The Effect Of 'Other Information' On Equity Valuation: Kuwait Evidence

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ABSTRACT

Previous studies on the value relevance of accounting information adopt Ohlson's linear information dynamics which, if 'other information' is ignored, leads to a theoretical valuation model solely involving earnings, book value, and net shareholder cash flows or (net dividends). The lack of analysis of 'other' value-relevant data may defeat the effectiveness of the Ohlson's model since the current accounting data cannot fully account for future earnings. The potential implication of ignoring 'other information' is that it could introduce bias into estimated coefficients (e.g. Ohlson, 1995; Hand and Landsman, 2005). This study examines the effect of introducing 'other information' proxied by lagged 'valuation error' on equity valuation, utilizing a sample of non-financial companies listed at the Kuwait Stock Exchange (KSE) over the period 2003 to 2009. Empirical results of this study reveal that our proxy for 'other information' appears to capture valuation implications of information other than current variables in the linear information dynamic setting. Results also reveal that adding 'other information' to the valuation model clearly reduces the coefficients on earnings and dividends, and increases the coefficient of book value; however, book value and earnings remain significantly associated with stock prices. As a consequence, current accounting variables appear to be capturing some, but not all, of 'other information' when this variable is omitted. We conclude that 'other information' is an important factor in determining the market value of firms and hence should not be omitted in studies examining the value relevance of accounting information.

Keywords: Financial Accounting and Reporting; Linear Information Dynamics; Value Relevance; Cross-Sectional Valuation Models; 'Other Information'; Kuwait Stock Exchange

1 INTRODUCTION

The purpose of valuation models is to assess the relevance of accounting information for different users of financial statements in general and for investors in particular. All stakeholders (e.g. shareholders, lenders, directors, employees) have relative different interests in the company's success and hence require information that helps them gauge its financial strength and market value. Financial statements are considered the most important source of information for decision making by investors. The general purpose of valuation models is to assess the impact of accounting information included in financial statements (independent variables) on stock prices (dependent variables). The ability of accounting data to summarize information affecting equity value is usually measured by the explanatory power of regression analysis as measured by R^2. Valuation models with higher R^2s indicate the ability of accounting information to explain the variations in stock prices.

The value relevance of accounting information using cross-sectional valuation models has a substantial history in accounting and other literatures. The theory underlying most recent valuation studies is primarily based on the price model suggested by Ohlson (1995) and its subsequent refinements (e.g., Feltham and Ohlson, 1995). These studies concentrate on modeling firm market value as a function of various accounting and non-accounting variables. The Ohlson model expresses firm market value as a linear function of book value of equity and the discounted expected future abnormal earnings assuming that capital markets are perfect. Furthermore, Ohlson

(1995) suggests additional assumptions of linear information dynamics where firm value can be re-expressed as a linear function of equity book value, clean surplus earnings, dividends, and 'other information'.

Most current empirical market-based accounting research (MBAR) adopts the linear information dynamics of the Ohlson (1995) model which, if 'other information' is ignored, leads to a theoretical valuation model solely involving earnings, book value and net shareholder cash flows (or net dividends)[1]. Ohlson (1995) indicates that omitting 'other information' from valuation models by implicitly assuming that other information is zero, may yield highly misspecified inferences on estimated coefficients. Hand and Landsman (2005) also conclude that ignoring 'other information' could introduce bias into estimated coefficients. The lack of analysis of 'other' value-relevant data may defeat the effectiveness of the Ohlson model since the current accounting data cannot fully account for future earnings. Motivated by the above, this study contributes to prior research by providing additional evidence on the role of 'other information' in equity valuation in an emerging capital market. We employ the Ohlson (1995) model and its empirical applications to investigate the value relevance of accounting data and 'other information' using a sample of non-financial companies listed at the KSE over the period 2003 to 2009.

