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DISCUSSION PAPER SERIES

IZA DP No. 14207

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ABSTRACT

Does the Legal Form Matter for Firm Performance in the MENA Region?

This paper attempts to study the relationship between firm legal form and firm performance in the Middle East and North Africa Region (MENA) using the World Bank Enterprise Survey (WBES) database. Our analysis shows that open shareholding, closed shareholding, partnership, and limited partnership companies demonstrate an advantage in terms of annual sales and annual productivity growth rates over sole proprietorship firms, and that medium-sized and large-sized firms also demonstrate an advantage over small ones. Our analysis also shows that foreign ownership, exporting activities, the usage of the web in communication with clients and suppliers, and the presence of full-time workers positively affect firm performance. These findings are robust when running the analysis for firms with female participation in ownership. This paper provides directions for strategists targeting at improving the performance of firms.

JEL Classification: C10, G30, L25

Keywords: legal form, firm performance, MENA region

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1. Introduction

Firm performance is an important factor in determining a nation's economic growth. Scholars are continuously concerned to understand the innumerable components affecting firm performance. In this regard, corporate governance is believed to influence firms' performance and subsequently the nation's economic growth (Škare and Hasić, 2016). On a similar matter, Harhoff et al. (1998) examine the relationship between the firm's legal form, its survival rate, and its employment growth rate. They conclude that firms with limited liability experience higher growth and insolvency rates in comparison to firms with full liability. They also find that tax treatment, liability status and modes of exit from the market play an important role in the growth of a company. Another study by Maher and Andersson (2002) discuss the effect of corporate governance on research and development (R&D) and innovation, which in turn affects economic growth. They argue that the increase in competition changes the nature of research from being simple and investigative to being more applied and visual. Furthermore, they show that these changes affect innovation and economic growth.

A major limitation in studying the factors affecting firms' performance is the lack of enough data on some of the commonly analyzed factors. In this context, Headd and Kirchhoff (2009) argue that the reason behind not having a good understanding of the effect of firm age on firms' performance is attributed to a scarcity in data covering firms' age. Another limitation is the lack of robust laws or theories on a number of different elements. For example, the effect of corruption on firms' performance is still widely debated; on one hand scholars argue in favor of practicing corruption by demonstrating its advantages on the firms' performance (e.g., Leff, 1964; Blagojević and Damijan, 2013) while others debate against corruption activities by showing that it negatively affects firms' performance (e.g., Fisman and Svensson, 2007; Gaviria, 2002).

With that being said, this paper builds on previous studies that tackle firm performance by focusing on the implications of legal forms on firm performance, while attempting to clarify more on the effect of the commonly studied performance factors on firms' performance. The latter is measured by firms' annual sales growth and annual productivity growth rates. We introduce five legal forms in the empirical analysis: sole proprietorship, open shareholding company, closed shareholding company, partnership, and limited partnership. We control for a set of explanatory variables that are commonly used in the literature. Specifically, the control variables include foreign ownership, firm age, the usage of the web to communicate with clients and/or suppliers, engaging in exporting activities, firm size, total permanent full-time workers, non-production worker, skilled production worker, Gross Domestic Product (GDP), percentage of firms with bank loans and/or line of credit and firms practicing informal sector.

The remaining of the paper investigates the related literature, defines the data and variables used throughout the empirical analysis, presents the empirical results, and offers concluding remarks. Our study reveals that open shareholding, closed shareholding, partnership, and limited partnership companies show an advantage with regards to annual sales and annual productivity growth rates over sole proprietorship firms, and that medium and large size firms also demonstrate an advantage over small ones. In addition, our analysis shows that foreign ownership, exporting activities, the usage of the web in communication with clients and suppliers, and the presence of full-time workers positively impact firm performance. We observe similar results when conducting the analysis for firms with female participation in ownership.

2. Related Literature

In this section, we review the related literature and discuss the implications of the explanatory variables for firm performance.

Legal Form

Legal form plays an important role in influencing firms' performance. Peter et al. (2017) assess the economic performance of agricultural firms in Slovakia with respect to two different legal forms, which are agricultural cooperatives and business companies. To measure the studied relationship, the authors resort to six economic indicators. These indicators are the following: proceeds from the sale of own products and services, added-value, subsidies granted, labor costs, management results before taxation, and share of profit-making enterprises (amount). They show that business companies, on average, perform better than agricultural cooperatives with respect to four out of the six chosen indicators (which are proceeds from the sale of own products and services, labor costs, management results before taxation, and share of profit-making enterprises). Furthermore, the authors discuss the reasons behind these disparities in performance between business companies and agricultural cooperatives. They argue that the advantage of business companies in terms of higher proceeds from sales can be attributed to better organizational flexibility that focuses on the production of more economically favorable outputs and that the advantage achieved in labor cost is explained by the efficient use of workers, consequently a lower total labor cost. On the other hand, they find that agricultural cooperatives still demonstrate an advantage over business companies as they receive more subsidies and show higher added-value. However, the difference in the subsidies indicator was not statically significant.

