The Relationship Between Intellectual Capital and Accounting Conservatism: A Case Study in Jordan

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Abstract

The purpose of this study is to assess how accounting conservatism is practiced in the Jordanian pharmaceuticals and medical industry. It assesses the association between accounting conservatism and intellectual capital (IC) in this industry. This study measures IC performance using the market price per share less book value. Accounting conservatism is measured using the book-to-price ratio, and the data was collected from company annual reports and the Amman Stock Exchange (ASE) website. The data was collected for the period of six years (2014 to 2019). The sample was made up of four companies in the industry listed in the ASE. The data was analyzed using the SPSS program though the ordinary least squares regression model to assess how accounting conservatism is associated with IC. The findings indicate a negative association with companies having higher IC performance and reporting lower accounting conservatism. IC is applied more in these companies, although it might be lower than in other companies in other sectors. This study provides empirical evidence on how IC is applied in the industry and how it might be negatively associated with accounting conservatism. Findings indicate the need for more effective policies to promote recognition of intangible assets in the sector.

Keywords: Intellectual Capital, Pharmaceutical Industry, Accounting Conservatism, Intangible Assets

JEL Classification Code: M40, M41, O34

1. Introduction

The business environment has become increasingly complex and competitive, with managers trying to identify new ways of improving firm competitiveness. Intangible assets such as intellectual property play a significant role today in the competitiveness of companies. This is because such assets are difficult to imitate, and they influence the resource-based view of the companies as a way of competing. The shift to the knowledge economy means that intangible assets such as IC can be the core aspects of competitiveness for an organization. Although company's earnings, leverage, ownership and type of business have a significant impact on

disclosure to its intellectual capital (IC) (Herli et al., 2021), still there is a challenge with IC how it is represented in the financial statements or reports of companies. Financial statements often fail in reporting companies' IC as a key part of their net worth (Ruta, 2009). As a result, this has a significant and negative effect on how the firms are perceived through assessment of their annual reports and statements.

IC is an intangible asset or resource consisting of knowledge experience, brands, patents and trademarks. It can be a significant source of leverage for a firm if valued accurately in the annual statements. According to a Brookings Institution report, IC accounted for about 62% of firm value globally. This proportion has increased considerably in recent times with the advancement of the knowledge economy (Brookings, 1996). This value is ineffectively identified, especially when using traditional accounting standards.

This paper focuses on the link between IC and accounting conservatism in organizations. As cited in El-Bannany (2017), accounting conservatism is the way financial managers in firms react immediately to bad news, but do not recognize good news in the same way. In a discussion by Watts (2003), accounting conservatism has to be approached in a reliable manner to ensure that the impact of such

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news does not adversely effect on earnings. Accounting conservatism is acceptable internationally, as indicated in IFRS 9 and IAS 37 standards. The practice has been cited as having significant benefit for organizations, such as reducing the likelihood of managers requesting undeserved bonuses. It is also considered to improve the credibility of accounting by delaying the recognition of expected benefits while immediately acknowledging expected losses. Companies have recently inclined to appoint CEOs with accounting background and, as a result, their conservative accounting practices have made them one of an effective tool in corporate governance system for reducing earnings management activities (Ason et al., 2021). Hellman (2008) argued that the practice improves the predictive value of the accounting information, but at the same time eliminates the agency problem by enhancing disclosure quality. Also Al-Ani and Tawfik (2021) added that there is a need to regulate the disclosure of information on intangible assets and ensure meaningful transparency and further disclosure of information on it and its components. While the practice has been identified as having certain benefits for accounting information and credibility, it may adversely affect the reporting of IC. As a result, the association between the two should be evaluated to find out whether there is a middle ground that could ensure fundamental needs are addressed.

2. Intellectual Capital in Pharmaceutical Companies

IC accumulation and efficiency is especially relevant for companies in the pharmaceutical and healthcare sectors. The industry relies heavily on knowledge and other IC such as patents held to improve the value that they deliver to the customers (Sharabati et al., 2010). As a result, proper accounting of the value delivered and added by the sector is necessary for effective valuation and to ensure that the financial statements make sense to users. The pharmaceutical industry is heavily innovative and active in its use of IC since it integrates human interventions with technology to solve problems facing the society.