Kuwait provides a setting with some interesting features affecting stock prices. It includes excess liquidity; high oil prices; enormous increase in national revenue; privatization; government spending on major projects; expansion in the private sector; superior results of companies; low interest rates; and a general decline in regional uncertainty following the end of the war on Iraq. Furthermore, compared to other countries, Kuwait is corruption-free but in turn is rampant on speculation. Abumustafa (2007) argues that the KSE is an active and technologically sophisticated emerging market in the region and indicates that the volatility of stock market returns is high in the KSE relative to developed markets. Moreover, returns are positively auto correlated to a greater extent in the KSE than in developed markets.

The KSE is one of the important emerging capital markets in the Middle East in which International Financial Reporting Standards (IFRS) are mandatory and the government controls the accounting and auditing profession. However, three concentrated shareholder groups typically have substantial equity ownerships in listed companies. These groups are the government and its agencies, dominant families, and institutional investors. These groups may influence the level and quality of disclosure, and hence, the value relevance of accounting numbers. Furthermore, it can be argued that countries applying IFRS may allow more (less) deviation from the clean surplus relationship than that observed by prior studies applying the US GAAP or other local GAAPs. Hence, it is possible that the information content of accounting information in Kuwait may vary.

To our best knowledge this is the first study to examine the value relevance of earnings, book values, and dividends controlling for 'other information' for firms listed at the KSE. The paper is expected to provide further empirical evidence on whether accounting numbers and 'other information' summarize the information underlying stock prices for firms listed at the KSE.

The next section reviews relevant prior research. Section 3 describes the methodology and models' specification. Section 4 reports the results. Finally, Section 5 concludes.

2 PRIOR LITERATURE

The value relevance of accounting information has long been documented since the influential work of Ball and Brown (1968). At an early stage, empirical studies focused on the value relevance of return models by investigating the relationship between unexpected earnings and unexpected return (e.g., Beaver, 1968; Beaver and Dukes, 1972; Ball, 1972, 1978; Foster, 1975; Beaver, Clarke and Wright, 1979; Grant 1980; Beaver, Lambert and Morse, 1980; Wilson, 1987; Dechow, 1994 and Green, 1999). Fama and French (1992) also examined the impact of other firm variables (e.g., firm size, earnings to price ratio (E/P), and book-to-market equity) on return.

Other studies sought to identify the role of accounting information on equity valuation (valuation models) (e.g., Peasnell, 1981, 1982; Bowen, 1981; Daley, 1984; Hirschey, 1982, 1985; Beaver and Landsman, 1983; Hirschey and Weygandt, 1985; Tse, 1986; and Landsman, 1986). Models in this stream regress the market value of equity; the ratio of market to book value; or the price earnings ratio on explanatory variables hypothesized to

explain the variation in stock prices.

The conceptual advantages and disadvantages of return and valuation models have been considered by several studies (e.g., Beaver and Landsman, 1983; Lev, 1989; and Kothari and Zimmerman, 1995). Beaver and Landsman (1983) support both return and valuation approaches rather than believing in the superiority of one over the other. They argue that a return approach and a cross-sectional valuation approach are not mutually exclusive, but represent two ways of extracting information from the data. They argue each approach will provide information not provided by the other, and thus there is no reason to suspect dominance of either a return or a cross-sectional valuation approach. Kothari and Zimmerman (1995) provide empirical evidence on the superiority of valuation models over the return models in MBAR. They present an economically intuitive analysis which suggests that the estimated slope coefficient from the price model, but not the valuation model, is unbiased. However, return models suffer from less serious econometric problems than valuation models. Furthermore, Lev (1989) concludes that the goodness of fit achieved by attempting to model the relation between unexpected earnings and stock returns is very poor by the usual standards of econometrics. He argues that the likely reasons for this poor statistical performance are the poor specification of the estimated equation; the research design that does not take into consideration the effect of firm-specific, industrial, and macro-state factors; and measurement errors in the earnings variable. Lev's critique has been very influential in forcing market-based researchers to concentrate their efforts on discovering the reasons that stand behind the poor performance of MBAR models. Subsequent research avoiding the limitations discussed above provides a substantial improvement in the explanatory power of return models (e.g., Collins and Kothari, 1989; Easton and Zmijewski, 1989; Lipe, 1990; Easton and Harris, 1991; Easton, Harris and Ohlson, 1992; Strong and Walker, 1993; Board and Walker, 1990; Finger, 1994; and Dechow, 1994).

