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The Effects of the Fair Value Option under IAS 40 on the Volatility of Earnings

Husam Aldeen Al-Khadash[1] and Ahmad Y. Khasawneh[2]

Abstract

The study examines the effects of applying fair value accounting under IAS 40 on the volatility of earnings. It studies how the addition of unrealized gains and losses in the income statement might affect the incremental explanatory power of earnings. The study covers the period of 2002-2009 and the data collected from the Jordanian Shareholding Companies listed on Amman Stock Exchange. In this study the valuation model of Ohlson (1995) and the technique of Theil (1971) have been utilized. The results point out that unrealized gains and losses affect the net income and the results of cross-sectional regression indicate that net income and book values jointly and individually are positively and significantly related to stock prices. The incremental information of net income is greater than that of book values and the addition of unrealized gain in income increases the explanatory power of the model.

JEL classifications numbers: M40, M 41
Keywords: Fair Value, Investment Property, IAS 40, Jordanian Shareholding Companies, Earnings, Unrealized Holding Gains.

1 Introduction

The estimation of fair value has an effect on the earnings or income through recognizing unrealized gains and losses. Under IAS 40, companies can choose to value their investment properties using the 'fair value model' or the 'cost model'. Under the cost model, investment properties will be stated at cost less depreciation (less any impairment losses). Under the fair value model the investment property is re-measured at fair value, which is the amount for which the property could be exchanged between knowledgeable, willing parties in an arm's length transaction. [IAS 40.5] Gains or losses arising from changes in the fair value of investment property must be included in net profit or loss for the period in which it arises. [IAS 40.35].

[1]A professor of accounting.
[2]Assistant professor of finance.

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The recognition of unrealized gains and losses has long been a contentious issue in accounting. Holding gains from changing market prices have largely been deferred, or if recognized, taken directly to equity, bypassing the income statement. Accounting regulators are slowly extending the scope of application of market-to-market accounting and, with it, have been subject to increasing criticism by preparers of financial statements. However, it would seem, rightly or wrongly, that fair value accounting is becoming more pervasive and its impact, beneficial or adverse, remains contentious (Danbolt and Rees, 2008).

Consequently, in developed economies fair value accounting established status as a measurement that is superior to historical cost accounting. There is still reason to question whether fair value accounting is superior to historical cost accounting in emerging economy environments with less-developed institutional environments, and whether the IFRS fair value accounting requirements can and should be adopted and implemented in these economies. While the adoption of IFRS fair value accounting standards is highly desirable for emerging economies, the process of adopting and implementing these requirements is expected to be especially challenging for them because they lack many elements of a well-functioning capital market that are needed in order to adopt and implement fair value accounting successfully (Chen and Chan, 2009).

Singleton-Green (2007) summarizes the problems of fair value accounting as: (1) the lack of active markets for most assets and liabilities, which means that most fair value measurements are estimates and are highly subjective and potentially unreliable; (2) costly information, especially for smaller companies; and (3) the recognition of profits based on fair values, which mean that unrealized profits or losses from changes in fair value are recognized, and result in greater volatility and unpredictability. This study focuses on the third issue, the presentation of changes in fair value of investment properties, in the income statement. There have been concerns that the inclusion and presentation of such unrealized gains and losses in the income statements might lead to undue increases in earnings volatility and investor confusion.

In Jordan the value of investment properties have tremendous increase as a result of high demand in 2005 until 2007 (Al-Khadash, and Abdullatif, 2009). The prices increase for some real estates over 300% during this period. Consequently using fair value accounting to revalue the investment properties has significant impact on the income of many Jordanian companies. In Dec 16th of 2007 the Board of Commissioners of Jordan Securities Commission issued a new regulations related to the accounting standards of fair value accounting , which specify that " …all the listed companies should use the cost model when applying the IAS 40 , Investment Property, and should just disclose the fair value of investment property in the related illustration in the financial statements" (Jordan securities commission , 2007), according to this regulation all listed companies should use the cost model in valuing investment property. These regulations in 2007 come as a result of comprising the income statements of many Jordanian companies with a significant numbers of unrealized holding gains and losses.

This study discusses and tests economic consequences of the application of fair value accounting (in particular International Accounting Standard - IAS 40) in the context of an emerging economy, Jordan. The empirical evidence provided in the current study should be useful to the academics, practitioner and IASB as well as other local accounting regulators, who are interested in knowing whether fair value numbers made available by IAS No. 40 are value relevant to participants in the less-sophisticated capital markets of developing countries. The problem of this study is to examine to what extent noise may be added to income by incorporating the effects of fair value gains and losses resulted from

investment property measured at fair value after recognition. Hodder et al (2006) provide evidence that different measures of income can portray firm risk differently for firms with significant exposure to changes in fair values of some assets.

