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The association between privatisation and voluntary disclosure: evidence from Jordan

Mahmoud Al-Akra, Ian A. Eddie and Muhammad Jahangir Ali*

Abstract — This paper investigates the impact of privatisation on the extent of corporate voluntary disclosure in Jordan. We conduct a longitudinal examination using 243 annual reports of 27 privatised firms in Jordan over a period of nine years from 1996 to 2004. Employing univariate and pooled regression models our results show that privatisation is positively associated with voluntary disclosure. Specifically, we find that accounting regulation reforms and foreign investments accompanying privatisation have a significant impact on the levels of accounting disclosure in Jordan. Our study provides evidence on the role of privatisation in improving the disclosure culture as an important pre-condition for the development of active capital markets.

Keywords: voluntary disclosure; privatisation; Jordan

1. Introduction

In the face of globalisation, and in response to pressures of international bodies, many countries have adopted various economic reforms to revitalise their investment environments. Privatisation is one of the measures utilised to develop the role of capital markets in allocating resources. Consequently, in the past two decades the policy of privatisation has been employed by more than 100 countries in an attempt to promote efficiency, economic growth and development (Enthoven, 1998).

Privatisation is defined as ‘the deliberate sale by a government of state-owned enterprises (SOEs) or assets to private economic agents’ (Megginson and Netter, 2001: 321). The primary purpose of privatisation is to improve the efficiency of SOEs. Several theoretical arguments advanced to explain the inefficiency of SOEs draw on propositions relating to the governance problems of these firms. The weak governance of SOEs stems from the inability of managers of SOEs to commit to specific objectives for the firm, government interference in the firm’s operations, lack of high-powered incentives and lack of proper monitoring of SOE

managers. By contrast, private ownership is claimed to be more efficient and reflective of better governance (Megginson and Netter, 2001). Hence, the sale of SOEs to private owners is expected to enhance the governance of these firms, including better disclosure practices.

Further, privatisation aims at mobilising domestic savings, attracting external finance and consequently promoting the use of markets to allocate resources. Given the importance of the role that securities markets plays in privatisation, being the main avenue through which governments relinquish their shareholdings, privatising governments significantly restructure their securities markets by establishing a regulatory body similar to the US Securities and Exchange Commission including revising and updating their securities market regulation. Securities laws matter a great deal to stock market development (La Porta et al., 2006) and ultimately to the improvement of corporate disclosure (Adhikari and Tondkar, 1992).

Privatisation transfers ownership to new private owners, hence, the legal protection of these new owners becomes of crucial importance to the success of the privatisation process. To that end, privatising governments revise and update their corporate governance structures, including changes to their legal systems, and establish listing and other regulations that strengthen shareholders’ protection and provide for adequate prevention of insider dealings (Megginson and Netter, 2001). Stronger investor protection is associated with higher financial disclosures (Jaggi and Low, 2000).

Moreover, the new owners resulting from privatisation might have different incentives and abilities to monitor managers, thus the level of monitoring is expected to lead to the production of different levels

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of information disclosure. In particular, foreign investors monitor management closely, and require strong disclosure standards (Boubakri et al., 2005) to ensure high quality and comparable information. This is due to the potential information asymmetry resulting from language and space barriers (Huafang and Jianguo, 2007).

Although the economic policy of privatisation has gained significant importance, prior research has failed to explore the impact of privatisation on privatised firms' disclosure practices despite the significant changes privatisation brings about in terms of ownership changes, corporate governance and regulatory reform. Accordingly, this study tests whether privatisation influences voluntary disclosure of Jordanian privatised firms. We also examine whether the ownership changes, corporate governance and regulatory reform influence voluntary disclosure levels of privatised firms. To our knowledge, this is the first study which examines the influence of privatisation on voluntary corporate disclosure. Further, Jordan (and the Middle Eastern region) has been relatively neglected by disclosure research despite the recent changes in the accounting regulatory environments in the wake of the recent move towards globalisation. Jordan is of interest not only because of its status as a developing country, but because its government executed a privatisation program. Hence, documenting and understanding the impact this program has had on disclosure by Jordanian firms takes on particular importance.

We employ a longitudinal examination of voluntary disclosure using 243 annual reports of 27 privatised Jordanian listed companies over a period of nine years from 1996 to 2004. Using univariate and pooled regression models we observe that the extent of voluntary disclosure has increased significantly through the time period of the study. Results of the panel data validate the significant influence of privatisation on voluntary disclosure. The results also suggest that foreign investors, audit committees and regulatory reforms are factors positively associated with voluntary disclosure. We demonstrate that the association of these factors with voluntary disclosure is more positive when accompanying privatisation. We also carry out an additional analysis to reduce the possibility that our results are driven by time effects. The additional test indicates that time does not play a significant role in influencing the level of voluntary disclosure of Jordanian firms, thereby providing greater confidence in our findings.

The remainder of the paper proceeds as follows. The next section offers background information regarding privatisation and disclosure practices in

Jordan. Section 3 develops hypotheses and Section 4 presents the research design and methodology for testing our hypotheses. The results of our study are analysed in Section 5 while additional analyses are discussed in Section 6. Section 7 concludes the paper.

2. Privatisation and disclosure practices in Jordan

The Jordanian government's involvement in the economy through state-owned enterprises was intended to achieve several objectives and focus on serving the national economy including building, developing and maintaining infrastructure, import substitution, and regional development. The government owned substantial shareholdings in a number of small- and medium-sized industrial and service sector companies, and various financial institutions. It also had partnerships with the private sector in major industries and services such as minerals (cement, phosphate and potash), electricity, communications, public transport and tourism (ASE, 2008).

Public sector institutions and corporations in Jordan were highly inefficient, provided sub-standard services and were highly in debt, while private sector firms were better performing, producing higher returns and generating better job opportunities. The government's participation in public shareholding companies comprised around 15% when the privatisation process commenced in 1997, and decreased to less than 6% after it sold its shares in most of these companies by 2004. Following privatisation, the government maintains a share in major infrastructure companies such as Arab Potash, Jordan Phosphate Mines and Jordan Petroleum Refinery (ASE, 2008).

The Jordanian privatisation program took several methods with appropriate modes for each situation according to the specificity and particularity of each transaction, and for the purpose of avoiding the risks associated with using only one method. The methods used were: capital sales, e.g. IPO and divestiture; sales to strategic investors; concession agreements; management contracts; and franchising (EPC, 2008). To pave the way for privatisation and ensure its success, Jordan revised its institutional framework including its corporate governance structures, corporate disclosure rules and legal systems through the enactment of the 1997 Company Law, the 1997 Temporary Securities Law and the 2002 Securities Law.

The 1997 Company Law focused on the adoption of the full version of IAS/IFRS by all listed Jordanian firms in an attempt to improve transpar-

ency, comparability and reliability of Jordanian firms' corporate disclosure. Moreover, this law laid down the governance policy framework which focused on strengthening legal investor protection and emphasised the board of directors' responsibilities in ensuring compliance with mandatory requirements (ASE, 2008).

The 1997 Temporary Securities Law aimed at setting up three new institutions to replace the old Amman Financial Market (AFM), namely: Jordan Securities Commission (JSC), Amman Stock Exchange (ASE) and the Securities Depository Commission (SDC). These three institutions are responsible for setting and enforcing accounting regulations, protecting investors and ultimately promoting an investment culture in Jordan (JSC, 2008).

Finally, the 2002 Securities Law called for the adoption of the full version of the IFRSs. It also strengthened the powers of the above-mentioned institutions by giving them the authority to penalise non-complying firms. It spelled out the responsibilities of these institutions focusing on strengthening investor protection and developing stronger governance frameworks and stringent regulations to ensure compliance with the new requirements.

Prior to privatisation, disclosure practice in Jordan was dictated by the Companies Law No. 12 of 1964 (amended in 1989). This law was loosely stated and very limited in scope (Solas, 1994; Abu-Nassar and Rutherford, 1996; Rawashdeh, 2003). It required companies to prepare an annual report with a profit and loss statement, a balance sheet, explanatory notes and an auditor's report.¹ No further requirements were specified with regard to the form and content of the financial statements. The Commerce Code (Trade Law No. 12 of 1966) also required all companies to keep a general journal, inventory records and a correspondence register. Again no specification was provided as to the form and content of the accounts (Ott et al., 1997). Furthermore, the Amman Financial Market (currently known as Amman Stock Exchange) required listed Jordanian firms to prepare annual reports in accordance with generally accepted accounting principles (GAAP) without an interpretation of what constitutes GAAP (Naser, 1998).

