

Print ISSN: 2288-4637 / Online ISSN 2288-4645
doi:10.13106/jafeb.2021.vol8.no2.0387

Effect of Intangible Assets on the Value Relevance of Accounting Information: Evidence from Emerging Markets

Mawih Kareem AL-ANI¹, Omar Ikbal TAWFIK²

Received: November 05, 2020 Revised: December 30, 2020 Accepted: January 08, 2021

Abstract

This study mainly aims to examine the effect of intangible assets on the value relevance of the Gulf Cooperation Council (GCC)-listed non-financial firms. This study tested three types of models by using a large sample of non-financial firms listed in GCC countries as emerging markets from 2008 to 2016. The types of models are accounting information (earnings per share and book value of share) without intangible assets model, intangible assets model, and accounting information (earnings per share and book value of share) with intangible assets model. Ordinary least square (OLS) shows mixed results as intangible assets improve the value relevance of accounting information positively in UAE and negatively in Kuwait but not in other countries. The study documents a robust positive relationship between intangible assets and earnings quality in terms of value relevance in KSA and Qatar. The findings provide implications for policymakers, investors, and managers. The results suggest that intangible assets can improve the value relevance in emerging markets, such as GCC, as the need to organize the requirements of information disclosures on intangible assets and provide great transparency and additional disclosure of information about intangible assets and their components.

Keywords: Intangible Assets, Value Relevance, Accounting Information, Emerging Markets

JEL Classification Code: M40, M41, E22, O34

1. Introduction

The purpose of financial accounting is to satisfy the users' needs for financial information that is helpful in decision making. Therefore, managers prepare and present financial statements, which represent the main source of information. Chapter 1 of Statement of Financial Accounting Concepts (SFAC no. 8) (FASB) stated that 'The objective of general-purpose financial reporting is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders, and other creditors

in making decisions about providing resources to the entity'. The usefulness of financial information means that this information has quality characteristics determined by the conceptual framework of the FASB and International Accounting Standards Board (IASB). The usefulness of accounting information has been constantly expressed in the literature by the term "value relevance (VR)". Kimouche and Rouabhi (2016) pointed out that the VR reflects the main function of accounting, which relates to the supplying of useful information that enables investors to value securities and make rational decisions. The objective of value relevance research is to relate financial statement figures to a measure of a firm's value and, to assess the relation of such information to the determination of value.

VR is defined as the ability of accounting figures to reflect the underlying economic value of a firm (Hung & Subramanyam, 2007). Barth et al. (2001) accounting measures are said to be value relevant if they have predicted associations with equity market values. Paramita et al. (2020) used the same idea as they defined VR can be measured through the statistical relations between the information presented by financial statements and stock market values or returns. Adetunji (2016) discussed the originality of this

¹First Author and Corresponding Author. Associate Professor, Accounting Department, Dhofar University, Oman [Postal Address: P.O. Box 2509, Salalah, 211, Sultanate of Oman]
Email: mawih@du.edu.om

²Associate Professor, Accounting Department, Dhofar University, Oman. Email: otawfik@du.edu.om

concept which compromises two words, namely, value and relevance. The former indicates the price of the commodity in the economic and monetary worth of assets, liabilities, and equity in accounting. The latter refers to the predictive value of accounting information. More specifically, Mirza et al. (2019) defined VR as an ability of accounting information to capture or summarise information affecting the share price.

Some implications are driven by these definitions and other related studies. Firstly, most of the prior studies (Ragab & Omran, 2012; Mirza et al., 2019; Adetunji, 2016) pointed out that the accounting information is relevant when they reflect information used by stakeholders to estimate the firm or market value of the firm. Accordingly, to be value relevant, accounting information must be associated with the firm value. Second, prior studies (Basil et al., 2016; Balachandran & Mohanram, 2011; Chandrapala, 2013) explain that most of the useful accounting information which is used to measure the firm value includes earnings and book value of shares. Third, many of these prior studies used Ohlson's (1995) model to measure the VR of accounting information. This model uses earnings and book value of shares (and operating cash flow) to explain the variation in the market value of the firm. Fourth, most of the prior studies have found a positive and significant relationship between accounting information and the equity value of the firm. Mirza et al. (2019), Shamki and Abdul Rahman (2012), El Shamy and Kayed (2005), Camodeca et al. (2014), Khanagha (2011), and Acaranupong (2017) have found that accounting information is useful for the stakeholders in a different environment as accounting information has high VR in explaining the changes in market value.

Accordingly, accounting information including intangible assets (hereafter IAs) is one of the key factors in the decision-making process of the stakeholders. The FASB definition of assets is "asset is a resource that is controlled by the entity as a result of past events (for example, purchase or self-creation) and from which future economic benefits (inflows of cash or other assets) are expected". IAS 38 defined IAs as 'an identifiable non-monetary asset without physical substance'. IAs are resources with no physical substance. These assets have not been seen, touched, and physically measured. Therefore, IAs have three critical attributes namely, identifiability, control, and future economic benefits.

As IAs are a part of accounting information, many prior studies examine the effect of these assets on some variables. Glova and Mrazkova (2018) found a positive effect of IAs on firm value. Zhang (2017) and Rahman et al. (2020) found a positive association between IA and financial performance. Behname et al. (2012) found a positive relationship between IA and share price. Also, Solikhah et al. (2020) found that intellectual capital disclosure as IAs affect positively the

market value and improve stock investment decision. Fukao et al. (2009) found a negative relationship between IAs and economic growth. Thornhill and Gellatly (2005) found a positive relationship between IAs and entrepreneurial finance.

The findings of these studies show that firms now greatly invest in IAs because IAs play an effective role in sustaining the success of the firms. Córcoles (2010) pointed out that IAs are one of the most important factors in the development and success of the firms. Moreover, Todericiua and Stanit (2015) have discussed how IAs contribute to a real and sustainable competitive advantage of SMEs as they play a key role in long-term development.

Besides, studies about the relationship between IAs and VR of accounting information were conducted worldwide (Kimouche & Rouabhi, 2016; Hayati et al., 2015; Aulia et al., 2020; Kalantonis et al., 2020). Most of these studies concluded that IAs positively improve the VR of accounting information. Therefore, the financial statements become increasingly useful for the stakeholders, who can make credit and investment decisions based on accounting information including IA.

Generally, in the Middle East and specifically in the Gulf Cooperation Council (GCC) region, attempts to investigate the effect of IAs (one specific component, such as R&D or all components together) on VR of accounting information is very limited. Ismail and Abdul Kareem (2011) examined the relationship between IAs and financial performance in Bahrain. They found that financial performance is positively associated with IA. Satt and Chetioui (2017) found a positive effect of goodwill (a part of IAs) on firm value in the MENA region. Al-Sartawi (2018) found a weak relationship between IAs and corporate governance in the GCC region. Ousama et al. (2019) found a positive effect of intellectual capital on the financial performance of Islamic banks in GCC.

