for firm performance (Douma et al., 2006). This is particularly so, if domestic and foreign firms are active in the same sector of activity for they share more effectively know-how and monitoring

Table 1
Firm performance per MENA country (mean percent value).
Source: Financial statement data; authors' calculations.

Country	Return on assets				Return on equity				Tobin's Q			
	Mean	StDev	Min.	Max.	Mean	StDev	Min.	Max.	Mean	StDev	Min.	Max.
Bahrain	10.3%	5.7%	0.003	0.168	13.7%	8.0%	0.006	0.262	102.2%	52.4%	0.364	2.039
Egypt	7.5%	12.5%	−0.838	0.341	12.4%	24.4%	−1.622	0.451	76.6%	58.8%	0.000	2.855
Jordan	7.9%	11.3%	−0.164	0.433	10.2%	31.7%	−1.987	0.572	105.5%	122.2%	0.117	5.215
Kuwait	4.6%	7.2%	−0.183	0.311	5.5%	33.9%	−4.007	0.487	79.1%	57.9%	0.055	3.638
Lebanon	9.8%	4.2%	0.060	0.194	8.5%	42.3%	–	–	100.8%	12.2%	0.796	1.109
Morocco	11.8%	8.8%	−0.122	0.358	25.2%	16.9%	−0.564	0.595	200.6%	96.9%	0.357	4.291
Oman	9.5%	6.9%	−0.058	0.233	16.8%	13.5%	−0.397	0.466	110.1%	79.9%	0.041	3.559
Qatar	7.6%	6.2%	−0.080	0.265	15.0%	11.4%	−0.095	0.579	131.8%	110.4%	0.000	8.312
Saudi Arabia	6.9%	9.7%	−0.512	0.440	10.6%	18.1%	−2.769	0.566	149.0%	131.7%	0.000	8.426
Tunisia	6.3%	8.4%	−0.527	0.203	8.9%	34.5%	−1.144	0.422	128.0%	63.6%	0.219	2.287
U.A.E.	2.9%	8.4%	−0.651	0.142	0.6%	43.4%	−3.365	0.305	58.9%	53.2%	0.000	4.117

experience. Foreign ownership extends beyond mere financial contributions to technical collaborations and managerial expertise. Foreign investment is related with the transfer of general knowledge, such as quality systems and management skills, as well as explicit knowledge that cannot be shifted under arm's length market conditions (Djankov and Hoekman, 2000). It turns out that, in many cases, foreign ownership is in a well situation than domestic ownership to exploit benefits in capital, labor and technology to improve firm performance (Sarkar and Sarkar, 2000; Khanna and Palepu, 2000). Prior studies report relationship between foreign ownership and performance (Goethals and Ooghe, 1997; Chhibber and Majumdar, 1999; Conyon et al., 2002; Ben Naceur and Ghazouani (2007); Omran, 2009; Gurbuz and Aybars, 2010).

H8. There is a positive significant relationship between foreign ownership and firm performance.

3. Data and methodology

The analysis uses a unique set of financial and governance data from a sample of 2475 firm-year observations from 2007 to 2017 for 225 companies listed on the stock exchanges of eleven countries in MENA region (Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Saudi Arabia, Tunisia and United Arab Emirates). Three measures of firm performance are used: the accounting measure (book value performance) of the return on assets (ROA), return on equity (ROE) and the market-based measure of Tobin's Q. The three different measures of firm performance are used in order to provide a more solid ground for assessing the relationship between corporate governance and firm performance, mindful of the measurement inconsistencies pointed out in the literature.

Average values, standard deviation, minimum and maximum of ROA, ROE and Tobin's Q per country are reported in Table 1. The data show differences in performance of the same firms within countries based on the two different measures of performance (book value and market value). The mean difference seems to be higher in countries that underwent political turmoil (e.g. Egypt) and having more vibrant stock markets (e.g. Saudi Arabia, Kuwait, UAE). Also, the variability of performance of the same firms within countries shows considerable differences.

The independent variables include a range of firm-specific characteristics on corporate governance, ownership and finance: board size, the percent of independent directors in the board, CEO duality, and the percent of female directors in the board and ownership by majority shareholders, corporate insiders, institutional investors and foreign shareholders, the extent of advantage, liquidity and earnings growth. Further, we use country-level variables to control for the effect of important economic and non-economic factors at the national level. These controls are meant to capture unobservable influences that may exist among countries, and therefore account for possible spurious interactions. These controls variables include measures of economic, financial and human development, financial conditions, and regulatory governance institutions as well a large range of social structure and behavior conditions, including religiosity and religion. The coefficient estimates reflect country differences in the relationship between the various indicators of corporate governance and firm performance measurement. It is implied that each individual firm is large enough to individually affect country-level conditions. Detail information on all variables used for the analysis is provided in the Appendix A

Summary statistics are shown in Table 2. Two types of measures of firm performance (book value and market value performance) which vary considerably both in absolute terms and between each other. For the book value performance, ROA has a mean value of 0.07 and ROE has a value of 0.11 whilst Tobin's q has a value of 1.22. However, ROA and ROE shows much lower dispersion than Tobin's Q. The firm-specific corporate governance characteristics vary widely too. The size of board varies between 4 and 19 members and the percent of independent directors varies from zero to 100 percent. Most of the firms in the sample have split the roles of the chair of the board and the chief executive officer. Ownership structure shows considerable concentration with majority shareholders owing on average 45 percent of the voting shares, insiders owning about 5 percent of voting shares, institutional investors owing on average 32 percent and foreign investors only 6 percent. The firm level of leverage has a mean value of 41 percent, whilst their liquidity is at a high level. Few firms in the sample are young and most of them are large value companies with established presence in the market.

Table 2
Descriptive statistics of variables.
Source: Financial statement data; authors' calculations.

Variable	Obs.	Mean	S.D.	Min	0.25%	Median	0.75%	Max
ROA	2157	0.07	0.09	−0.84	0.02	0.06	0.11	0.44
ROE	2139	0.11	0.25	−4.01	0.04	0.11	0.2	0.77
TOBINQ	1584	1.22	1.11	0	0.49	0.91	1.6	8.43
AGE	2474	2.96	0.87	0	2.4	3.09	3.58	5.09
SIZE	2151	13.37	1.57	9.57	12.25	13.33	14.23	18.59
BSIZE	2327	8.44	2.32	4	7	8	9	19
BSIZE	2327	8.44	2.32	4	7	8	9	19
BSIZEIND	2327	0.53	0.23	0	0.36	0.45	0.7	1
BDIVERS	2327	0.02	0.06	0	0	0	0	0.4
CEODUAL	2327	0.96	0.19	0	1	1	1	1
OWN5	2475	0.45	0.34	0	0.12	0.45	0.71	1
OWNINSID	2475	0.05	0.12	0	0	0	0.06	1
OWNINST	2475	0.32	0.3	0	0	0.26	0.56	1
OWNFOR	2475	0.06	0.15	0	0	0	0	1
LEVERAGE	2150	0.41	0.23	0.01	0.22	0.38	0.58	1.22
LIQUIDITY	1584	2.12	2.09	0.06	1.06	1.49	2.45	31.5
GROWTH	2172	0.06	0.47	−1	−0.03	0.04	0.14	13.52
FINDPLG	2475	54.22	18.13	25.61	39.16	51.74	64.77	113.29
GDPCAP	2475	0.33	0.23	0.04	0.18	0.18	0.59	0.75
GINI	2475	0.2	0.17	0.01	0.09	0.09	0.36	0.49
INFLATION	2475	0.21	0.19	0	0.13	0.13	0.33	0.79
HDI	2475	0.79	0.06	0.59	0.78	0.8	0.84	0.86
VAE	2475	−1.3	0.56	−1.91	−1.82	−1.31	−0.91	0.33
PVE	2475	−0.17	0.64	−2.12	−0.5	−0.4	0.31	1.22
GEE	2475	0.15	0.44	−0.88	−0.1	0.07	0.25	1.51
RQE	2475	0.13	0.35	−0.93	0	0.08	0.19	1.11
RLE	2475	0.22	0.32	−0.87	0.05	0.15	0.47	0.96
CCE	2475	0.12	0.47	−1.04	−0.17	0.04	0.23	1.57
FRAETHN	2475	46.77	6.63	29.8	46	50	50	55
FRALNG	2475	0.79	0.06	0.59	0.78	0.8	0.84	0.86
FRARLG	2475	4.74	3.65	−4.86	2.7	3.71	5.68	18.57
FAMTIES	2475	0.43	0.05	0.4	0.41	0.41	0.42	0.59
RELIGIOSITY	2475	93.3	1.99	89.5	92	93	95	98
RDI	2475	2.27	1.71	0	1.5	1.5	4.4	5.7
CHRISTIAN	2475	0.07	0.05	0	0.04	0.04	0.13	0.38
MUSLIM	2475	0.88	0.1	0.61	0.77	0.93	0.93	0.99
HINDU	2475	0.03	0.04	0	0.01	0.01	0.07	0.14
BUDDHIST	2475	0.01	0.01	0	0	0	0.02	0.03
JEWISH	2475	0	0	0	0	0	0	0.01
OTHER	2475	0	0	0	0	0	0	0.01
SUNNI	2475	0.76	0.21	0.27	0.7	0.88	0.88	0.99
SHIA	2475	0.08	0.08	0	0.06	0.06	0.1	0.6
OTHERMUSLIM	2475	0.15	0.19	0.01	0.06	0.06	0.14	0.64