Another study investigates the differences in organizational performance between non-profit and for-profit sports organizations (Nowy et al., 2015). The authors estimate the performance from

four different dimensions: financial, product, customer and strategic. With respect to the financial performance measure, they find that for-profit organizations perform better than non-profit ones. Thiel and Mayer (2009) argue that voluntary non-profit sports clubs are not considered economic enterprises and their management is not concerned with maximizing profits. This implies that the financial performance of non-profit organizations should not be taken as the only metric for their success. In terms of the quality aspects, a strategic dimension, Nowy et al. (2015) show that for-profit organizations outperform non-profit ones, as they focus more on the quality of the provided programs and employ people with higher qualifications. Regarding the customer dimension, they show that for-profit firms serve older people, families, and people with disabilities in a better way compared to non-profit firms, who in turn perform better in serving individuals with low incomes and immigrants. Lastly, Nowy et al. (2015) show that there are no major differences between the two organizations with regard to the product dimension.

Within the same context, Hernandez and Dewick (2003) study the historical changes of the legal form in Colombia's manufacturing industry and its effect on innovation and productivity. They find that an increase in the private legal structure, demonstrated by the acquisition of firms with a public setting by large companies. Furthermore, the authors argue that choosing a private limited liability legal form is suboptimal, as it will prohibit entrepreneurs who work inside big firms from having access to ownership.

Another study by Tchakoute-Tchuigoua (2010) analyzes the effect of different legal statuses on the performance of microfinance institutions. The author compares the financial performance of 202 microfinance institutions between the years 2001 and 2006 and concludes that when using portfolio quality as a performance indicator, private corporations perform in a better way than non-

governmental organizations (NGO). In addition, they show that microfinance institutions that operate for-profits are more socially proficient than non-for-profit ones.

Foreign Ownership

Regarding the effect of foreign ownership on firm performance, Gomes and Ramaswamy (1999) analyze the relationship between multi-nationality and firm performance (measured by a financial indicator, namely Return on Assets). The authors conclude that moderate levels of multi-nationality will positively affect the firms' performance, enhancing the return on assets and reducing the operational cost per unit of sales. However, this positive correlation only holds up to a level of internalization where beyond that cost starts to increase (Gomes and Ramaswamy, 1999). Similar results are observed in the analysis of Moez et al. (2015), who study the effect of foreign ownership on firms' profitability and concludes that foreign ownership also positively affects firms' profitability by enhancing the return on assets and return on equity. Another study by Douma et al. (2006) confirms this positive relationship between foreign ownership and performance. The authors relate this effect to the fact that foreign corporations are characterized by larger shareholdings, higher commitment, and longer-term involvement.

Firm Age and Size

Firm age and size are continuously studied together in the literature with a wide stream of research examining their effect on firms' performance. On this matter, Evans (1987) studies firms' age, size, and growth relationship using data from the Small Business Database covering a sample of firms in manufacturing industries. He concludes that firm age negatively affects firms' growth rate as well as the probability of failure. He also shows that firm size negatively affects growth as well but in a diminishing rate. This result contradicts the law of Robert Gibrat - often referred to as the rule of

proportionate growth - which argues that firm growth is independent of its size; this implies that both small and large-sized firms should experience similar average proportionate rates of growth (Samuels, 1965). In agreement with the previous study, Yasuda (2005) analyzes data on 14,000 Japanese manufacturing firms and show that firm age and firm size have a negative effect on firms' growth. We conclude that there seems to be a disagreement/gap in the literature about the effect of firm size on growth.

On a different measure, Majumdar (1997) studies the effect of firms' age and size on performance using data on 1020 Indian firms. The author concludes that firm size positively affects productivity and negatively affects profitability. In addition, he shows that firm age positively affects profitability and negatively affects productivity. These results are specific to India, where larger firms are observed to be more profitable and older firms are observed to be more productive. However, this result cannot be generalized as this study focused only on firms in India. This contradiction between different studies that analyze the effect of firm age on firms' performance is considered to be a normal result stemming from the fact that researchers lack enough data on firms' age (Headd and Kirchhoff, 2009), which hinders having a clear understanding of how firm age affects firms' performance.

Corruption

The findings on corruption and its effect on firm performance and economic growth remain a strongly controversial topic. A wide variety of research supports the negative effect of corruption on performance and economic growth. Fisman and Svensson (2007) analyze the effect of bribe payments by Ugandan firms and taxes on firm growth. The authors conclude that an increase by one percentage point in bribery rate leads to a decrease in firm growth by three percentage points, and that this effect is almost three times stronger than the effect of taxation on firms' growth. On a similar

matter, Gaviria (2002) examines the effect of corruption and crime on firms' sales, investment and employment growth. The author shows that corruption and crime have a significantly negative impact on firms' ability to compete and that they are hardly likely to benefit from them.

Although the majority of the literature confirms that corruption negatively affects performance and growth, others seem to disagree. In that regard, Leff (1964) argues that corruption has several favorable effects. Among those, Leff (1964) argues that corruption lowers uncertainty and improves investment. The author claims that irrational governmental decisions, taken by frequently changeable personnel, lead to political uncertainty and crisis, which negatively affect the level of investment. Accordingly, entrepreneurs can resort to corruption to counteract the bad effect of governmental control on their businesses and hence increase the rate of investment. Another study by Blagojević and Damijan (2013) examines the impact of ownership and corruption on performance and shows that foreign-owned firms benefit from engaging in corrupt activities, such as informal payments, unlike state-owned firms, which encounter a decrease in productivity growth as they practice corrupt activities. The authors also show that the effect of bribery payments seems to enhance labor productivity in domestically owned firms and to negatively affect labor productivity in foreign and state-owned ones.