However, the problem which is discussed in the study consists of examining the influence of IAs recognized in financial statements on the VR of accounting information. This study aims to fill the gap in the literature with respect to the association between IAs and VR by using a large sample of non-financial firms listed in GCC capital markets for a period of 9 years from 2008 to 2016 (GCC countries are Saudi Arabia (KSA), Oman (OMN), Qatar (QAT), Kuwait (KWU), Bahrain (BAH), and UAE). This study mainly aims to examine the effect of IAs on the VR of GCC-listed non-financial firms. The IAs are a part of total assets in 56% of listed firms in GCC during the period of this study. The highest number of firms was found in KSA 44, Oman 27, UAE 20, Qatar 12, Kuwait 6, and Bahrain 5. Moreover, the IA as a percentage of total assets during the period of this study was 8% in KSA, 4% in Oman, 16% in Qatar, 3% in Kuwait, 11% in Bahrain, and 12% in UAE. However, these

percentages are low compared with that of the US where IAs represent 75%–85% (Malikova et al., 2018) which means that US firms depend on IAs in improving their performance.

This study in the GCC region has at least two motivations. First, all six GCC countries have a 2030 or 2040 vision for the future. In these visions, the IAs or intellectual capital received much attention as the governments of these countries encourage the firms to create IAs or intellectual capital. For example, Ismail and Abdul Kareem (2011) pointed out that intellectual capital is in line with Bahrain's 2030 vision, which focused on the knowledge-based sectors. Moreover, in Oman's 2040 vision, a knowledge-based economy and human capital are some of the most important themes that should be achieved within this time horizon. Second, all capital markets in the GCC countries adopted a policy of attracting foreign investors. Therefore, these foreign investors can use accounting information for decision-making purposes, and GCC countries are encouraged to improve the financial reporting quality. Accordingly, the GCC-listed firms disclose the information of IAs as per the requirement of IAS 38 to achieve this objective.

This study has some contributions to the current literature. First, the study provides comprehensive evidence for explaining the effect of IAs on VR in one region, a topic that has not been addressed before. Second, this study is consistent with the point of view that IAs are an important part of total assets, which leads to an improvement in the financial reporting quality of listed firms. Third, the study highlights that an issue, such as IAs, can drive managers to produce high-quality financial statements. Fourth, the evidence presented in this study has important implications for investors in GCC markets as such evidence can be useful in estimating the investments in IAs. Fifth, the study is useful for policymakers in deciding future regulations regarding the disclosure of IAs and how to apply international accounting standards (IAS) for financial reporting transparency.

The next section discusses the related literature and develops the study's hypotheses. Section 3I describes the research design, and Section 4 presents the results. Section 5 provides a summary of the study's findings and concluding remarks.

2. Literature Review and Hypothesis Development

The effect of IAs and VR is considered one of the most critical issues in the area of accounting from different perspectives. Concerning the lack of accounting recognition of IAs, Siegel and Borgia (2007) opined that the lack of recognition of IAs has adversely affected the value-relevance of financial reporting. Similarly, Zéghal and Maaloul (2011) pointed out that the lack of accounting recognition of intangible investments as assets has a negative effect on financial information.

In relation to the effect of IAs and market value, Goodwin and Ahmed (2006) discussed the effect of IAs on market

values, and they found that IAs increase the VR of earnings. Ocaik and Findik (2019) reviewed the evidence about the effect of IA on market value in different industries, such as telecommunications and technology. They found that IAs have a positive effect on market value.

IAs are influenced by the adoption of IAs. Napoli (2015) found that the VR of IAs in terms of R&D increased after the adoption of IAS. He raised the question of whether the adoption of IAs can improve the informational content of the IAs of Italian firms. Boulerne and Sahut (2010) examined the VR of IAs under IFRS when compared with local GAAP for French-listed firms. They found that the transition to IFRS did not affect the overall amount of IAs.

From the perspective of investors, some prior studies Lev (2003), Bužinskienė (2017), and Malikova et al. (2018) found that the informational content of IAs is relevant to the investors. Lev (2003) introduced a concept of 'comprehensive balance sheet', which includes the capitalization of IAs in the balance sheet to provide investors with information on IAs for improving corporate reporting. Bužinskienė (2017) concluded that the information of IAs are valuable to the investors, as it plays an important practical role in assessing the influence of IAs on the market value of the firm from the perspective of owners and investors.

Many acceptable measures of IAs are used in accounting. Goh (2005), Ting and Lean (2009), and Sharma and Dharni (2020) noted many measures of IA or intellectual capital, such as HC indicators, market-to-book value, Tobin's 'Q', calculated intangible value, balanced scorecard, economic value-added and value-added intellectual coefficient return on assets and market capitalization. On the other side, some prior studies by Hasprová et al. (2018), Malikova et al. (2018), and Aulia et al. (2020) agreed that the amount of IAs disclosed in financial statements may be also used for evaluating the IAs. Based on the previous evidence, this study determined the following hypothesis:

H1: The VR of accounting information is influenced positively by the amount of IAs.

3. Research Design

3.1. Sample and Data Collection

The sample of this study comprises 201 non-financial firms drawn from stock markets in KSA, Oman, Bahrain, UAE, Kuwait, and Qatar from 2008 to 2016, and the data is from S&P Capital IQ. Table 1 shows that the total number of firms in this study is 683. This study excludes 326 banking and financial institutions, owing to the different rules and regulations (concerning financial reporting) implemented in both organizations. It also excludes 15 non-financial firms because they are under liquidation (losses 75% of capital)

and 141 non-financial firms with missing data for some of the variables. It also excludes 87 non-financial firms because they do not have intangible assets (IAs). Accordingly, the final sample of the study includes 1026 firm-year observations (114 firms). The data collected from the S&P database was for a period of 12 years (2005–2016). However, this study uses data from 2008 to 2016 for all variables, given that many firms have missing data for three years from 2005 to 2007.

We converted all the above figures into their natural logarithmic counterparts by reaching the normality of data for each variable and ensuring the normality of residuals to attain accurate results (Glezakos et al., 2012). The conversion of variables to their natural logarithmic enables to reduce the dispersion of data. Table 1 presents the sample.

3.2. Variables of the Study

Two types of variables exist. The first one is the independent variable, which is measured by IAs through the amount (natural logarithmic) of IAs as disclosed in the financial statements of the sample. The second variable is the VR which is measured by R^2 as in Ohlson's (1995) model. This model assumes that the accounting information of earnings and book value of share reflect the market value of the firm. The Ohlson model (1995) is the best known of the models of VR aimed at formalizing the relationship between accounting values and firm value. This model constitutes a solid theoretical framework for market evaluation based on fundamental accounting variables (capital and income), as well as on other kinds of information that may be relevant in predicting firm value. The Ohlson model (1995) is greatly known in accounting studies, and many prior studies used this model in measuring VR (Kadri et al., 2009; Ragab & Omran, 2012; Chandrapala, 2013; Maditinos et al., 2013; Callao et al., 2016; Adetunji, 2016; Kimouche & Rouabhi, 2016; Mirza et al., 2019; Aulia et al., 2020).