3. Development of hypotheses

3.1. Privatisation and voluntary disclosure

The theoretical literature contends that improvements to firms' efficiency brought about by privatisation is due to the change of owners' identity from

state to private (Megginson and Netter, 2001). The precondition for the change is the typical inefficiency of state-owned firms. The main reason for this inefficiency is the weak governance in state-owned firms, reflecting agency conflicts. These conflicts are theoretically twofold. The first is public choice theory that postulates that government actors (politicians and bureaucrats) use state ownership to pursue their own objectives such as securing political office, accumulating power, or seeking rents (Alchian, 1965). Further, Shleifer and Vishny (1997) argue that political interference in the firm results in excessive employment, poor choices of product and location and lack of investment. The second argument suggests that corporate governance will be weaker in state-owned firms than in private firms because managers of state-owned firms may lack high-powered incentives or proper monitoring. This lack of incentives and monitoring is due to 'the weaker accountability for financial performance, easier access to financing, lack of exposure to a market for corporate control, and weaker monitoring by shareholders' (Mak and Li, 2001: 240).

One of the most important functions that corporate governance can play is ensuring the quality of the financial reporting process. It has been argued (Chiang, 2005) that companies with better corporate governance have higher standards of disclosure and transparency. Chiang (2005) concludes that companies with better governance signal this by better information disclosure to outsiders in order to develop a good image. Further, prior research has found an association between weaknesses in governance, and poor financial reporting quality, earnings manipulation, financial statement fraud, and weaker internal controls (e.g. Dechow et al., 1996; Beasley, 1996; McMullen, 1996; Beasley et al., 2000; Carcello and Neal, 2000; Klein, 2002). Hence, the weak governance of state-owned firms might be viewed as a source of poor corporate disclosure.

A number of empirical studies have tested the impact of state ownership on disclosure practice (Naser, 1998; Naser and Al-Khatib, 2000; Naser et al., 2002; Eng and Mak, 2003; Cheng and Courtenay, 2006); however, these studies report mixed findings.² A plausible explanation can be that

¹ The audit report must state that the company has complied with Company Law No. 1 of 1989.

² Eng and Mak (2003) and Cheng and Courtenay (2006) report significant positive influence of state ownership on voluntary disclosure. Naser (1998), Naser and Al-Khatib (2000), and Naser et al. (2002) are Jordanian studies that empirically examine the influence of state ownership on financial disclosure of Jordanian companies. No associations are reported between the government ownership variable and the depth of disclosure by Jordanian firms in the first and third study, while the second study reports a positive influence of government ownership on voluntary disclosure.

extant studies do not examine the impact of state ownership within the context of privatisation. Given the significant changes that the transfer of ownership from the state to the private sector brings about, as these firms experience a fundamental shift in their governance we expect privatised firms to exhibit higher disclosure levels under private ownership. Therefore, we hypothesise:

H1: The level of voluntary disclosure for privatised firms is higher under private ownership than under state ownership.

Following other privatisation studies (see Bortolotti et al., 2002; Boubakri et al., 2005), we introduce a dummy variable to test for the effect of privatisation (PRIV) that takes the value of one starting from the date when the firm is privatised.

3.2. Ownership structure and voluntary disclosure

The transfer of ownership from the state to private owners resulting from privatisation leads to diffused ownership structure and results in increased agency costs (Boycko et al., 1996). One way of reducing these agency costs could be through the voluntary disclosure of more information about the firm so that owners can better monitor their interests in the firm, and managers can reduce the agency costs that they bear. Wallace and Naser (1995) argue that the greater the number of people who need to know about the affairs of a firm the more comprehensive the disclosure of the firm. Singhvi and Desai (1971), McKinnon and Dalimunthe (1993), and Bauwhede and Willekens (2008) provide empirical evidence supporting this argument.

Alternatively, diffused ownership may imply a lack of monitoring capacity due to the low ownership stake of individual owners reducing their influence on the company's disclosure practices. Wallace and Naser (1995), Hossain et al. (1994) and Barako et al. (2006) provide evidence in support of this view. Further, Naser and Al-Khatib (2000) and Naser et al. (2002) note that Jordanian individual investors are not sophisticated and their investment decisions are uninformed. They find a negative association between individual ownership and disclosure. Therefore, it is not clear whether Jordanian individual investors influence voluntary disclosure levels of privatised firms. As a result, our hypothesis is non-directional for this type of ownership.

H1a: The level of voluntary disclosure of privatised firms is not associated with the proportion of individual investors.

Another type of private ownership is institutional investors. Firms with large institutional ownership

tend to increase their levels of voluntary disclosure (El-Gazzar, 1998). However, the author explains that when ownership is concentrated in the hands of a few institutions, these institutions may act like insiders and have better access to private information, hence they may not press for public disclosure. In Jordan, institutions are either passive or related to a controlling family (ROSC, 2005) implying that their presence would likely be associated with lower voluntary disclosure. Empirical evidence reflects a significant association between institutional investors and voluntary disclosure (El-Gazzar, 1998), while Ajinkya et al. (2004) observe a negative association with concentrated institutional investors. Again, the evidence of the relation between Jordanian institutional investors and voluntary disclosure is not clear. Hence, our hypothesis is also non-directional for institutional investors.

H1b: The level of voluntary disclosure of privatised firms is not associated with the proportion of institutional investors.

One of the major aims of privatisation is the attraction of foreign investment. Shehadi (2002) contends that over 90% of foreign direct investment in developing countries has come from privatisation. The author suggests that privatisation facilitates the involvement of foreign investment in developing countries through three main channels. The first is directly, through the adoption of regulatory measures that would liberalise trade, open the capital market to competition and allow foreign investors to own shares in listed companies. The second is indirectly, through increasing the liquidity of the capital market, which provides investors with an exit strategy. The third is through a catalytic impact by gaining the confidence of foreign investors as governments show commitment to privatisation and liberalisation.

Brown et al. (2004: 12) posit that 'foreign owners have better access to finance, management skills, new technologies and knowledge of markets, which would suggest higher productivity effects'. Foreign investors are a source of better governance and higher performance (Boycko et al., 1996; Dyck, 2001), place more emphasis on efficiency, require higher disclosure standards and monitor management more effectively (Boubakri et al., 2005).

Moreover, foreign investors likely face a higher level of information asymmetry because of language barriers and the geographical separation between management and owners (Haniffa and Cooke 2002; Huafang and Jianguo, 2007). Accordingly, foreign investors demand more information before investing in foreign firms leading to a

higher level of voluntary disclosure. This is especially pertinent for emerging markets where foreign investors may face greater uncertainty and unfamiliarity than local investors and thus demand greater disclosures from target companies.³

While empirical evidence investigating the impact of foreign investors on voluntary disclosure is limited, the results support the significant influence of foreign investors on the extent of voluntary disclosure (see Haniffa and Cooke, 2002; Lakhali, 2005). Further, Naser et al. (2002) contend that foreign investors have more experience in regional and international markets and hence they are more likely to demand higher disclosure standards. Following the above arguments, it can be hypothesised that:

H1c: The level of voluntary disclosure of privatised firms is positively associated with the proportion of foreign ownership.

In Jordan, Arab investors constitute a significant percentage of investors in the Amman Stock Exchange (ROSC, 2005). Anecdotal evidence points to the fact that Arab investors have little experience of dealing with stock exchanges (Naser and Al-Khatib, 2000). Naser et al. (2002) is the only empirical study that examines the influence of Arab investors on the depth of information disclosure of Jordanian listed firms, but they find no significant influence of Arab investors on corporate disclosure in Jordan. Hence, we exclude Arab ownership from our study.