The study also examines the role of unrealized gains and losses recognized under IAS 40 in explaining stock prices for Jordanian Shareholding Companies and how the inclusion of unrealized gains and losses in income numbers affect the incremental explanatory power of earnings. We decompose earnings for investment companies into two components: earnings before unrealized gains and losses recognized under IAS 40 and the unrealized gains and losses. We compare the incremental explanatory power of net income to that of net income before unrealized gains and losses to examine how unrealized gains and losses affect the incremental explanatory power of earnings.

The study utilizes (Ohlson, 1995) valuation model, which expresses stock prices as a function of both book value of equity and earnings and uses statistical association between stock prices and both earnings and book values as measured by R square as a primary metric to measure value-relevance. The study uses a technique developed by (Theil, 1971) and has been applied by several empirical studies to compare the incremental explanatory power of earnings and book values (e.g., Collins et al, 1997; Harris et al, 1994; Bao and Chow, 1999 and El Shamy & Kayed, 2005). The technique decomposes the combined explanatory power of earnings and book values into three components: (1) the incremental explanatory power of book value of equity, (2) the incremental explanatory power of earnings, and (3) the explanatory power common to book values and earnings.

The next section outlines the theoretical background. Section 3 covers some empirical evidences on the application of fair value accounting. Section 4 discusses the IAS 40. Section 5 discusses the research approach. Section 6 provides the results of the empirical analysis while section 7 concludes the study.

2 Literature Review

There are several arguments in support or against the application of fair value accounting in comparison with the historical accounting. Many researchers claim that historical cost accounting is obsolete and irrelevant for financial decision-making, and therefore needs to be replaced by some form or another of fair value accounting. According to its opponents, main deficiencies associated with historical cost accounting include its irrelevance during inflation periods (Deegan and Unerman, 2006), its failure to recognize unrealized increases in values of assets, and its lack of comparability (Riahi-Belkaoui, 2004, Al-Khadash and Abdullatif, 2009). The use of fair value accounting has been proposed as a replacement for historical cost accounting, especially in the area of financial instruments. In this area, fair value has been considered in many cases to be more relevant than historical cost, without impairing the reliability of the reported figure, especially if current market prices are readily available (Al-Khadash and Abdullatif, 2009). Therefore, fair values can arguably be seen as reflecting value (rather than cost) and true economic substance (Penman, 2007). It was also argued that fair value accounting measures, as compared to historical cost accounting, provides better international accounting harmonization (Barlev and Haddad, 2007).

Fair value accounting has been gaining widespread acceptance among standard setters, international institutions and researchers. Barth and Landsman (1995) argue that fair value can be applied in a setting of perfect and complete markets, while in fact there are several different alternative fair value constructs. Accounting theorists have argued in favor of

several different measures of fair value, including current cost accounting based on entry prices or exit prices, and current purchasing power accounting using price indexes (Deegan and Unerman, 2006). If this also does not work, fair value is applied by internal estimation (Hitz, 2007). (Barth, 2006) concludes that the perceived usefulness of fair value accounting by standard-setters has shifted the argument from whether they should be used in financial statements to how they should be used in financial statements.

In practice there are many reasons why the financial institutions remains opposed to fair value accounting. Skepticism about bankers " valuations is embedded so deeply that some observers who say banks are being forced only now to recognize the true value of their illiquid securities, also suspect that the companies could undervalue the securities they once overvalued" (Davenport, 2008). While the IASB clearly sees the fair value as the solution of the measurement related problems, few in the commercial banking community would concur (O‟Kelly, 2008).

However, the application of fair value accounting has not been without criticism. It has been criticized on several grounds. These include the arguments that fair value measurements may lead to distortion of net income through recognition of unrealized holding gains and losses, and that fair value measurements are not exact, costly to generate, subject to manipulation, and lead to breaking the historical cost model which is seen as well working and well understood (Evans, 2003; Al-Khadash and Abdullatif, 2009). Benston (2005) criticises the implementation of market values in practice as seriously flawed. Such flaws appear in the cases of excluding held-to-maturity securities from revaluation, and measuring derivatives with fair values if managers have substantial leeway in calculating those fair values (Benston, 2005). Such practice risks being misleading since fair value expectations may end up falsified (Rayman, 2007).

The banking industry opposition to the fair value accounting is mainly on the grounds of the volatility in reported earnings that the fair value accounting would generate. The reliance on fair value including for the assets that are not actively traded on liquid secondary markets, increases the risk that the information disclosed will embody artificial volatility. In addition, if these assets and liabilities held to maturity, the volatility reflected in the financial statements is artificial and can be ultimately misleading. In addition, Pollock (2008) argued that fair-value accounting has particularly perverse results when applied in the midst of a market panic, when markets are neither liquid or active, nor orderly.

(Ronen, 2008) argues that fair value accounting measures are not relevant, since they do not reflect the value-in-use of the asset, and thus are not useful in predicting future cash flows generated for the firm from these assets. He also argues that fair value accounting measures are not reliable, given the high level of subjectivity involved in their estimation, and the possibility of moral hazard by managers misusing them.

