

The impact of ownership structure on firms performance

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هذه الدراسة تم تمويلها من هيئة السوق المالية

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Abstract

We develop a new method of ownership classification and examine the impact of various owners on firm performance. Prior research focuses mainly on managerial ownership and/or a few general classifications (block-holders vs. non-block-holders, institutional vs. non-institutional). No prior studies attempt to model all corporate owners together in one model. This study fills this gap. Our classification divides listed corporations into government, institutional, public, managerial, family, and foreign owners. Analyzing and comparing these companies yields several important findings. First, government and institutional firms perform the best, while public and managerial firms perform the worst. Second, the OLS and simultaneous system 2SLS estimates suggest that government and institutional ownership contribute positively to firm performance, while public ownership has a negative effect. Incorporating the potential endogeneity issue into the system suggests that the relationship is bidirectional, where the causality runs from ownership to performance and vice versa.

Keywords: Ownership structure, Governance, Emerging market, firm performance

JEL: G14, G32, D23, L14



1. Introduction

Corporate ownership internationally is concentrated, except in economies with strong minority shareholder protection according to La Porta, Lopez-de-Silanes, and Shleifer (1999). Claessens, Djankov, and Lang (2000); Faccio and Lang (2002); and Dyke and Zingales (2004) reach the same conclusion for Asian and European markets. Using the 20% cutoff for large corporations, La Porta et al. (1999) find that 80% of firms in U.S., 100% in the U.K., and 90% in Japan are widely held. Other jurisdictions, however, show concentrated ownership.¹

A question lends itself naturally for empirical analysis from these studies is how different owners affect firm performance. This study aims to answer this question by connecting two strands of research on ownership (corporate ownership characteristics and the ownership-performance relationship).

Despite the thousands of articles published on ownership performance, we are far from reaching a consensus. It is one of the most puzzling dilemmas in the corporate finance and governance literature. Previous studies on the ownership-performance relationship avoided considering exogenous assumptions (both linear and non-linear) to analyze the endogenous link. Using exogenous assumptions, the consensus in the literature is that a one-way causality running from ownership to performance exists (Berle and Means, 1932; Jensen and Meckling, 1976). The empirical findings suggest both a linear (performance is an increasing function of managerial ownership, the alignment

¹ For instance, using a 20% cutoff, La Porta et al. (1999) analyze 27 rich nations and conclude that except for the U.S, the U.K, and Japan, all other countries have concentrated ownership. They divide ownership into state, family, financial, institutional, and miscellaneous. Using a 10% cutoff, only the U.S and the U.K have widely held firms. Other nations with concentrated ownership include Australia, Canada, New Zealand, Singapore, France, Germany, and South Korea.



of interest hypothesis) and non-linear relationship (ownership impact could be negative at some levels, the entrenchment hypothesis).²

Recent studies, however, cast doubt on the validity of the exogenous paradigm and claim the existence of endogenous relations (Demsetz, 1983). The empirical findings provide three alternatives: no relationship (Demsetz and Lehn, 1995; Aggarwal and Knoeber, 1996; and Himmelberg et al., 1999), a reverse relationship where the causality runs from performance to ownership (Loderer and Martin, 1997; Cho, 1998; and Demsetz and Villalonga, 2001), and a bidirectional relationship in which causality runs simultaneously between ownership and performance (Chung and Pruitt, 1996).

This paper dives into this debate by providing evidence using a new method of ownership classification and by using a new emerging market of Saudi Arabia that was not examined before. Therefore, the contributions of this paper are twofold. First, this study presents a pioneering attempt to tackle multiple ownership classes in depth. The vast majority of previous research focuses on the impact of managerial ownership on performance while ignoring other important ownership classes. For example, Demsetz and Lehn (1985) examine the percentage share held by the top five shareholders, 20 shareholders, and institutional investors. Morck, Shleifer, and Vishny (1988) investigate the ownership–performance relationship by focusing only on the percentage share held by the company’s directors. McConnell and Servaes (1990) study the percentage share held by insiders, blockholders, and institutions. Loderer and Martin (1997) focus only on the percentage share held by officers and directors.³

² On these early studies with exogenous assumptions, see, among others, Fama and Jensen (1983), Morck et al. (1988), Stulz (1988), Slovin and Sushka (1993) and Mehran (1995).

³ Other studies that examine managerial ownership and performance include those by Himmelberg, Hubbard, and Palia (1999); Demsetz and Villalonga (2001); and McConnell, Servaes, and Lins (2005).



We argue that the topic of ownership structure is too large and broad to focus on only a few players while ignoring others. Ownership structure is a multi-dimensional issue that should be considered in relation to all parties. Different groups have different objectives, and thus have various impacts on firm performance. Unless we identify and consider all players, any results will be questionable. The availability of data on ownership structure is often limited; thus, we exploit a unique private dataset received from the capital market authority (CMA) of Saudi Arabia to shed light on the impact of other ownership classes and thereby advance the understanding of the topic.

La Porta et al. (1999) use cutoff levels of 10% and 20% to classify companies. Our study differs in that we allow for multiple classifications, in addition to applying La Porta et al.'s (1999) classification techniques. This method allows us to see the effect of different owners on firm performance without being distracted by the conflicting regression estimates observed in the extant literature. For instance, the endogeneity issue, which has been discussed extensively, causes inconsistent findings. Unless we can utilize a new methodology, this inconsistency will continue. We thus make a pioneering attempt to investigate the ownership–performance relationship in different ways.

Moreover, we develop a new system of equations that incorporate more than one owner into one model to account for potential endogeneity. Furthermore, we incorporate a new variable, the governance score, which allows us to shed light on the ownership–performance relationship in the context of corporate governance. In other words, we examine whether ownership affects the governance score, which might in turn affect performance.⁴

⁴ For example, Cho (1998) examines ownership performance by incorporating investment.



The second contribution of this study is that we tackle the important issue of ownership–performance in Saudi Arabia, an emerging market. Saudi Arabia has a unique “monarchy” regime that makes it different from other nations. This setting can provide insights that are not possible in other markets. Perhaps most importantly, the Saudi ownership structure is similar to those found elsewhere, such as in Germany, Spain, New Zealand, and others.

The kingdom is currently a member of the G-20,⁵ and represents a much broader geographical region of the Gulf Cooperation Council (GCC) and the Middle-Eastern and Northern African regions. In the face of globalization and increased integration of world economies, studying ownership using different country contexts will enhance our understanding of the variations in ownership structures, regulations, and governance systems, and their overall link with performance.

Saudi Arabia is the global oil market leader, with average oil exports of approximately 10 million barrels daily and a nominal GDP of about \$786.5 billion in 2018. Saudi Arabia experienced substantial economic reforms between 2014 and 2018, a period that coincided with a significant drop in oil prices. Since then, the government took steps to diversify its oil-based export economy.⁶

The Saudi stock market, called “Tadawul,” is the ninth largest stock market in the world following the privatization of Aramco.⁷ Tadawul is currently divided into 19 sectors and

⁵ Saudi Arabia joined the G20 after the global financial crisis of 2008.

⁶ These steps include the announcement of the 2030 vision; the introduction of a 5% value added tax (VAT); the relaxation of visa regulations and the opening of the country for tourism; the establishment of a public debt department within the Saudi Arabia Monetary Agency (SAMA) to issue and manage debt; strengthened monitoring of public sector expenditures; and most recently, the privatization of Saudi oil giant Aramco (a governmental-owned enterprise).

⁷ Aramco’s IPO was the largest in history, overtaking that of Chinese company Alibaba. On the first day of its listing, December 11, 2019, the company’s share price jumped by the maximum possible increase of 10%, to 35



has 174 listed companies. In 2018, Tadawul successfully joined the FTSE Russell index for emerging economies after meeting all standards and reforms required to adopt the T+2 policy, restructuring all market sectors, introducing real estate investment trusts, and establishing a parallel market. All these changes, reforms, and restructuring warrant further research.

We employ two classification methods. In the first, we assign the company to the strongest ultimate owner/s. In the second method, we use a 20% cutoff to identify the ultimate owner. Our first classification yields six owner classes: public, government, institutional, managerial, family, and foreign.

By comparing the operating and stock performance of these firms, we find that government- and institution-owned firms outperform the other ownership types. They show the highest profitability, growth, value, stock returns, and governance score. On the contrary, public and manager-owned firms, which belong completely to either the general public or are controlled by insiders (management), respectively, show the worst performance. These groups have negative profitability, negative returns, and very poor governance standards. The variations in performance between the ownership types reveal a strong information asymmetry between owners. Family and foreign firms show relatively moderate performance.

The second classification approach using La Porta et al.'s (1999) 20% cutoff divides firms into four classes: public, government, institutional, and foreign. This second analysis

Saudi riyal, which made Aramco the largest company in the world, valued at \$1.85 trillion. In addition, Aramco's listing increased the total value of Tadawul and made it the ninth largest market in the world, overtaking the Indian stock market and coming close to the German and Canadian stock markets.



confirms the findings from our first classification that government and institutional corporations outperform public and foreign firms.

Next, we investigate the nature of the ownership–performance relationship. We employ several regression models, the OLS single equations model, and the 2-SLS simultaneous system approach. Our findings from both regression models suggest that the link between ownership and performance is a bidirectional, where performance affects ownership and vice versa. This is consistent with Chung and Pruitt (1996), who find a positive bidirectional link between managerial ownership and firm performance. Our results are also consistent with those of these authors in terms of the nature of the link, but differ in the type of owners. While these authors examine performance with managerial ownership, we test performance with various owners.

We find that government ownership positively affects performance, and performance leads to larger government holdings, all significant at the 1% level. We reach the same conclusion regarding institutional ownership. Both the government and institutions are better informed than the other groups of owners. By contrast, public ownership and performance have a significantly negative relationship in both directions, in which public ownership leads to worse performance and better performance leads to lower public holdings. It is evident that public owners are disadvantaged compared to other groups of owners.



2. Data

2.1 Data sources

Data on corporate ownership structures are generally difficult to obtain (La Porta et al. 1999). This explains the focus of the majority of prior research on managerial ownership. Fortunately, we gained access to a unique dataset with the support of the capital market authority, the CMA of Saudi Arabia, to obtain access to more detailed data. The CMA provided the required data on ownership structure and owners' identity for the period between 2014 and 2018.