3.3. Model Specification

The study is based on the Ohlson (1995) model, which expressed the firm's market value as a linear function of its book value of share and earnings. The study uses three models. In the first model, Ohlson (1995) was tested as equation 1 which includes only the original components of this model, that is, the book value of share and earnings without IAs. In the second model, equation 2 includes only IAs to test whether IA is relevant. In the third model, the study tested the original components of Ohlson (1995), that is the book value of share and earnings, in addition to IAs. Therefore, the three models are as follows:

$$P_{it} = \alpha + \beta_1 BV_{it} + \beta_2 EPS_{it} + \varepsilon_{it}, \quad (1)$$

$$P_{it} = \alpha + \beta_1 IA + \varepsilon_{it}, \quad (2)$$

$$P_{it} = \alpha + \beta_1 BV_{it} + \beta_2 EPS_{it} + \beta_3 IA_{it} + \varepsilon_{it}, \quad (3)$$

where for firm i and year t , P is the share closed price at the end of the year; BV is the book value of the share, EPS is earnings per share, IAs are intangible assets and ε is the residuals.

The study estimated the regression coefficients for the model using ordinary least squares (OLS) and variance inflation factor (VIF) to test the multicollinearity and the effect of both models. The same models were applied in each country of GCC countries. *Ordinary least squares (OLS)* estimate the parameters in a regression model by minimizing the *sum of the squared* residuals. A variance inflation factor (VIF) detects multicollinearity in regression analysis. Multicollinearity is when there's a correlation between predictors (i.e., independent variables) in a model; its presence can adversely affect your regression results. The VIF estimates how much the variance of a regression coefficient is inflated due to multicollinearity in the model.

Table 1: Sample Distribution by Country

	KSA	OMN	QAT	BAH	KUW	UAE	Total
Total Listed Firms (1)	171	107	43	42	173	147	683
Financial firms (2)	50	31	17	24	118	86	326
Non- Financial firms 3 (1-2)	121	76	26	18	55	61	357
Firms with losses (4)	4	0	0	0	11	0	15
Firms with missing data (5)	31	11	12	10	37	40	141
Firms with full data 6 (3-4-5)	86	65	14	8	7	21	201
Firms did not have IAs (7)	42	38	2	3	1	1	87
Firms have IAs 8 (6-7)	44	27	12	5	6	20	114
Number of observations (9 years)	396	243	108	45	54	180	1026

3.4. Descriptive Statistics

Table 2 describes the statistics of the variables in the three models at GCC countries in this study.

As shown in Table 2, the mean of EPS is positive in all GCC countries with the highest in QAT and the lowest in the UAE. For P, the share price in all GCC countries is above the par value of the share. The book value of the share is below the price of the share in all GCC markets, and the gap between them is less in UAE, OMN, BAH, and KWU but more in KSA and QAT. Nevertheless, the mean of BV for all GCC countries as a tool to assess

financial health are positive, which investors prefer. The mean of IAs is positive in all GCC except for OMN which is negative (natural logarithm and the real value of IAs is 11.2647 Million OMR). These results indicate that the GCC countries invest in IAs at different levels.

4. Results and Discussion

4.1. Variance Inflation Factor (VIF)

Table 3 shows the results of VIF.

Table 2: Descriptive Statistics

	Variable	Mini	Max	Mean	Std. Deviation
UAE	EPS	-1.25	0.59	0.0412	0.17922
	P	0.10	6.20	0.9826	1.09533
	BV	-0.01	3.99	0.7126	0.75869
	IAs	-0.55	3.98	1.8693	1.16386
BAH	EPS	-0.08	0.40	0.1124	0.08576
	P	0.28	2.41	1.1878	0.56806
	BV	0.32	1.86	0.9344	0.40554
	IAs	-1.96	2.95	0.7490	1.71438
KWU	EPS	-0.05	0.25	0.0904	0.07952
	P	0.19	4.06	1.3023	1.12763
	BV	0.30	1.83	0.9341	0.42963
	IAs	-0.60	2.12	0.7904	0.84329
QAT	EPS	0.02	3.85	1.6572	1.16574
	P	3.25	70.59	21.6556	15.09802
	BV	0.00	34.30	10.8130	8.47283
	IAs	-3.00	4.00	1.7373	1.22243
OMN	EPS	-1.48	2.83	0.1613	0.37945
	P	0.08	11.87	2.3250	2.56574
	BV	-0.17	12.30	1.3855	1.67966
	IAs	-2.52	2.23	-0.0806	1.13051
KSA	EPS	-9.49	2.74	0.3862	0.83452
	P	1.93	39.93	10.4101	7.67549
	BV	0.00	18.50	3.9047	2.88350
	IAs	-1.96	3.93	1.3982	1.24882

Table 3: Results of VIF

	KSA	OMN	QAT	KWU	BAH	UAE
IA	1.06	1.07	1.22	1.17	1.07	1.07
EPS	1.03	1.32	1.23	1.70	1.28	1.10
BV	1.08	1.29	1.11	1.56	1.27	1.03
Mean VIF	1.05	1.22	1.19	1.48	1.21	1.07

Yoo et al. (2014) pointed out that VIF measures the strength of linear dependencies how much the variance of a regression coefficient is inflated due to multicollinearity in the model. Generally, a VIF value greater than 10 may be harmful. As shown in Table 3, the value of VIF is below 10 in all countries, which means that the multicollinearity problem is not a concern.

4.2. Correlation Analysis

Table 4 shows the correlations amongst the variables in the three models, which are measured by the Pearson correlation coefficient in the GCC countries ($p < 1\%$). **Pearson's correlation coefficient** is the test statistics that measures the statistical relationship, or association, between two continuous variables. It is known as the best method of measuring the association between variables of interest because it is based on the method of covariance. It gives information about the magnitude of the association, or correlation, as well as the direction of the relationship. In KSA, the correlations are positive and significant between share price (P) and all three independent variables; EPS (0.589), BV (0.471), and IA (0.158) respectively. In Oman, Bahrain, and UAE 'P' correlates positively and significantly with EPS ((0.644), (0.890), & (0.275)), and BV ((0.791), (0.496), & (0.526)), but not with IA. In Qatar, P correlates positively and significantly with EPS (0.823), BV (0.607) ($p < 1\%$) and with IAs (0.272) at 0.05 ($p < 5\%$). In Kuwait, the correlations are positive and significant between share price (P) and EPS (0.861) and BV (0.487) and the correlation is negative and significant with IA (-0.534).