Furthermore, the introduction of IFRS into Europe (particularly IAS 39) caused strong objection from the banking industry (Larson and Street, 2004, Zeff, 2006). This caused the European Union to adopt IAS 39 after excluding certain sections from it, thus causing a major obstacle in its convergence with IFRS and a problem for auditors in terms of what particular financial reporting standards to refer to in the auditor's report (Pacter, 2005; Al-Khadash and Abdullatif, 2009).

The financial markets in many developing counties, and Jordan is no exception, are inherently volatile because they are driven by expectations about the future (Al-Khadash and Abdullatif, 2009). These are markets for “credence” goods, dependent on psychological factors, as opposed to search goods or experience goods (Hodder et al, 2006). Financial markets deal with expected valuation by diverse actors facing radical uncertainty and in

some instance strategic behavior for some traders shift market faraway from the so-called fundamental value. The competition among traders does not overcome the radical uncertainty that is typical of a market economy (Al-Khadash and Abdullatif, 2009).

3 Previous Studies

Beginning with Barth (1994), many studies covering the value-relevance of fair value accounting, measured by its incremental effect over historical cost accounting, have generally found that fair value have significant explanatory power beyond that of historical cost measures (Barth, 1994; Bernard et al, 1995; Barth et al, 1996; Barth and Clinch, 1998). Several studies, however, cast doubt to the value relevance of fair value accounting and its volatility (Barth et al, 1995; Bernard et al, 1995). (Hodder et al, 2006) argue that incremental earning volatility under fair value accounting income is related to elements of risk not captured by historical cost accounting net income or comprehensive income, and that these risks relate more closely to capital market pricing.

Such value-relevance of fair value accounting measures has even been found under less efficient circumstances. Carroll et al (2003) argue that incremental value-relevance of fair value accounting information is not eliminated when an estimation of fair value is needed. They found this result for both fair values of securities and fair-value-based gains and losses covered in their study of close-end mutual funds.

Landsman's work which is one of the most extensive and persuasive in consideration of the issues regarding relevance, reliability and value relevance of fair value measures, concluded in his survey of many extant fair value accounting studies from the USA, UK and Australia (Landsman, 2007) "that disclosed and recognized fair values are informative to investors, but that the level of in formativeness is affected by the amount of measurement error and source of the estimates - management or external appraisals" (Landsman, 2007, p. 19).

Nelson (1996) reported that fair values of investment securities have more incremental power relative to book values, but that this result holds only for investment securities, and not for loans, deposits, or long-term debt. A relatively similar result was reported by (Khurana and Kim, 2003), who found that fair values of available-for-sale securities are more informative than those of their book values. However, they found that for small bank holding companies and those with no analyst following, fair value accounting measures for loans and deposits are less informative than those of their historical cost accounting measures. They argue that this is possibly because loans and deposits are not actively traded and may in many cases include more subjectivity in estimating fair values. (Khurana and Kim, 2003) concluded that fair value measures are more value-relevant when there exists available objective market-determined fair values. Apart from that, they argued that simply requiring the use of fair value accounting is not appropriate for all cases.

On the other side According to Eccher et al. (1996), argue that book values are more value-relevant on the whole than fair value disclosures. The results of Park et al. (1999) [not listed in the references list] about fair value disclosures for investment securities and bank equity produce similar conclusions. Eccher et al (1996) stated that in some cases historical cost measures had incremental value-relevance higher than those of fair value measures.

Some studies analyzed the value-relevance of fair value measurements on the financial performance of some companies. Barth et al (1995) found that although fair value earnings are more volatile than historical cost earnings, incremental volatility is not reflected in stock

prices. A study of (Penman, 2007) concludes that book values change considerably when investments are accounted for at fair value, and that the magnitude of this change varies between companies and types of assets. However, only in few cases the difference in valuation leads to a relevant difference in companies' efficiency scores; that is, within the sample the overall rank order of the companies with regard to efficiency and profitability remains largely the same under both valuation bases. These findings seem to indicate that a change from historical cost to fair value accounting for investments would alter analyst perceptions of a limited number of companies but would not have any effect for the majority of them (Al-Khadash and Abdullatif, 2009).

A note worth mentioning is that value-relevance of fair value measures and their effect on stock prices has not always been reported to be a positive issue. Indeed, several studies have found that fair value measures have caused negative stock price reactions. This is generally in the case of banks, given their relatively large proportion of investment securities to total assets, compared to other types of businesses. (Beatty et al, 1996) reported negative effects of stock price movements for banks as a result of fair value accounting. This was found to be most in the cases of banks more frequently trading their investments, having longer maturity investments, and being more fully hedged against interest rate changes (Beatty et al, 1996).