The valuation approaches of Ou and Penman (1989), Ohlson (1995), Feltham and Ohlson (1995), and Stark (1997) develop the theoretical structure on the relationship between the market value of common equity and accounting variables, which is the basis of most current empirical MBAR.

Ohlson (1995) has proved influential in thinking about valuation models. Ohlson (1995) presents the concept of the clean surplus relationship, indicating that any changes in the book value of a firm should be reported through the income statement. The clean surplus equation in accounting is expressed as follows

$$x_t = y_t - y_{t-1} + d_t \quad (1)$$

where:

x_t = earnings realized between dates t-1 and t;
y_t = book value (or owner's equity) at date t; and
d_t = dividends, net of capital contributions, paid (or received) at date t.

Ohlson (1995) argues that a consequence of the clean surplus theorem is that any measure of profit consistent with the clean surplus relation can be incorporated in an economic valuation model, and the market value is equal to the book value of the firm plus the sum of the future discounted expected abnormal earnings (the residual income) that the firm is expected to generate over its life. Residual income is defined as the difference between earnings and opening book value times the required rate of return. This particular model requires that investors are risk neutral:

$$P_t = Y_t + \sum_{t=1}^{T} R_F^{-t} E_t[X_t - (R_F - 1)Y_{t-1}] \quad (2)$$

where: P_t = market price of the security at time t; Y_t = the book value at year t; R_F = one plus the risk free interest rate; E_t = the expectations operator reflecting information available at time t; X_t = the clean surplus earnings for the year t; and Y_{t-1} = the opening book value.

The original assumptions of Ohlson's (1995) model impose the relationships among accounting variables to support the single-period lagged autoregressive information dynamic. A third specification made by Ohlson's (1995) model concerns the time variant behavior of normal earnings. Hence, the role of 'other information' is recognized. Ohlson allows the presence of other, specifically non-accounting, value-relevant variables in the valuation equation, but restricts the stochastic relation between such 'other information' and the basic accounting variables. He argues that such information may be useful for the prediction of future accounting variables and if these variables are value-relevant, then such 'other information' becomes relevant in the valuation of the firm. Nonetheless, the variables in the accounting system are not of help in predicting the evolution of 'other information'.

The information dynamic is expressed by adding another information variable, v_t, to include information other than abnormal earnings, which is yet to have an impact on the information available. Ohlson defines his 'other information' variable, "v_t", as the difference between the conditional expectation of residual income for period t+1 based on all available information and the residual income of the current period:

$$\hat{RI}_{t+1} = \omega RI_t + v_t + \hat{\varepsilon}_{1t+1} \tag{3a}$$

$$v_{t+1} = \varphi v_t + \hat{\varepsilon}_{2t+1} \tag{3b}$$

where: v_t is information about future abnormal earnings (or residual income) not in current residual income; and ω and φ are fixed persistence parameters that are non-negative and less than one. The disturbance terms $\acute{\varepsilon}_{1\,t+1}$ and $\acute{\varepsilon}_{2\,t+1}$ have zero means and constant variances.

Combining equation (2) with equations (3a) and (3b) yields a linear function for Pt:

$$P_t = Y_t + \alpha_1 RI_t + \alpha_2 v_t \tag{4}$$

This model indicates that market value is a function of closing book value, residual income, and 'other information'.

Stark (1997) suggests that clean surplus earnings are value-relevant only when their separate components have no additional predictive value over the total of the components. If the separate components of earnings have additional ability over the sum of the components, then knowledge about clean surplus earnings components, rather than their sum, is important.