Panel data is used in this study. So, we run fixed and random effects using STATA software and then we run a Hausman test where the null hypothesis is the random effect vs. fixed effect. The result of Hausman test as follows:

Chi2 (12) = (b-B)'[(V_b-V_B)^(-1)](b-B)

= 15.41 Prob > Chi2 = 0.2196

The Chi^2 is not significant. Then we can use OLS model in this study. Based on the results of the Hausman test, an OLS model is fitted for estimating the regression coefficients. The error term is assumed to follow a normal distribution (Greene, 2008)). Since unobservable country-level factors might cause the error terms to exhibit correlation within countries, clustered error terms are also applied. Then, country-level economic and non-economic factors are introduced in the analysis to obtain robust results on the impact of firm-specific corporate governance characteristics on firm performance measures. The model assumes that the firm's performance can be described by the following regression equation:

$$\boldsymbol{Y_{ij}} = \boldsymbol{\alpha} + \boldsymbol{X_1'\beta_1} + \boldsymbol{X_2'\beta_2} + \boldsymbol{\varepsilon_{ij}} \quad (1)$$

where? $?_{i,j}$ is either the ROA, ROE and the Tobin's Q reported by firm *i* in country *j*,; $\boldsymbol{X_1'\beta_1}$ is the vector of firm-specific corporate governance, ownership and finance variables; $\boldsymbol{X_2'\beta_2}$ is the vector of country-level economic and non-economic controls; and $\boldsymbol{\varepsilon_{i,j}}$ is the error term that is assumed to follow a normal distribution. Unobservable differences between countries are captured by including country fixed effects coefficient.

Table 3 presents the pairwise correlations between the firm-specific control variables. The results show small pairwise

Table 3
Correlation matrix.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Panel 1: ROA													
ROA (1)	1												
AGE (2)	0.10*	1											
SIZE (3)	−0.07*	−0.15*	1										
BSIZE (4)	0.11*	0.11*	0.19*	1									
BSIZEIND (5)	−0.04	−0.14*	−0.01	0.13*	1								
BDIVERS (6)	0.07*	0.04	−0.03	0.17*	−0.00	1							
CEODUAL (7)	0.02	−0.02	0.07*	−0.05*	−0.02	−0.29*	1						
OWNINSID (8)	0.012	0.13*	−0.17*	−0.11*	−0.04*	0.03	−0.21*	1					
OWNINST (9)	0.09*	0.09*	0.32*	0.11*	−0.03	0.09*	0.08*	−0.22*	1				
OWNFOR (10)	0.00	0.03	0.13*	0.11*	0.06*	0.11*	−0.00	−0.07*	0.41*	1			
LEVERAGE (11)	−0.31*	−0.15*	0.39*	−0.04*	−0.06*	0.06*	−0.02	0.05*	0.11*	0.19*	1		
LIQUIDITY (12)	0.25*	0.07*	−0.23*	−0.04	−0.03	−0.07*	0.05	−0.03	−0.05*	−0.10*	−0.50*	1	
GROWTH (13)	0.08*	−0.14*	0.07*	−0.01	0.01	−0.03	0.01	−0.03	−0.03	−0.01	0.07*	−0.01	1
Panel 2: ROE													
ROE (1)	1												
AGE (2)	0.04	1											
SIZE (3)	−0.03	−0.15*	1										
BSIZE (4)	0.08*	0.11*	0.19*	1									
BSIZEIND (5)	−0.06*	−0.14*	−0.06	0.13*	1								
BDIVERS (6)	0.06*	0.04	−0.03	0.17*	−0.01	1							
CEODUAL (7)	−0.01	−0.02	0.07*	−0.05*	−0.02	−0.29*	1						
OWNINSID (8)	0.01	0.13*	−0.17*	−0.11*	−0.04*	0.036	−0.21*	1					
OWNINST (9)	0.07*	0.09*	0.32*	0.11*	−0.03	0.09*	0.08*	−0.22*	1				
OWNFOR (10)	0.03	0.04	0.13*	0.11*	0.06*	0.11*	−0.01	−0.07*	0.41*	1			
LEVERAGE (11)	−0.15*	−0.15*	0.39*	−0.04*	−0.06*	0.06*	−0.02	0.05*	0.11*	0.19*	1		
LIQUIDITY (12)	0.11*	0.07*	−0.23*	−0.04	−0.04	−0.07*	0.05	−0.03	−0.05*	−0.10*	−0.50*	1	
GROWTH (13)	0.09*	−0.14*	0.07*	−0.01	0.01	−0.03	0.01	−0.03	−0.03	−0.01	0.07*	−0.01	1
Panel 3: TOBQ													
TOBINQ (1)	1												
AGE (2)	0.08*	1											
SIZE (3)	−0.37*	−0.15*	1										
BSIZE (4)	−0.03	0.11*	0.19*	1									
BSIZEIND (5)	0.02	−0.14*	−0.01	0.13*	1								
BDIVERS (6)	0.01	0.04	−0.03	0.17*	−0.01	1							
CEODUAL (7)	0.04	−0.02	0.07*	−0.05*	−0.02	−0.29*	1						
OWNINSID (8)	0.08*	0.13*	−0.17*	−0.11*	−0.04*	0.03	−0.21*	1					
OWNINST (9)	−0.04	0.09*	0.32*	0.12*	−0.03	0.09*	0.08*	−0.22*	1				
OWNFOR (10)	−0.05*	0.047	0.13*	0.11*	0.06*	0.11*	−0.01	−0.07*	0.41*	1			
LEVERAGE (11)	−0.39*	−0.15*	0.39*	−0.04*	−0.06*	0.01*	−0.02	0.05*	0.11*	0.19*	1		
LIQUIDITY (12)	0.21*	0.07*	−0.23*	−0.04	−0.03	−0.07*	0.05	−0.03	−0.05*	−0.10*	−0.50*	1	
GROWTH (13)	0.03	−0.14*	0.07*	−0.01	0.01	−0.03	0.01	−0.03	−0.03	−0.01	0.07*	−0.01	1

Note: Pairwise correlation coefficients of firm-specific characteristics with each of the performance measures ROA, ROE and TOBINQ. The symbol * indicates significant correlation at the 5% level. Correlation levels are lower than 0.50.

correlations (considerably lower than 0.5) which therefore do not show severe multi-collinearity between the firm-specific variables. Therefore, all of these variables can be included in regression analysis. The results show three pairwise correlations matrices for ROA, ROE and Tobin's Q and independent variables.

4. Analysis of results

The regression results report the estimated impact of the firm-specific corporate governance, ownership and finance characteristics on its performance measured by both the ROA, ROE and the Tobin's Q. In order to obtain a better perspective of the relevant impact, the analysis considers separately the effect of corporate governance and ownership characteristics and that of the corporate finance ones. Three regression models were estimated sequentially in models 1–3. The results for the regression models are reported in Table 4.The results of the board size is significant in all models of ROA, ROE and Tobin's Q with a positive sign. This finding is consistent with that of Huang (2010) who documents a significant positive relationship between board size and firm performance in Taiwan. Further, board independence is found to be a significant negative predictor of firm performance. It is therefore in line with those findings that document a negative relation between the number of outside directors and firm performance in both developed and developing countries (Agrawal and Knoeber, 1996; Yermack, 1996; Bahgat and Black, 2002; Klein, 2002). Adams and Ferreira (2007) explain such findings by suggesting that CEOs may be reluctant to share information with highly independent boards. CEO duality is a significant predictor for ROA and Tobin's Q as measures of performance. While the role of leadership factor in firm performance is controversial, it seems that in the MENA region countries separating the role of the CEO and the Chairman exerts a

Table 4
Firm-specific governance and ownership characteristics and firm performance.

Variables	Return on assets	Return on equity	Tobin's Q
AGE	0.004	0.002	−0.067**
	(0.003)	(0.009)	(0.034)
SIZE	−0.001	−0.003	−0.172***
	(0.002)	(0.004)	(0.020)
BSIZE	0.004***	0.009***	0.008
	(0.001)	(0.003)	(0.013)
BSIZEIND	−0.032***	−0.116***	−0.085
	(0.009)	(0.028)	(0.103)
BDIVERS	0.108***	0.204**	0.310
	(0.026)	(0.081)	(0.276)
CEODUAL	0.025***	0.022	0.243
	(0.007)	(0.023)	(0.156)
OWNINSID	0.080***	0.121***	0.962***
	(0.016)	(0.046)	(0.278)
OWNINST	0.049***	0.094***	0.454***
	(0.008)	(0.022)	(0.093)
OWNFOR	0.009	0.091*	0.045
	(0.014)	(0.048)	(0.165)
LEVERAGE	−0.145***	−0.268***	−1.603***
	(0.013)	(0.064)	(0.119)
LIQUIDITY	0.005***	0.002	0.014
	(0.001)	(0.003)	(0.015)
GROWTH	0.059***	0.176***	0.153
	(0.018)	(0.050)	(0.099)
adj. R^2	0.219	0.098	0.226
N	1518	1503	1417

Notes. Standard errors in parentheses. Dependent variables are the performance measures ROA, ROE and TOBINQ. Independent variables are the firm-specific characteristics. An OLS model is used. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

positive significant effect on performance of firms. This findings is also in line will those of other developed and developing markets (Rechner and Dalton, 1991; Baliga et al. (1996); Brickley et al., 1997; Coles and Hesterly, 2000; Pillai and Al-Malkawi, 2017).