We obtained data on firms' ownership for several categories (classes): public ownership, corporate ownership, mutual fund ownership, government-related entity ownership, GCC country ownership (regional ownership), and foreign ownership (strategic foreign partners and eligible foreigners). We gained the full data for 174 companies listed on Tadawul.

Family and managerial firm ownership data are not available because the CMA does not classify those owners separately. Instead, these two groups are included in public ownership, so we use our own knowledge of the market to distinguish the family firms, and used the Tadawul website to look for managerial ownership. Tadawul publishes all blockholders with 5% or more ownership. In addition, we collected data from board directors reports to determine the structure of the boards and ownership.

We gathered data on companies' fundamentals and stock prices from Tadawul for the corresponding period as well as the data on the market index, the Tadawul All Share



Index (TASI), for adjustment purposes. Finally, we obtained the corporate governance scores from the Corporate Governance Centre (CGC) at Alfaisal University.⁸

2.2 Descriptive statistics

Panel A of Table 1 shows general statistics for the 174 listed Saudi firms and ownership identities for the 2018 fiscal year. The accumulated net profits for all firms stood at about SAR 104 billion, with an average of SAR 30 million. The difference between the mean and the median indicates skewness, which reflects substantial variations in the companies' sizes. The giant Saudi petrochemical SABIC achieved the largest net profit at SAR 21.5 billion, which amounted to nearly one-fifth of the total profit for the whole market. Total assets and market values were approximately SAR 4 and SAR 1.6 trillion, respectively.

Regarding share ownership and the owners' identities, the general public owned the largest portion of shares, at about 36.5%, which is similar to La Porta et al.'s (1999) report that 36% of firms in 27 rich countries are widely held. The second largest owner is institutions (27%), followed by government-related entities (25%). Foreign investors have the smallest fraction of total shares, at about 8%.

Panel B of Table 1 focuses on the changes in these variables over time. The net income for all firms increased rapidly, by approximately 22%, over the five-year period. Total assets also jumped from 3.5 to 4 trillion, while market value declined from 1.8 to 1.6

⁸ The corporate governance centre of the College of Business at Alfaisal University developed a governance index that ranks all Saudi listed firms according to their adherence to the CMA and SAMA regulations. We use this index to shed light on the governance relationship to ownership and performance.



trillion, reflecting the economic reforms in the kingdom that started in 2014 with the oil price decline.⁹

In terms of changes in ownership structure over time, public and foreign ownership did not change much, remaining at about 37% and 8%, respectively. This finding reveals information asymmetry between different groups. On the contrary, institutional ownership rose by almost 42%, jumping from 21.7% in 2014 to 30.8% in 2018. This is very similar to the worldwide trend of increased institutional interest in the stock market. For example, Taylor (1990) documents that institutional investors' holdings in the US increased from 8% to 40% by 1990. Government ownership declined by about 21%, from 30.64% to 24.25%. This result could reflect the changing structure of some government entities.

We also report changes in ownership based on market values. We observe that public holdings deteriorated over time, from 34% to 27.3%, representing a substantial loss in share value for the public. By contrast, both institutional and government owners are gaining extra market value in the companies. The variations between the general public (the less informed) and the government and institutional investors (the more informed) reflect information asymmetries. Clearly, the government and institutional investors are able to make better investment decisions. Lastly, foreign investors' market value did not change much over the 5-year span, fluctuating between a minimum of 5.1% and a maximum of 7.1%. Figure 1 shows the changes in the ownership structure relative to the total number of shares in (a) and relative to the market values in (b).

⁹ The government introduced a 5% VAT, fees on white lands, increased labour costs, increased energy prices for petrol and electricity, and strengthened Zakat (Islamic tax) collection. These regulations impacted profitability and share prices for all companies.

Table 1. Descriptive statistics

The table shows the net income, total assets, and market value for all 174 listed firms. It also shows the ownership concentrations for each owner identity. Market value is calculated as the number of shares multiplied by the yearly average stock price. Public ownership, institutional ownership, government ownership, and foreign ownership represent each class as a percentage of total outstanding shares. Public, institutional, government, and foreign market values represent the holding percentage of each class relative to the total market value of outstanding shares. All figures are in billion Saudi riyals (USD1 = SAR3.75).

Panel A: Saudi market and ownership structure for fiscal year 2018

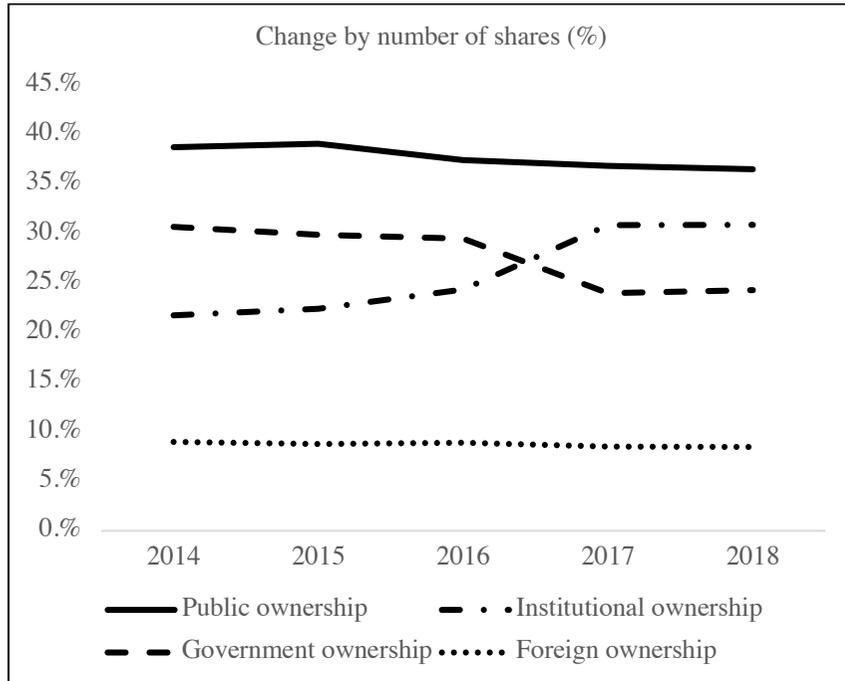
Variable (billion)	Total	Mean	Median	25 th percentile	75 th percentile	Min.	Max.
Net income SAR	103.98	0.60	0.03	-0.02	0.18	-0.52	21.52
Total assets SAR	3,943.27	22.79	1.90	0.85	4.17	0.08	464.56
Market value SAR	1613.48	8.36	1.02	0.51	4.43	0.00	304.26
Number of shares	51.85	0.30	0.06	0.03	0.16	0.01	4.17
Public ownership	18.93	0.11	0.03	0.02	0.08	0.01	3.65
Institutional ownership	15.69	0.09	0.02	0.00	0.05	0.00	3.49
Government ownership	13.11	0.08	0.00	0.00	0.02	0.00	2.38
Foreign ownership	4.11	0.02	0.00	0.00	0.01	0.00	0.62

Panel B: Saudi market and ownership structure from 2014 to 2018

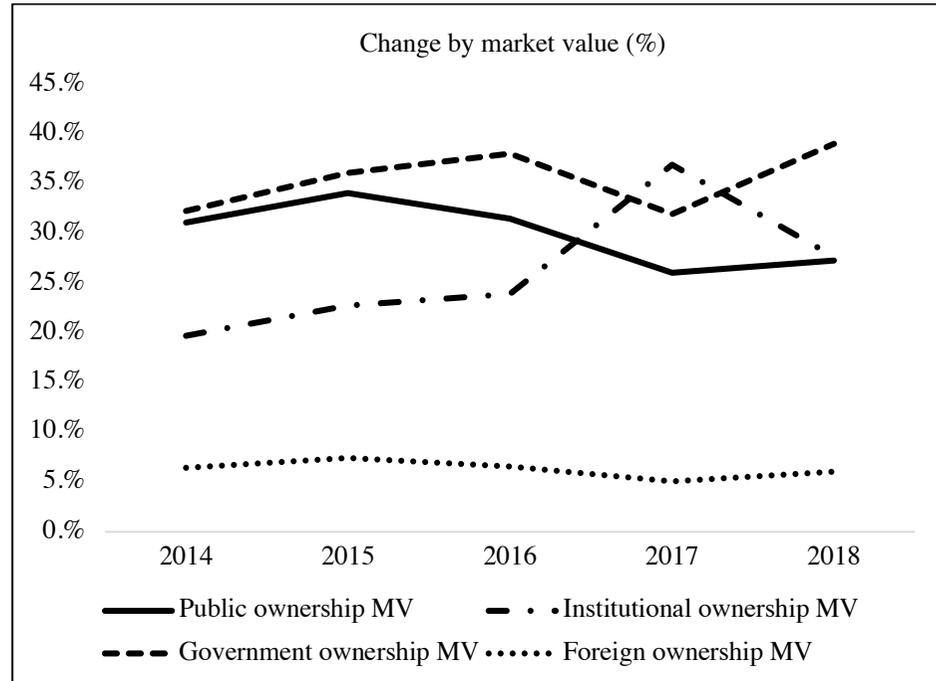
Change over time	2014	2015	2016	2017	2018
Net income (billion SAR)	85.4	99.7	103.8	105	104
Total assets (billion SAR)	3,505.9	3,701.6	3,795.3	3,863.4	3,943.3
Market value (billion SAR)	1,868	1,723	1,477	1,827	1,612
Number of shares (billion)	48.7	50.6	51.9	52	54.8
Public ownership %	38.67	39.02	37.39	36.77	36.45
Institutional ownership %	21.72	22.35	24.32	30.80	30.84
Government ownership %	30.64	29.85	29.42	23.96	24.25
Foreign ownership %	8.97	8.78	8.87	8.48	8.46
Public market value %	34	34.07	31.47	26.05	27.29



Institutional market value %	24	22.74	23.91	36.92	27.65
Government market value %	35	36.09	38.03	31.96	39.02
Foreign market value %	7	7.09	6.59	5.07	6.04



a) Ownership change by number of shares,



b) Ownership change by market value

Figure 1. Ownership changes over time

The figure illustrates the changes in ownership structure among different classes between 2014 and 2018. Public ownership refers to the percentage of shares held by the general public (individuals), government ownership refers to the aggregate percentage of shares held by government entities, institutional ownership refers to the aggregate percentage of shares held by corporations and mutual funds, and foreign ownership refers to the aggregate percentage of shares held by foreign investors (strategic foreign partners and qualified foreign investors). We show the changes in terms of the number of shares in a) and by market values in b).