Access to Bank Loans

Unlike the literature on corruption, we find that the literature on the effect of access to finance on firm performance is conclusive and shows a positive association. Brown and Earle (2017) examine the effect of firms having access to finance on employment growth using data on all small business administration loans and lenders in the US. The results show that an increase in loans by one million dollars will lead to an increase in the number of jobs by 3 to 3.5; this effect is higher when credit requirements are less restrictive. Moreover, they find that this effect is higher for younger and bigger

firms. On a similar matter, Beck and Demirguc-Kunt (2006) study the effect of access to finance by small and medium-sized enterprises (SMEs) on their growth and conclude that having access to finance is the main constraint for SMEs' growth and that financial and legal institutions depict a significant impact in lessening these constraints. Beck and Demirguc-Kunt (2006) argue that innovative financing instruments may increase the access of SMEs to finance in places that lack well developed financial institutions. Another study by Brown et al. (2005) also confirms the positive impact of finance on growth. The authors investigate the different factors that affect - encouraging or discouraging - firms' growth and arrive at a strong and positive relationship between having access to external credit and firms' employment and sales growth.

Exporting Activities

After collecting data from five cities in the southeastern Anatolia region in Turkey on manufacturing firms, Altuntas et al. (2018) study the relationship of using advanced manufacturing technology (AMT) on innovation, export, and firm performance. The authors conclude close and positive relationships between the usage of AMT and innovation on one hand, and between export and firm performance on the other hand. Furthermore, they show that exporting facilitates the relationship of AMT and innovation with firm performance. Another study shows that exporting firms enjoy higher productivity and sales, pay higher wages and employ additional capital in the production process (Valdec and Zrnc, 2015). The authors also conclude that when firms start exporting, they experience higher growth because of having access to bigger markets.

Usage of Internet

The impact of the usage of internet by firms on their performance is frequently examined in the literature. Grimes and Stevens (2012) argue that firms with broadband access experience an increase

in productivity by 7 to 10% and that this result is robust throughout urban and rural areas. In line with this study, Tang et al. (2018) show that labor productivity is positively correlated with an increase in the percentage of employees who have mobile internet access. In addition, Bertschek and Niebel (2016) note that the adoption of the Internet of Things (IoT) is positively correlated with labor productivity. In contrast to the study by Grimes and Stevens (2012), an empirical study by Haller and Lyons (2015) find no statistical significance on the positive effect of the adoption of broadband on firms' productivity and growth rates.

Female Participation in Ownership

A seemingly growing research on the effect of female ownership/manager on firm performance shows significantly mixed results with respect to various performance indicators. Although Terjesen et al. (2016) show that firms with more female directors enjoy higher performance (measured by higher Tobin's Q), Rose (2007) finds that there is no significant link between firm performance (measured also by Tobin's Q) and female board representation. Rose (2007) related these results to the "old boy's club" where "unconventional" board members, including females, start adopting the standards of the traditional members, leading to the elimination or reduction of new possible features and gains originating from those members.

In terms of other performance indicators such as Return on Assets (ROA), several studies show that female board directorship and ROA are positively correlated (e.g., Bennouri et al., 2018; Terjesen, 2016) and that the ROA of firms' that are managed by a female CEO increase far more than those managed by a male one (Khan and Vieito, 2013). Similarly, Erhardt et al. (2003) examine the relationship between gender diversity at the level of the board of directors and organizational performance and concludes a positive correlation between the diversity of the board of directors and return on assets and return on investment.

3. Research Methodology

3.1. Data and Survey

This paper relies on the World Bank Enterprise Survey (WBES) database, which investigates observations on firms located in the MENA region over the years of 2006-2016. The motivation behind the usage of the WBES database is that it is a wide-ranging documentation of firm-level data on developing countries. In addition, it is a comprehensive survey that allows conducting cross-countries analysis. The database covers different topics related to firms such as obstacles facing the development of business, firm characteristics, export activities, workforce composition in addition to measures for the performance of firms.

3.2.Variables

Our dependent variable is firm performance. The latter is measured by the annual sales growth rate defined as the percentage change in real total sales of the current fiscal year relative to the previous fiscal year. We also use the annual labor productivity growth rate, defined as the percentage change in labor productivity between the current and the previous fiscal year. In other words, labor productivity is the ratio between real sales to total full-time employment.

The explanatory variables include first the legal form of the firm. We control for five types of legal status: 1) open shareholding company, 2) closed shareholding company, 3) sole proprietorship, 4) partnership, and 5) limited partnership. The legal form variables are expected to have a positive correlation with firm performance, which is revealed through a higher sales growth rate, leading to enhance the annual productivity growth.