On the other hand, the ROE model of CEO duality does not document a significant effect. This finding is in line with those of several studies that do not find significant evidence to support a performance-enhancing separation of the two roles in the leadership position of the firms (Rechner and Dalton, 1989; Baliga et al. (1996). For board diversity, we found that female on board has a positive significant on ROA and ROE only. These findings are in line with previous studies that reported females are multi-task and could have different tasks in the board, and are better monitors than men which lead to better performance (Adams and Ferreira, 2009; Carter et al., 2010).

Ownership concentration is a significant predictor with a positive sign for ROE. These findings are in line with prior studies that find positive relationship between ownership concentration and firm performance, which is explained by the fact that concentrated ownership structure protects the interests of investors and other stakeholders (Sarkar and Sarkar, 2000; Khanna and Palepu, 2000; Ehikioya (2009); Shahwan, 2015). Insider ownerships is a significant predictor for with a positive sign for two models of ROA and Tobin's Q where previous literature report a positive relationship between directors' ownership and performance (Subrahmanyam et al., 1997; Cole and Mehran, 1998). For institutional ownership, we found that there is a positive relationship between institutional ownership and all the three models of performance (ROA, ROE and Tobin's Q). This finding is consistent with previous literature reporte a positive relationship between institutional ownership and corporate performance (Smith, 1990; Guercio and Hawkins, 1999). Foreign ownership is a significant predictor with positive sign for ROE only. The results of this study is consistent with previous studies that report relationship between foreign ownership and performance (Goethals and Ooghe, 1997; Chhibber and Majumdar, 1999; Conyon et al., 2002; Ben Naceur and Ghazouani (2007); Omran, 2009; Gurbuz and Aybars, 2010).

For the firm-specific characteristics, Firm age is a significant predictor with Tobin's Q. Leverage is a negative significant predictor with all three model which are ROA, ROE and Tobin's Q. Liquidity shows a significant predictor with ROA only with a positive sign. Firm growth is a significant predictor with a positive sign for ROA and ROE. Firm size is a significant predictor with a negative sign for Tobin's Q. This result is not in line with the study of Azzam et al. (2013) that shows that company size has a positive effect on ROE and ROA, where a company with a relatively larger size is comparatively more profitable than a company that is smaller in size. On the other hand, this study is consistent with Rashid et al. (2010) that revealed that there is a negative relationship between company size as measured by assets and revenue and performance measurement of Tobin's Q.

In order to see, the size impact of the firms' corporate governance and ownership characteristics on firm performance, Eq. (1) is re-estimated separately for three level of firm size: small, medium and large firm size. Table 5 presents the results. With respect to the accounting measure ROA and ROE, we observe considerable performance difference between small, medium and large size. Board diversity is a significant predictor of ROA in all types of firm size while for ROE in small and large size only. For board independence, it is significant with ROA in small size only while with ROE is significant in small and medium size. On the other hand, insider ownership is significant with ROA in all types of size while with ROE is significant in small and large only. Institutional investors is

Table 5
Firm-specific characteristics and firm performance by firm size.

Variable	Return on assets			Return on equity			Tobin's Q		
	Small firms	Medium firms	Large firms	Small firms	Medium firms	Large firms	Small firms	Medium firms	Large firms
AGE	−0.008	0.018***	−0.017***	−0.001	0.012	−0.040*	−0.010	0.002	−0.282***
	(0.006)	(0.005)	(0.006)	(0.019)	(0.014)	(0.022)	(0.065)	(0.062)	(0.047)
BSIZE	0.006**	0.003***	0.006**	0.006	0.009**	0.026**	−0.078***	0.028*	0.086***
	(0.002)	(0.001)	(0.003)	(0.006)	(0.004)	(0.010)	(0.029)	(0.016)	(0.022)
BSIZEIND	−0.035*	−0.005	0.014	−0.114**	−0.077**	−0.039	0.512***	−0.441**	0.095
	(0.018)	(0.014)	(0.018)	(0.057)	(0.037)	(0.080)	(0.187)	(0.179)	(0.109)
BDIVERS	0.077**	0.056	0.245***	0.218**	−0.089	0.682***	0.406	0.635	2.669***
	(0.034)	(0.051)	(0.070)	(0.097)	(0.164)	(0.208)	(0.382)	(0.493)	(0.679)
CEODUAL	−0.003	0.033**	0.001	0.016	−0.021	0.001	0.380***	0.192	0.001
	(0.011)	(0.014)	(0.001)	(0.024)	(0.047)	(0.001)	(0.125)	(0.279)	(0.001)
OWNINSID	0.080***	0.088***	−0.258**	0.148***	0.056	−0.650*	0.224	1.647***	0.131
	(0.020)	(0.026)	(0.103)	(0.048)	(0.084)	(0.377)	(0.366)	(0.447)	(0.488)
OWNINST	0.050***	0.031***	0.033**	0.095**	0.071***	0.038	−0.119	0.789***	0.354***
	(0.015)	(0.011)	(0.013)	(0.040)	(0.025)	(0.043)	(0.164)	(0.162)	(0.099)
OWNFOR	0.066***	−0.029	0.001	0.235***	−0.001	−0.025	0.376	−1.231***	0.602***
	(0.025)	(0.022)	(0.031)	(0.064)	(0.049)	(0.171)	(0.332)	(0.311)	(0.230)
LEVERAGE	−0.091***	−0.170***	−0.207***	−0.173	−0.298***	−0.369**	−1.218***	−1.793***	−1.645***
	(0.029)	(0.018)	(0.030)	(0.131)	(0.091)	(0.153)	(0.218)	(0.209)	(0.211)
LIQUIDITY	0.006***	0.008**	−0.001	0.005*	0.005	−0.006	−0.001	0.116**	0.037
	(0.002)	(0.004)	(0.004)	(0.003)	(0.006)	(0.009)	(0.020)	(0.054)	(0.041)
GROWTH	0.123***	0.070***	−0.003	0.335***	0.200***	0.030	0.567**	0.209	−0.105*
	(0.033)	(0.022)	(0.008)	(0.102)	(0.059)	(0.030)	(0.234)	(0.168)	(0.056)
adj. R^2	0.178	0.286	0.435	0.128	0.099	0.131	0.085	0.235	0.514
N	598	681	239	589	677	237	542	642	233

Notes: Standard errors in parentheses. Dependent variables are the performance measures ROA, ROE and TOBINQ. Independent variables are the firm-specific characteristics. The sample is divided into small, medium and large firms on the basis of total assets. An OLS model is used. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

significant with both ROA and ROE in small size only.

With respect to the market measure Tobin's Q, we also observe considerable performance difference between the three types of firm size. Board diversity is a significant predictor of Tobin's Q in large type of firm size only while in board independence, it is significant in small and medium size. On the other hand, insider ownership is significant with Tobin's Q in small and medium size while with institutional investors is significant in medium and large size. In contrast, leverage as an example of firm specific characteristics, it is significant in all types of firm size with ROA and Tobin's Q while is significant in medium and large size for ROE.

An instrumental variables approach is applied. Each column presents the results of the 2SLS analysis for each exogenous variable as shown in Table 6. Potential solution to endogeneity – instrumental variable estimation - A variable that is correlated with the problem variable but which does not suffer from measurement error. External instruments include the doing business index, the extent of shareholder governance index and the Gini coefficient per country-year, all of which are associated with corporate governance practices of the firm.

5. National factors and robustness checks

There may be concerns that the results obtained above depend on the nature of corporate governance and ownership and other firm-specific characteristics of the sample countries. After all, different countries have different, more or less developed institutions, different societal structures and are characterized by different norms of behavior, which affect domestic patterns of consumption and the organization of production as well as the effectiveness of infrastructure. Therefore, it is possible that, by accounting for the impact of different country-level factors, the predictive power of the corporate governance and ownership characteristics will be more or less pronounced. In order to test these conjectures, a series of additional robustness tests are taken to account for the impact of various national economic and non-economic conditions. In a series of successive models, Eq. (1) is expanded to include the controlling impact of a country's: (a) economic, financial and human development level; (b) institutional and regulatory governance quality; (c) social heterogeneity conditions; (d) religion; (e) financial regulation and (f) corporate governance enforcement. The variables corresponding to each of the above groups of factors are described in the Appendix.

5.1. Impact of economic, financial and human development

Economic development affects corporate governance and firm performance through corporate entrenchment. Morck et al. (2000) showed that increases in GDP per capita are inversely related to inherited wealth and directly related to newly created wealth as a portion of GDP. Wealthy investors may expand their existing wealth through stricter control over many corporate entities by using pyramidal structures. La Porta et al. (1999) show that under such conditions family members are typically put in executive positions

Table 6
2SLS Analysis (Endogeneity analysis).