3. Methodology

3.1 Performance measures

We use several performance measures to capture the effects of ownership structure on firm performance. These measures include accounting-based (backward-looking measures), stock return, growth, and valuation (forward-looking measures). Additionally, we introduce a new measure of corporate governance. All these measures have been widely used in the literature.¹⁰ We want to determine whether there is a link between governance and ownership structure, which in turn might affect performance. In other words, we investigate whether ownership structure contributes to better corporate governance, and thus to better performance.

The accounting profitability measures we use are return on assets (ROA), return on sales (ROS), and earnings per share (EPS). ROA captures the firm's profit from using its resources (total assets). Therefore, it is a direct measure of firm efficiency. The ratio is

$$ROA = \frac{Net\ income}{Total\ assets} \quad (1)$$

ROS captures the firm's profit on its sales. We calculate it as

$$ROS = \frac{Net\ income}{Total\ sales} \quad (2)$$

The earnings per share is

$$EPS = \frac{Net\ income}{Outstanding\ shares} \quad (3)$$

¹⁰ On the use of accounting profitability of ROA and ROS, see Denis and Denis (1994), Schellenger et al., (1989) and Lehmann and Weigand (2000). On the use of valuation and Tobin's qQ, see Demsetz and Villalonga (2001) and Gugler and Yurtoglu (2004). On the growth measures, see Bracker, Keats, and Pearson (1988). On stock returns, see Mitton (2002).



We use sales growth (SG) as the growth measure. SG captures the increase in sales over time and provides an indirect measure of companies' expansion (Bracker, Keats, and Pearson, 1988), which we calculate as

$$SG = \frac{Sales_t - Sales_{t-1}}{Sales_{t-1}} \quad (4)$$

We also use Tobin's Q as the valuation measure. This is a widely used measure in the literature as a direct measure of the increase in a firm's value. Tobin's Q is the ratio of the total equity value relative to the asset replacement cost. Because the replacement cost is difficult to calculate, we proxy it by total assets. Therefore, we calculate Tobin's Q as

$$Tobin\ Q_i = \frac{Market\ cap._i}{Total\ assets_i} \quad (5)$$

Moreover, we use governance scores as an indirect measure of firm performance. Some authors argue that better corporate governance contributes to better firm performance (Gompers et al. 2004; Bhagat and Bolton, 2008). Here, we aim to uncover the potential relationship between governance and ownership that might lead to enhanced firm performance.¹¹

For stock returns, we use the annual holding period returns (HPR), which we calculate for each company over the five-year sample period as

$$HPR_i = [(1 + R_{i1}) * (1 + R_{i2}) * \dots * (1 + R_{it})]^{1/t} - 1 \quad (6)$$

¹¹ Corporate governance scores are calculated based on four governance dimensions: the board of directors, stockholders' rights and general meetings, public disclosure and transparency, and stakeholders' rights. It covers both the CMA and SAMA regulations and principles.



where t represents time and R represents the annual raw returns calculated for each company i for each year as:

$$R_i = \frac{\text{Dividend}_i + (\text{Ending price}_i - \text{Beginning price}_i)}{\text{Beginning price}_i} \quad (7)$$

The yearly raw returns, R , are adjusted with the TASI general market index for the corresponding period. Thus, the adjusted return AR is

$$AR_i = HPR_i - TASI \quad (8)$$

Therefore, we report both the raw HPR and the AR .

3.2 Ownership classifications and performance

Owners vary in their ability to monitor management. The general public, which typically holds the largest portion of shares, is the weakest, dispersed, and has no control over the firm. By contrast, institutional investors typically hold smaller stakes, but usually represent a blockholder with superior power and possess strong control over the firm. Additionally, owners may have different goals. Some investors, such as the government, might pursue social and economic goals, and not necessarily profitability, while the goal of other owners might be to maximize share value. Consequently, differentiating between these groups is imperative.

La Porta et al. (1999), in their seminal work on corporate ownership worldwide, classify companies into six categories: widely held, family, state, widely held financial, widely held corporation, and miscellaneous. They use arbitrary cutoffs of 10% and 20% to



identify the ultimate owners of the largest 20 firms in 27 rich nations.¹² Our approach differs in that we do not impose a cutoff because it might be misleading in identifying the real ultimate owners. For example, a cutoff of 10% or 20% will exclude many firms with blockholders of 5%. Instead, we review each company individually to identify the ultimate owner/s.

We divide firms into six classes: (1) public firms, (2) government, (3) institutional, (4) managerial, (5) family, and (6) foreign. Furthermore, we allow for multiple classifications if the companies have more than one ultimate owner.

Public firms are widely held corporations in which the general public owns all or most of the shares without any single controlling blockholder. These firms are generally managed and controlled by the board of directors and management, without substantial management ownership. Government firms are corporations in which government entities own the largest aggregate portion of shares and/or if a government entity represents a blockholder with ownership of $\geq 5\%$. We classify corporate owners as institutional if the combination of both corporate and/or mutual fund holdings represent the greatest number of holdings and/or the firm has an institutional blockholder with holdings of $\geq 5\%$. Managerial firms are those that are owned completely by the general public, similar to the public firms, but differ in that an individual or individuals hold a blockholding portion and/or serve on the board. Family firms are corporations that are 100% family business pre-IPO, and in which family members still have a large portion of the stocks in the post-IPO period, and/or family

¹² La Porta et al. (1998) classify a company as having an ultimate owner if it has an owner who controls either a 10% or 20% share directly or indirectly. This definition excludes aggregation. For instance, if the company has multiple institutional investors who own 20% collectively, though none of them hold a 20% stake alone would be classified as widely held. We feel that this method is not accurate.



members serve on the board. Foreign firms are corporations in which strategic foreign partners own a blockholding percentage of shares, and/or the company's total foreign holdings exceed 10% of outstanding shares.

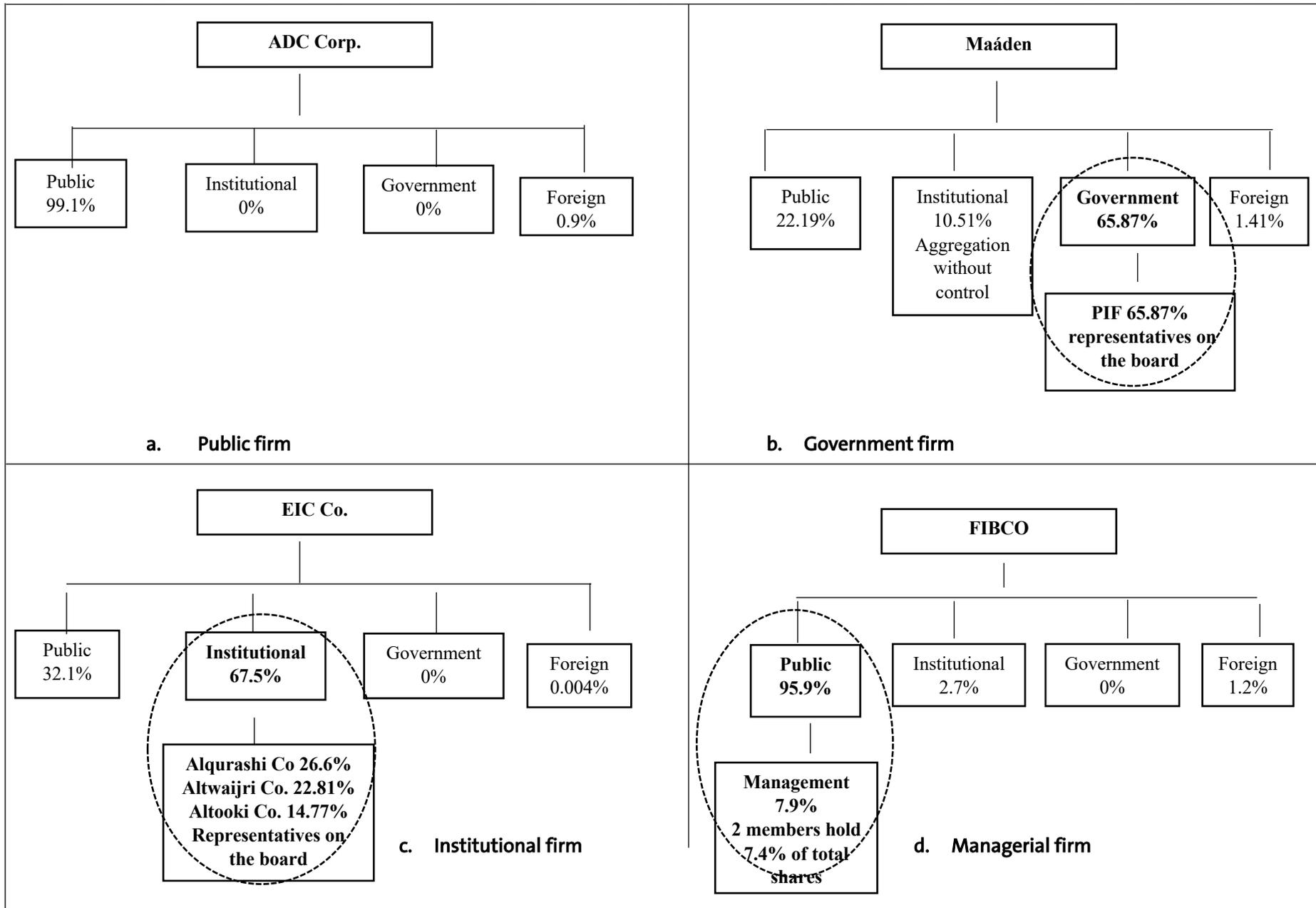
Figure 1 depicts all six types of owners, including an example with multiple-classifications. Figure 1 (g) shows a company that is classified as both managerial and institutional. The company clearly has an individual owner with holdings of 20.3% of the outstanding shares and an executive role on the board. Thus, this company is a managerial firm. Additionally, the company's greatest holding is for institutions, at 62.37% (combination of both corporates and mutual funds). One of these companies is Savola, which holds only 49%. Thus, the company is also an institutional firm.