In Jordan, the relevance of IC in the pharmaceutical sector has been evaluated in studies such as Altarawneh (2017). Those findings indicated a high level of awareness among managers of the need to manage IC in these companies. Awareness of the competitive advantage dimensions indicated a moderate level of significance. It was considered essential for managers in these firms to identify effective ways of developing their IC and managing it for competitiveness. The pharmaceutical industry is very important in the Jordanian economy since it is the second largest source of export revenue (Salih et al., 2019). The other aspect of the industry that makes it highly relevant is that the country imports raw materials and processes them

into finished products that are then exported (Sharabati et al., 2010). This means it is also very significant as a source of employment and value added for the economy. Some of the key aspects of IC identified in past research were human capital and innovation and creation. While it is clear that the pharmaceutical industry is highly relevant in the Jordanian economy, there is a clear lack of research on the issue. Most of the extant literature has focused on the developed economies, with some studies such as Qaryouti et al. (2014) focusing on other sectors of the economy such as telecommunications.

3. Literature Review and Hypotheses

3.1. Literature Review

The practice of accounting conservatism has been assessed in a wide range of studies, some focusing on how it is undertaken while others seeking to determine its mitigating factors. One of the key issues identified in Watts (2003) is that accounting conservatism is considered necessary and effective for organizations because it lowers the likelihood that managers may choose to manipulate financial results for their own benefit. Regulatory practices are also likely to influence the strategies adopted by managers in stating the value of their assets. Other considerations that have been identified as influencing the practice of accounting conservatism include social values and national cultural values (Salter et al., 2013).

Penman and Zhang (2002) identify two types of accounting conservatism: conditional and unconditional. The unconditional type of accounting conservatism, also referred to as *ex ante*, is an independent approach that understates the accounting value by increasing losses or expenses and reducing profits or assets without the need for a justifiable economic event for support. A good example is increasing R&D costs and perceiving them as expenses and speeding up the depreciation rate. The conditional approach to accounting conservatism is dependent and understates accounting values based on justifiable economic events such as bad news. Basically, it involves avoidance of optimistic future estimations that may result in unverifiable claims of good performance.

Zéghal and Maaloul (2011) present a review of how intangible assets are treated in the accounting literature. The valuation of intangible assets in accounting frameworks presents several challenges in relation to their identification, control, and measurement. According to the review, the traditional accounting model, which is based on accounting conservatism, historical costs, and tangible assets, is ineffective in accurately representing the knowledge-based economies of today, whose assets are mostly intellectual or intangible. The outcome is that the accounting treatment is

inadequate and may have adverse outcomes associated with the value relevance of accounting information, growth of intangible investments, and the correct market value of firms.

The issue with intangible assets is that an organization may possess resources that can be considered as assets, but cannot recognize them in the financial statements. The reliability of measurement of asset costs presents another challenge if they are generated within the organization as opposed to being acquired separately or existing within a business combination. FASB rules indicate that R&D costs should be expensed when they are incurred, as opposed to being capitalized as in the case of software development costs. The measurement and recognition of intangible assets in financial statements presents significant challenges. For example, Stickney et al. (2009) argue that some of the questions that are contentious when it comes to recording of intellectual property in the accounting records include whether they are capitalized when they produce sufficient future benefits or expensed when they do not produce future benefits.

The second issue revolves around how intangible assets are amortized over their useful life. Some authors argue that they should be recognized in the same way as tangible assets. However, the issue of uncertainty in the value and effect of intangible assets has been shown to be a significant hindrance in their recognition like tangible assets. In Lin (2008), the link between R&D investment, R&D capabilities, and financial performance of IT companies in Taiwan was assessed. The results indicated that R&D investments and capabilities had varied effects on the market value of companies in different life cycle stages. The outcome was that capitalization and amortization of software R&D resulted in larger variation of earnings and analyst errors. As a result, these reviews indicate the need for companies to identify how their holding of IC is associated with the practice of accounting conservatism in the pharmaceutical sector.