Our regression also utilizes a group of control variables to establish a more comprehensive view of other firm related characteristics that influence firm performance. These controls are foreign

ownership, engaging in exporting activities, firm age, usage of the web by firms to communicate with clients/suppliers, firm size, firms practicing informal sector, total permanent full-time workers, non-production worker and skilled production worker, GDP and percentage of firms with bank loans/line of credit. Below is a brief explanation of each variable:

- Private foreign ownership – described as the percentage of firm ownership that is reserved by foreigners: companies or individuals. Private foreign ownership is anticipated to augment the firm's annual sales and productivity growth rates.
- Exporting practices – determined as a percentage of direct and indirect sales that are to be exported. Exporting practices are assumed to stimulate firms' annual sales and productivity growth rates.
- Firm age is expected to affect annual sales growth positively; however, this effect will not hold forever as at a certain age, we observe a turning point in the firm's annual sales growth were beyond that, the sales growth rate is expected to be negative. In that regard, Evans (1987) argues in a study done on 100 manufacturing industries that as firm age increases, the firm's growth decreases.
- Firms using the web to communicate with clients/suppliers exhibit a higher annual sales and productivity growth rate since the usage of web facilitate the diffusion to new markets, hence attracting new customers and enhancing sales. Businesses using the web can explore different suppliers, which can help to reduce the cost and hence improving productivity.
- Firm size (where we carry our regressions using the medium and large firm, setting small-sized firms as a reference group) – defined to be the total sum of life long full-time workers. We represented firm size through a binary variable that classifies firms into small size firms, where the number of full-time workers does not exceed 20, medium size, where the number

of full-time workers ranges from 20 to 99, and large size firms, where the firm has at least 100 full-time workers. When compared with the small-sized firms, medium, and large-sized firms are expected to boost both annual sales and productivity growth rates.

- Because we found a disagreement in the literature that studies the effect of corruption on firms' performance, we include a control variable for corruption, namely firms practicing informal sector, where we prove later in the paper that it negatively affects firm's performance, which is in agreement with the literature opposing corruption (e.g., Fisman and Svensson, 2007; Gaviria, 2002).
- Non-production workers and skilled production workers, defined to be a percentage of the total full-time workers, should, in the classical cases, have a positive effect on sales and productivity growth rates. However, some productions that rely mainly on un-skilled workers might weaken the expected positive effect of skilled production workers, and might back-pedal this effect totally, leading to a negative instead of a positive correlation with sales and productivity growth rates. Finally, we investigate the effect of having access to a bank loan (With Bank Loans) on the firm's productivity and sales growth. Empirical evidence shows that firms that had access to bank loans were able to achieve higher annual sales and productivity growth rates.

Table 1 shows descriptive statistics of the variables used in the empirical analysis. They disclose a negative average annual productivity growth and real annual sales growth of -9.51 and -8.20 respectively, along with standard deviations of 23.98% and 22.97 %, respectively. The average of firms with female participation in ownership is positive, yielding a 22.32% alongside with a standard deviation of 41.64%. The dataset incorporates legal form variables that are based on the legal nature of the company, covering the open shareholding company, closed shareholding

company, partnership, and limited partnership, were sole proprietorship is excluded from the regression as a reference group for comparison.

4. Empirical Results

4.1. The implications of legal status for firm performance

We run four different regression models. The first regression in Table 2 studies the effect of the different legal forms on our first performance indicator, which is annual sales growth. In Table 3, we introduce the second regression that studies the same relationship with the second performance indicator, which is annual productivity growth. The third and fourth regressions, in Tables 4 and 5 respectively, study also the effect of the different legal forms on sales and productivity growth rate in firms with female participation in the ownership. It is worth mentioning that in these regressions, we exclude firms with sole proprietorship from our regressions to act as a reference group for the remaining types of legal forms. To establish a broader view of different variables that have a direct or indirect effect on firm performance, various specifications of the explanatory variables are considered through columns (1) to (8) in each table.

We analyze first the implications of legal status to sales growth, i.e. Table 2 and Table 4. By analysing columns (1) in the mentioned tables, where we take the legal form to be the primary determinant of firm performance, we observe that the estimated coefficients of the legal form variables in the sales growth are all positive and statistically significant at 1% significance level except for partnership in Table 4. This seems to indicate that firms with legal structure being an open shareholding, closed shareholding, partnership, and limited partnership possess a comparative advantage over sole proprietorship. Specifically, the results show that open shareholding, closed shareholding, partnership, and limited partnership companies enjoy an additional 8.4, 9.3, 8.3 and

12.1 percentage points of annual sales growth rate compared to sole proprietorship, respectively as reported in Table 2. These estimates are equal to 7.5, 6.2, 3.0 and 9.9 percentage points of annual sales growth rate, respectively, in firms with female participation in the ownership.

Moving into productivity growth as shown in Table 3 and Table 5, we obtain similar results We find that the estimated coefficients of the legal form variables on productivity growth are all positive and statistically significant at 1% significance level. This suggests that firms being an open shareholding, closed shareholding, partnership, and limited partnership possess a comparative advantage over sole proprietorship firms. Specifically, open shareholding, closed shareholding, partnership, and limited partnership companies, enjoy an additional 8.4, 9.7, 9.9 and 11.2 percent of annual productivity growth, respectively, as shown in Table 3. A similar scenario is observed in the presence of female ownership (Table 5), where we observe an additional 9.9, 8.5, 6.1 and 10.2 percent of annual productivity growth, respectively.