3.1 Fair Value Model for Investment Property

The question of whether fair values are reliable is a primary concern to most financial statement users, regulatory authorities, preparers and auditors. As stated by (Wilson, 2001) "well established valuation models can produce significant variability in the range of reasonable fair value estimates for an investment property and even minor changes in the assumptions in the valuation models can significantly alter the results. In an ideal world with liquid and transparent markets this would not be a significant problem. However the real estate market is characterized by inefficiency and heterogeneity. Fair values of investment properties in many cases are based on valuations and not observed prices. For assets traded in illiquid markets the volatility in reasonable estimates of fair value can provide a vehicle for discretionary upward or downward adjustments of balance sheet and income amounts. Even in the absence of an enterprise's intent to distort reported fair values, the variability of reasonable fair value estimates from enterprise to enterprise may significantly reduce the comparability of financial statements among enterprises (Wilson, 2001).

The inclusion of capital gains or losses arising from changes in the fair values in the net profit or loss of the period will have wide effects on the net income or loss of the company (Muyingo, 2003):

1. Solidity, which is the equity/assets ratio, will increase as the fair value of the investment properties increases, if the fair value model is applied.
2. Total equity, (shareholder's equity) which is the sum of restricted equity and the retained earnings will increase tremendously as value changes will be included in the profit.
3. Volatility in the net income will increase if the fair value model is applied.

The underlying idea behind the use of fair value as a measurement attribute is that fair value represents a market price. Market prices capture the consensus view of all market participants about an asset or liability's economic characteristics, including assumptions about cash flows, profit margins and risk (Muyingo, 2003).

With respect to the implications of fair value accounting on investment property and real estate, (Turel, 2007) found that Turkish real estate investment trusts do not prefer valuing investment properties at fair value under IAS 40. He argues that this is because of the effects of income volatility. On the other hand, (Danbolt and Rees, 2008) found that the reliability of real estate values is contentious and potentially open to both error and manipulation. The values are based on the work of individual experts who have to estimate the marketability, or predict the cash flows and discount rates, for assets with very different characteristics. (Danbolt and Rees, 2008) added, the experts are also employed, directly or indirectly, by the real estate firms and are, at least potentially, subject to the influence of the real estate firm's management.

Danbolt and Rees (2008) conclude that as there is arguably more scope for uncertainty surrounding fair values of property than financial securities, fair value disclosures by real estate companies are expected to be less value relevant and more biased than fair value disclosures by investment companies. According to them, while fair values are generally straightforward and unequivocal for investment companies, the valuation of investment properties for real estate firms is less clear-cut and more open to manipulation. Compared to financial instruments, Mazza et al (2009) argue that the reliability of estimates for non-financial assets is of concern because, for the most part, no market exists for these assets. According to SFAS No. 157 real estate valuation could be either level 2 or 3 depending on the source of the input data.

4 International Accounting Standard 40?

IAS 40 specifies that an investment property (land or a building or even part of a building or both) is one which is held to earn rentals or for capital appreciation, or both by the owner or by a lessee under a finance lease. Investment property excludes property occupied by the parent or a subsidiary or fellow subsidiaries. However, investment property includes property that is leased to an associate or joint venture, which occupies the property, since associates and joint ventures are outside the consolidated group. Assets (e.g. land) held by a lessee under an operating lease should be recorded according to the requirement of IAS 17: Leases. Properties held for use in the production or supply of goods or service, or for administrative purposes are accounted for under IAS 16: Property, Plant and Equipment (PPE). Properties held for sale in the ordinary course of business are accounted for under IAS 2: Inventory (Tohmatsu, 2007).

If the owner uses part of the property for its own use, and part to earn rentals or for capital appreciation and the portions can be sold separately, they are accounted for separately. If the enterprise provides ancillary services to the occupants of a property held by the enterprise, the appropriateness of classification as investment property is determined by the significance of the services provided.

Investment property must be recognized as an asset when it is probable that the future economic benefit associated with the asset will flow to the enterprise and the cost of the asset to the enterprise can be measured reliably.

The cost of a purchased investment property is its purchase price and any directly attributable costs such as professional fees for legal services, property transfer taxes and other transaction costs. The cost of a self-constructed investment property is its cost at the date when construction or development is complete. Until that date cost is measured in accordance with IAS 16 (Tohmatsu, 2007).

The subsequent measurement of investment property might be fair value model or cost model. When an investment property is acquired or constructed, the enterprise should be able to determine its fair value reliably on a continuing basis. If in exceptional cases, there is clear evidence when an enterprise first acquires an investment property that the fair value of the property will not be able to be reliably measured on a continuing basis (because comparable market transactions are infrequent and alternative estimates of fair value are not available), then that investment property is measured using the depreciated cost model under IAS 16 until it is disposed of. However, if a property that qualified as an investment property when acquired or constructed has previously been measured at fair value, the property should continue to be accounted for under the fair value model until disposal under IAS 40 even if comparable market transactions become less frequent or market prices become less readily available.