4.3. OLS Results: Model 1

Table 5 shows the regression result of model 1. In model 1, the study tested the relationship amongst share price, the book value of the share, and earnings (EPS).

As shown in Table 5, the model is significant ($p < 0.01$) in all GCC countries. OLS results show that coefficients of BV are positive and significant in OMN (1.076) and UAE (0.728), which indicates that BV reflects the share price and not EPS. The BV coefficient in OMN is more associated with P than that in UAE. However, in QAT, KWU, and BAH, the coefficients of EPS (10.13, 11.82, and 0.881) are positively correlated with P indicating that the earnings reflect the share price but not BV. In KSA, EPS (3.02) and BV (1.036) have a positive effect on P, which indicates that the share price is influenced by both components of accounting information. The OLS results are supported by R^2 as the highest one is found in BAH (77.1%) which means that EPS explains 77.1% of the variation of P in BAH. The lowest R^2 is found in

Table 4: Correlations in all Three Models

		EPS	P	BV	IAs
KSA	EPS	1			
	P	0.569**	1		
	BV	0.500**	0.471**	1	
	IAs	0.104	0.158**	0.251**	1
OMN	EPS	1			
KSA	P	0.644**	1		
	BV	0.691**	0.791**	1	
	IAs	0.178*	0.021	-0.079	1
QAT	EPS	1			
	P	0.823**	1		
	BV	0.705**	0.607**	1	
	IAs	0.250*	0.272*	0.331**	1
KWU	EPS	1			
KSA	P	0.861**	1		
	BV	0.559**	0.487**	1	
	IAs	-0.279	-0.534**	0.049	1
BAH	EPS	1			
	P	0.890**	1		
	BV	0.599**	0.496**	1	
	IAs	0.218	-0.109	0.208	1
UAE	EPS	1			
KSA	P	0.275**	1		
	BV	0.342**	0.526**	1	
	IAs	0.034	0.132	-0.161	1

** Correlation is significant at the 0.01 level (two-tailed).

* Correlation is significant at the 0.05 level (two-tailed).

UAE (27.6%) indicating that BV explains only 27.6% of variations of P in UAE. Finally, the study has noted that R^2 is more when EPS is correlated with P (QAT, KWU, and BAH) than R^2 when BV is correlated with P (OMN and UAE). This result indicates that the explanatory power of EPS is more than the explanatory power of BV as the stakeholders view EPS as a more reliable signal for equity valuation than BV.

4.4. OLS Results: Model 2

Table 6 shows the regression result of model 2. In model 2, the study tested the relationship between share price (P) and IAs.

Table 5: Regression Result of Model 1

Variables	KSA		OMN		QAT	
	B	T-Value	B	T-Value	B	T-Value
EPS	3.02 (0.000)	7.95	0.612 (0.144)	1.47	10.13 (0.000)	9.95
BV	1.036 (0.000)	9.26	1.076 (0.000)	11.64	0.126 (0.369)	0.90
F-Value	92.92		198.96		108.01	
Sig.	0.000		0.000		0.000	
R ²	0.321		0.6287		0.6793	
	KWU		BAH		UAE	
	B	T-Value	B	T-Value	β	T-Value
EPS	11.82 (0.000)	8.41	0.881 (0.000)	7.85	0.602 (0.172)	1.374
BV	0.103 (0.695)	0.390	0.016 (0.815)	0.240	0.728 (0.000)	6.587
F-Value	51.67		44.680		29.486	
Sig.	0.000		0.000		0.000	
R ²	0.7325		0.771		0.276	

Table 6: Regression Result of Model 2

Variable	KSA		OMN		QAT	
	B	T-Value	B	T-Value	B	T-Value
IAs	0.992 (0.006)	2.77	0.041 (0.791)	0.27	2.70 (0.062)	1.9
F-Value	7.65		0.07		3.60	
Sig.	0.006		0.791		0.0618	
R ²	0.026		0.0004		0.0452	
	KWU		BAH		UAE	
	B	T-Value	B	T-Value	B	T-Value
IAs	-0.737 (0.001)	-3.78	-0.0356 (0.649)	-0.46	0.137 (0.132)	1.52
F-Value	14.25		0.210		2.30	
Sig.	0.0006		0.649		0.1315	
R ²	0.2836		0.012		0.0175	

Table 6 shows that the model is significant only in KSA and KWU but not in OMN, QAT, BAH, and UAE. In KSA, the correlation between IAs and P is positive and significant (0.992) (p -value = 0.006 < 0.01) indicating that IAs reflect the share price positively. In KWU, the association between IAs and P is negative and significant (-0.737) (p -value = 0.001 < 0.01) indicating that an increase in IAs leads to a decrease in P. The R^2 in KWU (0.2836) is greater than that in KSA (0.026),

which means that the explanatory power of IA in KSA is more than that of IA in KWU. Generally, the explanatory power in model 2 is less than that of model 1, indicating that traditional accounting measures without intangibles are value relevant (VR). These results explain an important part of market values as their explanatory power (R^2) is more than that of IAs. In KSA and KWU, the stakeholders view IAs as a reliable signal for equity valuation along with accounting information.

Table 7: Regression result of model 3

Variable	KSA		OMN		QAT	
	B	T-Value	B	T-Value	B	T-Value
EPS	4.17 (0.000)	9.23	1.79 (0.003)	2.97	9.37 (0.000)	7.45
BV	1.26 (0.000)	10.54	1.42 (0.000)	11.31	0.242 (1.99)	0.199
IAs	0.081 (0.068)	1.833	-0.077 (0.443)	-0.77	-0.075 (0.08)	0.937
F-Value	80.92		84.05		43.17	
Sig.	0.000		0.000		0.000	
R ²	0.46		0.6088		0.6364	
	KWU		BAH		UAE	
	B	T-Value	B	T-Value	B	T-Value
EPS	9.547 (0.000)	7.77	8.266 (0.000)	7.41	0.502 (0.280)	1.09
BV	-0.397 (0.078)	1.82	-0.008 (0.961)	-0.05	0.863 (0.000)	6.89
IAs	-0.471 (0.000)	-4.56	-0.032 (0.402)	0.86	0.200 (0.010)	2.60
F-Value	60.83		21.03		20.00	
Sig.	0.000		0.000		0.000	
R ²	0.8430		0.7977		0.321	

4.5. OLS Results: Model 3

Table 7 shows the regression result of model 3. In model 2, the study tested the relationship between the share price (P), the book value of the share (BV), earnings (EPS), and IAs.