4.2. The implications of control variables for firm performance

The control variables carried in the analysis are mostly consistent with the theoretical discussions, as we generally observe that the coefficients of these variables show statistical significance at different levels (10%, 5%, and 1%). The results show that an increase in private foreign ownership by 10% points, all else constant, leads to an increase in annual sales and productivity growth rates by 0.46 and 0.57 percent points respectively, as observed in column 1 Tables 1 and 2. Similar results were observed in the case of female participation in ownership, where an increase in foreign ownership by 10% points increases annual sales and productivity growth rates by 0.08 and 0.21 percentage points respectively; however, the increase is not statistically significant, as observed in column 1 Tables 4 and 5. Theoretically, the implication of private foreign ownership on sales growth and productivity is positive by the fact of the spillover effect related to technological advances and

resources management. Thus, companies with foreign partners are most likely to enjoy higher sales and productivity growth rates (Javorcik, 2004). Bukhari et al. (2005) found similar outcome when analyzing firms from 81 developing countries and concluded that profitability is enhanced by the presence of a strategic foreign investor.

Firms engaging in exporting activities demonstrate an improved sales and productivity growth rates, as the coefficients of exporting activities are positive and statistically significant at 1% significance level in all regression except with the model that takes into account the presence of females in ownership, where the coefficient is found to be positive but not significant. Specifically, we observe that firms' engaging in exporting activities enjoy higher annual sales growth and annual productivity growth rate by 5.5 and 3.1 percentage points respectively, compared to non-exporting ones, as shown in Tables 2 and 3 column 1. Similarly, exporting firms demonstrate higher annual sales and productivity growth in the presence of female participation in ownership by 5.6 and 2.4 percentage points, respectively, in comparison with non-exporting firms as revealed in tables 4 and 5 column 1. Similarly, Blagojević and Damijan (2013) show that exporting activities magnified firms' productivity before and after the EU enlargement, with the corresponding coefficient being positive and significant at 1% level.

Firm age is expected to enhance sales and productivity growth rates since firms will acquire economies of scale due to the fact of their well-established learning curve, where they will be able to operate at a lower cost and hence enhancing efficiency. This argument is strengthened in the regressions of sales and productivity growth rates where the coefficient related to firm age is positive and statistically significant, where an increase of 10 percentage points, holding all else constant, will be transformed into an increase of 1.37% increase in sales growth and 3.89% increase in productivity growth. In the tables that incorporate female ownership in the regressions, firm age turns out to be

insignificant in both sales and productivity growth equations, where the coefficient of firm age is observed to be negative in the female ownership-sales growth regression and positive in the female ownership productivity growth regression. The negative coefficient is best described by the existence of a turning point, explained by the negative coefficient of the variable age squared, which indicates that up to a certain age, firms will start experiencing a reduction in sales growth (diminishing returns to scale). Coad et al. (2014) argue that newly established firms demonstrate a positive relationship with growth rates, unlike older firms, which encounter a negative correlation between age and growth rates, and hence they prove that it is not obligatory for older firms to have robust growth. They further clarify that newly established firms tend to have higher ability to adapt to changes in the market conditions compared to older firms.

Firms using the web to communicate with clients/suppliers exhibit a higher annual sales and productivity growth rate; since the usage of web facilitate the diffusion to new markets, hence attracting new customers and enhancing sales. Businesses using the web can explore different suppliers, which can help to reduce the cost and hence to improve productivity. This argument is ascertained through the sales and productivity growth results, where the coefficients of using the internet in conducting business are positive and statistically significant (except in the regressions of female ownership-sales growth and female ownership-productivity growth) where the coefficients are observed to be positive but not statistically significant. Specifically, an increase in the usage of internet in conducting business ten percentage points will alter the sales and productivity growth rates by 25.82% and 24.08% respectively.

Firms practicing the informal sector lessens both the annual sales and productivity growth rates. These results are manifested in the coefficient of practicing informal sector, which is negative in the equation of sales and productivity growth, with and without female ownership, but significant

in the tables with no female ownership only. Accurately, an increase in the informal practices by ten percentage points will negatively impact sales growth by 0.47 % and productivity growth by 0.63%.

Skilled production workers are shown to be negatively affecting the sales and productivity growth rates and are statistically significant with and without female ownership, whereas the effect of non-production workers is shown to be positive but not significant. This observation can be explained by the fact that some productions rely mainly on unskilled workers, which might weaken the expected theoretical positive effect of skilled production workers on annual sales and productivity growth rates. This might utterly back-pedal this effect in the case of productions that rely entirely on non-production workers, who demonstrate low skill levels, leading to a negative instead of a positive correlation with sales and productivity growth rates (Blundell et al., 1999)

Finally, having access to credit facilities, such as bank loans, is more likely to enhance both annual sales growth and annual productivity growth. We find that an escalation of the ability to access bank loans by 10 percentage points, holding all else constant, strengthens the annual sales growth by 0.4% and by 0.51% with female ownership. In addition to augmenting annual productivity growth by 0.14% and by 0.28% with female ownership, where these results being significant in all the mentioned observations except the regressions of annual productivity growth without female ownership, where it is perceived to be positive but not significant.

5. Concluding remarks

The effect of legal form on firm performance has been a rousing topic attracting scholars from various disciplines to delve further through it by investigating various micro-related drivers to find the legal form that contributes more to the firm performance. That is, this paper aims to investigate the effect of legal status (i.e. open shareholding company, closed shareholding company,

partnership, and limited partnership, holding sole proprietorship), controlling for a comprehensive set of firm related characteristics. We use two measures for firm performance: annual sales growth and annual productivity growth.