Figure 1 (h) presents a more interesting case of multiple classifications for Bank Alrajhi, which is the largest bank in Saudi Arabia. This bank was a family business for the Alrajhi family, which still holds 2.16% and holds the board Chairperson position.¹³ Therefore, we classify this company as a family firm. At the same time, institutional holdings represent the largest group of owners, at 43.61% (24.61% for corporations and 20% for mutual funds). Thus, we can classify it as an institutional firm as well. Further, the General Organization for Social and Insurance (GOSI), a government entity, holds a blockholding portion at 5.86% and has a representative on the board. We thus also classify the bank as a government-owned firm. Thus, we classify bank Alrajhi as a family, institutional, and government-owned firm at the same time.

Then, we compare and contrast the six ownership types in terms of profitability, valuation, growth, stock returns, and governance. We use a matched pairs approach to

¹³ Other family members with holdings might not appear if they are below the 5% threshold, while the board chairperson must reveal his/her holdings.

compare each group's average with the other groups' average. We aim to determine if we can draw any conclusions from this comparison; that is, we want to know if companies with different ownership concentrations perform differently.



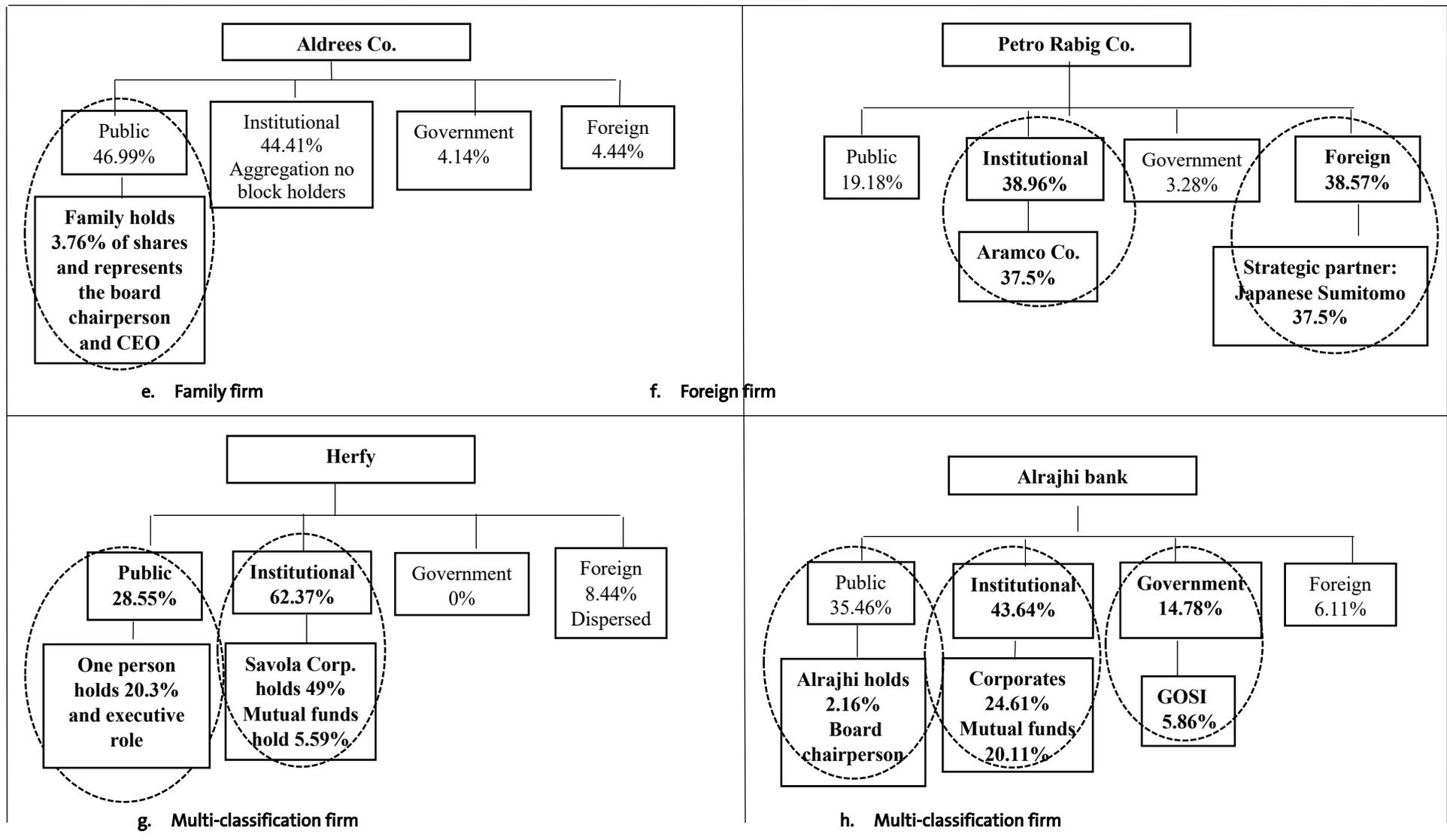


Figure 2. Illustration of corporates classifications.



Furthermore, we use the 20% cutoff classification approach in La Porta et al. (1999) and divide companies into four categories: public firms, government, institutional, and foreign. In this method, we classify our 174 listed firms according to the dominant (ultimate) owner. Under these criteria, we apply the following rules:

- Public companies: Firms with no dominant owner (blockholder) with holdings > 20%.
- Government companies: the aggregate holdings of government entities are 20% or more and represent the largest owners.
- Institutional companies: the aggregate holdings of institutions are 20% or more and they represent the largest owner.
- Foreign firms: the aggregate foreign holdings are 20% or more and they are the largest owner.

Therefore, each company will fall within one ultimate owner classification, and no multiple classifications are allowed. Figure 3 shows examples of each of the four classes.

We also compare and contrast the performance of these groups to see if we can draw any conclusions. We also use this method to check the results of the first classification comparison results.

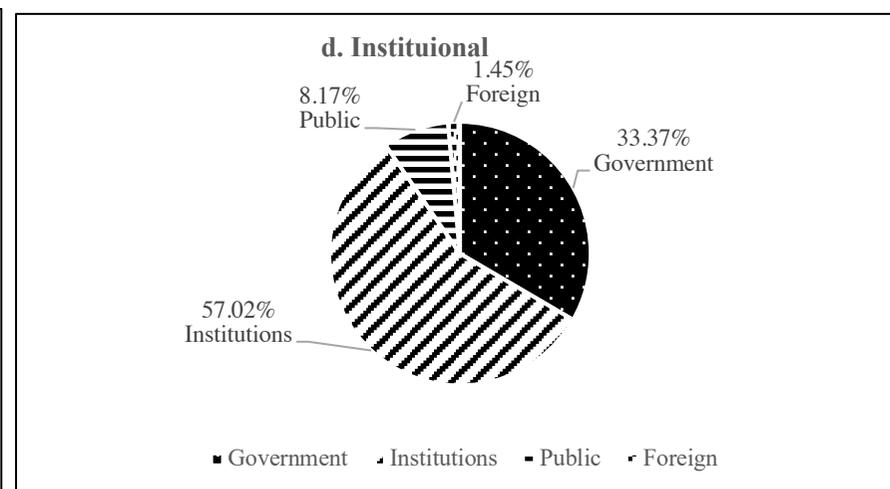
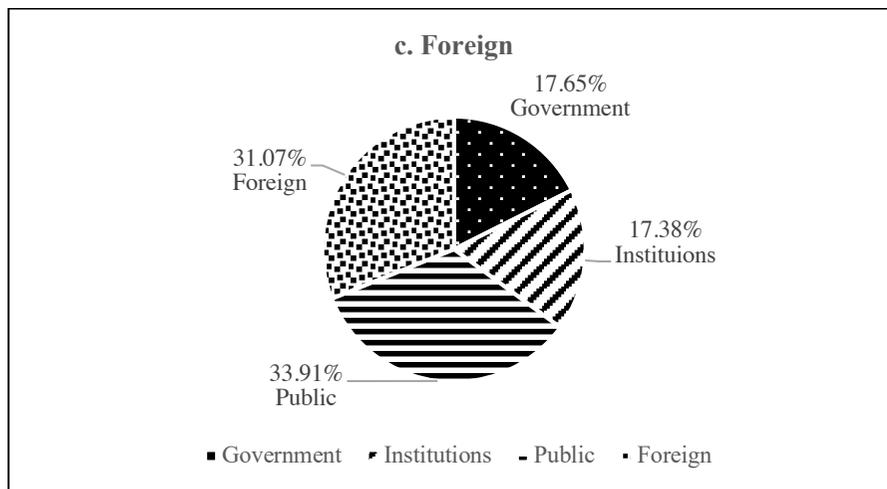
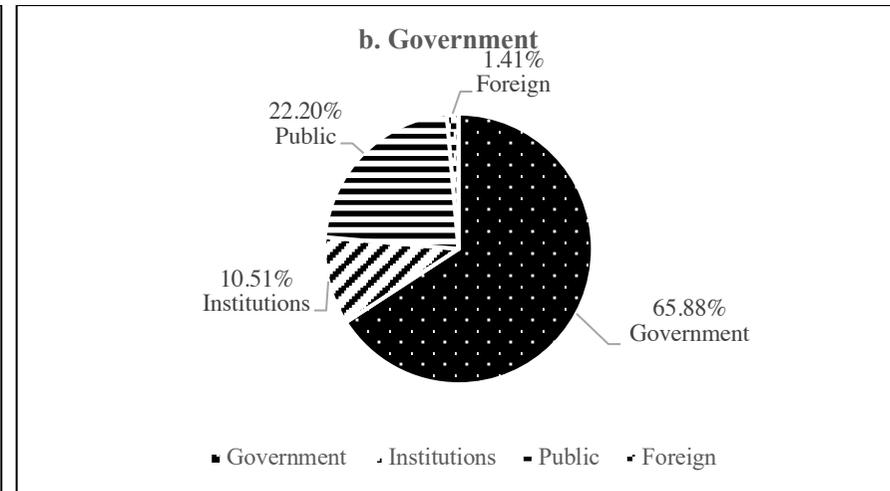
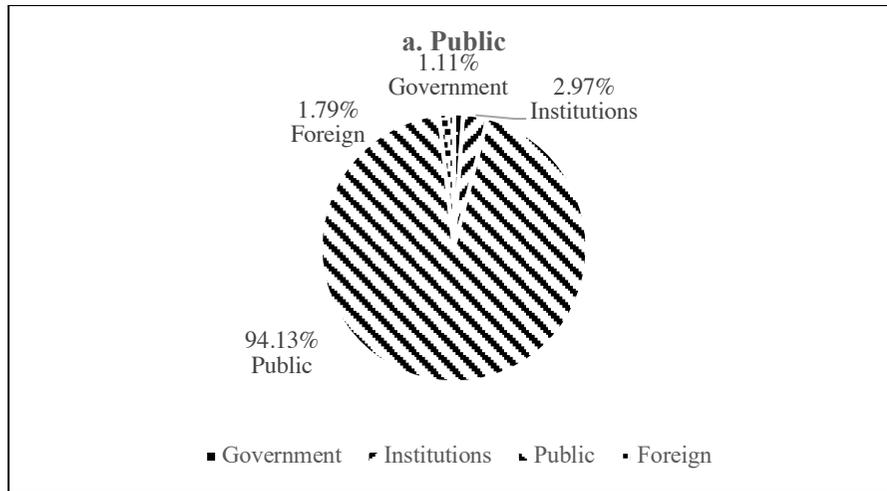