Investment property is measured at fair value, which is the amount for which the property could be exchanged between knowledgeable, willing parties in an arm's length transaction. Gains or losses arising from changes in the fair value of investment property should be included in net profit or loss for the period in which it arises. This will make the earnings of companies that hold investment properties more volatile, reflecting the upturns and downturns of the property market, and blurs the assessment of operating performance. The use of the fair value model is expected to introduce a degree of volatility into the results of companies not seen before. Some companies may then be tempted to hold investment properties at cost. However, these companies should not celebrate too soon as the standard still requires management to determine and disclose the fair value of an investment property when the cost model is adopted.

Fair value should reflect the actual market state and circumstances as of the balance sheet date. The best evidence of fair value is normally given by current prices on an active market for similar property in the same location and condition and subject to similar lease and other contracts. In the absence of such information, the enterprise may consider current prices for properties of a different nature or subject to different conditions, recent prices on less active markets with adjustments to reflect changes in economic conditions, and discounted cash flow projections based on reliable estimates of future cash flows.

After initial recognition, investment property is accounted for in accordance with the benchmark treatment under IAS 16, Property, Plant and Equipment (cost less accumulated depreciation less accumulated impairment losses). No unrealized gains or losses to be reported in the income statement, once the investment property is sold all gains and losses to be recognized in the income statement.

5 The Research Approach

5.1 The Real State Jordanian Market

Jordan has been witnessed an extraordinary boom in real estate sector during the period 2004-2008, the total investment in this sector during this period was estimated at over JD 15 billion. Trading in the sector in 2007 was reached JD 6 billion, compared to JD 4.6 billion and JD 3.5 billion in 2006 and 2005 respectively (Central Bank of Jordan, 2006). The Jordanian Real Estate market was affected significantly by the political turmoil and economic boom in recent years, instigated by the September 11th terrorist attack on the United States which compelled Arabs to relocate their investments closer to home, followed

by the influx of thousands of Iraqis during the second Gulf war, alongside the rising oil prices that produced an abundance of liquidity in the gulf states, inducing many capital owners to invest in Jordan. The unrivalled activity in trading in real estate and property in Jordan, in addition to the initiatives by the government to encourage investment, and the relatively cheap Jordanian labor, drove local, Arab and foreign investors to divert their investment attention to Jordan. While investment has been wide-spread across the country, the lion's share of investments has been claimed by the capital Amman, the Dead Sea and Aqaba (Central Bank of Jordan, 2006).

Real estate has a direct impact in supporting the growth of other economic sectors, particularly the construction sector, which has a spill-over effect to other areas of the economy, creating job opportunities and generating demand for other supporting industries, such as steel, cement, wood, glass, aluminum, etc…

It also has a bearing on the financial services sector, with opportunities arising for banks to offer financing to real estate companies and contractors, in addition to providing retail facilities in the form of mortgages for the purchase of land and property.

5.2 Methodology of the Study

5.2.1 Data sources

The population of this study comprises all shareholding companies, which are listed in the first market at Amman Stock Exchange (ASE). The total number of these companies is about 263. In this study 94 companies were selected, these companies were selected because they all had investments in properties and they utilize IAS 40 for financial reporting. The financial data of these companies were obtained from ASE database. The data collected was about their operations in Jordan over the period of 2002-2009. Data sources include financial statements: particularly, the balance sheet, and the income statement.

5.2.2 Methodology

This study examines the effect of implementing fair value accounting under IAS 40 on the income and the (EPS) of Jordanian Shareholding Companies (JSC) and how the inclusion of unrealized gains and losses in income numbers affect the incremental explanatory power of earnings. To test the effect on (EPS), a ratio is calculated. To compute this ratio the (EPS) is figured out twice, one (EPS) is calculated where earnings include unrealized gains or losses of valuing investment property at fair value (EPS*i*IP) and one more time, the (EPS) is calculated where earnings exclude such unrealized gains or losses (EPS*e*IP). Consequently the final ratio is calculated as follows:

$$\text{EPS Ratio} = \text{EPS}i\text{IP}_{it} / \text{EPS}e\text{IP}_{it} \quad (1)$$

Where:

EPSiIP$_{it}$: is the earning per share when earnings include unrealized gains or losses of valuing investment property at fair value for firm i during period t.

EPSeIP$_{it}$: is the earning per share when earnings exclude unrealized gains or losses of valuing investment property at fair value for firm i during period t.

-If the ratio result is 1 that means EPS*i*IP = EPS*e*IP, and more than 1 means that earnings are include unrealized gains, finally less than 1 means earnings are include unrealized losses.
Also, we used Ohlson (1995) model that has been used extensively in previous studies. The model expresses the value of a firm's equity as a function of its earnings and book values as follows:

$$P_{it} = a_0 + a_1 EPS_{it} + a_2 BV_{it} + e_{it} \quad (2)$$

Where:
P_{it} = firm i's stock price at the end of year t.
EPS_{it} = earnings per share for firm i during period t.
BV_{it} = book value per share for firm i at the end of period t.
e_{it} = other value-relevant information of firm i for period t .
To compare the explanatory power that earnings and book values have for prices, we follows Collins et al. (1997) methodology and decompose the combined explanatory power of earnings and book value as measured by the coefficient of determination of equation 2 into three components: (1) the incremental explanatory power of book values, (2) the incremental explanatory power of earnings, and (3) the explanatory power common to both earnings and book values.
To calculate these components, the coefficients of determination for the following additional two equations are estimated:

$$P_{it} = b_0 + b_1 EPS_{it} + e_{it} \quad (3)$$

$$P_{it} = c_0 + c_1 BV_{it} + e_{it} \quad (4)$$

R^2 from equations 2-4 are denoted $R^2_{(EPR,\ BV)}$, $R^2_{(EPR)}$ and $R^2_{(BV)}$ respectively. The incremental explanatory power provided by earnings (Incr. ER) can be measured by the difference between $R^2_{(EPR,\ BV)}$ and $R^2_{(BV)}$. The incremental explanatory power provided by book value (Incr. BV) can be represented as the difference between $R^2_{(EPR,\ BV)}$ and $R^2_{(EPR)}$. The remaining $R^2_{(EPR,\ BV)}$ – Incr. EPR – Incr. BV , represents the explanatory power common to both earnings and book values and is donated as Incr. COM.
To examine the effect of unrealized gains included in the income number on the value relevance of earnings, the above analysis has been repeated using a measure of earnings that does not include the unrealized gain and losses and we compare the explanatory power to that obtained earlier.

6 Results

6.1 The Effect of Fair Value Measurement on the EPS

As shown in Table 1, the use of fair value accounting has a significant effect on the firms' reported financial performance and on the earnings per share. The EPS ratio is bigger than 1 for 2002-2008 years which means unrealized gains are included and earnings of these companies are overstated by revaluation volatility. The fair value figures in this study were calculated based on the disclosure statements shown in each annual report. It is required by

Jordanian regulatory authorities that when fair value alternative choice was used fair value figures should be disclosed in the annual reports.

Table 1: EPS ratio for all companies during the period of 2002-2009

year	EPS Ratio
2002	1.009
2003	1.163
2004	1.112
2005	2.025
2006	1.425
2007	1.356
2008	1.001
2009	0.879

Also, Table 1 indicates that the volatility of earnings is notable mainly in years 2005, 2006 and 2007. The increase in the EPS ratio comes as a result of revaluing investment properties at fair values. The increase in the investment properties value was because of the big growth in Real Estate market in Jordan and that affects the results of many Jordanian companies especially the shareholding companies listed at Amman Stock Exchange (ASE).

The data in Table 1 shows that fair value accounting has an impact on the firms' reported financial performance and consequently on the EPS Ratio. One criticism of fair value is the potential impact of market price fluctuations on firms' reported financial performance. The use of fair value in developed countries is based on the assumption that the capital market is efficient, such that prices incorporate new information relatively quickly and accurately, without extreme fluctuations. If capital markets in developing economies have large price fluctuations based on noise rather than relevant information, use of fair values based on these market prices may create abnormal fluctuations in firms' net income and owner's equity. This raises concerns that the relevance and reliability of financial information will both be reduced. Amman Stock Market showed considerable fluctuations in 2005, 2006 and 2007.

The ASE general index reached its highest level in 2005 where the index closed at the end of the year at 8191.5 points. However, the same index closed at 5518.1 points at the end of 2006. Figure 1 shows the movements in ASE general index for the period of the study (Al-Khadash and Abdullatif, 2009). It is obvious from the figure that the movement in the index values in the years 2005 and 2007 caused a bubble in ASE in that period.

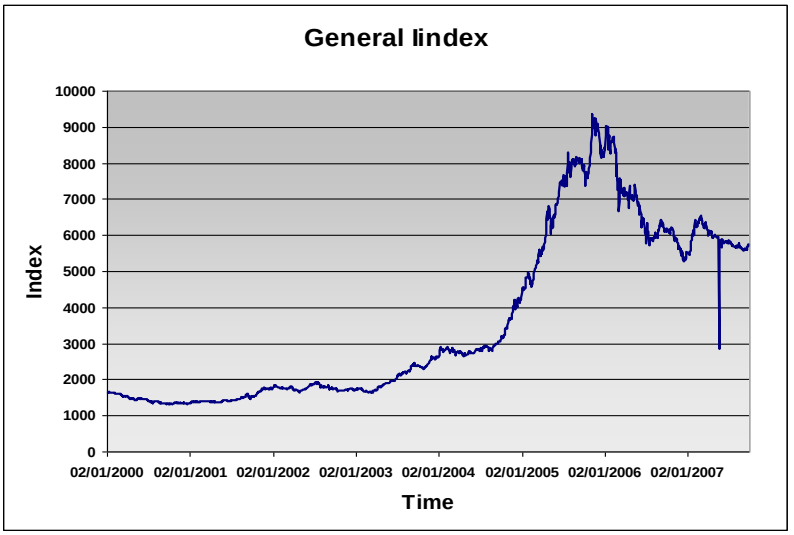

Figure 1: ASE general index

As discussed previously, the bubble years coincided with the influx of huge amounts of capital from Arab and other non-Jordanian investors causing a very significantly larger market capitalization, figures are shown in Table 2. After 2007 the market capitalization and its percentage to the GDP is decreased significantly.