3.3. Regulatory reforms and voluntary disclosure

Given the importance of the role that the securities market plays in privatisation, being the main avenue through which governments relinquish their shareholdings, privatising governments significantly restructure their securities markets by establishing a regulatory body similar to the US Securities and Exchange Commission including revamping their securities market regulation. Securities laws matter a great deal to stock market development (La Porta et al., 2006) and ultimately to the improvement of corporate disclosure (Adhikari and Tondkar, 1992).

Moreover, privatisation causes major changes in ownership from the state to private owners, significantly altering the ownership structure of firms. Hence, the legal protection of the new owners becomes of crucial importance to the success of the privatisation process. To that end, governments undertaking privatisation programmes revise and

update their corporate governance structures, including changes to their legal systems, and establish the listing and other regulations that strengthen shareholders' protection and provide for adequate prevention of insider dealings (Megginson and Netter, 2001). Stronger investor protection is associated with higher financial disclosures (Jaggi and Low, 2000).

Jordan introduced a set of accounting regulatory reforms aimed at modernising existing laws and creating a more favourable investment environment through the enactment of the 1997 Company Law, the 1997 Temporary Securities Law and the 2002 Securities Law (see Section 3.1). These laws called for the mandatory adoption of IAS/IFRS and developed the Jordanian corporate governance policy framework and substantially enhanced legal investor protection. It can therefore be expected that these regulatory reforms will enhance corporate disclosure. We develop two variables: LAW 1 and LAW 2. LAW 1 is a dichotomous variable that takes the value of one starting from the date when the 1997 Company Law and the 1997 Temporary Securities Law are enacted, and zero otherwise.⁴ The second variable is LAW 2 which is a dichotomous variable that takes the value of one starting from the date when the 2002 Securities Law is enacted, and zero otherwise. The following hypotheses are formulated:

H2a: The level of voluntary disclosure for privatised firms is positively associated with the introduction of LAW 1.

H2b: The level of voluntary disclosure for privatised firms is positively associated with the introduction of LAW 2.

3.4. Corporate governance reform and voluntary disclosure

As argued above, the Jordanian governance policy framework dealt with issues of the board of directors mandating the appointment of at least three non-executive directors on the board and mandating of audit committees to be comprised of at least three non-executive directors. Therefore, we investigate the influence of these two recently mandated governance mechanisms on voluntary disclosure.

The board of directors is the central internal mechanism for monitoring management (Mak and Li, 2001). Fama and Jensen (1983) posit that non-executive directors act as a reliable mechanism to reduce agency conflicts between managers and

³ We are grateful to an anonymous reviewer for this suggestion.

⁴ Note that the impact of the first two laws cannot be separated since both were enacted in the same year.

owners through encouraging management to disclose more information. It is further suggested that the presence of outside directors may limit management opportunism (Eng and Mak, 2003). Besides their monitoring role, non-executive directors are perceived as respected advisors; thus, they have an influence on the quality of firms' disclosures (Haniffa and Cooke, 2002).

Empirical evidence regarding the influence of non-executive directors on management disclosure is mixed. Chen and Jaggi (2000), Susilowati et al. (2005) and Cheng and Courtenay (2006) all report significant positive association between the proportion of independent directors and voluntary disclosure. On the other hand, Forker (1992) and Ho and Wong (2001) document an insignificant relationship between the ratio of outside directors and voluntary disclosure. However, Eng and Mak (2003), Gul and Leung (2004) and Barako et al. (2006) all outline significant negative associations between the ratio of non-executive directors and voluntary disclosure. Jordanian firms comply well with the requirements of the 1997 Company Law and the 2002 Securities Law (ROSC, 2005) appointing at least three non-executive directors. Hence we expect the presence of non-executive directors to positively influence voluntary disclosure levels.

H3a: The level of voluntary disclosure for privatised firms is positively associated with the proportion of non-executive directors.

Audit committees are viewed as monitoring mechanisms that oversee various aspects of governance in the firm including the internal control structure, internal and external audit functions and ensuring the quality of financial reporting (Bradbury, 1990; DeZoort, 1997). Audit committees play an intermediary role between the external auditor and management, and assist in maintaining the independence of external auditors so that high quality reporting is achieved in terms of compliance with disclosure standards (Susilowati et al., 2005). Previous research provides evidence of the positive impact of an audit committee on corporate disclosure. For instance, Forker (1992), McMullen (1996), Ho and Wong (2001) and Barako et al. (2006) all demonstrate a significant positive association between the presence of audit committees and the extent of voluntary disclosure. Therefore, we test the following hypothesis:

H3b: The level of voluntary disclosure for privatised firms is positively associated with the presence of audit committees.

3.4. *Company characteristics*

Previous empirical disclosure research advanced several arguments drawing on agency theory, signalling theory and capital market theory, hypothesising the impact of certain corporate attributes on voluntary disclosure (Chow and Wong-Boren, 1987; Cooke, 1989; Hossain et al., 1994; Inchausti, 1997; Chen and Jaggi, 2000; Owusu-Ansah and Yeoh, 2005). This study tests the influence of the following variables: sales, leverage, profitability, liquidity, auditor type, and industry type (see Table 2). The choice of these variables was based on their relevance to the socio-economic environment of Jordan, the ease of measurement and the availability of data relating to these variables.

4. Research design and methodology

4.1. *Data selection*

Privatised public non-financial companies listed on Amman Stock Exchange represent the population for this study. Annual reports over the period of nine years from 1996 to 2004 were used. Employing panel data techniques allows us to examine how ownership changes and governance reforms impact voluntary disclosure. Sample companies were chosen based on the availability of their annual reports and the requirement that they must be listed for the entire period of the study. To ensure that the maximum number of annual reports was obtained, a letter was sent to the Company Controller at the Ministry of Industry and Trade in Jordan (where all annual reports are filed) requesting the annual reports. In all, the final sample consists of 243 annual reports of 27 privatised firms. Table 1 shows sector representation of the sample companies (4 infrastructure, 16 manufacturing and 7 services companies).

4.2. *Dependent variable – voluntary disclosure indices (VDI)*

A disclosure index is developed to measure the extent of voluntary disclosure (the dependent variable) by Jordanian companies. To establish the disclosure index, a voluntary disclosure checklist is prepared based on information firms provide in their annual reports. To arrive at the items for the checklist an extensive review of previous voluntary disclosure studies, particularly developing countries' studies, was undertaken as a guide in selecting the most common items across those studies (Buckland et al., 2000; Hossain et al., 1994; Haniffa and Cooke, 2002; Eng and Mak, 2003;

Table 1
Distribution of sample according to industry

<i>Industry</i>	<i>Industry type</i>	<i>Number of companies (n = 27)</i>	
Industry 1 Infrastructure	1. Electricity	1	
	2. Cement	1	
	3. Minerals	1	
	4. Petroleum	1	
Industry 2 Manufacturing	1. Cable and electrical product	1	
	2. Chemical and pharmaceutical	3	
	3. Engineering	1	
	4. Food and allied products	4	
	6. Metals and allied products	1	
	8. Paper and printing	2	
	9. Textile products	2	
	10. Clay product and refractory	1	
	11. Leather and tanneries	1	
	Industry 3 Services	1. Hotels and tourism	2
		2. Press	1
3. Investment		1	
5. Transport		3	

Barako et al., 2006). The items in the checklist must be non-mandatory. This means the information disclosed is over and above what is required by the 1997 Company Law and the 2002 Securities Law, the two sources for disclosure regulation in Jordan. However, due to the introduction of the Securities Law in 2002 mandating certain disclosure requirements that were voluntary prior to this date, two disclosure checklists were prepared. These lists were sent to three auditing professionals in Jordan to consult them on the relevance and extensiveness of the voluntary disclosure items. The final lists are comprised of 90 items applicable for the annual reports of 1996–2002 and 81 voluntary items applicable for the annual reports from 2003–2004. They contain background information, strategic information, information about directors, capital market data, product/services information, financial data, employees' information and segments and research information.