Table 7 shows that the model in all GCC countries is significant at 0.01 (p -value < 0.01). In KSA, EPS (4.17) and BV (1.26) have a positive and significant (p -value < 0.01) effect on P, but IA does not affect P (IA is significant at 0.10). The R^2 of the model in KSA increased from 0.321 to 0.46, which indicates that the explanatory power of the traditional accounting information with IAs is improved and explains the variations of P better than models 1 and 2. In KWU, EPS has a positive effect on P (9.547) (p -value < 0.01), whereas IA has a negative effect on P (-0.471) (p -value < 0.01). The R^2 of the model in KWU increased from 0.7325 to 0.8430, which indicates that the explanatory power of the traditional accounting information with IAs is improved and explains the variations of P better than models 1 and 2. In UAE, the BV (0.863, p -value < 0.01) and IAs (0.200, p -value < 0.05) have a positive effect on P indicating that an increase in EPS and IAs leads to an increase in P. Again, R^2 of the model in UAE increased from 0.276 to 0.321, which indicates that the explanatory power of the traditional accounting information

with IAs is improved and explains the variations of P better than models 1 and 2. In Oman and Qatar, IAs did not make any improvements in the explanatory power of the model as R^2 decreased in these two countries, from 0.6287 to 0.6088 in Oman and from 0.6793 to 0.6364 in Qatar because IAs are insignificant in both countries. In Bahrain, the explanatory power of the model is improved as R^2 increased from 0.771 to 0.7977 although IAs are insignificant.

In general, the statistical significance of EPS coefficients between models 1 and 3 has one change as EPS is significant in all GCC countries except for UAE and Oman in model 1 but significant in all GCC countries except for UAE in model 3, which means that the change was in Oman. BV is significant in KSA, Oman, and UAE in models 1 and 3. Moreover, IAs between models 2 and 3 have some changes. These changes were in KSA and UAE as IAs were significant in model 2 and insignificant in model 3 at 0.01, whereas IAs are insignificant in model 2 and significant in model 3 at 0.05.

4.6. Robust the Results

To robust the results, the study examined a fourth model between IAs and earnings quality in terms of VR of accounting

information. VR is one of the most common measures of earnings quality. This result implies that if the VR of accounting information is high, then the earnings quality or quality of financial reporting is also high. The VR can be measured in two proxies, namely R^2 of accounting information (EPS and BV) as per Ohlson (1995) and earnings response coefficient (ERC). In this study, the VR of accounting information was calculated as in Ohlson (1995), based on the following equation.

$$P_{it} = \alpha + \beta_1 BV_{it} + \beta_2 EPS_{it} + \varepsilon_{it}. \quad (4)$$

The value-relevance is the explanatory power of coefficient of determination (R^2) in equation (4) as large (small) R^2 indicates more (less) value-relevant of accounting information. Table 8 shows the degree of VR.

Table 8 shows that VR ranged from the highest (0.792) in BAH to the lowest (0.286) in UAE. The high explanatory power in terms of R^2 indicates that the informational content is high in BAH (0.792), KWU (0.742), QAT (0.679), OMN (0.629), KSA (0.321), and UAE (0.286). The high explanatory power will increase the VR of financial reporting because this will make the accounting information relevant to the investors.

After the calculation of the components of VR, the study uses the results of Table 7 to examine the effect of IA on VR in all GCC countries. The study did not use control variables to check the size of the effect of IA without the effect of control variables.

$$VR_{it} = \alpha + \beta_1 IA_{it} + \varepsilon_{it}. \quad (5)$$

Table 9 presents the result of OLS between IAs and VR.

Table 9 shows that IAs have a positive and significant effect on VR in KSA at 0.01 (p -value < 0.01) and in QAT at 0.05 (p -value < 0.05) indicating that IAs contribute positively in improving the VR of accounting information. In both countries, R^2 is low (4.8%) in KSA and (6.9%) in QAT, which means that IAs explain only 4.8% and 6.9% in KSA and QAT respectively of VR of accounting information. In other GCC countries (OMN, BAH, KWU, and UAE), IAs have an insignificant effect on VR at 0.01 and 0.05 which indicates that IAs did not improve the VR.

Table 8: Degree of VR and its Components

Variables	KSA	OMN	QAT	KWU	BAH	UAE
VR (R^2)	0.321	0.629	0.679	0.742	0.792	0.286
Residuals	15851.57	579.331	7602.118	12.134	1.744	127.581
B-Constant	5.066	0.821	3.028	0.098	0.410	0.459
Coefficient – EPS	3.021	0.615	10.136	11.828	6.242	0.602
Coefficient –BV	1.036	1.075	0.126	0.109	0.022	0.728

Table 9: Result of OLS between IA and VR

Variable	KSA		OMN		QAT	
	B	T-Value	B	T-Value	B	T-Value
IAs	0.219 (0.000)	3.860	-0.05 (0.483)	-0.704	0.262 (0.020)	2.369
F-Value	14.899		0.495		5.610	
Sig.	0.000		0.483		0.020	
R^2	0.048		0.002		0.069	
Variable	KWU		BAH		UAE	
	B	T-Value	B	T-Value	B	T-Value
IAs	-2.59 (0.102)	-1.675	0.264 (0.202)	1.312	-0.143 (0.089)	-1.714
F-Value	2.807		1.721		2.939	
Sig.	0.102		0.202		0.089	
R^2	0.067		0.070		0.021	

4.7. Discussion of Results

Generally, EPS, BV, and IAs attract the attention of investors, which view them as reliable signals for equity market valuation. Despite some changes across the six GCC countries, this study agreed with Kimouche and Rouabhi (2016) that EPS and BV components represent key accounting indicators that are widely used by financial analysts and other users to evaluate the future financial position, financial health, and performance of the firms. The results of model 1 are in line with the results of Karğın (2013) and Aulia et al. (2020) as BV and EPS are used by the investors to assess the fluctuations in the share price. The investors in GCC markets as in the other markets use the accounting information in determining the market value of stock prices and to make rational investment decisions because this information gives additional credit to the investment decisions (Oraby, 2017; Khanagha, 2011). Concerning the effect of IAs on share price, the study finds different results as the effect was positive in KSA in models 2 and 3 and positive in UAE in model 3 but negative in KWU in models 2 and 3. These results indicate that IAs as a whole are value relevant (VR) and explain more than 30% of variations in share price in KSA and UAE and more than 80% in KWU when IA is combined with accounting information. The results of models 2 and 3 provide evidence about the important role of IAs in market values in some GCC markets. This result indicates that any change in IAs positively affects the decisions of investors in the capital market, and thus, investors consider IAs that are reported in the balance sheet when they value the firms. The results of this study in models 2 and 3 are consistent with Kimouche and Rouabhi (2016), Zhang (2017), Ocak and Fındık (2019) and Aulia et al. (2020) as the increase of IAs can be considered as an increase in the predictability of future earnings which will attract additional investors.