Table 2: The ASE market capitalization during the period 2002-2009

	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Market Capitalization (JD million)	5,029.0	7,772.8	13,033.8	26,667.1	21,078.2	29,214.2	25,406.3	22,526.9
Market Capitalization / GDP (%)	80.4	116.8	184.7	326.6	233.9	289.0	226.3	149.6

To test the difference in the volatility of EPS*i*IP and the volatility of EPS*e*IP during the period of the study, a Paired t-test is used to allow the comparison between the means of EPS*i*IP and EPS*e*IP. The results are shown in Table 3.

Table 3: Statistical tests (parametric and non-parametric) to compare measures of income volatility

Paired-Sample for Means (T Test)		
	EPS*i*P	EPS*e*IP
EPS Means	.278	.2165
EPS Variance	0.234	0.1967
Observations	658	
Df	657	
t Stat	2.5717	
P(T<=t) two-tail	0.0146* *(P <0.05)*	
Two-Related-Samples Test (Wilcoxon)		
z Stat	2.3516	
P(T<=t) two-tail	0.0041**(P <0.05)*	

*The results are significant (P <0.05)

The mean of EPS*e*IP (.2165) is less than the mean of EPS*i*IP (.278) and the variance for the EPS*e*IP is less than the EPS*i*P measure. These results indicate that using fair value measurement leads to volatility of earnings and EPS. Such information may affect investors, potential investors, debt covenants, credit ratings and others. Second, as shown in Table 3 both parametric and nonparametric statistical tests are used to test the volatility of earnings. The calculated t-statistic (t-stat) is 2.5717 and the P-value (two-tails test) is 0.0146; which means that there is a significant difference in the volatility of EPS*i*IP and the volatility of EPS*e*IP. Also when a two related samples test (Wilcoxon) is used z-statistic (z-stat) was 0.0041, which is significantly less than 0.05. Consequently, firm-specific t- and z-statistics (i.e., parametric and nonparametric statistical tests) confirm the results that there is a significant difference in the volatility of EPS*i*IP and the volatility of EPS*e*IP.

6.2 The Cross-sectional Regression Results using Net Income as a Measure of Earnings

Table 4 presents estimates of regressions 2, 3 and 4. Panel A shows the coefficients and t-statistics. The results of equation 2 show strong association between stock prices and operating income plus book values (operating income and book values are significant at better than 1% level in every year and for all years combined).

Table 4: The results of cross-sectional regression of prices on income and book values for 2002-2009

Panel A: The Models:

$P_{it} = a_0 + a_1 EPS_{it} + a_2 BV_{it} + e_{it}$ (2)

$P_{it} = b_0 + b_1 EPS_{it} + e_{it}$ (3)

$P_{it} = c_0 + c_1 BV_{it} + e_{it}$ (4)

Year	N	a_1	a_2	$R^2_{(NI\&BV)}$	b_1	$R^2(NI)$	c_1	$R^2_{(BV)}$
02-09	94	0.467	0.345	0.479	0.649	0.432	0.583	0.378
		(2.940)	(2.678)		(5.211)		(4.256)	

Panel B: The Decomposition of R^2:

Incr. NI = R^2(NI &BV) - R^2 (BV)

Incr. BV = $R^2_{(NI\&BV)}$ -R^2 (NI)

Incr. COM = $R^2_{(NI\&BV)}$ - Incr. NI - Incr. BV

Year	$R^2_{(NI\&BV)}$	R^2 (NI)	$R^2_{(BV)}$	Incr. NI	Incr. BV	Incr.COM
02-09	0.479	0.432	0.378	0.155	0.067	0.266

The results of equations 3 and 4 indicate that net income and book values individually explains a significant portion of the variation of stock prices in every year and for all years combined. The adjusted R^2 indicates that net income alone, book value alone, and net income and book value combined explain about 43%, 38% and 48%, respectively of the cross-sectional variation in securities prices.

Panel B of table 4 provides the results of the decomposition of adjusted R^2's. The results reveal that net income adds more to the overall explanatory of the model than book values. The incremental information content of net income, Incr. NI, is relatively high at 15.5%.

By contrast, the incremental information content of book values, Incr. BV, is only 6.7%. The common explanatory power of earnings and book value, Incr. COM, is 26.6%.

6.3 The Role of Unrealized Gains and Losses on the Explanatory Power of Earnings

As mentioned earlier also this research examines the impact of including the unrealized gains and losses recognized under IAS 40 in explaining stock prices for Jordanian shareholding companies and how the inclusion of unrealized gains and losses in income affect the incremental explanatory power of earnings, we exclude the unrealized gains and losses from net income and use the resulting earnings number in the regression equations 2 and 3 and compare the coefficients of determinations and incremental explanatory power of the new measure of earnings.