3.2. Conceptual Framework and Hypotheses Development

According to the study by El-Bannany (2017), the holding of IC is identified as one of the factors contributing to the practice of accounting conservatism. Specifically, the performance of IC was identified as a key issue that influenced the practice of accounting conservatism for organizations. IC is perceived as the combination of intangible assets, information, knowledge, and experience that generates value for an organization. It is a nontraditional measure of power in an organization, unlike traditional ones such as physical assets. Different measures of IC performance have been adopted in the literature, such as market price per share less the book value per share, the value-added intellectual coefficient, the value explorer, and the intangible assets monitor model (Andriesson, 2006;

Lev, 1997; Ousama et al., 2019; Pulic, 1997; Sveiby, 2007). In the present study, the market price (MP) per share minus the book value (BV) per share for the companies in the selected years was adopted as the measure of IC performance.

$$IC = MP - BV \qquad (1)$$

Accounting conservatism is not adopted consistently in all firms. As a result, a best fit approach can be adopted where the book-to-price ratio is used. This is undertaken using the formula:

Accounting conservatism (AC) = book value per share for the company (BV) ÷ market price per share for the company (MP)   (2)

This approach was adopted because the information is publicly available for listed companies in the sector, which can provide a representative sample of the sector. As cited in different studies such as Altarawneh (2017) on the relevance of IC in influencing the performance of pharmaceutical companies, this should be clearly reflected in the financial statements. How these assets are reported in the financial statements due to accounting conservatism which results in their recognition being. As a result, the higher the level of accounting conservatism in a company, the lower the level of IC performance.

H0: There is a negative relationship between accounting conservatism and IC performance for pharmaceutical companies in Jordan.

4. Research Method

4.1. Sample and Data Collection

The sample for this research consisted of pharmaceutical and medical companies operating in Jordan. In order to ensure that all data would be available, companies listed on the ASE were selected. Although the Jordanian Association of Pharmaceutical Manufacturers provides a larger data set of 13 companies in the sector, it was not considered in this sampling because the companies are not all public. The data was collected for the period of 6 years between 2014 and 2019. Only four pharmaceutical and medical companies (Table 1) were actively listed in the ASE in the period 2014–2019.

The consideration of the 6-year period was meant to increase the sample size because of the small number of listed companies. The data was collected from the company's annual reports for the book values of the companies. The market price of the shares was derived from the annual bulletins of the ASE.

Table 1: Pharmaceutical and Medical Companies in the Sample

Company	Symbol
The Jordanian Pharmaceutical Manufacturing	JPHM
Dar Al Dawa Development & Investment	DADI
Hyat Pharmaceutical Industries Co	HPIC
Philadelphia Pharmaceuticals	PHIL

4.2. Variables Definition

The dependent variable in this analysis is the practice of accounting conservatism (AC). AC is measured using the book-to-price ratio as indicated in Lev (1996). It involves division of the book value per share with the market price per share of the company.

The independent variable here is the IC performance. Instead of attempting to quantify the amount of IC in the firms, it was considered rational to assess the performance of the IC owned by the firms because the necessary data was publicly available.

4.3. Regression Model

The ordinary least squares regression model was applied in the analysis to assess how accounting conservatism is associated with IC. The model posits that the level of accounting conservatism is affected by the IC performance of the sampled companies in the pharmaceutical and medical industry.

$$AC_{it} = \alpha + \beta\, IC_{it} \qquad (3)$$

where AC_{it} is the accounting conservatism level of company i in year t and IC_{it} is the intellectual capital performance of company i at time period t.

5. Results and Discussion

5.1. Descriptive Statistics and Correlations

Table 2 presents the descriptive statistics of the dependent and independent variables. The mean of accounting conservatism of the medical and pharmaceutical companies in the sample was 2.58, ranging from 0.25 to 11.72. IC performance was found to have a mean of 13.82, ranging from −9.68 to 36.74.

Correlation analysis was undertaken to provide a basis for the association between the two variables.

The descriptive statistics indicate that companies in the pharmaceutical sector in Jordan have a high level of

Table 2: Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min	Max
IC performance	24	13.82	4.1793	−9.68	36.74
Accounting conservatism	24	2.58	2.8233	0.25	11.72

Table 3: Pearson's Correlation Analysis

Variable	IC performance	Accounting conservatism
IC performance	1.0000	
Accounting conservatism	−0.3539**	1.0000

Note: * Significance at 5% Level, ** significance at 1% Level.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.5167[a]	0.267	0.241	54.6805

Note: a. Predictors: (Constant), IC Performance.

variability in how they use their IC and the value it delivers to their stakeholders. The level of accounting conservatism in these companies is also relatively high considering the large proportion of the IC and other intangible assets that the companies have. The significance of the correlation coefficient for the two variables at the 1% level indicates that there is a strong negative association between IC of the firms and their application of accounting conservatism in their reporting (see Table 3).