Compared with a sole proprietorship, our analysis shows that open shareholding, closed shareholding company, partnership, and limited partnership companies demonstrate an advantage of annual sales and productivity growth rates. Similar results were observed with medium and large companies that enjoy higher annual sales growth and annual productivity growth when compared to small companies. Our analysis also shows that private foreign ownership, engaging in exporting activities, the usage of the web to communicate with clients/suppliers and the full-time workers all positively affect the annual sales growth and annual productivity growth rates.

Our findings are robust when carrying out the examination for firms with female participation in ownership, showing an advantage of open shareholding, closed shareholding, partnership and limited partnership companies in comparison with sole proprietorship companies. These findings are in line with various studies that demonstrate a positive correlation between female participation in ownership and firms' performance (e.g., Bennouri et al., 2018; Terjesen, 2016; Khan and Vieito, 2013).

Our study shows that the anticipated positive effect of firm age on annual sales growth is bounded to a certain age, where beyond that a turning point is observed in the firm's annual sales growth. We also show that the negative effect of skilled production workers on annual sales and productivity growth is a normal in labor-intensive productions, where unskilled workers demonstrate and advantage over skilled ones (Blundell et al., 1999). On a similar matter, and after carrying a comprehensive examination of the literature that investigated the effect of corruption, firm age and firm size on performance, we concluded a disagreement that fails to provide robust results, which

calls for future investigations. The disagreement regarding the effect of firm age on films' performance is seen to be a result of the dearth in data that covers firms' age (Headd and Kirchhoff, 2009).

Hence, these results appear to be a motive for future research to delve deeper into the effect of female ownership on firm performance and to further investigate different variables that might have a significant effect on the firm's annual sales and annual productivity growth. Furthermore, our examination was based on data from the MENA region, thus it would be interesting to conduct panel data analysis that takes into account the unobserved characteristics of firms, which gains importance for developing countries and allow to examine the dynamic of firms when it comes to firm performance.

Table 1: Summary statistics of variables

	Mean	Standard Deviation
Dependent variables		
Annual sales growth rate (%)	-8.203	22.979
Annual productivity growth rate (%)	2.040	14.458
Independent variables		
Legal form		
Open shareholding company (%)	11.437	31.827
Closed shareholding company (%)	23.236	42.235
Sole proprietorship (%)	33.411	47.170
Partnership (%)	15.644	36.329
Limited partnership (%)	10.931	31.204
Control variables		
Ownership - private foreign (%)	4.978	19.957
Exporters (%)	12.977	27.893
Firm age (years)	20.060	16.271
Using Internet in conducting business (binary variable)	0.435	0.496
Female manager (binary variable)	0.066	0.249
Total permanent full-time workers	98.973	291.281
Small size (<20 employees, binary variable)	0.457	0.498
Medium size (20-99 employees, binary variable)	0.336	0.472
Large size (100 employees and over, binary variable)	0.207	0.405
Practices informal sector (Obstacle, binary variable)	0.103	0.304
Non-production worker (% of total full-time workers)	23.307	22.105
Skilled production worker (% of total full-time workers)	49.380	64.116
Firms with bank loans (%)	23.600	42.464
Gross Domestic Product (GDP)	5.077	0.770
N	13238	

Source: The World Bank's Enterprise Surveys (WBES) database.

Table 2: Legal form and sales growth (OLS model)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Open shareholding company	0.084***	0.080***	0.068***	0.062***	0.078***	0.067***	0.077***	0.067***
	(0.013)	(0.014)	(0.014)	(0.014)	(0.020)	(0.015)	(0.020)	(0.020)
Closed shareholding company	0.093***	0.088***	0.070***	0.065***	0.090***	0.070***	0.089***	0.084***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.012)	(0.008)	(0.012)	(0.012)
Partnership	0.083***	0.082***	0.077***	0.073***	0.100***	0.077***	0.099***	0.099***
	(0.008)	(0.008)	(0.009)	(0.009)	(0.012)	(0.009)	(0.012)	(0.012)
Limited Partnership	0.121***	0.119***	0.121***	0.115***	0.129***	0.120***	0.127***	0.118***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.014)	(0.010)	(0.015)	(0.015)
Ownership - Private Foreign (%)	0.046***	0.037***	0.040***	0.041***	0.028	0.040***	0.027	0.033
	(0.014)	(0.014)	(0.015)	(0.015)	(0.020)	(0.015)	(0.020)	(0.021)
Exporters	0.055***	0.046***	0.037***	0.035***	0.071***	0.039***	0.070***	0.066***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.013)	(0.011)	(0.013)	(0.013)
Firm age	0.137***	0.135***	0.192***	0.174***	0.251***	0.203***	0.251***	0.245***
	(0.045)	(0.044)	(0.046)	(0.047)	(0.073)	(0.047)	(0.073)	(0.074)
Firm age squared	-0.001*	-0.001**	-0.001***	-0.001**	-0.003***	-0.002***	-0.003***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Using Internet in conducting business	2.582***	2.254***	2.432***	1.908***	3.784***	2.490***	3.751***	3.172***
	(0.641)	(0.646)	(0.668)	(0.673)	(0.959)	(0.681)	(0.957)	(0.978)
Female manager			0.026*	0.025*	0.008	0.024	0.008	0.005
			(0.015)	(0.015)	(0.019)	(0.015)	(0.019)	(0.018)
Total permanent full-time workers		0.007***	0.009***		0.007***	0.008***	0.007***	0.007***
		(0.002)	(0.002)		(0.002)	(0.002)	(0.002)	(0.002)
Medium size (20-99)				3.542***				
				(0.721)				
Large size (100 and over)				5.070***				
				(0.909)				
Practices Informal Sector (Obstacle)					-0.047***	-0.034***	-0.047***	-0.046***
					(0.016)	(0.012)	(0.016)	(0.016)
Non-production worker					0.035		0.034	0.039
					(0.031)		(0.031)	(0.031)
Skilled production worker					-0.041**		-0.043**	-0.039**
					(0.017)		(0.017)	(0.017)
GDP						0.211	0.467	0.321
						(0.329)	(0.522)	(0.540)
With Bank Loans								0.040***
								(0.010)
Number of observations	5559	5500	5114	5172	2559	5003	2559	2504
Adjusted R^2	0.080	0.082	0.082	0.084	0.136	0.083	0.136	0.139