In GCC markets as emerging markets, IAs have a positive effect (except in KWU) in improving the informational content of balance sheet, through providing information that gives positive signals to the investors and other stakeholders in the market. This study supports Kimouche and Rouabhi (2016) who stated that investors need additional positive information in determining firm value. This study also agreed with Kimouche and Rouabhi (2016) and Aulia et al. (2020) that the EPS, BV and IAs explain the largest part of the market values of GCC firms

Table 10 presents the fact that R^2 in model 3 is higher than R^2 in models 1 and 2 except for OMN and QAT in model 3 as R^2 is lower than R^2 in model 2 but the effect of IAs on P in model 3 is insignificant for those two countries.

The robust results showed that the IAs have a positive and significant effect on VR in KSA at 0.01 (p -value < 0.01) and QAT at 0.05 (p -value < 0.05). This result indicates that the informational content of IAs as disclosed in the balance sheet has high quality and contributes positively to improving the

Table 10: Results of R^2 in three models

	KSA	OMN	QAT	KWU	BAH	UAE
Model 1	0.321	0.6287	0.6793	0.7325	0.771	0.276
Model 2	0.026	0.0004	0.0452	0.2836	0.012	0.0175
Model 3	0.46	0.6088	0.6364	0.8430	0.7977	0.321

earnings quality in terms of VR of accounting information. R^2 is low in those two countries (4.8% in KSA and 6.9% in QAT), but the study opines to increase the IA, which might increase the VR. The result of IAs and VR in KSA supports that of model 2 as IAs are reliable information used by investors in their decisions. Moreover, the result in QAT is not in line with that of model 2 due to the effect of accounting information (EPS and BV). Comparing the results of model 3 and earnings quality, the study concludes that in KSA and QAT, the investor cannot use the information of IAs in determining the firm market value. On the contrary, investors might use this information to decide about earnings quality. In KWU and UAE, investors might use the accounting information (EPS and BV) and IAs to decide about the behavior of share price but not to determine the earnings quality. Finally, in OMN and BAH, the IAs information did not help the investors either in determining the market value or earnings quality although the R^2 of VR is high.

5. Conclusions

This study explored whether IAs as stated in financial statements are value relevant for investors in the GCC countries for 9 years from 2008 to 2016. The value relevant is measured by using Ohlson's (1995) model, which combines the book value of share and earnings (EPS). Based on this model, this study develops three models, which have been individually analyzed for the entire period of the study, using OLS. In model 1, the study tested the effect of EPS and BA as accounting information on the share price. In model 2, the study examined the information of IAs on the share price. In model 3, the study added the information of IAs to Ohlson's (1995) model to examine the effect of EPS, BA, and IAs on the share price.

In model 1, the study concluded three types of results across the six GCC countries. In OMN and UAE, the BV is preferable information to decide about the share price, whereas EPS is preferable information in determining the firm value in QAT, KWU, and BAH. In KSA the EPS and BV are preferable information to decide about share price. In this model, the explanatory power in terms of R^2 is high when EPS is significant, whereas R^2 is low when BV is significant, but the study cannot generalize this result due to some variations.

In model 2, the study also finds three types of results. The IAs are significant only in KSA and KWU. In KSA, IA has a positive effect on P, but the explanatory power in terms of R^2 is low and does not support the model. In KWU, the effect of IAs on P is negative and the explanatory power in terms of R^2 is moderate. Other GCC countries (OMN, QAT, BAH, and UAE) have no significant effect of IAs on P, which indicates that the investors are not influenced by IAs in determining the variations of P.

In model 3, the study reached three different results. KSA, OMN, QAT, and BAH have no effect of IAs on P, whereas IA is positively associated with P in UAE and negatively in KWU. This result means that IA did not make a change compared with model 1 except for KWU and UAE.

The robust analysis shows that IAs are used to decide about earnings quality only in KSA and QAT but not in other GCC countries. The evidence provided in this study suggests that the IAs and traditional accounting measures as a whole are value relevant, the book values and earnings affect positively and significantly the market values of GCC firms, and the effect of EPS is more than that of BV. Concerning the VR of IAs, the traditional accounting measures and IAs jointly are shown to be more value relevant than traditional accounting measures or IAs alone; this means that intangibles have improved the VR of accounting information.

This study is close to some of the prior studies, such as Kimouche and Rouabhi (2016) and Aulia et al. (2020) as some similarities exist between the present study and these two studies. First, all three studies are based on Ohlson's (1995) model to test the effect of IAs on market values. Second, the results have proved the role of IAs in determining the market values of the firm and improving the explanatory power of other accounting information. Third, the amounts of IAs obtained from the financial statements are converted into their logarithmic counterparts. On the other side, some differences are observed between the current study and the prior ones. First, the present study was conducted in six countries, which means that this study is a cross-sectional one, whereas that of Kimouche and Rouabhi (2016) was conducted in France and Aulia et al. (2020) in Indonesia. Second, this study uses IAs as a whole without any distinction, but the study of Kimouche and Rouabhi (2016) made this distinction.

The result should be interpreted with caution because of some potential limitations. First, the study treats the IAs as a whole without any special attention to the components of IA (such as goodwill and R&D). Therefore, the study proposes to conduct further research to examine the effect of each component on VR. Second, the study did not use any control variables to improve the models of study as some important control variables such as the size, leverage, and age of the firm might have an effect on the dependent variable.

The future study can add some control variables to improve the models of the association between IAs and VR. Third, the sample was limited as firms that have IAs compared with other countries, such as the study of Kimouche and Rouabhi (2016) who tested 1,359 firm-year observations, are limited. Therefore, further studies should increase the sample to generalize the results.

The conclusions of this study have several practical implications. First, the regulators and authorities of the capital market in GCC countries should organize the requirements of information disclosures on IAs. Second, investors should be seeking great transparency and additional disclosure of information about IAs and their components. This process will help the investors to assess the firm value based on a clear picture including useful accounting information. Third, the results of this study help the managers to decide about increasing the investments of IAs as the study finds that IAs are value relevant in some GCC countries. This study provides strong empirical evidence that IAs are an asset that can be utilized as a vehicle for VR and earnings quality.