The study uses an unweighted scoring approach appropriate for a study that does not consider the information needs of any specific group (Ghazali and Weetman, 2006). We also do not penalise a firm for non-disclosure if the item is not relevant to the firm. Such a judgment can be made after reading the entire annual report (Cooke, 1992). Accordingly, the annual report for each company is awarded a score of 1 if a voluntary item is disclosed and 0 if it failed to disclose it, provided it is relevant. Therefore, the VDI for each company is measured

as the ratio of the actual score awarded to the maximum possible score, defined as follows

$$VDI_{jt} = \frac{\sum_{i=1}^{n_{jt}} x_{ijt}}{n_{jt}} \quad (1)$$

where:

- VDI_{jt} = the voluntary disclosure index for the j th company in the year t , where t is 1996–2004;
- n_{jt} = number of voluntary items that were relevant for the j th firm in the year t , n_{jt} either 90 (for the years 1996–2002) or 81 (for 2003–2004);
- x_{ijt} = 1 if the i th (relevant) item is disclosed by the company j in the year t ;
0 if the i th (relevant) item is not disclosed;
Therefore, $0 \leq VDI_{jt} \leq 1$.

4.3. Independent variables

Information for the independent variables was sought from two main sources, the annual reports and the Annual Jordanian Shareholding Company Guide for the years (1997–2005)⁵ available at the web site of the Amman Stock Exchange (ASE).

⁵The Annual Jordanian Shareholding Company Guide is published by Amman Stock Exchange annually. It contains information about companies' boards, shareholders, and financial information.

Table 2
Definition and measurement of independent variables

<i>Variable</i>	<i>Definition</i>	<i>Measurement</i>	<i>Data source</i>
PRIV	Privatisation	Dummy variable: 1 when firms are privatised onward; 0 otherwise;	EPC
STO	State ownership	Total percentage of ordinary shares held by the state;	Annual Jordanian Shareholding Company Guide 1997–2005
FOW	Foreign ownership	Total percentage of ordinary shares held by foreign investors (non-Arab);	Annual Jordanian Shareholding Company Guide 1997–2005
INDOW	Individual ownership	Total percentage of ordinary shares held by domestic individuals holding 10% or less of the shares;	Annual Jordanian Shareholding Company Guide 1997–2005
IOW	Institutional ownership	Total percentage of ordinary shares held by institutional investors;	Annual Jordanian Shareholding Company Guide 1997–2005
LAW 1	The 1997 Company Law and the 1997 Temporary Securities Law	Dummy variable: 1 starting from the date when the 1997 Company Law and the 1997 Temporary Securities Law are enacted, and zero otherwise;	–
LAW 2	The 2002 Securities Law	Dummy variable: 1 starting from the date when the 2002 Securities Law is enacted, and zero otherwise.	–
PNED	Percentage of non-executive directors	Number of outside directors to the total number of directors on the board;	Annual Jordanian Shareholding Company Guide 1997–2005
AC	Audit committee	Dummy variable: 1 if an audit committee is present, 0 otherwise;	Annual Jordanian Shareholding Company Guide 1997–2005
Sales	Company size	Net sales/revenues;	Annual Jordanian Shareholding Company Guide 1997–2005
LEV	Leverage	Ratio of total liabilities to shareholders' equity;	Annual Jordanian Shareholding Company Guide 1997–2005
LIQ	Liquidity ratio	Current ratio: ratio of current assets to current liabilities;	Annual Jordanian Shareholding Company Guide 1997–2005
PROF	Profitability	Return on equity;	Annual Jordanian Shareholding Company Guide 1997–2005
AUD	Size of auditor	Dummy variable: 1 if auditor is one of the Big auditing firms, 0 otherwise;	Annual Jordanian Shareholding Company Guide 1997–2005
Industry types	IND1 Infrastructure IND2 Manufacturing IND3 Services	1 if infrastructure, 0 otherwise; 0 default level; 1 if services, 0 otherwise.	Annual Jordanian Shareholding Company Guide 1997–2005

Table 2 summarises the definitions and measurement of the independent variables.

4.4. Model specification

To test our hypotheses, the following pooled model was estimated:

$$\begin{aligned}
 VDI_{jt} = & \beta_0 + \beta_1 PRIV_j + \beta_2 STO_{jt} + \beta_3 FOW_{jt} \\
 & + \beta_4 INDO_{jt} + \beta_5 IOW_{jt} + \beta_6 LAW1 \\
 & + \beta_7 LAW2 + \beta_8 PNED_{jt} + \beta_9 AC_{jt} \\
 & + \beta_{10} Sales_{jt} + \beta_{11} LEV_{jt} + \beta_{12} LIQ_{jt} \\
 & + \beta_{13} PROF_{jt} + \beta_{14} AUD_{jt} + \beta_{15} IND1_{jt} \\
 & + \beta_{16} IND2_{jt} + \beta_{17} IND3_{jt} + \varepsilon_i \quad (2)
 \end{aligned}$$

where:

VDI_{jt}	= Voluntary disclosure index;
$PRIV_j$	= Dummy variable; 1 when the firm is privatised onward; 0 before;
STO_{jt}	= Total percentage of ordinary shares held by the state of firm j in year t ;
FOW_{jt}	= Total percentage of ordinary shares held by foreign investors (non-Arab) of firm j in year t ;
$INDO_{jt}$	= Total percentage of ordinary shares held by domestic individuals holding 10% or less of the shares of firm j in year t ;
IOW_{jt}	= Total percentage of ordinary shares held by institutional investors of firm j in year t ;
$LAW 1$	= Dummy variable: 1 starting from the date when the 1997 Company Law and the 1997 Temporary Securities Law are enacted onward, and zero otherwise;
$LAW 2$	= Dummy variable: 1 starting from the date when the 2002 Securities Law is enacted onward, and zero otherwise.
$PNED_{jt}$	= Number of outside directors to the total number of directors on the board s of the shares of firm j in year t ;
AC_{jt}	= Dummy variable: 1 if an audit committee is present in firm j in year t , 0 otherwise;
$Sales_{jt}$	= Net sales/revenues of firm j in year t ;

LEV_{jt}	= Ratio of total liabilities to shareholders' equity of firm j in year t ;
LIQ_{jt}	= Ratio of current assets to current liabilities of firm j in year t ;
$PROF_{jt}$	= Return on equity of firm j in year t ;
AUD_{jt}	= Dummy variable: 1 if one of the Big auditing firms are employed by firm j in year t , 0 otherwise;
$IND1_{jt}$	= 1 if firm j in year t is infrastructure, 0 otherwise;
$IND2_{jt}$	= 0 default level
$IND3_{jt}$	= 1 if firm j in year t is services, 0 otherwise;
$\beta_0, \beta_1, \beta_2 \dots \beta_{26}$	= The regression estimates, and
ε_1	= The stochastic disturbance term.

In addition to the pooled regression specified above, we carry out two additional analyses. In the first, we test whether privatisation enhances the positive influence of ownership changes, audit committees and regulatory reforms on voluntary disclosure levels. We examine this issue by including interaction terms of the variables in question with privatisation. Our second test aims at ascertaining whether the increase in the level of voluntary disclosure is due to privatisation and the accompanying regulatory reforms and not to time effects. To control for time effects, we perform two comparisons between firms that were privatised early with firms that were privatised later on, and between firms that were privatised later on with private firms (firms that were not subject to privatisation). Section 6 details the methodology and results of these analyses.

5. Results and discussion

5.1. Descriptive statistics and univariate tests

Table 3 presents descriptive statistics for all variables (Panel B) and compares data for 1996 with 2004 (Panel A).

The table indicates a notable decrease in state ownership, while foreign⁶ and institutional shareholdings have markedly increased. It also points to a decrease in individual ownership⁷ which is surprising given the aim of privatisation which is primarily to promote an equity culture in the privatising country. A possible explanation could be due to political instability as a result of war and unrest in

⁶ Arab ownership is not included in foreign ownership.

⁷ We exclude individuals who are block owners of 10% or more.