Hand and Landsman (2005) define 'other information' as the price impact of information that summarizes all value-relevant events that have not yet been captured in current financial statements. Using Ohlson's (1995) model, they argue that 'other information' can be interpreted as the difference between the next period's rational full information expectation of abnormal earnings less the purely autoregressive forecast of next period's abnormal earnings. A similar interpretation is found in Dechow, Hutton and Sloan (1999). As a consequence, if 'other information' is neither automatically zero nor otherwise included in the valuation model, the inclusion of a proxy for the rational full information expectation of next period's earnings should improve the empirical performance of such a model. Hand and Landsman (2005) use next period's actual earnings as this proxy. They find that next year's earnings before extraordinary and exceptional items and research and development (RD) expenditures capture some of the impact of value-relevant 'other information' in the system of linear information dynamics and that, indeed, the valuation relevance of 'other information' is potentially substantial. Other studies (e.g., Dechow, Hutton and Sloan, 1999), which confine the 'other information' variable to encompassing only future earnings, use consensus analysts' forecast earnings to proxy for rational expectations forecasts.

3 RESEARCH METHODOLOGY

3.1 The Modeling of Market Value

We adopt Ohlson's (1995) linear information dynamics, which, if 'other information' is ignored, leads to a theoretical valuation model solely involving earnings, book value, and net shareholder cash flows (or net dividends).

Numerous empirical studies provide evidence on the significance of current earnings and book value at time t in explaining share price or their 'value relevance' revealing the positive statistical dependence of share price on contemporaneous values of both earnings and book value (e.g., Green, Stark and Thomas, 1996; Rees, 1997; Collins, Maydew and Weiss, 1997; Stark and Thomas, 1998; Ely and Waymire, 1999; Bettman, Sault and Welch, 2006; and Bettman, 2007). Barth, Beaver, and Landsman (1996) argue that the main reason for the value relevance of current earnings and book value is that earnings proxy for the current value of the firm whereas book value represents its liquidation value. Berger, Ofek and Swary (1996) argue that book value represents the resources a firm can allocate to generating future earnings. Moreover, most studies that investigate the relationship between dividends and corporate market value observe that dividends have a positive impact on corporate value using number of shares as a deflator (e.g., Rees, 1997; Lo and Lys, 2000; Akbar and Stark, 2003b; Hand and Landsman, 2005; and Aleksanyan, Karim and Lessard, 2009)[2]. Akbar and Stark (2003b) argue that dividends act as a signal for private information held by managers about firm market value. Another interpretation is presented by Aleksanyan, Karim and Lessard (2009) who signify that dividends may be viewed as a proxy for the firm's permanent component of earnings and thus, have 'information content'. We start our analysis by employing the following valuation equation, referred to as Model (I):

$$MV_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 E_{it} + \alpha_3 D_{it} + \varepsilon_{it} \quad \text{(I)}$$

where: MV_{it} = market value of common stock of firm i in year t; BV_{it} = book value of common stock of firm i in year t; E_{it} = earnings before extraordinary and exceptional items of firm i in year t; and D_{it} = dividends of firm i in year t. Model (I) is estimated with a restriction implying that net capital or 'capital contributions' are not value-relevant and thus, omitted from the estimated equation (Rees, 1997). Akbar and Stark (2003b) argue that the motivation of Rees (1997) is particularly in the argument that dividends are considered as a signal for value[3].

We then extend Model (I) and employ a measure of 'other information' developed and used by Akbar and Stark (2003b). This proxy assumes a linear information dynamics model in which only current accounting variables and 'other information' feature. Akbar and Stark, in generating a proxy for 'other information', expand the linear information dynamics structure to incorporate 'other information' in a different way. They start with the suggestion of Ohlson (1995) that next period's expected earnings be treated as observable and equal to the consensus earnings forecast. Then a multiple of 'other information', OI_t is supposed to be derived as:

$$E(\tilde{E}_{t+1}) - \left(\theta_{11} BV_t + \theta_{12} E_t + \theta_{13} RD_t + \theta_{14} D_t + \theta_{15} CC_t \right) = \theta_{16} OI_t \quad (5)$$

where: $E(\tilde{E}_{t+1})$ is measured as the consensus earnings forecast; BV is closing book value; E is earnings before extraordinary and exceptional items, and with RD expenditures added back to it; RD is research and development expenditures; D is dividends; CC is capital contributions; and OI_t is 'other information'. This is the style of a proposed estimator for OI_t found in Dechow, Hutton and Sloan (1999) and Ohlson (1995).