References

- Acaranupong, K. (2017). Comparative value relevance of earnings, book values, and cash flows: Empirical evidence from listed companies on SET100 in Thailand. *Journal of Accounting Professions*, 13(38), 95–114. <http://www.jap.tbs.tu.ac.th/files/Article/Jap38/Full/Jap38Kittima.pdf>
- Adetunji, S. A. (2016). The value relevance of earnings in the return–earnings relation in the Nigerian Deposit money banks. *Cogent Business & Management*, 3(1), 1–10. <https://doi.org/10.1080/23311975.2016.1210276>.
- Al-Sartawi, A. M. M. (2018). Corporate governance and intellectual capital: Evidence from Gulf Cooperation Council Countries (GCC). *Academy of Accounting and Financial Studies Journal*, 22(1), 1–12. <https://ssrn.com/abstract=3133547>
- Aulia, P. F., Koeswayo, P. S., & Bede, D. (2020). The relevance of intangible asset, equity book, and earning value on stock price in the information technology era. *Journal of Accounting Auditing and Business*, 3(1), 135–146. <https://doi.org/10.24198/jaab.v3i1.25943>.
- Balachandran, S., & Mohanram, P. (2011). Is the decline in the value relevance of accounting driven by increased conservatism? *Review of Accounting Studies*, 16(2), 272–301. <http://dx.doi.org/10.1007/s11142-010-9137-0>
- Barth, M. E., Beaver, W. H., & Landsman W. R. (2001). The relevance of the value relevance literature for financial accounting standard setting: another view. *Journal of Accounting and Economics*, 31(1–3), 77–104. [https://doi.org/10.1016/S0165-4101\(01\)00019-2](https://doi.org/10.1016/S0165-4101(01)00019-2)
- Basil A. D., Petr, P., & Masri M. (2016). Investigation on the value relevance of accounting information: evidence from

- incorporated companies in the Singapore capital market. *Investment Management, and Financial Innovations*, 13(3), 9–21. [https://doi.org/10.21511/imfi.13\(3\).2016.01](https://doi.org/10.21511/imfi.13(3).2016.01)
- Behname, M., Pajoochi, M. R., & Ghahramanizady, M. (2012). The relationship between intangible assets and the market value: Metals industry of Tehran stock exchange case study. *Australian Journal of Basic and Applied Sciences*, 6(12), 115–122. <http://ajbasweb.com/old/ajbas/2012/Nov%202012/115-122.pdf>
- Boulerne, S., & Sahut, J. M. (2010). Has IFRS improved the information content of intangibles? The case of French listed companies. *Accounting Auditing Control*, 16(1), 7–32.
- Bužinskienė, R. (2017). Determination of the value of intangible assets in the companies of Lithuania. *Economics and Culture*, 14(2), 55–68. <https://doi.org/10.1515/jec-2017-0018>
- Callao, S., Cimini, R., & Jarne J. I. (2016). Value relevance of accounting figures in presence of earnings management: Are enforcement and ownership diffusion really enough? *Journal of Business Economics and Management*, 17(6), 1286–1299. <https://doi.org/10.3846/16111699.2016.1203816>
- Camodeca, R., Almici, A., & Brivio A. R. (2014). The value relevance of accounting information in the Italian and UK stock markets. *Problems, and Perspectives in Management*, 12(4), 512–519.
- Chandrapala, P. (2013). The value relevance of earnings and book value: The importance of ownership concentration and firm size. *Journal of Competitiveness*, 5(2), 98–107. <https://doi.org/10.7441/joc.2013.02.07>
- Córcoles, Y. R. (2010). Towards the convergence of accounting treatment for intangible assets. *Intangible Capital*, 6(2), 185–201. <https://doi.org/10.3926/ic.2010.v6n2.p185-201>
- El Shamy, M. A., & Kayed, M.A. (2005). The value relevance of earnings and book values in equity valuation: An international perspective: The case of Kuwait. *International Journal of Commerce and Management*, 15(1), 68–79. <https://doi.org/10.1108/10569210580000188>
- Financial Accounting Standards Board (FASB). (2010). *Statement of financial accounting concepts, No.8*. https://www.fasb.org/jsp/FASB/Document_C/DocumentPage?cid=1176157498129&acceptedDisclaimer=true
- Fukao, K., Miyagawa, T., Mukai, K., Shinoda, Y., & Tonogi, K. (2009). Intangible investment in Japan: Measurement and contribution to economic growth. *Review of Income and Wealth*, 55(3), 717–736.
- Glezakos, M., Mylonakis, J., & Kafouros, C. (2012). The impact of accounting information on stock prices: Evidence from the Athens stock exchange. *International Journal of Economics and Finance*, 4(2), 56–68. <http://dx.doi.org/10.5539/ijef.v4n2p56>
- Glova, J., & Mrazkova, S. (2018). Impact of intangibles on firm value: An empirical evidence from European public companies. *Ekonomický Casopis*, 66(7), 665–680. <http://www.zbw.eu/econis-archiv/handle/11159/3946>
- Goh, P. C. (2005). Intellectual capital performance of commercial banks in Malaysia. *Journal of Intellectual Capital*, 6(3), 385–96. <https://doi.org/10.1108/14691930510611120>
- Goodwin J., & Ahmed, K. (2006). Longitudinal value relevance of earnings and intangible assets: Evidence from Australian firms. *Journal of International Accounting, Auditing, and Taxation*, 15, 72–91. <http://dx.doi.org/10.1016/j.intaccudtax.2006.01.005>
- Hasprová, O., Brabec, Z., & Rozkovec, J. (2018). Intangible assets disclosed by public universities in the Czech Republic. *Journal of International Studies*. 11(1), 67–79. <https://doi.org/10.14254/2071-8330.2018/11-1/5>
- Hayati M., Yurniwati, K., & Putra A. R. (2015). The effect of intellectual capital to value relevance of accounting information based on PSAK convergence of IFRS: Manufacturing firms in Indonesia. *Procedia - Social and Behavioral Sciences*, 211(2015), 999–1007. <https://doi.org/10.1016/j.sbspro.2015.11.133>
- Hung, M., & Subramanyam, K. R. (2007). Financial statement effects of adopting international accounting standards: The case of Germany. *Review of Accounting Studies*, 12(4), 623–657. <https://doi.org/10.1007/s11142-007-9049-9>
- International Accounting Standards Board (IASB). (2004). *IAS 38: Intangible assets*. <https://www.iasplus.com/en/meeting-types/iasb/2004>
- Ismail, K. N. I. K., & Abdul Kareem, M. (2011). Intellectual capital and the financial performance of Banks in Bahrain. *Journal of Business Management and Accounting*, 1(1), 63–77.
- Kadri, M. H., Abdul, A. R., & Ibrahim, M. K. (2009). Value relevance of book value and earnings: evidence from two different financial reporting regimes. *Journal of Financial Reporting & Accounting*, 7(1), 1–16. <https://doi.org/10.13140/RG.2.1.2799.5609>
- Kalantonis, P., Schoina, S., Missiakoulis, S., & Zopounidis, C. (2020). The impact of the disclosed R&D expenditure on the value relevance of the accounting information: Evidence from Greek Listed Firms. *Mathematics*, 8, 730. <https://doi.org/10.3390/math8050730>
- Karğın, S. (2013). The impact of IFRS on the value relevance of accounting information: Evidence from Turkish firms. *International Journal of Economics and Finance*, 5(4), 71–80. <http://dx.doi.org/10.5539/ijef.v5n4p71>
- Khanagha, J. B. (2011). Value relevance of accounting information in the United Arab Emirates. *International Journal of Economics and Financial Issues*, 1(2), 33–45. <https://www.econjournals.com/index.php/ijefi/article/view/21/pdf>
- Kimouche, B., & Rouabhi, A. (2016). The impact of intangibles on the value relevance of accounting information: Evidence from French companies. *Intangible Capital*, 12(2), 506–529. <http://dx.doi.org/10.3926/ic.653>
- Lev, B. (2003). Remarks on the measurement, valuation, and reporting of intangible assets. *Economic Policy Review*, 9(3), 17–22. <https://EconPapers.repec.org/RePEc:fip:fednep:y:2003:i:sep:p:17-22:n:v.9no.3>