Figure 3. Classifications based on the 20% cutoff approach.

Public company (a) is a company in which no single class of owners holds more than 20%. Government (b) is a company in which government entities hold 20% or more and represent the largest class of owners. Foreign (c) is a company in which foreign investors hold 20% or more and represent the largest class of owners. Institutional (d) is a company in which institutions holds 20% or more and is the largest class of investors.



3.3 Theoretical framework and model setup.

We propose two models to investigate the association between ownership and performance. In the first model, we assume an exogenous relationship, and in the second model, we assume an endogenous relationship. Assuming an exogenous relationship, we employ the following two single equations:

$$\text{Firm performance} = f \{ \text{Government ownership; institutional (corporates, mutual funds); public ownership; foreign ownership; family; size; age; financial; risk, governance score} \} \quad (9)$$

$$\text{Ownership} = f \{ \text{Performance; public ownership; institutional ownership; foreign ownership; family; size; age; financial, risk, governance score} \} \quad (10)$$

We measure firm performance using the log (Tobin's Q) and adjusted returns alternately. We examine various ownership classes and use several control variables. First, we include government ownership, which is the percentage of government entity holdings of total shares. Government ownership represents 20% of the total ownership in 27 nations (La Porta et al. 1999). In Saudi Arabia, the government holds 20.3% of total shares and almost 40% by market value.

Some studies argue that state ownership is inefficient and bureaucratic (Shleifer and Vishny, 1994; Stulz, 1988). Many governments, particularly in the west, conducted large-scale privatization in the 1970s and 1980s, believing that privatization would reduce government involvement in the market and consequently enhance the free market. The main argument for the inefficiency of state ownership pertains to the divergence between control rights and cash flow rights. Control rights are concentrated among politicians, and cash flows and profits are allocated back to the company or to the national budget. This discourages managers from pursuing profit maximization



strategies. Megginson, Nash, and Randenborgh (1994) examine 61 privatized firms across 32 industries from 18 countries. They conclude that government ownership is inefficient compared to private ownership, finding that all privatized corporations became more profitable, increased their sales, and become more efficient, without sacrificing jobs.¹⁴

On the other hand, government ownership can save the market from failure and eliminate monopolies. The tendency worldwide after the global financial crisis (GFC, 2008) is towards nationalization. Sun, Tong, and Tong (2002) find a positive effect of government ownership on firm performance among Chinese listed firms. In Saudi Arabia (a monarchy system), we would expect the government to exert even stronger power and influence. Saudi government ownership is concentrated, particularly in successful large companies and strategic industries such as the petrochemical and energy sectors. Therefore, we hypothesize a positive relationship between government ownership and performance.

The second independent variable is institutional ownership. We break institutional ownership into two components (corporates and mutual funds) to allow for variations between the two parties. Prior studies argue that institutional investors are more sophisticated and informed than other investors. Taylor (1990) documents the increasing importance of institutional investors in the US, where the equity held by institutions increased dramatically, from only 8% in 1950 to 45% by 1990. The expected effect of institutional investors on corporate performance is supported by the active monitoring argument. In this argument, institutional investors are better qualified,

¹⁴ Note that, these authors examine the transition of corporations from fully owned state enterprises (100%) to the market by selling some of its shares (partial privatization). This does not necessarily mean that government ownership post-privatization is harmful.



more active, and more informed than the general public to monitor management. In addition, institutional investors have the ability to take necessary action against management, and therefore watch managers more effectively and with less cost (Hand, 1990). Hartzell and Starks (2003) find that the level of management compensation is negatively related to the degree of institutional ownership, which indicates that institutional investors can mitigate agency problems at lower costs than in the absence of institutional investors.

McConnell and Servaes (1990) investigate 1,173 companies for 1976 and another 1,093 companies for 1986 and document a positive relationship between firm value, measured by Tobin's Q, and institutional ownership. Yuan et al. (2008) examine 1,211 Chinese firms between 2001 and 2005 and find that mutual funds contribute positively to firm performance.

Nevertheless, not all arguments are in favor of institutional investors, and some empirical evidence suggests a negative effect. The institutional myopia argument states that institutional investors usually focus on short-term objectives and fast returns, which make them pressure management to pursue unjustifiable projects. Wahal (1996) finds evidence for the argument that institutional investors have a positive effect on firm performance only for the short term. The author examines the impact of pension funds on firm performance, as measured by both accounting profitability and stock returns, and finds no positive effect.

Another argument to explain the negative impact of institutional investors is the strategic-alignment conflict of interest proposed by Pound (1988). In this explanation, institutional investors cooperate with and support managers, instead of providing



effective monitoring of interpersonal business relationships because the benefits of cooperating are larger than effective monitoring gains¹⁵.

Nevertheless, institutional investors' stake in the Saudi market grew rapidly, jumping from 20% to over 30% in five years. We posit that institutional investors in Saudi Arabia would have the same impact as the government, and we thus expect a positive link.

In addition, we include public ownership as an independent variable as the third explanatory variable. Jensen and Meckling (1976) propose a positive impact of diffused ownership on performance because combining the incentives for managers and dispersed shareholders might reduce agency problems. Benston (1985) examines the effect of dispersed shareholders on 29 large corporations between 1970 and 1975, and concludes that the officer-directors of large companies hold a sufficiently large amount of shares to have an incentive to make decisions that increase the market value of the company for the benefit of all. In addition, Byrd et al. (1998) support the positive effect of dispersed ownership on firm performance.

On the contrary, several arguments suggest a negative effect of managerial ownership on corporate performance. Firms with dispersed ownership have no large blockholders, and are controlled by managers (insiders). According to information asymmetry theory, managers may exploit the company in the absence of large investors. Fama and Jensen (1983b) propose a "hold-up" problem, in which shareholders cannot prevent opportunistic behavior by managers even though they recognize it. Morck et al. (1988) and Stulz (1988) call this opportunistic behavior managerial entrenchment, meaning

¹⁵ It is necessary to mention that, many studies suggest a negative impact of large blockholders in general (including government and institutions) on firm performance (e.g. Zingales, 1994; Burkart, Gromb, and Panunzi, 1997; Pagano & Roell, 1998).



that management can undertake projects that cannot be justified from a reward/risk rationale. In Saudi Arabia, only a few companies are widely held. We anticipate a negative effect of public ownership on performance.

Moreover, we add foreign ownership as an independent variable. With the rise of globalization, the importance of foreign ownership is attracting a lot of attention from both academicians and policy makers. The question to answer here is whether foreign ownership leads to better firm performance. Grant (1987) finds that foreign ownership leads to better firm profitability in the UK. Qian (1998) analyzes foreign ownership among American industrial firms over a ten-year period and concludes that foreign ownership has a significant positive impact on firm performance.¹⁶

On the contrary, Kim and Lyn (1990) associate foreign ownership with negative performance. The authors find that firms with foreign ownership perform worse than their counterparts without foreign holdings. Similarly, Driffield and Girma (2003) find a negative impact of foreign ownership on firm performance due to the higher wages that foreign firms pay, which offset productivity. Brennan and Cao (1997) suggest that foreign investors suffer considerable disadvantages compared to local investors due to their lack of knowledge and expertise in the domestic market. In Saudi Arabia, the market authority is offering many initiatives to attract foreign investors. The Saudi Tadawul is now included in the FTSE Russell emerging market index. However, because all these changes are recent, we cannot predict the effect of foreign ownership.

¹⁶ Other studies find a considerable positive impact of foreign ownership, such as those by Boardman et al. (1997), Alan and Steve (2005), Ahmadjan and Robbins (2005), and Nakano and Nguyen (2013).



We also include the family ownership variable as a dummy variable equal to one if the company is a family firm and zero otherwise.¹⁷ Family ownership is the most common type worldwide. La Porta, Lopez, and Shleifer (1999) and La Porta, Lopez, Shleifer, and Vishny (2000) find that family owned firms are the most common type in 27 countries. Moreover, Anderson and Reeb (2003) find that more than one-third of S&P 500 firms are owned by families. Their findings reveal a positive impact of family ownership, with family controlled firms outperforming non-family controlled firms. The authors also find that the relationship between family ownership and performance is non-linear, which is similar to dispersed ownership.