Akbar and Stark (2003b) argue that when consensus earnings or other forecasts are not available, the only predictor of OI_t is OI_{t-1}. Thus, if OI_t is unobservable, then a noisy proxy for it is OI_{t-1}. They indicate that this proxy is dependent upon the assumption that OI_t is one-dimensional. The rationale of this estimation procedure is that, in Ohlson (1995), OI_t is the sole predictor of itself. As a consequence, lagged OI_{t-1} is a noisy proxy for current OI_t. Hence, for each firm, proxy OI_{t-1} is estimated by:

$$OI_{t-1} = Defl_{t-1} \hat{\varepsilon}_{t-1} \quad (6)$$

Akbar and Stark (2003b) indicate that this procedure for generating a proxy for OI_t assumes that OI_t is orthogonal to the lagged variables. Hence, the variable OI_t is treated as a variable uncorrelated with any of the variables included in the estimating equation. The proxy of OI_t is captured as a 'valuation error' – that is, the part of the market value of the firm that cannot be explained by the accounting variables employed as independent variables. However, this may not be the case. The assumption that errors corresponding to different observations are uncorrelated is often broken down in time-series studies and occasionally not found with ordered cross-section data. Following Akbar and Stark, we extend Model (I) and for year t, we estimate the following cross-sectional regression, referred to as Model (II):

$$MV_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 E_{it} + \alpha_3 D_{it} + \alpha_4 OI_{it-1} + \varepsilon_{it} \quad \text{(II)}$$

MV is at three months after the balance sheet date – to ensure that the information in the financial statements for a given financial year is reflected in the market price. E, BV, and D are at fiscal year-end. To perform, constant terms and stochastic error terms are added into the models to capture the effect of potential unexplained 'other' value-relevant information omitted from the model. An underlying assumption of the analysis is that those omitted variables are not adequately correlated with the variables of interest in the study to affect the inferences drawn.

Models (I) and (II), without proper control for cross-sectional scale differences, are likely to bias both the estimated regression coefficients and the regression's explanatory power. A possible consequence of the presence of cross-sectional scale differences and heteroscedasticity is that one cannot determine with confidence whether the standard error of estimated coefficients is positively or negatively biased. To mitigate the econometric effects of scale, we deflate our models using number of shares as a single-variable scale (e.g., Rees, 1997; Kothari and Zimmerman, 1995; Hand and Landsman, 2005; and Bettman, 2007).

In our estimation procedure for OI_t, the use of OI_{t-1} as a proxy for OI_t will only be sensible if serial correlations exist. This condition is checked empirically using our estimates for OI_t. We strip out OI_t for all Kuwaiti firms with data from 2003 to 2009. To perform this procedure, we lose one year of observations. Then we calculate the serial correlation for OI_t for each firm.

Pindyck and Rubinfeld (1998) indicate that serial correlation will affect the efficiency of the ordinary least-squares regression estimators, but it does not affect their unbiasedness or consistency. When there is a positive serial correlation, the estimates of the standard errors obtained from the least-squares regression will be smaller than the true errors. Hence, the regression estimators will be unbiased, but the standard error of the regression will be biased downward [4]. In other words, the parameter estimates are more precise than they actually are. This may lead to rejecting the null hypothesis when, in fact, it should not be rejected. In contrast, if there is a negative serial correlation, the estimated regression slope is higher than the true slope. Pindyck and Rubinfeld (1998, p. 160) indicate that "*since both cases are equally likely to occur, least-squares slope estimates will be correct on average; i.e., they will be unbiased. However, in both cases the least-squares regression lines fit the observed data points more closely than does the true regression line; this leads to an* R^2 *that gives an overly optimistic picture of the success of least-squares regression. More important, however, least-squares will lead to an estimate of the error variance that is smaller than the true error variance*."

Another potential problem is that the estimation method forces the mean value of OI_t to equal zero. However, the average effect of a non-zero OI_t will be captured by the constant term in Model (II). Hence, estimated regression slope parameters will remain unchanged while the intercept will pick up the effect.