Table 3
Descriptive statistics for the privatised firms
Panel A: Comparison between 1996 and 2004

<i>Variable</i>	<i>Years</i>	<i>Mean</i>	<i>Median</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Std dev.</i>
STO (%)	1996	22.69	15.74	0.04	78.95	22.23
	2004	8.39	1.80	0.00	55.39	13.42
FOW (%)	1996	0.84	0.04	0.00	12.42	2.48
	2004	3.95	0.09	0.00	48.53	10.57
INDOW (%)	1996	39.98	40.64	0.19	88.81	23.49
	2004	29.62	22.44	0.14	66.20	20.87
IOW (%)	1996	20.88	17.36	0.00	42.58	13.63
	2004	27.66	24.75	0.54	69.59	20.43
PNED (%)	1996	0.28	0.30	0.00	0.46	0.14
	2004	0.28	0.22	0.00	0.78	0.21
Sales (JD)	1996	37,341,051	6,453,355	0	493,458,976	98,025,222
	2004	59,311,277	7,064,271	82,319	861,840,893	170,531,459
LEV (%)	1996	92.90	49.00	0.30	571.70	140.5
	2004	84.10	27.00	1.70	340.10	108.8
LIQ (%)	1996	5.26	1.97	0.40	88.15	16.63
	2004	4.03	2.26	0.74	25.75	5.01
PROF (%)	1996	3.67	8.69	-75.49	24.65	19.36
	2004	6.03	7.90	-38.41	31.93	15.52
Categorical variables		1 (%)	0 (%)			
AC	1996	0	100			
	2004	37%	63%			
AUD	1996	48.15%	51.85%			
	2004	81.48%	18.52%			

Panel B: All firms

<i>Variable</i>	<i>Mean</i>	<i>Median</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Std dev.</i>	<i>Skewness</i>
STO (%)	15.33	7.84	0.00	78.95	18.75	1.44
FOW (%)	2.52	0.04	0.00	52.46	8.61	4.79
INDOW (%)	33.69	37.21	0.14	88.81	21.49	0.14
IOW (%)	27.28	24.59	0.00	69.59	19.10	0.39
PNED (%)	0.26	0.25	0.00	0.78	0.16	0.37
Sales (JD)	47,451,121	6,918,592	0.00	851,647,495	122,864,093	4.69466
LEV (%)	81.40	39.80	0.30	571.7	117.8	2.62813
LIQ (%)	4.58	2.21	0.40	88.15	10.22	7.15537
PROF (%)	4.36	6.47	-75.49	31.93	15.36	-2.12099
Categorical variables		1 (%)	0 (%)			
PRIV		57%	43%			
LAW 1		89%	11%			
LAW 2		33%	67%			
AC		14%	86%			
AUD		70%	30 %			
IND1		14%	86%			
IND3		26%	74%			

neighbouring countries leading to the reluctance of many small individuals to trade in the capital market.

In 1996 the net sales/revenues of the sample companies increased from an average of 37.34m to 59.113m Jordanian Dinars. While leverage and

liquidity declined, profitability measured by return on equity showed a notable rise. The number of companies utilising the services of the Big auditing firms increased significantly from around 48% to 82% of the sample companies. Panel B shows that some variables are highly skewed, and hence they

Table 4
Panel A: Distribution of total voluntary disclosure scores: selected years: 1996, 2000 and 2004

Disclosure score (%)	1996		2000		2004	
	No. of companies	%	No. of companies	%	No. of companies	%
<=0.1	7	25.9	5	18.5	1	3.7
0.11–0.2	14	51.9	11	40.8	12	44.4
0.21–0.3	3	11.1	6	22.2	7	25.9
0.31–0.4	0	0	1	3.7	3	11.1
0.41–0.5	3	11.1	1	3.7	0	0
0.51–0.6	0	0	3	11.1	2	7.5
> 0.6	0	0	0	0	2	7.5

Panel B: Distribution of privatisation across the time period: 1996–2004

Years	1997	1998	1999	2000	2001	2002	2003
No. of companies	8	2	3	3	1	2	8
Accumulation	8	10	13	16	17	19	27

Panel C: Comparison of voluntary disclosure: 1996, 2000 and 2004

VDI (N = 27)	1996	2000	2004
Mean	0.168	0.220	0.264
Median	0.137	0.176	0.203
Minimum	0.028	0.083	0.085
Maximum	0.440	0.595	0.649

Panel D: Tests of equality of means of voluntary disclosure: 1996, 2000 and 2004

	Paired t-test	
	t-statistic	P value*
2000 versus 1996	2.80	0.009
2004 versus 2000	4.33	0.000
2004 versus 1996	4.81	0.000

*All probabilities are two-tailed.

were transformed as follows: foreign ownership using the second root, sales using natural logarithm, and the variables leverage, liquidity, and profitability using cosine.

Panel A, Table 4 presents the distribution of total voluntary disclosure scores for selected years. The level of voluntary disclosure is generally moderate over the nine-year study period. Comparing data for 1996 with that of 2000 and 2004, the table demonstrates an increase in the level of voluntary disclosure by Jordanian companies. By the year 2004, four companies had disclosed more than 50% of the items included in the disclosure index (three

in 2000). Also, in 1996, seven companies scored less than 10% of the voluntary disclosure index (five in 2000) whereas by 2004 only one company was in that category, thereby signifying a noticeable increase in the voluntary disclosure by the privatised firms. Panel B shows the distribution of privatisation across the time period of the study. By comparing the data in this panel with disclosure scores given in Panel A, the number of companies showing improvement in voluntary disclosure levels corresponds well with those being privatised.

The above findings are also confirmed by the comparisons of means of the extent of voluntary

Table 5
Pearson correlation matrix for explanatory variables

	<i>VDI</i>	<i>STO</i>	<i>FOW</i>	<i>INDOW</i>	<i>IOW</i>	<i>PNED</i>	<i>Sales</i>	<i>LEV</i>	<i>LIQ</i>
<i>STO</i>	0.230**								
<i>FOW</i>	0.602***	0.076							
<i>INDOW</i>	-0.210*	-0.373***	-0.077	-0.077					
<i>IOW</i>	-0.266**	-0.184*	-0.143	-0.352***					
<i>PNED</i>	0.284***	-0.170*	0.140**	0.395***	-0.198*				
<i>Sales</i>	0.436***	0.164	0.368***	-0.094	-0.198**	0.493***			
<i>LEV</i>	0.041	0.150	0.015	0.178*	-0.277**	0.054	-0.024		
<i>LIQ</i>	0.056	-0.121	0.117	0.004	0.004	0.070	0.053	-0.060	
<i>PROF</i>	0.004	-0.231**	-0.055	0.112	0.138	-0.119	0.063	-0.086	-0.032

***Correlation significant at 0.01 level (two-tailed);

** Correlation significant at 0.05 level (two-tailed);

* Correlation significant at 0.1 level (two-tailed).

disclosure (Panel C). It can be seen that the level of voluntary disclosure is generally lower in 1996 than in 2000 and that in 2004, with means of 0.1677 in 1996, 0.2196 in 2000 and 0.2635 in 2004 indicating an increase in the extent of voluntary disclosure in the annual reports of listed privatised Jordanian companies. Further, the results of the paired-*t* test were significant at the 0.01 level, thereby validating the above results (Panel D).

Table 5 depicts the Pearson correlation matrix of the dependent and independent continuous variables. The extent of voluntary disclosure is highly positively correlated with foreign ownership and sales, and to a lesser extent with the proportion of non-executive directors and state ownership. However, a negative correlation coefficient is reported for individual and institutional owners implying an association of these types of owners with less disclosure. The highest absolute correlation coefficient between the independent variables is (0.493) between the proportion of non-executive directors and net sales, implying that multicollinearity does not constitute a major problem.⁸

5.2. Pooled regression results

Table 6 provides the results for the pooled regression model using both the cross sectional and time series data. To accommodate panel data, we need to control for unobserved firm-specific and temporal effects. We believe that the inclusion of industry fixed effects would capture firm-specific effects since each firm exhibits the same characteristics as the whole industry. Further, the introduction of the

variable *PRIV* controls for any temporal changes in the firm's environment.

In order to conduct regression analysis, several assumptions must be satisfied, these are: linearity of relationships, absence of multicollinearity, the values of the dependent variable are normally distributed for the values of each of the independent variables; and the residuals have constant variance throughout the domain of the independent variables (homoscedasticity). Tests of multicollinearity are conducted using the Pearson correlation matrix and the variance inflation factor.⁹ To test for the assumption of a normally distributed residual error, histograms of the studentised residuals and normal plots are used. Homoscedasticity is tested using the studentised residuals plots against the predicted values of the dependent variable and the Breusch-Pagan/Cook-Weisberg test.