Maury (2006) considers 1,672 companies from Western European countries, finding that family controlled firms have better profitability rates than do non-family controlled firms. Nevertheless, the author documents a conflict between family managers and minority shareholders in the absence of shareholder protection in some countries. Moreover, Andres (2008) examines 275 German listed corporations and finds that family firms are not only more profitable than are widely held dispersed firms, but also outperform companies with other types of blockholders. However, this positive effect on firm performance is conditional on the presence of family members on the companies' boards. Another argument for the positive effect of family ownership, besides the alignment of interests argument, includes the long-term orientation of the family owner.

In contrast, several studies document a negative effect of family ownership on corporate performance. Villalonga and Amit (2006) examine data on Fortune 500 firms

¹⁷ We do not have the ownership data of family firms over time, as we do for the other classes. We thus include it as a dummy variable to capture the effect, if any.



in the US from 1994 to 2000, finding that family ownership adds value to the firm only when the founder serves as CEO or as the board Chairperson. In other words, family ownership has a positive impact on the prevalence of family founders in the firm. A study by Klein, Shapiro, and Young (2005) on 263 Canadian listed firms measured the relationship between various governance indices and ownership structures, and firm performance. They find strong evidence suggesting that family ownership has a negative effect on corporate performance, as measured by Tobin's Q.

The major argument for the negative effect of family ownership on firm performance pertains to private control benefits. In this argument, the conflict between the family owner and dispersed shareholders increases with increased family holdings, especially in countries characterized by low minority shareholder protection. This effect is even more evident when family owners are involved in management, which discourages qualified managers from improving firm efficiency, known as the manager discouragement argument (Smith and Amoako-Adu, 1999).

In Saudi Arabia, about 11% of the listed companies are family owned, even though family members do not seem to hold large stakes any longer. These family members have a strong presence in the board, hold executive roles, hold shares, and some remain hidden by holding less than the 5% threshold of shares. We conjecture a negative effect of family ownership due to increased agency costs.

Other common control variables include company size (log of market value), age (number of years from establishment year to the year 2018), financial (a dummy equal to one if the company operates in the banking or insurance industry and zero otherwise), risk in terms of the volatility of returns (the standard deviation of returns), and the



governance score a control variable to examine whether better governance leads to better performance.

In the second equation (Eq. 10), we replace the dependent variable (firm performance) with ownership, and use firm performance as an explanatory variable. We examine the causality as we do not know which factor is the driving force. We use the same explanatory variables as explained above.

Recent studies, however, consider ownership as endogenous to performance, as opposed to the traditional assumption of exogenous ownership (Demsetz and Lehn, 1985). Thus, it is challenging to identify which construct is the driving force. This led to three conclusions from the empirical evidence: the ownership–performance relationship is unidirectional, where ownership affects performance only; the relationship runs in reverse, where performance affects ownership only, or the relationship is bidirectional, where the effect runs in both directions.

The solution in the literature is to use either a 2-SLS regression for a single equation and to treat ownership as endogenous, or to use a 2-SLS simultaneous equations approach. We propose the following simultaneous equations model and estimate it using the 2-SLS approach.

$$\text{Firm performance} = f \{ \text{Government ownership; institutional (corporates, mutual funds); public ownership; size; age; financial; family; risk; governance score} \} \quad (11)$$

$$\text{Government ownership} = f \{ \text{Firm performance; institutional (corporate); public ownership; size; age; risk; governance score} \}$$



Public ownership = f {Firm performance; government ownership; size; age; governance score}

In this system, we have three dependent variables: firm performance, government ownership, and public ownership. The explanatory variables are the same as those explained earlier. We verify the ranking of the system and test our choice of instrumental variables for the 2SLS estimation in terms of bias and consistency. The system is identified.

4. Empirical results

4.1 Performance by ownership class

Table 2 Panel A shows the performance measures for different classes of ownership: public, managerial, institutional, family, governmental, and foreign. Eleven companies fall into public firm category. Public firms perform the worst of all categories. These companies are fully owned (widely held) by the general public, with no blockholders or major controllers. Most of these firms accumulate losses, with an average ROA, ROS, and EPS of -12.4%, -109%, and -2.11, respectively. In addition, sales growth is negative, -12.76%, and statistically significant at the 5% level. Firms within this group also record negative adjusted returns of almost -10% between 2014 and 2018. We note that this group has the worst corporate governance score of 68.4 out of 100, compared to the other groups. Therefore, these firms perform worst by all measures. Pound (1988) argues that individual owners are less efficient in monitoring management, and this is particularly true when individuals have lower equity bases. Our findings are in line with this view.



However, it could be that the bad performance of these firms drives informed investors away if we are uncertain of the underlying cause.

Next, we focus on the managerial companies (eleven firms). This group is the second-worst performing after public firms. These companies are owned mainly by the general public, but differ from the first class in that some members of the board of directors hold a large portion of the company (1% or more of the total shares). These firms have negative profitability, negative growth, negative stock returns, and a very low governance score of 69 out of 100. The evidence suggests that when managers dominate the board, agency costs increase because managers might try to expropriate corporate wealth (Stulz, 1988; Chen, 2006).

The picture looks much better when looking at government-owned and institutional firms. The former group, in which government entities hold the largest aggregate portion of stocks and/or have a government blockholder with a minimum holding of 5%, perform the best among all ownership classes. Fifty companies are classified as governmental companies. The ROA, ROS, EPS, and Tobin's Q are 2.5%, 24.2%, 2.42, and 3.9, respectively, and all are statistically significant. In addition, these 50 government firms show the best stock returns. Despite the downtrend of Tadawul, government-owned companies achieved almost a 2% adjusted HPR. Further, government-owned firms show the best governance score, at 75 points out of 100, which indicates that government ownership contributes positively to governance through active monitoring. This result is in line with those of Sun, Tong, and Tong (2002) regarding the positive effect of government ownership on Chinese listed firms.



Next, 115 companies are classified as institutional firms. These firms have the largest aggregate holdings and/or have at least one institutional blockholder holding a minimum 5% stake. The average aggregate institutional holdings among these firms is 33.3%, which indicates significant holdings of institutions in the Saudi market. The ROA and ROS are 2.74% and 12.5%, respectively, and significant at the 1% level. Furthermore, this class of companies achieved better stock returns than did the other classes, ranking just behind government-owned firms at 0.71%. This group shows a good governance score of 73. Our results on the impact of institutional investors are in line with those of Yuan et al. (2008).

Moving next to family firms, 17 companies fall into this category. These firms were 100% family owned pre-IPO and currently still have strong family presence through either large share holdings and/or a strong presence on the board. This class of firms ranked third in performance, after government-owned and institutional firms. The ROA and ROS are 4.4% and 9.9%, respectively. These results support Maury (2006) and Andres' (2008) finding on the positive effect of family ownership on firm performance. However, it is vital to mention that our study shows better performance compared to only the public and managerial ownership classes. Family firms suffer from the same problem as managerial firms do in that family members might exploit the company for their own benefits.

Surprisingly, foreign companies, in which foreign parties hold a large portion of stocks (minimum holdings of about 12% and an average of 29.3%), show poor performance. We classify 43 companies as foreign firms, and these are mainly concentrated in the banking and insurance sectors. The ROA and ROS for this class are 2% and 2.5%, respectively, and the adjusted HPR is -1.6%. This result contradicts the idea that opening the stock market



to foreigners is beneficial in terms of bringing capital and resources, and improving companies' efficiency and productivity. Indeed, according to Brennan and Cao (1997), foreign investors suffer considerable disadvantages compared to local investors due to their lack of knowledge and expertise in the domestic market. In addition, they suffer from high monitoring and transaction costs. Our results support the negative link between foreign ownership and performance.

Panel B of Table 2 reports the results using the second classification method based on the 20% cutoff. In this method, companies can belong to only the public, government, institutional, or foreign classification. We classified 50 companies as public firms without any single major blockholders holding 20% or more of the total shares. Similar to our prior observations, these widely held firms perform the worst among all classes. ROA, ROS, and EPS are all negative. In addition, the stock returns show the worst performance and is significant at the 1% level. We observe only a positive growth in sales, but it is insignificant. Additionally, the governance score is significantly the lowest at 71.3.

Government-owned and institutional corporations, where either dominates the ownership above the 20% cutoff, show good performance. Fifteen firms are classified as government-owned firms, and this category outperforms all others. For example, government firms show the highest ROA, EPS, governance score, and stock returns, all statistically significant at the 1% level. Institutional firms, where institutional ownership accounts for 20% of the ownership, show the second-best performance.

In the last class, foreign firms with foreign strategic partners and/or foreign aggregate holdings above the 20% threshold show relatively moderate performance. The ROA is



positive at 1.56% and significant at 1%. This class shows strong sales growth, at 20.2%. The negative ROS could be associated with the strong sales growth, which inflated the numerator. Stock returns are significantly negative. Finally, this group shows a moderate governance score.

The overall conclusion from this analysis is that the best-performing corporations are those with either large government and/or institutional holdings, followed by those with large foreign holdings. The worst-performing firms are widely held (dispersed ownership). These results point to severe information asymmetry; that is, variations between informed (government and institutions) and uninformed investors (the public and foreigners).

Table 2. Firm ownership and performance

Table 2 presents firm performance according to ownership classification. Public refers to firms that are widely held (owned completely by the general public), without any single blockholder; managerial refers to firms that are widely held (owned completely by the general public) with a managerial blockholding of more than 1%; institutional refers to firms with corporate and/or mutual fund blockholdings (average institutional holdings within this type is 33% of total equity and the minimum is > 5%); family refers to companies that were established as private family businesses and joined the stock market through an IPO and family members still hold a large proportion of the stocks and/or have a presence within the board of directors; government-owned refers to the firms in which the government holds a blockholding percentage > 5% and/or have a presence on the board of directors (average government holdings within this category is 28%); foreign refers to companies in which foreign investors own a large percentage of the stocks (foreigners can be either strategic foreign partners or aggregate foreign individual investors in excess of 10% of total shares; average foreign holdings within this category is 28% and the minimum is 11%). ROA and ROS are calculated as net income/total assets and net income/total sales, respectively. SG is calculated as (ending period sales – beginning period sales) / beginning period sales. EPS refers to earnings per share calculated as net income/total shares; TQ is Tobin’s Q valuation measured by a proxy for total market equity value/total assets; governance is the corporate governance score collected from the corporate governance index developed by the Corporate Governance Centre at Alfaisal University; and HPR is the holding period returns calculated over the five years between 2014 and 2018, as in Eq. 5; AR is the HPR adjusted by the TASI market index. For all measures, we report the companies’ averages.