	AGE	SIZE	BSIZE	BSIZEIND	BDIVERS	CEODUAL	OWNINSD	OWNINST	OWNFOR	LEVERGE	LIQUIDITY	GROWTH
AGE	−0.044**	−0.012	0.005	0.007**	0.003	0.003	0.010	0.004	0.000	−0.012	0.006	0.010**
	(0.019)	(0.008)	(0.005)	(0.004)	(0.003)	(0.003)	(0.006)	(0.003)	(0.004)	(0.010)	(0.006)	(0.004)
SIZE	−0.003	−0.084**	0.001	−0.001	−0.002	−0.000	−0.004	0.002	0.001	0.019*	0.005	−0.002
	(0.002)	(0.035)	(0.003)	(0.002)	(0.002)	(0.002)	(0.004)	(0.003)	(0.002)	(0.011)	(0.007)	(0.002)
BSIZE	0.006***	0.013***	0.000	0.003***	0.005***	0.004***	0.002	0.004***	0.003	0.001	0.005**	0.004***
	(0.001)	(0.004)	(0.010)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)
BSIZEIND	−0.053***	−0.031**	−0.028**	0.055	−0.035***	−0.028***	−0.037***	−0.032***	−0.048***	−0.078***	0.006	−0.033***
	(0.013)	(0.015)	(0.014)	(0.052)	(0.010)	(0.011)	(0.011)	(0.009)	(0.016)	(0.029)	(0.050)	(0.011)
BDIVERS	0.097***	−0.163	0.134*	0.127***	−0.036	0.173*	0.064	0.120***	0.058	0.165***	0.207	0.118***
	(0.036)	(0.126)	(0.072)	(0.035)	(0.193)	(0.093)	(0.052)	(0.035)	(0.052)	(0.057)	(0.137)	(0.038)
CEODUAL	0.030**	0.002	0.023*	0.035**	0.006	0.094	−0.046	0.028**	0.017	0.029*	0.024	0.027*
	(0.013)	(0.023)	(0.013)	(0.014)	(0.028)	(0.091)	(0.061)	(0.012)	(0.015)	(0.017)	(0.023)	(0.014)
OWNINSID	0.113***	−0.026	0.074***	0.084***	0.075***	0.107***	−0.272	0.063***	0.072***	0.152***	0.123**	0.069***
	(0.023)	(0.053)	(0.023)	(0.018)	(0.018)	(0.040)	(0.293)	(0.024)	(0.020)	(0.048)	(0.062)	(0.020)
OWNINST	0.057***	0.182***	0.050***	0.049***	0.052***	0.047***	0.011	0.011	−0.004	0.030*	0.047***	0.055***
	(0.010)	(0.058)	(0.009)	(0.009)	(0.009)	(0.009)	(0.033)	(0.037)	(0.042)	(0.016)	(0.016)	(0.010)
OWNFOR	0.025	−0.049	0.015	−0.006	0.014	0.005	0.017	0.033	0.313	0.137*	−0.013	0.017
	(0.019)	(0.037)	(0.022)	(0.019)	(0.018)	(0.017)	(0.020)	(0.029)	(0.235)	(0.077)	(0.041)	(0.019)
LEVERAGE	−0.172***	0.046	−0.149***	−0.131***	−0.143***	−0.146***	−0.120***	−0.148***	−0.189***	−0.622**	0.199	−0.164***
	(0.017)	(0.083)	(0.015)	(0.015)	(0.012)	(0.012)	(0.025)	(0.012)	(0.036)	(0.274)	(0.424)	(0.015)
LIQUIDITY	0.004***	0.001	0.005***	0.005***	0.004***	0.005***	0.004**	0.005***	0.004***	−0.018	0.082	0.004**
	(0.001)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.013)	(0.096)	(0.001)
GROWTH	0.046***	0.080***	0.059***	0.058***	0.058***	0.059***	0.063***	0.058***	0.062***	0.081***	0.039	0.260***
	(0.010)	(0.017)	(0.008)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.010)	(0.018)	(0.029)	(0.061)
Adj. R^2	0.072	−1.210	0.210	0.172	0.209	0.202	0.000	0.208	0.039	−0.611	−1.806	−0.074
F-stat	31.000	13.337	34.547	33.472	35.071	35.393	27.101	33.195	29.727	12.098	9.871	25.070
Sargan	8.130	0.599	17.306	13.757	16.887	16.746	12.370	16.381	12.691	5.526	4.261	1.584
P-value (sarga)	0.017	0.741	0.000	0.001	0.000	0.000	0.002	0.000	0.002	0.063	0.119	0.453
idstat	41.519	8.691	15.108	49.623	44.077	27.292	6.577	77.541	8.942	5.894	0.916	40.221
widstat	14.088	2.885	5.036	16.931	14.982	9.172	2.180	26.969	2.969	1.953	0.303	13.636
Endogeneity	8.026	15.990	0.178	3.097	0.582	0.586	1.850	1.086	2.071	6.287	2.376	15.707
P-value (endog)	0.046	0.000	0.673	0.078	0.446	0.444	0.173	0.297	0.150	0.022	0.123	0.000
N	1518	1518	1518	1518	1518	1518	1518	1518	1518	1518	1518	1518

Notes: An instrumental variables approach is applied using the *ivreg2* command in Stata. Each column presents the results of the 2SLS analysis for each exogenous variable. External instruments include the **doing business index**, the **extent of shareholder governance index** and the **Gini coefficient** per country-year, all of which are associated with corporate governance practices of the firm. Standard errors in parentheses. **Idstat** is the LM test statistic for underidentification (Anderson or Kleibergen-Paap stat). **Widstat** is the F statistic for weak identification (Cragg-Donald or Kleibergen-Paap stat). * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

of key firms within the pyramidal structure. Corporate control is consolidated further by establishing shares with superior voting rights and by extensive crossholdings, which allow corporate insiders to control the majority voting outcomes while they only own a minority fraction of the firm's equity. These structures can allow a small number of wealthy families to control a large part of an economy's corporate sector. The concentrated control of voting rights may lead to agency conflicts and entrenchment problems, which often bias capital allocation decisions to the advantage of the controlling elites. Concentrated control may also impede the pace of innovation because controlling elites will have to bear the burden of risk due to innovation failures (Aghion et al., 2013). These effects cause distortions in capital allocation, tend to retard growth of corporate profits thereby impeding the development of capital markets. Moreover, in order to preserve their privileged positions, the controlling elites often use their political connections to bring a deadlock on the institutional development of capital markets and to erect various barriers to entry in the market. These possibilities are often observed in the MENA region markets (www.worldbank.org)

Financial development affects corporate governance through the dissemination of information. Levine (1997) surveys the impact of financial information acquisition and of managerial monitoring on the exercise of corporate control and firms' growth. Grossman and Stiglitz (1980) and Shleifer and Vishny (1997) argue that, on the condition that financial markets are large and liquid and property rights are well protected, investors are willing to undertake the cost of acquiring information that enables them to realize more efficient market arbitrage. As a result information-based trading increases which feeds on higher market prices thereby boosting firm performance (Morck et al., 2000); www.worldbank.org). Equity prices that closely reflect fundamental values facilitate corporate insiders' external financiers' decisions on capital allocation, simplify managerial monitoring, and enable the design of incentive contracts that induce managers to align their interests with those of external financiers thereby increasing firm value.

Income distribution also affects corporate efficiency and firm performance. Aghion et al. (1999) documented that at the presence of inefficient markets, income inequality reduces the range of investment opportunities, deteriorates borrowers' incentives, and generates macroeconomic uncertainty. Capital market frictions can incentivize the wealthy to invest more than they would have done otherwise, while the deprived are incentivized to invest less than otherwise. Assuming diminishing returns, the more equitable distribution of income tends to be associated with higher total output, more robust growth and a wider range of investment opportunities for both rich and poor investors. Further, unequal income distribution is associated with moral stringent hazard problems associated with access to finance. Instead, income redistribution from rich to poor lessens the overall use of borrowing in the economy, it reduces the cost of debt finance on the margin, thereby easing moral hazard problems and subsequently raising the general level of output.

In order to check for these conjectures, Eq. (1) is expanded to include regressors capturing the impact of economic, financial and human development of the sample countries. Table 7 presents the results of the benchmark model after controlling for economic development (GDPCAP), financial development (FINDPLG), income inequality (GINI) and human development (HDI).

The results show that, with respect to the accounting measure ROA and ROE, the levels of economic, financial and income inequality are significant except human development and inflation matters are not significant. The size of the board, duality, insider ownership, board independence, leverage and institutional ownership are significant predictors of firm performance but firm size is not. When Tobin's Q is considered, the picture changes as the inflation, financial and human development are significant while, economic development and income inequality turn out to be insignificant. Firm size, duality, insider ownership, board diversity, and institutional ownership are significant predictors of firm based market performance. The coefficients of the firm-level variables are considerably larger when Tobin's Q is considered relative to ROA. In all cases, the firm levels of leverage remain significant predictors. Moreover, the structure of ownership is a more important predictor of firm performance when the latter is measured by the Tobin's Q. While these results are reasonable for an emerging market setting, they mark a difference as regards the evidence in advanced markets. While the financial variables of liquidity, leverage and inflation exert a robust effect on firm performance, the role of corporate governance and ownership structures depends on the performance measure taken.