Table 5 presents estimates of regressions 2, 3 and 4. Panel A shows strong association between stock prices and net income before unrealized gains and losses plus book values. The adjusted R^2 for the regression indicates that net income before unrealized gains and losses and book values jointly explain about 38.9% of the variation in securities prices. The results of equations 3 indicate that excluding unrealized gains and losses from net income reduces the explanatory power of new measure of earnings from 43.2%as shown on table 4 to 23.1%as presented on table 5.

Panel B provides the results of the decomposition of adjusted R^{2}'s. The results reveal that excluding unrealized gains and losses from the measure of earnings reduces its incremental information content, compared to the results shown in table 4. The incremental information content of net income before unrealized gains and losses (Incr. NIBUG), is relatively low at 4.2% compared to 15.5% for net income as indicated in table 5. By contrast, the incremental information content of book values (Incr. BV) is increased to 15.6% from 6.7%. The common explanatory power of earnings and book value (Incr. COM), is 19.8%. Excluding unrealized gains and losses from net income makes book values add more to the explanatory power of the model than earnings.

The results show that unrealized gains and losses play a role in explaining stock prices for investment companies and the inclusion of them in earnings increases the incremental explanatory power of earnings.

Table 5: The impact of excluding unrealized gain from net income on the explanatory power of earnings

Panel A: Regression of Prices on Net Income before Unrealized gains and Book Values:

Earnings Measure	N	a1	a2	$R2_{(NIBUG\&BV)}$	B1	$R2_{(NIBUG)}$	C1	R2(BV)
NIBUG	94	0.258	0.463	0.389	0.497	0.231	0.596	0.365
		(1.624)	(2.913)		(3.288)		(4.267)	

Panel B: The Decomposition of R2:

Earnings Measure	$R2_{(NIBUG\&BV)}$	R2(NIBUG)	R2(BV)	Incr. $_{(NIBUG)}$	Incr. BV	Incr. COM
Net Income	0.389	0.231	0.365	0.042	0.156	0.198

7 Conclusion

The investigation in this study is motivated by the shortage of empirical research in emerging markets on the value relevance of the information content of fair value information provided by IAS No. 40. IAS 40 requires the use cost model or of fair value model in accounting. The fair value model is considered to have a number of qualities that will help to present a better and fairer picture of the companies. However the uncertainty associated with the measurement of the fair values and the volatility in the income and the EPS will affect the user of financial statement, specially the investors and creditors.

The main issues that can be concluded from the previous results and discussion are that changes in Jordanian reported financial performance are obvious as a result of adopting fair value accounting and including unrealized holding gains and losses in the calculation of reported income. Including such gains and losses in the reported income significantly affects the income and the EPS, and this gains and losses are result of accounting measures more than being result of economic activities. An effect of Fair Value Model increased focus on the management of some assets such as property investments and the understanding of the strategies and economic factors which will affect fair values and thus the company's profit. Due to the changes in solidity and net income caused by the use of the fair values, company management will have to focus a lot more on informing investors and other users of the financial statements about the management strategies undertaken to minimize the volatility in the fair values. And these result consist with the result of (Muyingo, 2003 and Nordlund, 2002).

The study also utilizes Ohlson (1995) valuation model combined with a technique developed by Theil (1971) and has been applied by several empirical studies to compares the incremental explanatory power of earnings and book values. The study specifically examines the role of unrealized gains and losses recognized under IAS 40 in affecting the EPS and in explaining stock prices for investment companies in Jordan and how the inclusion of unrealized gains and losses in income numbers affect the incremental

explanatory power of earnings. The study decomposes earnings for investment companies into two components: earnings before unrealized gains and losses recognized under IAS 40 and earnings after unrealized gains and losses.

The results of cross-sectional regression using only investment firms indicate that:

(1) net income and book values jointly and individually are positively and significantly related to stock prices; (2) the incremental information content of net income is greater than that of book values; (3) the inclusion of unrealized gain in income numbers increases the explanatory power of the model; (4) the incremental information content of net income before unrealized gains and losses is lower than that of book value. Thus, including unrealized gains and losses from investment in net income enhances its incremental information content.

Our overall results show that unrealized gains and losses play a role in explaining stock prices for Jordanian companies and the inclusion of them in earnings increases the incremental explanatory power of earnings.

The empirical evidence provided in the current study on the value relevance of fair value information should be useful to the IASC as well as other local accounting regulators, who are interested in knowing whether fair value numbers made available by IAS No. 40 are value relevant to participants in the less-sophisticated capital markets of developing countries. Also, the situation reported in this study is hoped to be of value to Jordanian regulators, scholars, and capital-markets participants (e.g., Jordan Securities Commission) as they consider whether to adopt and impose more accounting standards in Jordanian regulations to recognize changes in fair values for all financial instruments and investment property in income. Further research is needed in the effect of using fair value option on the reported owners' equity and in different sectors in Jordan.

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