Panel A: Firm performance based on the multi-classification method

Type	Firms	Av. ROA %	Av. ROS %	Av. SG %	Av. EPS	Av. TQ	Av. Governance	Av. HPR %	Av. AR %
Public	11	-12.35	-108.94	-12.76**	-2.11	2.45**	68.36***	-86.3***	-9.83***
Managerial	11	-0.29	6.43	-2.06	-0.07	1.45***	68.99***	-84.19***	-7.67***
Institutional	115	4.24***	12.48***	12.66***	1.48***	2.94***	73.14***	-78.13***	0.71
Family	17	4.36***	9.85***	-1.61	1.63***	4.26	71.31***	-79.88***	-0.36
Government-owned	50	2.64***	24.17***	5.96**	2.42***	3.96***	74.80***	-74.61***	1.91
Foreign	43	2.01**	2.56	15.41***	1.22***	1.04***	72.53***	-78.26***	-1.59

Panel B: Firm performance based on the 20% cutoff method

Type	Firms	Av. ROA %	Av. ROS %	Av. SG %	Av. EPS	Av. TQ	Av. Governance	Av. HPR %	Av. AR %
Public	50	-1.25	-19.64*	32.81	-0.17	1.48***	71.42***	-85.1***	-6.82***
Government-owned	15	4.88***	25.84***	1.5	2.65***	1.54***	73.65***	-70.67***	5.85**
Institutional	82	5.56***	15.93***	6.81**	1.82***	2.03***	73.05***	-76.39***	-0.21
Foreigner	27	1.56***	-2.63	20.22***	1.15***	1.07***	71.83***	-80.28***	-3.76***

*, **, and *** indicate significance at the 10%, 5%, and 1%, respectively.



4.2 Ownership and performance: Exogenous relationship

Table 3 shows the relationship between ownership structure and firm performance using an OLS single equation approach and assuming an exogenous relationship. In Panel A, we test the impact of various ownership class concentrations along with other control variables on firm performance, while in Panel B, we examine the impact of firm performance on ownership classes.

Focusing first on Panel A, we find that government ownership has a strong positive link with firm performance, as measured by Tobin's Q and adjusted stock returns. In other words, government ownership improves firm performance. Additionally, we observe that institutional investors (corporates and mutual funds) contribute positively to firm performance. Mutual funds have a particularly significant impact on stock returns. This result supports our conjecture that government and institutional investors are more efficient in monitoring companies and utilizing resources compared to other ownership types. These results are consistent with those of Sun, Tong, and Tong (2002) and Yuan et al. (2008) and our previous analysis using the corporate classification approach.

On the other hand, public and foreign ownership have a negative impact on firm performance. The larger the holdings (concentrations) of these ownership categories, the worse the corporate performance is. The results are statistically significant at the 1% level. Again, this finding confirms our previous results on the link between public and foreign ownership and firm performance. Fama and Jensen (1983b) suggest increasing agency costs and weaker monitoring by dispersed general public shareholders. Moreover, Breana and Cao (1997) propose a negative impact of foreign holdings due to the lack of knowledge of the domestic market. Our results are in line with these prior



studies. One noticeable observation is the negligible impact of family ownership on performance. We interpret this result with caution because we take family ownership here as a dummy variable, unlike other the classes, for which we use real percentage ownership. The result might not be accurate, especially due to the small sample of firms (17 firms) relative to the total number of listed firms.

The other explanatory variables explain several aspects of the companies' performance variations. Size has a positive impact, which suggests that larger firms perform better than small firms do. When we use Tobin's Q is used as the explanatory variable, size has a negative effect because larger firms tend to have more assets and hence less value (a low Tobin's Q). However, we use return as the dependent variable, size shows the conventional positive effect. Moreover, the age variable indicates that older firms perform better than young firms do. Similar to the size variable, age is negative for Tobin's Q because older firms tend to have more assets and are larger in size. Here, we are interested in the significance level rather than the sign of the relationship. In addition, the financial dummy variable suggests that financial firms (banks and insurance firms) tend to have greater returns than do other firms, as well as a lower Tobin's Q. The volatility variable, measured by the standard deviation of returns, indicates that riskier firms have higher returns (high risk, high return). Finally, the corporate governance score does not show a significant direct impact on firm performance.

However, if we consider the problem of endogeneity discussed in the literature, our results are not sufficient to prove that ownership structure per se impacts firm performance. Panel B provides the results for ownership when we use it as the dependent variable. First, we see that both measures of performance (Tobin's Q and



adjusted returns) have a significant positive impact on government holdings. Thus, the better the corporate performance is, the greater is the government and institutional holdings. This finding suggests an endogeneity obstacle because we are unsure which construct is affecting which. The literature suggests three alternatives: the ownership–performance relationship is unidirectional, reverse, or bidirectional.

The other ownership classes are negatively linked, as one would anticipate because the increase in one ownership class leads to a decrease in the other, as they compete for the firm’s ownership. The size control variable indicates larger government holdings in large firms and the opposite for public ownership. The age variable shows that government, family, and public owners all hold more of the older firms. Additionally, the financial dummy variable suggests less holdings of government and the public in the financial sector (banking and insurance). Perhaps the most striking observation is the positive significant link between the corporate governance score and government holdings. However, the governance score did not show a direct positive contribution to firm performance, as Panel A shows, though it does show a significant link with ownership. We predict that the government contributes to better governance, which in turn leads to better performance. On the contrary, the general public contributes adversely to the governance score. This is due to variations in monitoring ability between the ownership classes. Government and institutional investors usually represent large blockholders with a significant influence on firm decisions and performance, while public owners are typically scattered weak investors with no influence on corporations.

Table 3. Ownership and performance assuming an exogenous relationship

Panel A: OLS estimates for performance and ownership

This panel shows the estimates for Eq. 9. The dependent variable is firm performance measured by either the log of Tobin's Q or the AR. The independent variables are the government holdings (%); the institutional holdings (corporates and mutual funds, %), the general public holdings (%); the foreign holdings (%); the family dummy variable, which equals one if the firm is a family firm and zero otherwise; size is the log of the market value; age is the number of years from establishment; fin is a dummy variable equal to one if the firm operates in the banking or insurance sector and zero otherwise; risk is the volatility of returns calculated by the standard deviation of returns; the governance score is the firm's score on the governance performance index calculated out of 100.

	Model 1	Model 2	Model 3	Model 4
Performance	Tobin's q	AR	Tobin's q	AR
Intercept	2.5***	-0.48***	2.7***	-0.36***
Government-owned	0.22***	0.11***	0.19***	0.10***
Institutional (corporates)	0.11***	0.01	0.06	0.00
Institutional (mutual funds)	0.11	0.23***	0.03	0.21***
Public			-0.12**	-0.05***
Foreign	-0.25***	0.01		
Family	0.02	-0.01	0.02	-0.01
Size	-0.27***	0.03***	-0.29***	0.02***
Age	-0.00**	0.00**	-0.00	0.00***
Fin	-0.23***	0.03***	-0.28***	0.03***
Risk		0.33***		0.33***
Governance score	-0.00	-0.00		
F-stat	41.4***	51.32***	41.1***	53.04***
Adj-R²	0.28	0.35	0.28	0.36

Panel B: OLS estimates for ownership and performance

The panel shows the estimates for Eq. 10. The dependent variable is ownership represented by either the government holdings % or the public holdings %. The independent variables are firm performance measured by either the log of Tobin's Q or the adjusted returns; the institutional holdings (corporates and mutual funds, %); the general public holdings (%); the foreign holdings (%); the family dummy variable, which equals one if the firm is a family firm and zero otherwise; size is the log of the market value; age is the number of years from establishment; fin is a dummy variable that equals one if the firm operates in the banking or insurance sector and zero otherwise; risk is the volatility of returns calculated by the standard deviation of returns; the governance score is the score the firm receives on the governance performance index calculated out of 100.

*, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Ownership	Government	Government	Public	Public
Intercept	-1.12***	-1.12***	2.47***	2.2***
Tobin's q	0.05***		-0.07***	
AR		0.12***		-0.22***
Institutional (corporates)	0.02	0.03	-0.17***	-0.18***
Institutional (mutual funds)	-0.04	-0.08	-0.33***	-0.27***
Public	-0.06**			
Foreign		0.18***	-0.32***	-0.29***
Family	-0.12***	-0.12***	-0.01	
Size	0.13***	0.13***	-0.20***	-0.18***
Age	0.00***	0.00***	0.00**	0.00**
Fin	-0.01	-0.05***	-0.06***	-0.04*
Governance score	0.002***	0.002***	-0.004***	-0.004***
<i>F</i> -stat	30.61***	31.78***	53.60***	53.3***
Adj-R ²	0.22	0.23	0.34	0.33



4.3 2SLS simultaneous equation system analysis

To address the potential endogeneity issue further, we estimate a system of three equations for performance, government ownership, and public ownership, using a 2-SLS approach.¹⁸ Consistent with our previous findings, we find that government ownership is positively associated with firm performance in both directions (bidirectional). Thus, performance is a major determinant of ownership, and ownership is a major determinant of performance. This result is in line with those of Chung and Pruitt (1996), who document two-way causality between performance and ownership. Thus, government entities increase their holdings in successful firms, and performance improves with the increase in government equity. This is contrary to Cho's (1998) observation of a reverse relationship in which performance affects ownership, but ownership does not affect performance. The results also refute studies that document a lack of any relationship (e.g., Welch, 2003). In addition, we observe a negative link between government holdings and public holdings, as one would expect, because the greater the government holdings are, the fewer shares available for other ownership classes.