5.2. Impact of the regulatory governance institutions

Institutions affect the internal organization and governance of firms. Thus, an important arising question is whether the predictive power of corporate governance and ownership structure is more effective in countries with a stronger regulatory governance environment. It is expected that better regulatory governance would lead to an improved business-enabling environment that is conducive to higher business investment. Focusing on the role of political institutions, Faccio (2006) argued that politically connected banks are more likely to be favorably refinanced by their governments and hence extend lending. Brown and Dinc (2005) demonstrated that government intervention in the financial sector is often decided on the basis of prevalent political concerns associated with the election cycle. Djankov et al. (2002) argued that less representative and democratic political regimes suppress entry and competition in the banking sector. Rajan and Zingales (1998) further argued that such barriers matter for financial development and economic growth and thereby for corporate governance. Further, looking into corporate governance reforms in many countries, Cioffi (2006) argued that, in the reform process, political elites centralized and expanded the regulatory intervention of the state in order to protect the interests of financial capital. This was realized by using market-induced pressures channeled through corporate governance institutions to restraint managerial autonomy and encourage efficiency-driven corporate restructuring. Actual corporate governance reforms often reflect the capacity of state elites to capitalize on changing economic conditions and changes in public opinion and interest group preferences by framing public policy debates and constructing interest group alliances so as to contain the dynamic of market-driven reform.

These authors effectively argued that the manner in which a government discharges its responsibilities (exercise of governance, use of operational transparency, proper accountability to its citizen, conformance to internationally accepted good practices) reduces

Table 7
Impact of the macroeconomic environment.

Variable	Return on assets	Return on equity	Tobin's Q
AGE	0.005*	0.005	−0.054
	(0.003)	(0.008)	(0.034)
SIZE	0.001	−0.002	−0.177***
	(0.002)	(0.004)	(0.021)
BSIZE	0.004***	0.008**	−0.010
	(0.001)	(0.003)	(0.013)
BSIZEIND	−0.041***	−0.143***	−0.103
	(0.009)	(0.029)	(0.101)
BDIVERS	0.085***	0.137	1.174***
	(0.030)	(0.091)	(0.305)
CEODUAL	0.030***	0.038*	0.331**
	(0.008)	(0.021)	(0.160)
OWNINSID	0.076***	0.109**	0.961***
	(0.016)	(0.048)	(0.268)
OWNINST	0.046***	0.093***	0.510***
	(0.008)	(0.024)	(0.101)
OWNFOR	0.009	0.081*	0.218
	(0.014)	(0.047)	(0.164)
LEVERAGE	−0.148***	−0.274***	−1.596***
	(0.013)	(0.066)	(0.120)
LIQUIDITY	0.004***	0.001	0.007
	(0.001)	(0.003)	(0.015)
GROWTH	0.055***	0.166***	0.117
	(0.017)	(0.048)	(0.090)
FINDPLG	−0.038***	−0.121***	−0.193**
	(0.008)	(0.025)	(0.086)
GDPCAP	−0.016***	−0.038**	0.091
	(0.006)	(0.016)	(0.071)
GINI	0.096***	0.231***	−0.094
	(0.026)	(0.072)	(0.318)
INFLATION	−0.002	−0.034	−1.077***
	(0.011)	(0.032)	(0.142)
HDI	−0.071	−0.204	1.343**
	(0.048)	(0.129)	(0.545)
adj. R^2	0.235	0.120	0.264
N	1518	1503	1417

Notes. Standard errors in parentheses. Dependent variables are the performance measures ROA, ROE and TOBINQ. Independent variables are firm-specific characteristics. Control variables include financial development, economic development, income inequality, inflation and human development. An OLS model is used. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

the likelihood of public officials abusing authority or trust for private benefit and of private enterprises accepting abuse. In order to check for these conjectures, Eq. (1) is expanded to include regressors capturing the impact of a country's overall quality of governance institutions. Table 8 presents the results of the benchmark regression model after controlling for a country's freedom of public expression (VOICC), political stability (POLSTB), government effectiveness in the provision of public services (GOVEFF), the quality of regulation (REGQUL), the extent of compliance to the rule of law (RULAW) and the effective control of corruption (CONTCOR).

The results show that, with respect to the accounting measure ROA, the indices of voice & accountability, control of corruption, regulatory quality and political stability are significant predictors; whilst government effectiveness and rule of law are not. Moreover. ROE is significant with voice & accountability and political stability as well. The size of the board, board independence, board diversity, insider and institutional owners remain significant predictors of ROA and ROE performance. Furthermore, leverage and growth are significant predictors of firm performance of ROA and ROE but foreign owners, liquidity, size and age of the firm are not.

When Tobin's Q is considered, political stability and government effectiveness are added to the significant governance predictors. Indeed, political instability affects uncertainty and therefore the flows of capital in the market thereby affecting market-based measures of firm performance. However, voice & accountability and regulatory quality turn negative and significant: higher restrictions of the arbitrary exercise of power seem to be associated with lower firm performance. This may not be surprising in emerging markets. For instance, Thenmozhi and Narayanan (2016) show that when emerging market firms acquire developed market firms, corporate governance practices in the target country have a significant adverse effect on post-acquisition performance, while the rule of law in the target country exerts no significant effect. It seems that enforcement may not work as expected here. Turning to the governance characteristics, the board diversity, insider and institutional owners are significant. Again, the coefficients of the firm-level variables are considerably larger when Tobin's Q is considered relative to ROA and ROE. In all cases, the firm levels of leverage remain significant predictors. The results show that accounting-based measure ROE is less sensitive to macroeconomic variables relative to the market-based measure of Tobin's Q. As previously observed, the structure of the board is a more important predictor of firm performance when the latter is measured by the ROA and ROE.

Table 8
Impact of the institutional governance environment.

	Dependent variable: ROA	Dependent variable: ROE	Dependent variable: TobinQ
age	0.003	0.001	−0.076**
	(0.003)	(0.008)	(0.034)
size	−0.001	−0.004	−0.195***
	(0.002)	(0.004)	(0.021)
bsize	0.004***	0.008***	0.000
	(0.001)	(0.003)	(0.013)
bsizeind	−0.035***	−0.118***	−0.082
	(0.010)	(0.028)	(0.105)
bdivers	0.107***	0.211**	1.270***
	(0.030)	(0.099)	(0.301)
ceodual	0.020**	0.015	0.249
	(0.008)	(0.022)	(0.160)
owninsid	0.082***	0.125***	0.913***
	(0.015)	(0.047)	(0.264)
owninst	0.056***	0.118***	0.663***
	(0.008)	(0.025)	(0.099)
ownfor	−0.004	0.063	0.186
	(0.014)	(0.049)	(0.171)
leverage	−0.144***	−0.266***	−1.551***
	(0.013)	(0.065)	(0.119)
liquidity	0.004***	0.001	0.009
	(0.001)	(0.003)	(0.015)
growth	0.051***	0.159***	0.148
	(0.017)	(0.050)	(0.099)
VOICC	−0.011**	−0.038**	−0.459***
	(0.005)	(0.015)	(0.056)
POLSTB	0.025***	0.071***	0.191***
	(0.006)	(0.025)	(0.065)
GOVEFF	−0.010	−0.048	0.275*
	(0.014)	(0.036)	(0.157)
REGQLT	0.024*	0.026	−0.451***
	(0.013)	(0.042)	(0.140)
RULAW	−0.023	−0.070	0.064
	(0.014)	(0.049)	(0.154)
CNTRCOR	−0.029*	−0.040	−0.220
	(0.015)	(0.036)	(0.139)
_cons	0.050*	0.161**	3.670***
	(0.027)	(0.070)	(0.366)
adj. R^2	0.234	0.112	0.260
N	1518	1503	1417

Notes. Standard errors in parentheses. Dependent variables are the performance measures ROA, ROE and TOBINQ. Independent variables are the firm-specific characteristics. Control variables include the Kaufmann measures of voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption. An OLS model is used. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5.3. Impact of the social structure environment

The social environment of a country can be instrumental in determining the effectiveness of corporate governance and ownership structure in shaping firm performance. Coffee (2001) argued that corporate behavior might be determined by social norms rather than legal rules. Along similar lines, Li and Filer (2007) documented that different blends of formal and informal rules may cause foreign investors to choose different investment policies (i.e. portfolio vs. direct investment) thereby affecting domestic ownership structures. Judge et al. (2008) show that national corporate governance practices are perceived to be more legitimate in societies that adhere to stronger law-and-order rules, and in cultures placing stronger emphasis on global ***competitiveness*** and less tolerance of corruption. Guiso et al. (2008, 2009) highlight the positive impact of social trust on household stock market participation.

Further, Alesina et al. (1999, 2003) argue that heterogeneity (fractionalization) in society is an important determinant of political stability, quality of institutions, and economic policy effectiveness. Annet (2001) argues that greater social heterogeneity causes social conflict that leads to political instability, which in turn affects business outcomes. Colli and Colpan (2016) argue that heterogeneous business groups in a society exhibit complex relationships and co-evolutionary processes that affect corporate governance attributes, internal corporate organization and performance outcomes. Boytsun et al. (2011) argue that communities exhibiting stronger social cohesion are associated with less stringent corporate governance practices.

In order to check for these conjectures, Equation (1) is expanded to include regressors capturing the impact of a country's social conditions and in particular the degree of social fragmentation (heterogeneity). Table 9 presents the results of the benchmark regression model after controlling for a country's ethnic heterogeneity (fractionalization) (FRCETHN), linguistic heterogeneity (FRCLNG), religious heterogeneity (FRCRLG) and family ties (FAMTIES) in society.