Notes: Robust standard errors in parentheses, with * p < 0.10, ** p < 0.05, *** p < 0.01.

Table 3: Legal form and annual productivity growth (OLS model)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Open shareholding company	0.084***	0.082***	0.067***	0.068***	0.070***	0.063***	0.069***	0.062***
	(0.014)	(0.014)	(0.015)	(0.015)	(0.021)	(0.016)	(0.021)	(0.022)
Closed shareholding company	0.097***	0.096***	0.081***	0.080***	0.094***	0.080***	0.093***	0.091***
	(0.008)	(0.008)	(0.008)	(0.009)	(0.012)	(0.008)	(0.012)	(0.012)
Partnership	0.099***	0.098***	0.096***	0.094***	0.114***	0.095***	0.113***	0.113***
	(0.008)	(0.008)	(0.009)	(0.009)	(0.012)	(0.009)	(0.012)	(0.012)
Limited Partnership	0.112***	0.112***	0.114***	0.111***	0.122***	0.113***	0.120***	0.116***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.015)	(0.010)	(0.015)	(0.015)
Ownership - Private Foreign (%)	0.057***	0.054***	0.056***	0.058***	0.054***	0.055***	0.053***	0.058***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.019)	(0.015)	(0.019)	(0.020)
Exporters	0.031***	0.027**	0.016	0.018	0.034**	0.016	0.033**	0.032**
	(0.010)	(0.011)	(0.011)	(0.011)	(0.014)	(0.011)	(0.014)	(0.014)
Firm age	0.389***	0.389***	0.435***	0.429***	0.509***	0.454***	0.509***	0.509***
	(0.047)	(0.047)	(0.049)	(0.049)	(0.080)	(0.050)	(0.080)	(0.081)
Firm age squared	-0.003***	-0.003***	-0.003***	-0.003***	-0.005***	-0.004***	-0.005***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Using Internet in conducting business	2.408***	2.301***	2.280***	2.155***	3.794***	2.352***	3.768***	3.559***
	(0.653)	(0.659)	(0.681)	(0.693)	(0.986)	(0.691)	(0.985)	(1.012)
Female manager			0.036**	0.036**	0.035*	0.038**	0.035*	0.034*
			(0.015)	(0.014)	(0.020)	(0.015)	(0.020)	(0.019)
Total permanent full-time workers		0.002	0.005***		0.002	0.004**	0.002	0.003
		(0.002)	(0.002)		(0.002)	(0.002)	(0.002)	(0.002)
Medium size (20-99)				1.294*				
				(0.775)				
Large size (100 and over)				1.734*				
				(0.913)				
Practices Informal Sector (Obstacle)					-0.063***	-0.052***	-0.062***	-0.062***
					(0.018)	(0.013)	(0.018)	(0.018)
Non-production worker					-0.009		-0.009	-0.006
					(0.033)		(0.033)	(0.033)
Skilled production worker					-0.033*		-0.034*	-0.032*
					(0.018)		(0.018)	(0.018)
GDP						0.441	0.353	0.287
						(0.337)	(0.524)	(0.541)
With Bank Loans								0.014
								(0.011)
Number of observations	5442	5433	5050	5058	2538	4943	2538	2483
Adjusted R^2	0.090	0.090	0.093	0.092	0.129	0.097	0.129	0.129

Notes: Robust standard errors in parentheses, with * p < 0.10, ** p < 0.05, *** p < 0.01.