As Table 6, model 1 illustrates *PRIV* has a positive significant coefficient, supporting H1 and pointing to the significant influence of privatisation on the extent of voluntary disclosure. This result suggests that privatisation is successful in enhancing voluntary disclosure levels of privatised firms. The table also suggests that foreign investors are positively associated with voluntary disclosure levels supporting H1c.¹⁰ This confirms the superiority of foreign investors in demanding higher disclosure standards and undertaking more monitoring of management (Boubakri et al., 2005). The coefficient of individual ownership is negatively

⁸ A rule of thumb is that multicollinearity may be a problem if a correlation is > 0.7 in the correlation matrix formed by the independent variables.

⁹ The VIF values shown in Table 6 indicate absence of multicollinearity problems since they do not exceed 10 (Neter et al., 1989). The highest VIF value is 4.5 concluding that multicollinearity does not constitute a problem.

¹⁰ Foreign ownership variable is not significant when it is measured taking into account Arab ownership.

related to disclosure, while the coefficient of institutional investors is insignificant. The result of individual ownership is consistent with Hossain et al. (1994) and is evidence that the greater the individual shareholdings, the lesser the monitoring capacity. The result for institutional investors supports the view that they are primarily block owners relying on insider-provided information, hence reducing the need for public disclosure.

With respect to the regulatory reforms, the coefficients of LAW 1 and LAW 2 are significant, supporting H2a and H2b. This indicates that the accounting regulatory reforms through the enactment of the 1997 Company Law, the 1997 Temporary Securities Law and the 2002 Securities Law produce significant positive influences on the extent of voluntary disclosure of privatised Jordanian firms. Further, the coefficient of AC is highly significant, supporting H3b and implying that the presence of audit committees results in firms having higher voluntary disclosure. A somewhat surprising result is the insignificance of the non-executive directors (PNED) coefficient. A possible explanation for this result is due to the requirement of the 1997 Company Law that all directors on the board to be shareholders thereby jeopardising the independence of the non-executive directors, and hence reducing their role in monitoring management and in enhancing disclosure quality.

Regarding company characteristics, the variables Sales (net sales/revenues), AUD (auditor type) and IND1 (industry type 1) are all significantly associated with the extent of voluntary disclosure. The result for sales as a proxy for company size is consistent with almost all disclosure studies and the Meta analysis of Ahmed and Courtis (1999). Auditor type is negatively associated with the extent of voluntary disclosure (at the 0.05 level). The result of auditor type is consistent with the findings of Jordanian studies (Naser and Al-Khatib, 2000; Naser et al., 2002). Industry type 1 (infrastructure) is highly significant indicating that these firms are far superior in the extent of their information disclosure, reflecting the significance of their activities, hence the production of comprehensive and detailed information.

6. Additional analyses and robustness checks

6.1. Ownership, accounting regulatory reform and privatisation

So far, we have analysed different types of ownership and related them to corporate disclosure based on their incentives and abilities to monitor man-

agement. However, privatisation leads to the transfer of ownership from the state to private investors. In particular, privatisation facilitates the involvement of foreign investors who place greater emphasis on profit and efficiency (Boycko et al., 1996; Shleifer and Vishny, 1997), maintain strict monitoring of management actions and demand a high standard of comparable information disclosure (Dyck, 2001). Hence, if privatisation results in an increase in voluntary disclosure levels as it changes the ownership structure of privatised firms to those new owners; we would expect a more positive effect for those new owners with voluntary disclosure. To test whether privatisation enhances the positive association between ownership and voluntary disclosure levels in privatised firms we introduce an additional explanatory variable that reflects interaction of ownership variables with privatisation. Since institutional and individual owners do not produce a positive impact on voluntary disclosure, we only include an interaction term for foreign investors with privatisation.

Additionally, we examined the influence of governance and regulatory reforms on voluntary disclosure levels of privatised firms. Privatising governments significantly change their corporate governance arrangements, including changes to their legal systems, significantly restructuring their securities markets by establishment of a regulatory body similar to the US Securities and Exchange Commission, and establishment of listing and other regulations strengthening shareholders' protection and providing for adequate prevention of insider dealings (Megginson and Netter, 2001). If privatisation enhances the levels of voluntary disclosure when these reforms are implemented, then we would expect to find a positive interaction effect of the reforms and privatisation on voluntary disclosure. We examine this issue by including additional explanatory variables that reflect interaction of the reforms (pertaining to LAW 1, LAW 2 and AC)¹¹ with privatisation.

Table 6, Model 2 provides the results of the interaction terms. The coefficient of PRIV*FOW is significantly positive suggesting that changes in ownership as a result of privatisation to foreign investors has a more positive impact on voluntary disclosure. Further, the interaction coefficients of PRIV with LAW 1, LAW 2 and AC are all positively significant, thereby pointing to a more positive effect of the regulatory reforms accompanying privatisation on voluntary disclosure prac-

¹¹ We do not include PNED since this variable does not have any significant influence on voluntary disclosure.

Table 6
Pooled regression estimates for the privatised firms, N = 243 (1996–2004)

Variable	Predicted sign			Model 1 Without the interaction terms			Model 2 With the interaction			
	Coefficient	T-statistic	p-value	Coefficient	T-statistic	p-value	Coefficient	T-statistic	p-value	VIF
Constant	None	0.021	0.26	0.026	0.793	0.426	0.026	0.33	0.745	
Privatisation (PRIV)	+	0.025	1.97	0.034**	0.034**	2.2	0.052	1.92	0.038**	4.5
State ownership (STO)	?	0.0009	1.12	0.222	0.222	2.4	0.0009	1.39	0.148	2.5
Foreign ownership (FOW)	+	0.055	3.75	0.000***	0.000***	2.0	0.052	3.95	0.000***	2.1
PRIV * FOW	+	–	–	–	–	–	0.035	1.78	0.053*	1.2
Individual ownership (INDOW)	?	–0.0004	–2.12	0.05**	0.05**	2.3	–0.0005	–1.80	0.074*	2.3
Institutional ownership (IOW)	?	–0.0003	–0.14	0.778	0.778	2.1	0.0004	–0.34	0.718	2.2
LAW 1	+	0.029	2.14	0.023**	0.023**	1.3	0.028	2.03	0.04**	1.3
PRIV*LAW 1	+	–	–	–	–	–	0.019	1.59	0.076*	1.2
LAW 2	+	0.026	2.65	0.009***	0.009***	1.5	0.025	2.56	0.011**	1.5
PRIV*LAW 2	+	–	–	–	–	–	0.017	1.76	0.072*	3.7
Percentage of non-executive directors (PNED)	+	0.019	0.60	0.549	0.549	1.8	0.016	0.50	0.617	1.9
Audit committee (AC)	+	0.054	2.03	0.03**	0.03**	1.6	0.053	1.96	0.036**	1.6
PRIV*AC	+	–	–	–	–	–	0.058	1.79	0.054*	1.1
Sales (SIZE)	+	0.088	1.41	0.084**	0.084**	3.2	0.007	1.66	0.080**	3.2
Leverage (LEV)	+	0.01	0.78	0.442	0.442	1.1	0.007	0.60	0.550	1.1
Liquidity (LIQ)	+	–0.018	–1.29	0.101	0.101	1.2	–0.019	–1.47	0.073*	1.2
Return on equity (PROF)	+	0.008	0.70	0.269	0.269	1.1	0.012	1.02	0.15	1.1
Auditor type (AUD)	+	–0.026	–2.03	0.029**	0.029**	1.4	–0.023	–1.61	0.046**	1.5
Industry 1 (IND 1)	+	0.225	5.59	0.000***	0.000***	3.4	0.231	5.79	0.000***	3.5
Industry 3 (IND 3)	–	–0.002	–0.11	0.465	0.465	1.4	–0.004	–0.22	0.424	1.5
R-Sq			77.9%					82.5%		
R-Sq (adj)			75.7%					79.4%		
F			20.96					16.98		