Table 9
Impact of the social environment.

	Dependent variable: ROA	Dependent variable: ROE	Dependent variable: TobinQ
age	0.004	0.002	−0.045
	(0.003)	(0.009)	(0.033)
size	0.000	−0.002	−0.173***
	(0.002)	(0.004)	(0.021)
bsize	0.004***	0.010***	0.016
	(0.001)	(0.003)	(0.012)
bsizeind	−0.024***	−0.097***	0.031
	(0.009)	(0.028)	(0.103)
bdivers	0.088***	0.104	0.422
	(0.029)	(0.100)	(0.273)
ceodual	0.020**	0.007	0.090
	(0.008)	(0.025)	(0.159)
owninsid	0.085***	0.134***	1.022***
	(0.016)	(0.048)	(0.274)
owninst	0.049***	0.093***	0.469***
	(0.008)	(0.021)	(0.094)
ownfor	−0.000	0.052	0.073
	(0.014)	(0.049)	(0.158)
leverage	−0.146***	−0.268***	−1.541***
	(0.013)	(0.067)	(0.123)
liquidity	0.004***	0.001	0.011
	(0.001)	(0.003)	(0.015)
growth	0.051***	0.159***	0.092
	(0.017)	(0.048)	(0.089)
fraethn	0.003***	0.007***	0.031***
	(0.000)	(0.002)	(0.006)
fralng	−0.334***	−0.885***	−2.401***
	(0.057)	(0.228)	(0.753)
frarlg	0.001	0.002	−0.007
	(0.001)	(0.002)	(0.007)
famties	−0.076	−0.147	−0.993*
	(0.060)	(0.151)	(0.519)
_cons	0.201***	0.585***	4.792***
	(0.058)	(0.187)	(0.603)
adj. R^2	0.235	0.110	0.245
N	1518	1503	1417

Notes. Standard errors in parentheses. Dependent variables are the performance measures ROA, ROE and TOBINQ. Independent variables are the firm-specific characteristics. Control variables include measures of ethnic, linguistic and religious fractionalization in society as well as the strength of family ties. An OLS model is used. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

The results show that ethnic fragmentation as a measure of social heterogeneity is significant predictor with respect to all measures of performance, whilst high linguistic fragmentation is strongly associated with lower performance. Religious fragmentation is insignificant predictors with respect to all measures of performance. The results show a remarkable difference. Family ties has a negative significant with only Tobin's Q. Turning to the governance characteristics, insider and institutional owners are significant predictors with respect to all measures of performance while, the size and composition of the board are significant predictors with ROA and ROE. Moreover, board diversity and the CEO duality dummy are significant only with ROA. Again, the coefficients of the firm-level variables are considerably larger when Tobin's Q is considered relative to ROA. In all cases, the firm levels of leverage remain significant predictors. The results show that accounting-based measure of ROA is more sensitive to board structure relative to the market-based measure of Tobin's Q. Moreover, the structure of ownership is an important predictor of all accounting and market based performance. It seems that regulatory governance institutions in emerging markets are significant predictors of firm performance and affect the role of corporate governance. However, their impact may differ substantially relative to that in developed countries… Social fractionalization emerges as a strongly significant predictor of market-based firm performance.

5.4. Impact of the religious environment

Religion affects all human behavior and decision-making in complex ways. Taking a social perspective, La Porta et al. (1997) argue that the hierarchical social norms associated with different religions affect perceptions of democracy, social equality and fairness thereby affecting financial decisions and the nature of financial contracting. Samanta (2011) and North et al. (2013) view religion as a cultural trait that affects fundamental individual behavior. Religious persons are often considered as less worried about economic well-being, self-interest serving, and egalitarian policy. They argued that Islam prohibits some capitalistic ideas, such as interest on credit, which may dissuade firms' investment by reducing the supply of credit in the economy. Thus, countries with different religious persuasions may exhibit differences in the choice of corporate financing structures. Further, most religions

encourage people to be ethical, honest and hard-working, thereby exerting a positive effect on work performance and the whole economy. As a result, countries with a large majority of the population faithfully adhering to one or another religion would be expected to exhibit stronger ethical behavior, including corporate affairs. This is because religious homogeneity tends to amplify community homogeneity thereby enhancing risk-sharing practices. Close community ties are associated with lower social conflicts, as community members tend to help each other and look out for one another. This can facilitate effective financial contracting and minimize corporate conflicts of interest. Stulz and Williamson (2003) documented that the religious composition of a country's population predicts the extent of investor protection: i.e. Catholic countries have significantly weaker creditor rights than Protestant countries.

Hong et al. (2004) and Brown et al. (2008) documented a positive impact of social interaction and church attendance on the household participation in the capital market, and highlighted the role of religiosity in individual behavior and decision-making. Christelis et al. (2008) stressed the positive role of cognitive abilities and biases in household finance after controlling for religious participation. Guiso et al. (2008) and Georgarakos and Pasini (2009) highlighted the significant effects of social and personalized trust on financing decisions. Renneboog and Spaenjers (2012) found that financial behavior of religious households in the Netherlands differs from that of non-religious ones. Religious persons are shown to value thrift more, are more risk-averse, are more trustful of other people and the society, have a weaker belief in the value of control (implying that they believe that their life outcomes are not entirely determined by their own actions), and see a stronger cause for bequest (care more about children inheritance) than non-religious people. Further, with respect to Islam, religion has affected not only individual and social behavior but also the development of institutions and legal systems. Kuran (2005) argued that financial reforms in the Middle East during the 19th century included the endorsement of interest, the introduction of banking regulations and the establishment of secular courts. However, subsequent social strict adherence to Islamic law fundamentals regarding commercial partnerships, inheritance, waqf establishments, along with restrictions on the legal personhood, both resulted in a retardation of the evolutionary path required to generate financial modernization through indigenous forces.

In order to test these conjectures, Eq. (1) includes measures of the proportion of population that adheres to religious beliefs as well as weather it practices them (religiosity). Table 10 presents the results of the baseline regression model after controlling for the impact of religiosity (RELIGIOSITY), the religious composition of a country's population (CHRIST. MUSLIM, HIND, BUDD, JEWS, UNAFF and FOLK) and, given the predominantly Muslim populations in the MENA region, the different dogmas within the Islamic religious doctrine (SUNI, SHIA, OTHMUSL). Religiosity measures the degree of religious secularization of society, of religious commitment and of the integration between religion and politics. Information on religiosity draws on the World Value Surveys.

The results show stark differences. First, when the religious composition of the population is considered, then with respect to the accounting measure ROA and ROE, religiosity and religious diversity are not significant predictors of firm performance, except for the small minority Jewish and Buddhist religions. On the other hand, with respect to the market-based measure Tobin's Q, religiosity and religious diversity as well as all different religions turn out to be significant predictors of firm performance. It appears that different economic actors adhering to different religions within a country exhibit different market behavior that affects the Tobin's Q but the ROA and ROE measures of performance. Second, when the religious composition of the Muslim population is considered more specifically, the results are different. With respect to the accounting measure ROA and ROE, religiosity and religious diversity are significant predictors but with respect to the Tobin's Q, they are not. An expected exception is the Sunni dogma, given that Sunni Muslims predominantly populate the sample MENA countries. Other Muslim persuasions also turn out to be significant predictors of both measures of performance, but they are rather small minorities. Moreover, the significance of corporate governance and ownership structures exhibit almost the same pattern in the two panels of results. Board size and board independence and growth as well are significant predictors of ROA and ROE while, size of the firm is significant predictors of Tobin's Q.

It appears that religion in general matters for understanding firm performance when the latter takes into consideration market influence, most likely due to the different habits and values of involved actors. This is in line with the findings of Renneboog and Spaenjers (2012). Instead, when accounting measures of performance are used religion turns out to be less important. These are interesting new findings.

5.5. Impact of financial regulation and corporate governance enforcement

Table 11 presents the results of the baseline regression model after controlling for the impact of corporate transparency (TRANSP); director liability (DLIABIL); shareholders rights (SHRIGHT) and investor protection (INVPROT). The results show blunt differences.Corporate transparency as a measure of financial regulations has a negative significant effect on ROA and ROE while, shareholders rights is a significant predictor of only Tobin's Q. Moreover, investor protection has a negative significant on the all measures of performance. The negative effect of corporate transparency and investor protection on the firm performance is an evidence that developing and emerging markets do not follow the financial regulations settled by the country. This lead to the outflow of the foreign investments from these emerging and developing countries. Turning to the governance characteristics, board diversity, insiders and institutional owners are significant predictors of all measures of performance while, board independence is significant only with the ROA and ROE. For corporate governance enforcement, Equation (1) is expanded to include regressors capturing the impact of corporate governance enforcement. Table 12 shows that accounting-based measures ROA and ROE are less sensitive to the variables of corporate governance enforcement relative to the market-based measure of Tobin's Q. For the board structure, it is observes that the structure of the board including board size, board independence and board diversity are more important predictors of firm performance when the latter is measured by the ROA and ROE. Finally, the firm levels of leverage remain a significant predictor of all firm performance measures as shown in Table 12.

Table 10
Impact of the religious environment.