On the contrary, we confirm our previous findings on the negative association between public ownership concentration and firm performance. An increase in public ownership concentration leads to worse performance, and vice versa. Again, an increase in public equity indicates that owners become increasingly diffused, with no control over the firm, which might thus become more vulnerable to increased agency costs. Put differently, the more shares the public holds, the more entrenched the management

¹⁸ The application of OLS to a structural model may produce biased and inconsistent estimates (simultaneity bias) (Chung and Pruitt, 1996). However, we conduct the estimate using OLS and the results remain the same, and we observe no conflicting results. We do not report the results to save space.



will be. Consequently, companies with poor performance will end up with large public holdings. Therefore, the larger the holdings of the public are, the worse the performance is, and the worse the performance is, the larger the public holdings are. Again, we observe a bidirectional relationship.

The most important finding is that while most prior research focuses on the relationship between performance and managerial (insider) ownership, our results in this study are the first to document the bidirectional link for both the government and the public.

The other control variables, firm size, age, risk, and governance, show the same results as our analysis above. While size is positively linked with government ownership, since the government invests heavily in large corporations, it is negatively linked to public ownership. The general public holds fewer shares in large firms than in small firms. This result is consistent with La Porta et al. (1999) that in most nations, large corporations are do not have diffused ownership compared to the US and the UK. Age shows a positive link with all dependent variables, reflecting the fact that older firms are more attractive to different ownership classes due to their popularity. The risk variable shows a positive relationship with returns, which reflects the “higher risk, higher return” concept. Finally, the governance score indicates that government holdings contribute to better corporate governance than public holdings do.

Table 4

2-SLS simultaneous equation analysis of ownership and performance

The table shows the simultaneous equation estimates of firm performance with government and public ownership using the 2-SLS method, as in Eq. 11. The analysis is based on 174 Saudi firms listed on Tadawul between 2014 and 2018.

We specifically estimate the following system:

Firm performance (measured by adjusted returns (AR %) = $f(\text{government ownership, public ownership, firm size, firm age, risk, and governance score})$,

Government ownership (% held by government) = $f(\text{firm performance, public ownership, firm size, firm age, governance score})$,

Public ownership (% held by the public) = $f(\text{firm performance, firm size, firm age, and governance score})$.

Size is the log of market value; age is the number of years since establishment; risk is the volatility of returns (standard deviations), governance score is the firm's score on the governance index out of 100.

Dependent variable	AR	Government	Public
Explanatory variables			
Intercept	-0.38***	-0.81***	1.67***
Government	0.10***		
AR		0.41***	-1.03***
Public	-0.07***	-0.02**	
Size	0.03***	0.10***	-0.13***
Age	0.00**	0.00***	0.00***
Risk	p0.35***		
Governance score	0.00	0.002**	-0.003***
Adj-R ²	0.34	0.14	0.12

*, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.



4.4 Further analysis

Table 5 shows an example of each of the four ownership classes. Panel A shows a government-owned firm, Panel B shows an institutional firm, Panel C shows a public firm, and Panel D shows a foreign firm.

Focusing first on Panel A, we observe that government entities remain the major stockholders over the years above 80% of the total shares. Our cutoff of 20% makes this company undoubtedly government-owned. The profitability ratios of this company are the highest ROA, ROS, and EPS results. All are positive and significant. Additionally, this company recorded the highest governance score, at 83.8, with an adjusted positive return of 7.3%.

Moving next to Panel B for the institutional company, we find that institutional ownership is the largest among all classes, ranging between 37.4% and 41.1%. Here, we observe the same patterns of good performance over time. ROA and ROS fluctuate year to year, but are generally positive. The company also shows a strong governance score of 79.8.

On the contrary, Panel C shows poor performance for a public company. First, this company is widely held; the general public owns the majority of the shares, at 73% in 2014, and increased over time to 87.4% by 2018. One noticeable observation is the drop in institutional ownership for this company over time, which declined from 14.3% to less than 1% by 2018. As company performance deteriorates, institutional investors decrease their holdings and the less informed party (the general public) increasing their holdings. This finding confirms our earlier finding that ownership affects performance and vice versa. Moreover, the governance score was low, at 68.9.



Finally, Panel D shows a foreign company. Using a cutoff of 20%, this company could be classified as both institutional and foreign; however, foreign holdings are greater at 41.3%, while institutions hold only 21.4%; therefore, we consider it a foreign firm. The profitability of this company was negative between 2014 and 2016 and started to improve in 2017 and 2018. Further, the governance score is reasonable, at 76.6.

In short, this analysis shows that government and institutional corporations have the best performance, whereas foreign firms show moderate performance and public firms show the worst performance. Furthermore, the analysis points to the unique type of bidirectional relationship between ownership and performance. Ownership affects performance and performance affects ownership. Regardless of the different objectives that different parties might pursue, we believe profitability would be the ultimate goal for all parties.

Table 5. Further analysis of corporate ownership and performance

This table illustrates an example of each of the four ownership classes using the 20% cutoff. Panels A to D shows a government-owned, institutional, public, and foreign firm, respectively.

Panel A: Government-owned corporation: Saudi Telecommunication Company STC

Government-owned	2014	2015	2016	2017	2018
Government ownership %	84,38	84,48	84,47	84,50	84,45
Institutional ownership %	4,37	4,50	6,40	6,88	7,24
Public ownership %	10,43	9,84	7,97	7,81	7,37
Foreign ownership %	0,81	1,18	1,16	0,81	0,94
ROA %	11,34	9,58	8,40	9,37	9,63
ROS %	23,92	18,28	16,46	19,97	20,74
Q (SAR)	1,54	1,37	1,34	1,34	1,22
EPS (SAR)	5,48	4,63	4,27	5,07	5,39
Sales growth %		10,53	2,33	-2,10	2,40
Governance score					83,8
HPR %					-69,23%
AR %					7,29%



Panel B: Institutional corporation: Sipchem

Institutional company	2014	2015	2016	2017	2018
Government ownership %	9,66	10,86	11,59	11,74	10,93
Institutional ownership %	39,67	38,27	41,02	37,35	41,24
Public ownership %	37,12	38,16	35,42	35,61	36,02
Foreign ownership %	13,55	12,72	11,96	15,30	11,80
ROA %	3,55	1,69	0,43	2,74	3,79
ROS %	14,70	8,20	2,08	9,81	11,58
Q	1,37	0,57	0,43	0,87	0,41
EPS	0,83	0,79	0,19	1,19	1,59
Sales growth %		-14,78	-4,19	32,43	12,92
Governance score					79,8
HPR %					-85,23
AR %					-8,71

Panel C: Public corporation: Chemanol

Public company	2014	2015	2016	2017	2018
Government ownership %	0,00	0,00	0,00	0,00	0,14
Institutional ownership %	14,43	6,42	6,19	6,28	0,77
Public ownership %	73,13	82,08	82,36	82,07	87,39
Foreign ownership %	12,44	11,50	11,45	11,66	11,70
ROA %	1,24	-5,38	-4,59	-1,23	2,18
ROS %	3,64	-19,00	-18,97	-4,05	6,58
Q	0,56	0,56	0,44	0,44	0,57
EPS	0,27	-1,16	-0,94	-0,23	0,38
Sales growth %		-17,11	-18,87	14,84	2,69
Governance score					68,9
HPR %					-79,43
AR %					-2,91



Panel D: Foreign company: Zain

Foreign company	2014	2015	2016	2017	2018
Government ownership %	0,00	0,00	0,00	0,00	0,00
Institutional ownership %	17,33	18,65	19,79	20,72	21,39
Public ownership %	41,77	39,11	37,68	38,06	37,31
Foreign ownership %	40,90	42,24	42,53	41,21	41,29
ROA %	-4,87	-3,73	-3,69	0,04	1,26
ROS %	-20,58	-14,42	-14,13	0,16	4,41
Q	0,39	0,27	0,19	0,19	0,16
EPS	-2,17	-1,67	-1,68	0,02	0,57
Sales growth %		9,26	2,75	5,47	3,08
Governance score					76,6
HPR %					-89,40
AR %					-12,88

5. Conclusion

In this study, we developed a new ownership classification approach and investigated the association between various ownership types and firm performance. We used a unique dataset collected from the Saudi stock market, Tadawul, for 174 listed firms for the period 2014–2018. Our research provided several important findings.

First, we divided our companies into several categories based on the ultimate owner/s and allow for multiple classifications. We classified firms into six types: government-owned firms, institutional (corporate and mutual funds), foreign, family, managerial, and public. We found that government-owned and institutional firms are the best-performing among all ownership classes, as measured by accounting profitability, valuations, growth, stock returns, and governance. In other words, when government



and institutional investors represent a major shareholder (high concentration), companies show better performance.

On the other hand, public and managerial firms perform the worst; that is, when firms are widely held (completely owned by the general public), or when they are controlled by the board, they do not perform well. These firms seem “left over” for less-informed investors. Moreover, family and foreign firms show moderate performance. Family firms have strong control by the founders who still hold a large portion of a firm’s equity and/or are actively involved in the board. Foreign firms are mainly concentrated in the financial industry, and we observed no significant positive relation.

Further, we adopted La Porta et al.’s (1998) 20% cutoff technique to classify ownership and reach the same conclusion. We documented the superior government and institutional ownership over public and foreign ownership. Public and foreign firms are clearly disadvantaged, and there is huge information asymmetry between different groups.

We then employed a single OLS equation approach assuming an exogenous ownership–performance relation. The results revealed that performance affects ownership, and vice versa (bidirectional). Government and institutional ownership contribute positively to firm performance due to improved monitoring and increased participation in decision making, as shown by the high governance score. On the contrary, public ownership is adversely related to performance. In other words, increased public concentration leads to worse performance. Alternatively, the worse the firm’s performance is, the larger the public holdings are.



To address the potential endogeneity issue mentioned in the literature, we further developed a system of multiple equations of performance, government ownership, and public ownership and estimate it using the 2-SLS method. The estimates confirmed our findings that the performance–ownership link is bidirectional, where the causality runs from ownership to performance and from performance to ownership. Government ownership is positively linked with performance, while the public is negatively linked in both directions. The assumption of an exogenous relationship thus appears to be incorrect. Nevertheless, our results remained robust using different analysis techniques and econometric models.



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The background is a solid dark blue color. A white diagonal line runs from the top-left corner towards the bottom-right. In the upper right quadrant, there is a light blue square that is partially cut off by the white diagonal line.

Thank you!