Some recent literature argues that the Ohlson framework is also theoretically consistent with any number of multilagged linear information systems, but each such system yields its own particular valuation results. For example, Bar-Yosef, Callen and Livnat (1996), Dechow, Hutton and Sloan (1999), and Morel (1999) show that the past time-series of accounting variables are generally relevant for valuing firms. Whether this is because they are correlated with omitted variables and hence, lagged accounting variables are acting as a proxy for any omitted variables - OI_t, or because the selection of current accounting variables included in previous valuation models are not all the value-relevant variables to explain market value, or because the true model contains lagged variables, is

not answered by these studies. In our study, OI_t is estimated as if lagged accounting variables are not value-relevant. As a consequence, OI_t might be purely capturing the price impact of all current omitted value-relevant information, or the effects of lagged omitted value-relevant accounting variables, if any.

We have restricted our cross-sectional estimation to only include those firms for which the necessary information exists to provide a proxy for OI_t. All equations are estimated using ordinary least-squares (OLS) techniques to estimate the coefficients. We used White's (1980) consistent standard error and covariance estimates to diminish the effects of any remaining heteroscedasticity.

3.2 Variables and Data

The data for this study were extracted from the KSE Shareholders' Annual Guides, Corporate Fact Sheets, and the annual reports for Kuwaiti firms over the period 2003 to 2009. The variables used in this study are defined as follows:

1 MV, the market value of equity, is measured as the share price on a specific date multiplied by the number of ordinary shares in issue. To ensure that the information in the financial statements for a given financial year is reflected in the market price, we used the firm market value three months after the balance sheet date, bearing in mind that firms listed at the KSE usually release their annual accounts two to three months after year-end;
2 BV, book value, is measured as the sum of shareholders' equity capital and reserves;
3 E, earnings, are measured as net income after tax; and
4 D, dividends, are measured as dividends declared (or paid) during the financial year.

All variables included in this study are deflated by year-end total ordinary shares outstanding.

The total number of companies listed at the KSE at the time of data collection was 195 firms, of which 121 firms are non-financial. We extracted all non-financial firms that have complete data for any given year and included them in the annual cross-section for the appropriate calendar year. In the case of missing dividends, the missing values were given the value zero. We argue that if dividends are not reported in the financial statements in a specific year, then that does not mean they are missing. One possible reason is that the company did not declare or pay any amount in dividends in that year and, thus, these variables were not reported in the financial statements. We then trimmed the data of extreme values by deleting the top and bottom 2% of observations for each of the deflated variables (e.g., Easton and Harris, 1991; Strong and Walker, 1993; Rees, 1997; Brief and Zarowin, 1999; and Akbar and Stark, 2003a, 2003b). The results reported in all analyses in this study are based on the sample without extreme observations. The final pooled cross-sectional sample includes 611 firm-year observations.

Tables 1 and 2 present the sample descriptive statistics and the pair-wise correlations between the deflated variables used in the regression models for the pooled sample. Table 1 shows a significant variation in market values with an average (median) of KD 0.35 (0.31). Sample firms have average earnings per share of KD 0.048 with a minimum of KD -0.22 and maximum of KD 0.98. Finally, the average (median) dividend per share is KD 0.23 (0.19). Table 2 reveals that the independent variables are not highly correlated with one another. The highest pair-wise correlation coefficient is 0.68, suggesting that multicolinearity does not appear to be a problem in this study.

Table 1

	MV_t	E_t	BV_t	D_t
Maximum	3.92	0.98	1.76	0.43
Minimum	0.07	-0.22	0.04	0.00
Mean	0.59	.048	0.35	0.23
Standard Deviation	0.62	.089	0.22	0.04
Median	0.31	0.04	0.24	0.19

Where MV_t is the market value of equity in year t measured three months after the balance sheet date; BV_t is book value in year t measured as the sum of shareholder equity capital and reserves; E_t is earnings in year t measured as net income after tax; and D_t is dividends in year t measured as dividends declared (or paid).