- Maditinos, D. I., Šević, Ž., Stankevičienė, J., & Karakoltsidis, N. (2013). Earnings response coefficients in the Greek Market. *Journal of Business Economics and Management*, 14(2), 414–431. <https://doi.org/10.3846/16111699.2012.758168>
- Malikova, O., Brabec, Z., & Rozkovec, J. (2018). Financial reporting of intangible assets: Evidence on information and communication companies in the Czech Republic. *Journal of International Studies*, 11(2), 327–340. <https://doi.org/10.14254/2071-8330.2018/11-2/22>
- Mirza, A., Malek, M., & Abdul-Hamid, M. A. (2019). Value relevance of financial reporting: Evidence from Malaysia. *Cogent Economics & Finance*, 7(1), 1–19. <https://doi.org/10.1080/23322039.2019.1651623>
- Napoli, F. (2015). The value relevance of R&D expenditure after the adoption of the International accounting standards by Italian publicly listed companies. *Problems, and Perspectives in Management*, 13(2), 91–101.
- Ocak, M., & Findik D. (2019). the impact of intangible assets and sub-components of intangible assets on sustainable growth and firm value: Evidence from Turkish Listed Firms. *Sustainability*, 11, 53–59. <https://doi.org/10.3390/su11195359>
- Ohlson, A. J. (1995). Earnings, book values, and dividends in security valuation. *Contemporary Accounting Research*, 1(2), 661–687. <https://doi.org/10.1111/j.1911-3846.1995.tb00461.x>
- Oraby, S. A. (2017). IFRS and accounting information relevance: The case of Saudi Arabia. *Journal of Business & Economic Policy*, 4(1), 145–155. http://jebpnet.com/journals/Vol_4_No_1_March_2017/16.pdf
- Ousama, A. A., Hammami, H., & Abdulkarim, M. (2019). The association between intellectual capital and financial performance in the Islamic banking industry: An analysis of the GCC banks. *International Journal of Islamic and Middle Eastern Finance and Management*, 13(1), 75–93. <https://doi.org/10.1108/IMEFM-05-2016-0073>
- Paramita, R. W. D., Fadah, I., Tobing, D. S. K., & Suroso, I. (2020). Accounting earnings response coefficient: Is the earning response coefficient better or not. *Journal of Asian Finance, Economics, and Business*, 7(10), 51–61. <https://doi.org/10.13106/jafeb.2020.vol7.no10.051>
- Rahman, M. M., Sobhan, R., & Islam, M. S. (2020). The impact of intellectual capital disclosure on firm performance: Empirical evidence from pharmaceutical and chemical industry of Bangladesh. *Journal of Asian Finance, Economics, and Business*, 7(2), 119–129. <https://doi.org/10.13106/jafeb.2020.vol7.no2.119>
- Ragab, A. A., & Omran, M. M. (2006). Accounting information, value relevance, and investors' behavior in the Egyptian equity market. *Review of Accounting and Finance*, 5(3), 279–297. <https://doi.org/10.1108/14757700610686444>
- Satt, H., & Chetoui Y. (2017). Does goodwill improve firm performance? Evidence from MENA Region. *Risk Governance & Control: Financial Markets & Institutions*, 7(2), 108–115. <http://dx.doi.org/10.22495/rgcv7i2art10>
- Shamki, D., & Abdul Rahman, A. (2012). Value relevance of earnings and book value: Evidence from Jordan. *International Journal of Business and Management*, 7(3), 133–141. <https://doi.org/10.5539/ijbm.v7n3p133>
- Sharma, S., & Dharni, K. (2020). Measurement and reporting of intangible assets: Orientation of Indian practitioners. *The Decision*, 47, 125–135. <https://doi.org/10.1007/s40622-020-00240-y>
- Siegel, P., & Borgia, C. (2007). The measurement and recognition of intangible assets. *Journal of Business and Public Affairs*, 1(1), 22–31.
- Solikhah, B., Wahyudin, A., & Rahmayanti, A. A. W. (2020). The extent of intellectual capital disclosure and corporate governance mechanism to increase market value. *Journal of Asian Finance, Economics, and Business*. 7(10), 119–128. <https://doi.org/10.13106/jafeb.2020.vol7.no10.119>
- Stewart, J. S. (2011). Does the capitalization of intangible assets increase the predictability of corporate failure? *Accounting Horizons*, 25(1), 41–70. <https://doi.org/10.2308/acch.2011.25.1.41>
- Thornhill, S., & Gellatly, G. (2005). Intangible assets and entrepreneurial finance: The role of growth history and growth expectations. *The International Entrepreneurship and Management Journal*, 1(2), 135–148. <https://doi.org/10.1007/s11365-005-1125-7>
- Ting, I. W. K., & Lean, H. H. (2009). Intellectual capital performance of financial institutions in Malaysia. *Journal of Intellectual Capital*, 10(4), 588–599. <https://doi.org/10.1108/14691930910996661>
- Todericiua, R., & Stanit, A. (2015). Intellectual capital: The key for sustainable competitive advantage for the SME's sector Ramona. *Procedia Economics and Finance*, 27, 676–681. [https://doi.org/10.1016/S2212-5671\(15\)01048-5](https://doi.org/10.1016/S2212-5671(15)01048-5)
- Yoo, W., Bae S., Singh, K., Peter, Q., & Lollard Jr., J. W. (2014). A study of the effects of multicollinearity in the multivariable analysis. *International Journal of Applied Science and Technology*, 4(5), 9–19. http://www.ijastnet.com/journals/Vol_4_No_5_October_2014/2.pdf
- Zéghal, D., & Maaloul, A. (2011). The accounting treatment of intangibles: A critical review of the literature. *Accounting Forum*, 35(4), 262–274. <https://doi.org/10.1016/j.accfor.2011.04.003>
- Zhang, N. (2017). Relationship between intangible assets and financial performance of listed telecommunication firms in China, based on empirical analysis. *African Journal of Business Management*, 11(24), 751–757. <https://doi.org/10.5897/AJBM2017.8429>