*** Significant at the 0.01 level (all probabilities are one-tailed except the constant, STO, INDOW and IOW); **Significant at the 0.05 level; * Significant at the 0.1 level; PRIV= Dummy variable; 1 when the firm is privatised onward; 0 before; STO = total percentage of ordinary shares held by the state; FOW = Total percentage of ordinary shares held by foreign investors; PRIV*FOW= Interaction term between privatisation and foreign ownership; INDOW= Total percentage of ordinary shares held by domestic individuals; IOW = Total percentage of ordinary shares held by institutional investors; LAW1 = Dummy variable: 1 starting from the date when the 1997 Company Law and the 1997 Temporary Securities Law are enacted, and zero otherwise; PRIV*LAW 1 = Interaction term between privatisation and LAW 1, LAW2 = Dummy variable: 1 starting from the date when the 2002 Securities Law is enacted, and zero otherwise; PRIV*LAW 2 = Interaction term between privatisation and LAW 2; PNED = The number of outside directors to the total number of directors on the board; AC = Dummy variable: 1 if an audit committee is present, 0 otherwise; PRIV*AC = Interaction term between privatisation and AC; Sales (SIZE) = Net sales/revenues; LEV = Ratio of total liabilities to shareholders' equity; LIQ = Ratio of current assets to current liabilities; PROF = Return on equity; AUD = Dummy variable: 1 if auditor is one of the Big auditing firms, 0 otherwise; IND1 = 1 if infra-structure, 0 otherwise; IND2 = 0 default level; IND3 = 1 if services, 0 otherwise.

tices of privatised Jordanian firms. These results suggest that the effect of foreign investors, the mandate of audit committees and the regulatory reforms are more positive when accompanying privatisation.

6.2. Privatisation and time effect

In this section, we consider whether the increase in the level of voluntary disclosure is due to privatisation and the accompanying regulatory reforms and not to time effects. To control for time effects, we compare firms that were privatised early with firms that were privatised later on.¹² However, this would limit the analysis to the first years of privatisation (from 1996 to 2000); therefore, we perform a second comparison over the rest of the privatisation period (from 2000 to 2004) between firms that were privatised later on and private firms (firms that were not subject to privatisation).

We first compare two sets of firms; firms that were privatised before 2000 with firms that were privatised after 2000¹³ over the first five years of the study (1996–2000). Accordingly, the comparison process is conducted between 65 observations in the first set (13 annual reports per year), with 55 observations in the second (11 annual reports per year).¹⁴ Table 7 presents the results of the first comparison. As the table indicates, privatisation, foreign ownership, LAW 1 (the 1997 Company Law and the 1997 Temporary Securities Law), PNED (the percentage of non-executive directors), and AC (audit committees) are all significant, confirming the results of the previous regression models. All coefficients of the year dummy variables are not significant implying that time did not have a significant impact on voluntary disclosure of privatised firms and that the improvement in disclosure practices is due to privatisation and the accompanying reforms.

The results of the matching group of late privatised firms show that LAW 1 is significant, while foreign ownership, PNED and AC are all insignificant. These results can be interpreted as follows: privatised firms attract foreign investment and comply better with the requirements of the 1997 Company Law, hence enhancing their voluntary

disclosure levels. Coefficients of the year dummy variables are again insignificant.

The second comparison matches two sets of firms; firms that were privatised between 2000 and 2004, and compares them with privately owned firms over the same period. Therefore, the matching process is conducted between 70 observations in the first set (14 annual reports per year over a five-year period) with 70 observations in the second (14 annual reports per year). Table 8 shows the results of the two groups of firms. For the first group of late privatised firms, privatisation, foreign ownership (FOW), LAW2 and audit committee (AC) are all positively related to voluntary disclosure, while the variables FOW, LAW2 and AC are positively related with voluntary disclosure of private firms. These findings confirm the results found earlier that privatisation, the accompanying reforms and foreign investors have influenced voluntary disclosure. The results also show that the regulatory reforms and foreign investment have influenced private Jordanian firms. The results for the year dummy variables suggest that time did not play a significant role in influencing the level of voluntary disclosure of Jordanian firms. All models show that Sales and IND1 are significant supporting the previous findings.¹⁵

While private firms in the second comparison show significant results for foreign ownership and audit committees, state-owned firms in the first comparison do not. This can be due to the weak governance of state-owned firms which led to lessening the role of audit committees in enhancing disclosure practice. Also, the positive impact of foreign ownership in private firms is explained in light of our earlier arguments that foreign investment is attracted to all firms in the privatising country.

We repeat the previous analyses after dropping the variable PRIV from the models of the privatised groups. Untabulated results indicate that there is no significant shift in coefficient values of the year dummy variables.

6.3. Robustness checks

We undertake an untabulated test to ascertain the robustness of our results. We repeat the previous multivariate analyses using the normal scores approach and the rank transformation approach. The normal scores approach was advocated by Cooke (1998) as having a number of advantages, namely that a normally distributed dependent

¹² This is an alternative procedure to comparing privatised firms with state-owned ones since Jordan has privatised most of its state-owned firms.

¹³ Three firms were privatised in 2000 and were excluded from the comparison.

¹⁴ The size of the sample firms used in the comparison is small; however, the use of time series data improves the sample size and provides accurate inferences of model parameters (Hsiao, 2005).

¹⁵ In the non-privatised group (Table 8), there are no infrastructure firms, hence IND1 variable is absent.

Table 7
Pooled regression estimates for early privatised against late privatised firms

Variable	Predicted sign			Early privatised firms (from 1996 to 2000)			Late privatised firms (from 2000 to 2004)		
	Coefficient	T-statistic	VIF	Coefficient	T-statistic	VIF	Coefficient	T-statistic	VIF
Constant	-0.022	-0.51	None	-0.383	-2.17	0.041**	-	-	-
Privatisation (PRIV)	0.386	2.13	+	0.048**	3.7	0.041**	-	-	3.3
State ownership (STO)	0.0009	1.25	?	0.256	3.6	0.135	0.001	1.52	3.1
Foreign ownership (FOW)	0.030	2.41	+	0.021**	2.9	0.655	0.008	0.45	2.4
Individual ownership (INDOW)	-0.0007	-1.29	?	0.237	3.1	0.014**	-0.001	-2.58	3.9
Institutional ownership (IOW)	0.0006	1.53	?	0.136	2.4	0.397	-0.0007	-0.86	2.1
LAW 1	0.022	1.96	+	0.032**	3.8	0.05**	0.042	1.75	2.7
Percentage of non-executive directors (PNED)	0.128	1.50	+	0.079*	2.7	0.749	0.020	0.32	1.8
Audit committee (AC)	0.052	1.82	+	0.047**	1.5	0.735	0.014	0.34	1.5
Sales (SIZE)	0.040	2.09	+	0.028***	3.5	0.006***	0.033	2.77	2.4
Leverage (LEV)	0.005	0.62	+	0.539	1.4	0.656	0.005	0.45	1.4
Liquidity (LIQ)	-0.010	-0.75	+	0.456	2.3	0.389	-0.010	-0.87	1.3
Return on equity (PROF)	0.0001	0.15	+	0.881	2.1	0.015**	0.002	2.32	1.3
Auditor type (AUD)	0.042	1.87	+	0.045*	1.5	0.557	0.011	0.59	2.0
Industry 1 (IND 1)	0.244	4.75	+	0.000***	2.9	0.000***	0.149	3.49	2.6
Industry 3 (IND 3)	-0.009	-0.91	-	0.365	1.8	0.046**	-0.036	-1.85	1.6
1997	-0.017	-0.77	?	0.448	2.8	0.146	-0.044	-1.41	1.9
1998	-0.012	-0.58	?	0.565	2.2	0.233	-0.039	-1.22	1.9
1999	-0.009	-0.49	?	0.630	1.8	0.427	-0.024	-0.83	1.7
2000	-0.002	-0.11	?	0.723	2.3	0.518	-0.012	-0.65	2.3
R-Sq		72.5%				72.3%			
R-Sq (adj)		70.1%				67.2%			
F		13.98				13.36			