Table 2

	MV_t	E_t	BV_t	D_t
MV_t	1.00			
E_t	0.63	1.00		
BV_t	0.82	0.66	1.00	
D_t	0.53	0.68	0.45	1.00

Where MV_t is the market value of equity in year t measured three months after the balance sheet date; BV_t is book value in year t measured as the sum of shareholder equity capital and reserves; E_t is earnings in year t measured as net income after tax; and D_t is dividends in year t measured as dividends declared (or paid).

4 RESULTS

The discussion is based on estimating models (I) and (II) on all annual cross-sections and the pooled sample using number of shares as a deflator. The results are reported for the pooled sample alone. We do not report the results for the annual cross-sections because the overall conclusions drawn from the estimates from the pooled samples do not differ in a qualitative sense from those to be drawn from the annual cross-sections[5]. The outcomes of the different analyses of the Kuwaiti pooled samples are presented in Table 3.

Results pertaining to Model (I) provide evidence on the value-relevance of book value and earnings. The coefficients on book value are consistently positive and significant (at least at the 5% level) in all estimated regressions in which this variable features. This suggests that book value is value-relevant. The estimated coefficients on earnings are positive and significant (at least at the 5% level). These findings reinforce previous research findings (e.g., Green, Stark and Thomas, 1996; Rees, 1997; Collins, Maydew and Weiss, 1997; Stark and Thomas, 1998; Ely and Waymire 1999; Bettman, Sault and Welch, 2006; and Bettman, 2007). The estimated coefficients on dividends are insignificant. One interpretation of this result is that dividends may be subsumed in the earnings term because of their multicollinearity with earnings (Stark and Thomas, 1998). The highest correlation between independent variables in this study emerges between earnings and dividends (0.68) (Table 2). The model is highly significant and has an adjusted R^2 of 0.662, suggesting that the independent variables were able to explain 66.2% of the variation in firms' market values.

In this study, given the possibility that the selection of current accounting variables is not complete and 'other information', OI_t, is present in the linear information dynamics, we investigate whether the relationship between accounting variables and firm market value disappears if a proxy for such OI_t is included in valuation models. We use the same proxy for OI_t developed and used in Akbar and Stark (2003b). In our estimation procedure for OI_t, the use of OI_{t-1} as a proxy for OI_t will only be sensible if OI_t is serially correlated. This condition is checked empirically using our estimates for OI_t. We strip out OI_t for all Kuwaiti firms with data from 2003 to 2009. Then we calculate the serial correlation for OI_t for each firm. Summary statistics of the serial correlation coefficients for OI_t are presented in Table 4. On average, we find that OI_t is positively serially correlated. Serial correlation occurs in time-series studies when the errors associated with observations in a given time period carry over into future time periods. Serial correlation frequently occurs in time-series studies either because of correlation in the measurement error component of the error term, or, more likely, because of the high degree of correlation over time that is present in the cumulative effects of omitted variables.

Empirical results of estimating Model II (Table 3) reveal that our proxy for OI_t is positive and significant and thus value-relevant. The results further suggest a number of implications. Firstly, the addition of OI_{t-1} significantly adds to explanatory power in all cases reported. The model is highly significant and has an adjusted R^2 of 70.4%. This outcome implies that our proxy for year t appears to capture valuation implications of information other than current variables in the linear information dynamics system between year t-1 and year t. Secondly, the impact of adding OI_{t-1} clearly reduces the coefficients on earnings and dividends, and increases the coefficient of book value. As a consequence, current accounting variables in our system appear to be capturing some, but not all, of OI_t when that variable is omitted. Thirdly the coefficients on earnings and book value remain significant in all sets of cases.

The results clearly present evidence on the empirical role of book value and earnings in cross-sectional valuation models in Kuwait. This result is unaffected when a proxy for OI_t is included in the model. One interpretation of this result could be that the current accounting and non-accounting (OI_t) variables in the valuation model have not been correctly identified, and lagged variables capture the effects of these omitted variables via their ability to help predict them (e.g. Akbar and Stark, 2003b). Nonetheless, one other obvious interpretation is that the lagged accounting variables are important in and of themselves in providing information relevant to the valuation of firms using accounting information (e.g., Bar-Yosef, Callen and Livnat, 1996; Dechow, Hutton and Sloan, 1999; and Morel, 1999).