		Panel A: Different Religious		Panel B: Different Muslim Dogmas		
	Dependent variable: ROA	Dependent variable: ROE	Dependent variable: TobinQ	Dependent variable: ROA	Dependent variable: ROE	Dependent variable: TobinQ
age	0.002	−0.008	−0.058	0.001	−0.008	−0.100***
	(0.003)	(0.009)	(0.035)	(0.003)	(0.009)	(0.035)
size	0.002	0.003	−0.165***	0.001	0.002	−0.160***
	(0.002)	(0.005)	(0.022)	(0.002)	(0.004)	(0.021)
bsize	0.004***	0.006**	−0.010	0.003***	0.005*	−0.003
	(0.001)	(0.003)	(0.013)	(0.001)	(0.003)	(0.012)
bsizeind	−0.039***	−0.135***	−0.055	−0.046***	−0.154***	0.014
	(0.010)	(0.032)	(0.111)	(0.010)	(0.034)	(0.110)
bdivers	0.088***	0.099	1.036***	0.083***	0.096	0.481*
	(0.032)	(0.122)	(0.301)	(0.027)	(0.096)	(0.268)
ceodual	0.027***	0.019	0.285*	0.026***	0.025	0.331**
	(0.008)	(0.024)	(0.156)	(0.009)	(0.024)	(0.158)
owninsid	0.081***	0.130***	0.915***	0.080***	0.122**	0.904***
	(0.016)	(0.049)	(0.269)	(0.016)	(0.047)	(0.277)
owninst	0.042***	0.078***	0.487***	0.043***	0.080***	0.522***
	(0.008)	(0.022)	(0.094)	(0.008)	(0.021)	(0.093)
ownfor	−0.004	0.015	0.203	−0.011	0.021	0.031
	(0.015)	(0.049)	(0.180)	(0.014)	(0.044)	(0.169)
leverage	−0.152***	−0.286***	−1.742***	−0.153***	−0.289***	−1.760***
	(0.014)	(0.070)	(0.123)	(0.014)	(0.070)	(0.128)
liquidity	0.004***	0.001	0.001	0.004***	0.001	0.007
	(0.001)	(0.003)	(0.015)	(0.001)	(0.003)	(0.015)
growth	0.054***	0.161***	0.130	0.056***	0.168***	0.176*
	(0.018)	(0.050)	(0.091)	(0.018)	(0.051)	(0.102)
religiosity	−0.001	0.010	0.065***	0.003*	0.010*	0.013
	(0.002)	(0.008)	(0.020)	(0.002)	(0.005)	(0.012)
rdi	0.006	0.134	−0.800***	−0.010***	−0.026***	−0.020
	(0.013)	(0.106)	(0.147)	(0.002)	(0.009)	(0.026)
christian	−5.479*	−12.648	185.001***			
	(3.026)	(8.548)	(30.351)			
muslim	−5.294*	−8.457	176.848***			
	(3.022)	(8.022)	(30.032)			
hindu	−4.313	−9.367	180.069***			
	(2.848)	(7.557)	(28.315)			
buddhist	−9.655**	−10.133	237.028***			
	(3.841)	(12.812)	(40.264)			
jewish	0.000	0.000	0.000			
	(.)	(.)	(.)			
other1	−6.952*	−12.220	248.258***			
	(3.758)	(11.245)	(38.919)			
sunni				0.000	−0.220***	0.000
				(.)	(0.073)	(.)
shia				0.106***	0.000	−0.989***
				(0.029)	(.)	(0.273)
othermusl				0.060***	−0.075	−0.474***
				(0.016)	(0.066)	(0.174)
_cons	5.466*	7.757	−178.884***	−0.190	−0.519	2.855**
	(3.140)	(8.375)	(31.221)	(0.144)	(0.471)	(1.137)
adj. R^2	0.232	0.116	0.269	0.231	0.113	0.247
N	1518	1503	1417	1518	1503	1417

Notes. Standard errors in parentheses. Dependent variables are the performance measures ROA, ROE and TOBINQ. Independent variables are the firm-specific characteristics. Control variables include measures of the population proportion of the different religions as well as of the different Muslim persuasions. An OLS model is used. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6. Implications for practice

This research reported results of the empirical study aimed at highlighting the specific implications that would impact regulators, managers and stakeholders.

6.1. Implications for regulators and managers

This paper also has implications for regulators. Emerging economies, as MENA region countries, are likely to require more effective and stronger corporate governance mechanisms and ownership characteristics than their western developed counterparts if

Table 11
Impact of financial regulation.

	Dependent variable: ROA	Dependent variable: ROE	Dependent variable: TobinQ
age	0.004	−0.000	−0.091***
	(0.003)	(0.008)	(0.035)
size	−0.000	−0.002	−0.182***
	(0.002)	(0.004)	(0.020)
bsize	0.003***	0.005	−0.006
	(0.001)	(0.003)	(0.013)
bsizeind	−0.044***	−0.154***	−0.060
	(0.010)	(0.033)	(0.102)
bdivers	0.114***	0.240***	1.127***
	(0.029)	(0.078)	(0.293)
ceodual	0.023***	0.022	0.143
	(0.008)	(0.023)	(0.152)
owninsid	0.082***	0.129***	0.945***
	(0.015)	(0.045)	(0.261)
owninst	0.050***	0.102***	0.655***
	(0.008)	(0.025)	(0.101)
ownfor	0.000	0.055	0.016
	(0.014)	(0.044)	(0.170)
leverage	−0.145***	−0.269***	−1.531***
	(0.013)	(0.063)	(0.115)
liquidity	0.004***	0.000	0.006
	(0.001)	(0.003)	(0.015)
growth	0.053***	0.156***	0.115
	(0.017)	(0.047)	(0.092)
Transp	−0.007***	−0.017***	−0.016
	(0.002)	(0.006)	(0.018)
Dliabil	−0.002	−0.014**	−0.027*
	(0.002)	(0.006)	(0.014)
Shright	0.002	−0.001	0.082***
	(0.002)	(0.010)	(0.026)
Invprot	−0.002**	−0.008**	−0.073***
	(0.001)	(0.004)	(0.008)
_cons	0.106***	0.436***	4.461***
	(0.034)	(0.150)	(0.440)
adj. R^2	0.232	0.121	0.275
N	1518	1503	1417

Standard errors in parentheses. Dependent variables are the performance measures ROA, ROE and TOBINQ. Independent variables are the firm-specific characteristics. Control variables include measures of the extent of corporate transparency, the extent of director liability, the extent of shareholders rights and the extent of investor protection. An OLS model is used. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

they are to become equal, full, and active participants in the global financial marketplace. Effective corporate governance as well as the institutional and quality of regulatory governance have impact the firm's performance. A better understanding of these factors would permit the issuance of regulations that help to enhance firms and financial markets' performance in economic developing countries. Furthermore, regularity authorities in the MENA countries should consider the unique features of religion and other social heterogeneity conditions when introducing control mechanisms.

The predictive power of corporate governance and ownership structures appears to be mitigated by the controlling impact of various country-level economic and non-economic factors as well as between the two performance measures. The managers, specially managers of multinationals (MNEs), should be interested in these results because the awareness of corporate governance and ownership on a firm level and other country level factors will affect the pricing of securities and the composition of international portfolios, which would facilitate investors' decision-making process.

6.2. Implications for stakeholders

Investors should be aware of the impact of firm–specific corporate governance and ownership characteristics on firm performance. Furthermore, the differences of economic and non-economic social factors among countries will likely affect the firm performance. This will be reflected in investment decision – making process of investors and resulting in more efficient investments. Shareholders in the MENA region countries give the impression to be mostly regarded as financiers with only short-term transitory interest in companies' activities, rather than owners who are financing and investing for the long term. Possibly this is due to the detail that stockholders are not effectively and professionally physically exercise their ownership rights and corporate governance, for example, assigning directors and approving their compensation, attending at AGM meetings and keeping themselves informed of the affairs of the country level factors and performance of the company. Furthermore, when multinational firms enter emerging countries and invest in domestic companies they should focus on these companies within their core business so they are able to transfer

Table 12
Impact of corporate governance enforcement.

	Dependent variable: ROA	Dependent variable: ROE	Dependent variable: TobinQ
age	0.004	0.005	−0.081**
	(0.004)	(0.008)	(0.039)
size	−0.001	−0.004	−0.180***
	(0.002)	(0.004)	(0.021)
bsize	0.004***	0.009***	0.010
	(0.001)	(0.003)	(0.013)
bsizeind	−0.035***	−0.120***	−0.117
	(0.010)	(0.037)	(0.115)
bdivers	0.110***	0.198**	0.458
	(0.029)	(0.097)	(0.299)
ceodual	0.027***	0.034	0.128
	(0.008)	(0.022)	(0.172)
owninsid	0.079***	0.115**	0.936***
	(0.016)	(0.050)	(0.285)
owninst	0.054***	0.104***	0.555***
	(0.008)	(0.023)	(0.098)
ownfor	0.012	0.103**	0.089
	(0.014)	(0.047)	(0.170)
leverage	−0.142***	−0.269***	−1.512***
	(0.014)	(0.070)	(0.129)
liquidity	0.005***	0.001	0.018
	(0.002)	(0.003)	(0.016)
growth	0.052***	0.162***	0.118
	(0.017)	(0.051)	(0.102)
Exchown	−0.022***	−0.066**	−0.213***
	(0.004)	(0.027)	(0.053)
Regyear	−0.020***	−0.061***	0.010
	(0.005)	(0.020)	(0.064)
Codyear	0.023***	0.067***	0.339***
	(0.006)	(0.022)	(0.069)
Comply	−0.000	0.001	−0.020***
	(0.001)	(0.003)	(0.006)
_cons	0.031	0.112	3.502***
	(0.031)	(0.114)	(0.411)
adj. R^2	0.236	0.117	0.250
N	1420	1405	1336

Standard errors in parentheses. Dependent variables are the performance measures ROA, ROE and TOBINQ. Independent variables are the firm-specific characteristics. Control variables include measures of the years of stock exchange establishment (log), the years of the securities regulator establishment (log), the years of Corporate governance code establishment (log) and the existence of a comply or explain clause. An OLS model is used. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

knowledge & technology, hence improving operational performance.