Tables 4: Legal form and sales growth in firms with females participation in ownership (OLS model)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Open shareholding company	0.075**	0.066**	0.066**	0.066**	0.076*	0.061**	0.072*	0.056
	(0.029)	(0.030)	(0.030)	(0.030)	(0.041)	(0.031)	(0.042)	(0.042)
Closed shareholding company	0.062***	0.050**	0.050**	0.053**	0.059*	0.047**	0.057*	0.056*
	(0.023)	(0.023)	(0.023)	(0.023)	(0.033)	(0.023)	(0.033)	(0.033)
Partnership	0.030	0.022	0.022	0.028	0.055	0.019	0.054	0.055
	(0.025)	(0.025)	(0.025)	(0.025)	(0.035)	(0.025)	(0.035)	(0.034)
Limited Partnership	0.099***	0.091***	0.091***	0.094***	0.089**	0.089***	0.086**	0.083**
	(0.024)	(0.025)	(0.025)	(0.025)	(0.036)	(0.025)	(0.037)	(0.036)
Ownership - Private Foreign (%)	0.008	0.000	0.000	-0.000	0.028	0.003	0.028	0.043
	(0.026)	(0.027)	(0.027)	(0.027)	(0.034)	(0.027)	(0.034)	(0.035)
Exporters	0.056***		0.043***	0.043**	0.066***	0.039**	0.064***	0.064***
		0.043***						
	(0.017)	(0.017)	(0.017)	(0.017)	(0.021)	(0.017)	(0.021)	(0.021)
Firm age	-0.084	-0.079	-0.079	-0.108	-0.045	-0.061	-0.046	-0.071
	(0.078)	(0.078)	(0.078)	(0.078)	(0.117)	(0.081)	(0.117)	(0.118)
Firm age squared	0.000	0.000	0.000	0.000	-0.001	0.000	-0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Using Internet in conducting business	1.122	0.815	0.815	0.130	1.987	1.063	1.950	0.271
	(1.264)	(1.283)	(1.283)	(1.282)	(1.801)	(1.328)	(1.800)	(1.889)
Total permanent full-time workers		0.008***	0.008***		0.011***	0.008***	0.011***	0.011***
		(0.002)	(0.002)		(0.003)	(0.002)	(0.003)	(0.003)
Medium size (20-99)				3.521**				
				(1.456)				
Large size (100 and over)				4.901***				
				(1.603)				
Practices Informal Sector (Obstacle)					-0.037	-0.016	-0.038	-0.037
					(0.027)	(0.020)	(0.027)	(0.027)
Non-production worker					0.082		0.082	0.083
					(0.053)		(0.054)	(0.054)
Skilled production worker					-0.091***		-0.093***	-0.085***
					(0.032)		(0.033)	(0.032)
GDP						0.610	0.661	0.639
						(0.706)	(1.018)	(1.044)
With Bank Loans								0.051***
								(0.017)
Number of observations	1260	1240	1240	1260	614	1206	614	599
Adjusted R^2	0.037	0.040	0.040	0.045	0.098	0.040	0.098	0.115

Notes: Robust standard errors in parentheses, with * p < 0.10, ** p < 0.05, *** p < 0.01.

Tables 5: Legal form and annual productivity growth in firms with female participation in ownership (OLS model)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Open shareholding company	0.099***	0.098***	0.098***	0.100***	0.101**	0.098***	0.102**	0.087*
	(0.031)	(0.032)	(0.032)	(0.032)	(0.046)	(0.032)	(0.047)	(0.047)
Closed shareholding company	0.085***	0.085***	0.085***	0.086***	0.086**	0.085***	0.087**	0.088**
	(0.025)	(0.025)	(0.025)	(0.026)	(0.039)	(0.025)	(0.039)	(0.039)
Partnership	0.061**	0.060**	0.060**	0.062**	0.082**	0.060**	0.082**	0.084**
	(0.026)	(0.026)	(0.026)	(0.026)	(0.040)	(0.026)	(0.040)	(0.040)
Limited Partnership	0.102***	0.102***	0.102***	0.103***	0.101**	0.105***	0.102**	0.102**
	(0.027)	(0.027)	(0.027)	(0.027)	(0.042)	(0.027)	(0.042)	(0.042)
Ownership - Private Foreign (%)	0.021	0.022	0.022	0.022	0.030	0.023	0.030	0.040
	(0.026)	(0.026)	(0.026)	(0.026)	(0.031)	(0.026)	(0.031)	(0.031)
Exporters	0.024	0.022	0.022	0.025	0.034*	0.020	0.034*	0.037*
	(0.016)	(0.016)	(0.016)	(0.017)	(0.020)	(0.017)	(0.020)	(0.020)
Firm age	0.096	0.097	0.097	0.099	0.007	0.109	0.007	-0.012
	(0.078)	(0.078)	(0.078)	(0.079)	(0.119)	(0.080)	(0.119)	(0.120)
Firm age squared	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Using Internet in conducting business	1.022	0.976	0.976	1.122	1.773	0.905	1.788	0.562
	(1.236)	(1.255)	(1.255)	(1.270)	(1.714)	(1.293)	(1.706)	(1.765)
Total permanent full-time workers		0.000	0.000		0.003	0.001	0.003	0.004
		(0.002)	(0.002)		(0.003)	(0.002)	(0.003)	(0.003)
Medium size (20-99)				-0.601				
				(1.522)				
Large size (100 and over)				-0.462				
				(1.615)				
Practices Informal Sector (Obstacle)					-0.032	-0.034	-0.032	-0.030
					(0.028)	(0.021)	(0.028)	(0.028)
Non-production worker					0.038		0.038	0.043
					(0.054)		(0.054)	(0.054)
Skilled production worker					-0.073**		-0.073**	-0.067**
					(0.030)		(0.031)	(0.030)
GDP						-0.159	-0.216	-0.216
						(0.681)	(1.033)	(1.053)
With Bank Loans								0.028*
								(0.016)
Number of observations	1223	1221	1221	1223	603	1188	603	588
Adjusted R^2	0.032	0.032	0.032	0.032	0.061	0.035	0.061	0.067

Notes: Robust standard errors in parentheses, with * p < 0.10, ** p < 0.05, *** p < 0.01.

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