Table 3
Estimating Models of Corporate Valuation on Pooled Data (2004-2009)
(OLS Estimation Based on Adjusted White's Heterosecedasticity-Consistent S.E.s) – Number of Shares as the Deflator

Model (I): $MV_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 E_{it} + \alpha_3 D_{it} + \varepsilon_{it}$

	Coefficients		
Intercept	BV_{it}	E_{it}	D_{it}
230.16	9.346	1.331	0.548
(0.000)	(0.000)	(0.025)	(0.602)

Model (II): $MV_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 E_{it} + \alpha_3 D_{it} + \alpha_4 OI_{it-1} + \varepsilon_{it}$

	Coefficients			
Intercept	BV_{it}	E_{it}	D_{it}	OI_{it-1}
116.20	12.092	1.228	0.339	6.052
(0.000)	(0.000)	(0.028)	(0.853)	(0.000)

	Adjusted R^2 (%)	**No. of Observations**
Model (I)	66.2	611
Model (II)	70. 4	611

Where MV_t is the market value of equity in year t measured three months after the balance sheet date; BV_t is book value in year t measured as the sum of shareholder equity capital and reserves; E_t is earnings in year t measured as net income after tax; and D_t is dividends in year t measured as dividends declared (or paid).
Note: Reported p-values are based upon White's heteroscedasticity-adjusted estimates of coefficient standard errors.

Table 4
Summary Statistics of the Serial Correlation Coefficients for 'Other Information' for Kuwaiti firms – Using Number of Shares as a Deflator.

Number of Firms	**Average Serial Correlation**	**Median**	**Minimum**	**Maximum**
611	0.681	0.597	0.406	0.812

Note: We strip out OI_t for all Kuwaiti firms with data from 2003 to 2009. Then we calculate serial correlation for OI_t for each firm and provide summary statistics for the serial correlation coefficients.

5 SUMMARY AND CONCLUSIONS

Most studies on MBAR adopt linear information dynamics focusing on current accounting data for equity valuation and ignoring 'other' value-relevant data. However, omitting OI_t from an empirical specification of the valuation model, implicitly assuming that OI_t is zero, may introduce bias into estimated coefficients (e.g., Ohlson, 1995; and Hand and Landsman, 2005). This paper examines the effect of introducing 'other information' proxied by lagged "valuation error" on equity valuation utilizing a sample of non-financial companies listed at the Kuwait Stock Exchange (KSE) over the period 2003 to 2009. We use the same proxy for OI_t developed and used in Akbar and Stark (2003b).

Empirical results of this study reveal that the proxy for 'other information' appears to capture valuation implications of information other than current variables in the linear information dynamics setting. Results also reveal that adding 'other information' to the valuation model clearly reduces the coefficients on earnings and

dividends, and increases the coefficient of book value; however, book value and earnings remain significantly associated with stock prices. As a consequence, current accounting variables appear to be capturing some, but not all, of 'other information' when this variable is omitted. We conclude that 'other information' is an important factor in determining the market value of firms and hence should not be omitted in studies examining the value relevance of accounting information. Future research may examine the relationship between accounting variables and market value using disaggregated data by industry to investigate the extent to which the results may vary across industries.

NOTES

1. Net shareholder cash flows (NSCF) are dividends declared (D), net of capital contributions (CC) paid (or received). NSCF = D + CC.
2. However, some papers found a negative relationship between market value and dividends.
3. The traditional signalling sense – that managers use dividends to signal future earnings prospects - is no longer descriptive (e.g., Allen and Michaely, 2003; and Michaely, 2005). However, recent literature showed that dividends are informative with respect to firms' earnings prospects, and in particular about the quality of reported earnings (Skinner and Soltes, 2008).
4. This holds provided that the Xs are not negatively serially correlated.
5. The results for the annual cross-sections are available from the author by request.

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