7. Conclusions

Based on a consistent data set drawn from firms' audited financial reports, the paper explored the predictive power of corporate governance and ownership and other firm-specific characteristics in explaining firm performance in the MENA region countries. In most models, corporate governance including board compositions and ownership structures appear to be significant predictors of firm performance. However, the impact on the accounting and market based measures of performance is different. Among, the corporate governance mechanisms, the size of the board, insider and institutional ownership are robust predictors of firm performance in almost all models considered. Among, the firm-specific characteristics, the financial variables of leverage and liquidity are also shown to be robust predictors of firm performance.

The predictive power of corporate governance and ownership structures appears to be mitigated by the controlling impact of various country-level economic and non-economic factors both in terms of direction and magnitude as well as between the three performance measures. The levels of income inequality, economic and financial development appear to be significant conditioners of the corporate governance and firm characteristics relation when the accounting-based measures of performance is considered. On the other hand, inflation and human development appear to be significant conditioners of the corporate governance and firm characteristics relation when the market-based measure of performance is considered. The mitigating impact of regulatory governance institutions is different for each one of them with respect to the performance measure considered. For example, the control of corruption is a significant mitigator when ROA as an accounting-based measure of performance is considered. The same turns out to be true with respect to the measures of social fractionalization, religiosity and religion.

Overall institutions matter, but not in the same way. It seems that institutions exert a stronger mitigating influence on the relation between corporate governance and firm performance when a market-based measure of performance is considered. On the other hand,

some institutions seems to be strong predictors of this relationship only when the accounting-based measure of performance is considered.

These are interesting new prima facie findings, which document that the relationship between corporate governance and firm performance in the MENA region countries differs in accordance with the performance measure used. Most importantly, these new findings document a significant role for social and governance institutions, whose mitigating impact however varies in accordance with the performance measure used. This prima facie evidence shows that the interaction between financial market conditions and firm performance is mitigated in often-predictable way by national social factors, thus providing a more solid basis for devising proper development policy. The one-size-fits-all approach is not a fruitful one. The analysis needs extension to include the impact of further economic and non-economic factors at both the firm and the country level.

Appendix A

Variable name	Description and source
ROA	Return on Assets (ORBIS Database)
ROE	Return on Assets (ORBIS Database)
TOBINQ	Tobin's Q (ORBIS Database)
BSIZE	Size of a firm's board of directors (number of members)
BSIZEINDP	Ratio of the number of non-executive members of the board over the total board members
BDIVERS	Number of female on board / total number of board
CEODUAL	Dummy variable taking the value of 1 if the CEO and the Chairman of the Board are different persons
OWNINSID	Percent of a firm's voting shares outstanding owned by corporate insiders
OWNINST	Percent of a firm's voting shares outstanding owned by institutions
OWNFOR	Percent of a firm's voting shares outstanding owned by foreign shareholders
LEVERAGE	Ratio of long-term liabilities to total assets, based on firms' financial statement information
LIQUIDITY	Ratio of current assets to current liabilities, based on firms' financial statement information
GROWTH	Annual percent increase in total assets, based on firms' financial statement information
AGE	Logarithm of a firm's age since establishment (in years)
SIZE	Logarithm of a firm's size in total assets (USD)
GDPCAP	Logarithm of GDP per capita (current USD), from the World Bank Development Indicators. It is generally considered a measure of a country's level of economic development.
FINDPLG	Logarithm of domestic credit to the private sector (% GDP), from the World Bank Development Indicators. It is generally considered a measure of a country's level of financial development.
GINI	Gini coefficient, from the World Bank Development Indicators. It is a measure of a country's income distribution and it is generally considered an indicator of income inequality.
HDI	Index ranging from 0 to 1, with higher values corresponding to higher human development, form the UNDP indicators. It is a summary measure of average achievement in key dimensions of human development: a long and healthy life, knowledge and decent standard of living.
VOICC	Index ranging from -2.5 to 2.5, with higher values corresponding to the extent of democratic freedom of expression, from the World Bank Worldwide Governance Indicators. Voice and accountability captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
POLSTB	Index ranging from -2.5 to 2.5, with higher values corresponding to higher political stability, from the World Bank Worldwide Governance Indicators. It reflects perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism.
GOVEFF	Index ranging from -2.5 to 2.5, with higher values corresponding to better government effectiveness, from the World Bank Worldwide Governance Indicators. It reflects perceptions on the quality of public services, the quality of the civil service and its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's
REGQLT	Index ranging from -2.5 to 2.5, with higher values corresponding to better quality of regulation, from the World Bank Worldwide Governance Indicators. It reflects perceptions regarding the ability of the government to formulate and implement sound policies and regulations that permit and promote private SCTR development.
RULAW	Index ranging from -2.5 to 2.5, with higher values corresponding to better rule of law, from the World Bank Worldwide Governance Indicators. It reflects the degree to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
CNTRCOR	Index ranging from -2.5 to 2.5, with higher values corresponding to better control of corruption, from the World Bank Worldwide Governance Indicators. It reflects the extent to which elites and private interests exercise public power for private grain, including both petty and grand forms of corruption, as well as 'capture' of the state. It also measures the strength and effectiveness of a country's policy and institutional framework to prevent and combat corruption.
FRCETHN	Index ranging from 0 to 1, from Alesina at al. (2003). It reflects the likelihood that two randomly selected people from a given country will not share the same ethnic origin (ethnic heterogeneity). A higher index reflects a lower probability of common sharing.
FRCLNG	Index ranging from 0 to 1, from Alesina at al. (2003). It reflects the likelihood that two randomly selected people from a given country will not share the same language (linguistic heterogeneity). A higher index reflects a lower probability of common sharing.
FRCRLG	Index ranging from 0 to 1, from Alesina at al. (2003). It reflects the likelihood that two randomly selected people from a given country will not share the same religion (religious heterogeneity). A higher index reflects a lower probability of common sharing.
FAMTIES	Index of the strength of family ties ranging from -1 to +1 from Alesina and Giuliano (2010) based on World Value Surveys. Negative values indicate weak family ties and positive values indicate strong family ties. It reflects beliefs on the importance of the family in an individual's life, including the duties and responsibilities of parents and children and the love and respect for one's own parents.
RELIGIOSITY	Index of religiosity of the people in a country, from the Gallup 2012 poll. It is the response to the question: "Is religion an important part of your daily life?" The ranking is based on the percentage of each country's adult population that answers in the affirmative.
RDI	Index of religious diversity in a country, from the Pew Foundation. It is It is based on the use of the Herfindahl-Hirschman methodology for measuring the degree of religious concentration in a country

CHRIST	Percent of total population that is Christian, from the Association of Religion Data Archives. The data originates in the United Nations Human Development Reports (HDR) and the Central Intelligence Agency (CIA) World Fact book.
MUSLIM	Percent of total population that is Muslim, from the Association of Religion Data Archives
HIND	Percent of total population that is Hindu, from the Association of Religion Data Archives
BUDD	Percent of total population that is Buddhist, from the Association of Religion Data Archives
JEWS	Percent of total population that is Jewish, from the Association of Religion Data Archives
OTHER	Percent of total population that is follows other religions or are religiously unaffiliated, from the Association of Religion Data Archives
SUNI	Percent of the Muslim population that is Sunni, from the Association of Religion Data Archives
SHIA	Percent of the Muslim population that is Shi'a, from the Association of Religion Data Archives
TRANSP	Index ranging from 0 to 9, higher values of which indicate higher corporate transparency, from the World Bank's Doing Business Report.
DLIABIL	Index ranging from 0 to 10, higher values of which indicate higher director liability, from the World Bank's Doing Business Report.
SHRIGHT	Index ranging from 0 to 10, higher values of which indicate higher shareholder rights, from the World Bank's Doing Business Report.
INVPROT	Index ranging from 0 to 10, higher values of which indicate higher investor protection, from the World Bank's Doing Business Report.
EXCHOWN	Ordinal variable that captures the ownership of the stock exchange (1 = state-owned, 2 = mutualized, 3 = public), from the OECD (Amico, 2014).
REGYEAR	Logarithm of the years of establishment of the securities regulator, from the OECD (Amico, 2014).
CODYEAR	Logarithm of the years of establishment of the corporate governance code, from the OECD (Amico, 2014).
COMPLY	Binary variable that takes the value of 1 if the code of corporate governance contains a mandatory "comply or explain" clause, from the OECD (Amico, 2014).

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