5.2. Regression Analysis

Regression analysis was undertaken in order to test the hypothesis and identify whether the association between the two variables is causal. The regression model was tested in SPSS, with the results presented in Tables 4 and 5.

The regression model indicates that the coefficient of determination is 0.267, meaning that the model explains 26.7% of the changes in the dependent variable, accounting conservatism.

The analysis of variance and coefficients of the regression model indicate that the regression model is significant, with the regression sum of squares being higher than the residual SS. The regression model has an F-statistic of 6.043, which was significant at the 1% level (p-value < 0.001). IC as a predictor of accounting conservatism has a coefficient of 0.3198, t-statistic = −1.064.

Table 5: ANOVA and Coefficients

ANOVA							
Model			**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	1076.372		1	1076.372	6.043	0.002
	Residual	943.186	23	401.215			
	Total	2019.558	24				
Coefficients							
Model			**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
			B	**Std. Error**	**Beta**		
1	(Constant)		6.2673	0.00273		13.397	0.000**
	IC		−0.3249	0.00319	−0.3198	−1.064	0.000**

Note: * Significance at 5% Level, ** Significance at 1% Level.

The hypothesis of this study cannot be rejected based on the results of the regression analysis. As a result:

$$AC_{it} = 6.2673 - 0.3198 \ IC_{it}$$

5.3. Discussion

The results of this analysis show that the use of accounting conservatism in pharmaceutical companies in Jordan is negatively associated with the performance of IC in their operations. It is essential to note that the sampled companies reported relatively low IC efficiency, as shown by their performance compared to the findings in other countries and sectors (Ousama & Fatima, 2015). This presents a major issue and indicates that the companies in this sector may not be effectively using the IC at their disposal. The fact that the companies are operating in different settings and the studies involve varied industries requires the findings to be evaluated with caution.

A major issue in evaluating these findings is the knowledge that Jordan has advanced significantly in highlighting the pharmaceutical and medical sector within the economy. The pharmaceutical and medical industries have large proportions of IC, and hence they are likely to be most adversely affected by the practice of accounting conservatism. This is because the practice involves poor recognition of IC and other intangible assets as well as the value they provide for a company. The structure of the industry as being highly knowledge intensive means that it has to utilize the IC in its possession to generate the expected value. The findings indicate that accounting conservatism has a negative and significant impact on the IC performance of pharmaceutical and medical companies in Jordan. The results also indicate that accounting conservatism has a negative effect on the performance of pharmaceutical companies because it influences how well the IC is represented in the financial statements. The findings are essential to policy makers in Jordan because they can come up with better ways of regulating how the pharmaceutical and medical companies are expected to recognize their IC and other intangible assets to ensure that their utilization of the same is not adversely affected.

6. Conclusion

The pharmaceutical and medical industries in Jordan are highly innovative and significant to the national economy because they employ many people and create export value through the production of finished products that are sold in foreign countries. The use of IC in the industry is of utmost significance; however, it seems to be negatively associated with the practice of accounting conservatism. The level of accounting conservatism is negatively predicted by IC performance. This means companies that utilize their IC more effectively to generate value are likely to have low application of accounting conservatism.

The management of pharmaceutical and medical industries in Jordan should identify better ways of utilizing their IC and recognizing them in their statements through management discussions and nonfinancial information in the notes to the accounts that can help users understand the value of such intangible assets.

The findings of this study are useful to policymakers and users of the accounting information and statements. These findings are relevant and constitute preliminary research on the issue that has not received much attention in Jordan. The study has several limitations, such as the

small sample size of four companies (although they are all companies listed in ASE). It would be advisable for future research to include more companies registered in the Jordan Association of Pharmaceutical Manufacturers and to use more measures of IC and accounting conservatism to develop more robust results.

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