*** Significant at the 0.01 level (all probabilities are one-tailed except the constant, STO, INDOW and IOW); ** Significant at the 0.05 level; * Significant at the 0.1 level; PRIV = Dummy variable; 1 when the firm is privatised onward; 0 before; STO = total percentage of ordinary shares held by the state; FOW = Total percentage of ordinary shares held by foreign investors; INDOW = Total percentage of ordinary shares held by domestic individuals; IOW = Total percentage of ordinary shares held by institutional investors; LAW1 = Dummy variable; 1 starting from the date when the 1997 Company Law and the 1997 Temporary Securities Law are enacted, and zero otherwise; PNED = The number of outside directors to the total number of directors on the board; AC = Dummy variable; 1 if an audit committee is present, 0 otherwise; Sales (SIZE) = Net sales/revenues; LEV = Ratio of total liabilities to shareholders' equity; LIQ = Ratio of current assets to current liabilities; PROF = Return on equity; AUD = Dummy variable; 1 if auditor is one of the Big auditing firms, 0 otherwise; IND1 = 1 if infra-structure, 0 otherwise; IND2 = 0 default level; IND3 = 1 if services, 0 otherwise; 1996 = default level; 1997 = Dummy variable, 1 = 1997 and 0 otherwise; 1998 = Dummy variable, 1 = 1998 and 0 otherwise; 1999 = Dummy variable, 1 = 1999 and 0 otherwise; and 2000 = Dummy variable, 1 = 2000 and 0 otherwise.

Table 8
Pooled regression estimates for late privatised against non-privatised firms

Variable	Predicted sign			Late privatised firms (from 2000 to 2004)			Non-privatised firms (from 2000 to 2004)		
	Coefficient	T-statistic	p-value	Coefficient	T-statistic	p-value	Coefficient	T-statistic	p-value
Constant									
Privatisation (PRIV)	-0.537	-2.56	0.023**	-			-0.475	-1.98	0.053
State ownership (STO)	0.386	2.13	0.023**	3.1			-		
Foreign ownership (FOW)	-0.0009	-0.94	0.349	3.5			0.029	0.43	0.668
Individual ownership (INDOW)	0.140	3.21	0.000***	2.7			0.012	1.76	0.05**
Institutional ownership (IOW)	-0.002	-2.30	0.025**	3.1			-0.002	-2.15	0.025**
LAW 2	-0.001	-1.47	0.147	2.7			-0.001	-0.63	0.506
Percentage of non-executive directors (PNED)	0.014	1.77	0.048**	3.4			0.050	1.83	0.037**
Audit committee (AC)	0.037	1.04	0.19	2.1			0.093	1.03	0.307
Sales (SIZE)	0.038	1.68	0.043**	2.9			0.048	1.95	0.028**
Leverage (LEV)	0.049	2.92	0.005***	3.1			0.035	2.39	0.01***
Liquidity (LIQ)	0.023	1.49	0.07*	1.4			0.010	1.62	0.06*
Return on equity (PROF)	-0.003	-0.85	0.398	2.1			-0.024	-1.35	0.10*
Auditor type (AUD)	-0.0002	-0.20	0.845	1.7			0.018	1.18	0.242
Industry 1 (IND 1)#	0.017	0.52	0.606	1.6			0.045	0.65	0.518
Industry 3 (IND 3)	0.444	4.56	0.000***	3.1			-		
2001	0.047	1.03	0.381	2.2			0.008	0.08	0.824
2002	0.008	0.34	0.734	1.8			-0.010	-0.41	0.722
2003	-0.01	-0.35	0.726	4.0			-0.032	-0.50	0.631
2004	-0.024	-0.69	0.496	2.5			-0.005	-0.56	0.556
R-Sq	-0.034	-0.86	0.394	2.7			-0.004	-0.69	0.491
R-Sq (adj)		69.9%						55.3%	
F		64.2%						43.8%	
		12.84						11.04	
			0.000***						0.000***

*** Significant at the 0.01 level (all probabilities are one-tailed except the constant, STO, INDOW and IOW); ** Significant at the 0.05 level; * Significant at the 0.1 level; PRIV = Dummy variable; 1 when the firm is privatised onward; 0 before; STO = total percentage of ordinary shares held by the state; FOW = Total percentage of ordinary shares held by foreign investors; INDOW = Total percentage of ordinary shares held by domestic individuals; IOW = Total percentage of ordinary shares held by institutional investors; LAW2 = Dummy variable: 1 starting from the date when the 2002 Securities Law is enacted, and zero otherwise; PNED = The number of outside directors to the total number of directors on the board; AC = Dummy variable: 1 if an audit committee is present, 0 otherwise; Sales (SIZE) = Net sales/revenues; LEV = Ratio of total liabilities to shareholders' equity; LIQ = Ratio of current assets to current liabilities; PROF = Return on equity; AUD = Dummy variable: 1 if auditor is one of the Big auditing firms, 0 otherwise; IND1 = 1 if infra-structure, 0 otherwise; IND2 = 0 default level; IND3 = 1 if services, 0 otherwise; 2000 is the default level; 2001 = Dummy variable, 1 = 2001 and 0 otherwise; 2002 = Dummy variable, 1 = 2002 and 0 otherwise; 2003 = Dummy variable, 1 = 2003 and 0 otherwise; 2004 = Dummy variable, 1 = 2004 and 0 otherwise.
 # There are no industry type 1 firms in the sample of non-privatised firms.

variable implies that the errors are normally distributed and that the significance tests are meaningful and have greater power. Haniffa and Cooke (2002), Camfferman and Cooke (2002) and Ghazali and Weetman (2006) all use normal score transformation. Rank transformation has great advantages when the data is monotone and non-linear in nature (Iman and Conover, 1979). Beaver et al. (1979), Cheng et al. (1992), Lang and Lundholm (1993), Wallace et al. (1994), Wallace and Naser (1995), Abd-Elsalam and Weetman (2003) and Ali et al. (2004) all utilise rank transformation. The results of the normal scores and rank regression transformed models are consistent with the results of the earlier models, validating our results and supporting the findings.

7. Conclusion

This paper examined the influence of privatisation on the extent of voluntary disclosure of 243 observations of privatised firms in Jordan over a period of nine years from 1996 to 2004. We employed a scoring system to develop a VDI and used univariate and multivariate tests to investigate the influence of privatisation on the extent of voluntary disclosure. Our univariate test results show that voluntary disclosure levels have significantly improved after privatisation in Jordan.

The paper further accounted for the dynamic effects of privatisation and the accompanying accounting regulatory measures and changes in ownership through the use of panel data. The results support the hypothesis that privatisation has positively influenced the extent of voluntary disclosure. Foreign investment appears to be significantly associated with voluntary disclosure. This association is positively influenced by privatisation, which is consistent with the impact of privatisation resulting in the transfer of ownership to foreign investors. However, the involvement of the other types of owners has no influence on the extent of voluntary disclosure. Further, the accounting regulatory reforms produced significant positive influence on the extent of voluntary disclosure, and this influence is more pronounced as a result of privatisation. Company size and industry type 1 are found to be significantly related with voluntary disclosure practices by Jordanian firms. Liquidity and auditor type are negatively associated with voluntary disclosure.

Finally, using a methodology that controls for time effects, we show that time has not influenced the level of voluntary disclosure, while privatisation, the accompanying reforms and the attraction of foreign ownership have all positively influenced the

level of voluntary disclosure of Jordanian listed firms. Taken together, we conclude that the extent of voluntary disclosure improves significantly as a result of privatisation, and that regulatory reforms and foreign investors account for a significant fraction of that improvement.

The findings of the study are timely, given the significance and the effort put into the Jordanian privatisation programme and the accompanying reforms. However, the results indicate that individual and institutional investors need to be more effective in monitoring management which in turn will have a positive effect on share value. This might be achieved by enacting new regulations that enhance shareholders' role in the governance of the firm.

The study has some limitations. It did not account for the influence of certain economic reforms that accompany privatisation such as price deregulation and market liberalisation which would have an impact on firms' efficiency that, in turn, would influence disclosure. Future research could investigate the impact of these factors on corporate voluntary disclosure.

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