

The Effect of Intellectual Capital Disclosure on Financial Measures of Performance of the Listed Firms in the Egyptian Stock Exchange

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Abstract: The study examines how intellectual capital disclosure affects the financial performance of the Egyptian Stock Exchange listed firms. The intellectual capital, comprising human, structural, and relational types of it, has become a critical factor in determining competitive advantage; however, its intangible nature and absence of standardized measures and reporting practices have become obstacles to its inclusion into traditional financial reporting frameworks. The research covered the discrepancy between the importance of intellectual capital and its low disclosure in Egypt, focusing on the barriers of measurement, reliability, and the accounting standards.

Theoretical framework was developed to clarify the constituents, properties, and accounting conditions of disclosure of intellectual capital, its applicability in improving transparency, risk reduction, and improving the quality of information in financial reports. The empirical quantitative approach was utilized, and the information was gathered through the structured questionnaire that was distributed to 98 companies listed on the Egyptian Stock Exchange in 2019/2022. The reliability and validity of the research instrument were statistically assessed with the help of Cronbach Alpha, Pearson correlation analysis, descriptive statistics, and t-tests.

The results show that the relationship between intellectual capital disclosure and such financial performance measures as the return on assets (ROA), the return on equity (ROE), the earnings per share (EPS), and the market-to-book value is robust and statistically significant. Findings show that the superior quality of the disclosure of intellectual capital leads to quantifiable change in the relevant financial parameters and better the ability of the stakeholders to assess the firm value. In addition, the research establishes that those companies that offer better disclosure of intangible assets in a clearer and comprehensive manner achieve high degrees of market confidence and high financial performance.

The paper ends by offering recommendations on how accounting standards on intangible assets should be scaled up to enhance transparency in reporting of intellectual capital and help companies to build a detailed intellectual property portfolio. The enhancement of disclosure practices is essential to enhancing the financial performance, to act as information to investment decisions, and to enhance the competitiveness of the companies in the Egyptian capital market

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Introduction:

Patents, copyrights, and the knowledge carried in the Information Age databases, software, skills, capabilities, expertise and culture are intangible intellectual assets that have increasingly been brought up in strategic relevance.

The shift towards considering intellectual capital as a non-financial asset which is not reflected on the balance sheet is manifested in the growing gap between the market capitalization and the book value of a firm. The real, physical resources are no longer the prime growth or wealth-generating tool.

Incorporated within the corporate designs, intellectual capital obtains a critical position: its strategic role provides organizations with the capabilities to achieve sustainable sources of competitive advantage. Companies that want to succeed in the modern market are forced to continuously seek innovation by making intangible investment especially in technological advancement, which is a pillar of survival in the new market.

On the other hand, intellectual capital may upgrade the revenues of a company, the cost of capital, stock values, the market-book value gap, and the accuracy of informational reporting. The accounting practices also serve to add value to the market value of an organization.

Keywords: Accounting Disclosure, Intellectual Capital, Financial Performance Indicators, Financial Statement Analysis.

Research Problem and Questions:

Despite the importance of intellectual capital, it does not receive sufficient attention from some companies in Egypt. Moreover, international accounting standards continue to prefer recognizing the informational content of intellectual property in financial statements, as these standards only represent part of the value of intellectual property, which is often reflected through the registration of patents.

The difficulty in measuring intellectual capital is attributed to its intangible nature, its unpredictability, and the reliance of measurement on experience and skills due to the dependence on intangible assets.

The research problem is represented in the impact of intellectual capital disclosure on the financial performance indicators of companies listed on the Egyptian Stock Exchange.

Based on this, the research questions to be answered are as follows:

1. What is the nature and the elements of intellectual capital?
2. How does intellectual capital disclosure affect financial statements?
3. What is the measurement of intellectual capital?
4. How does intellectual capital disclosure affect financial performance indicators of stock exchange listed companies?

Research Objectives:

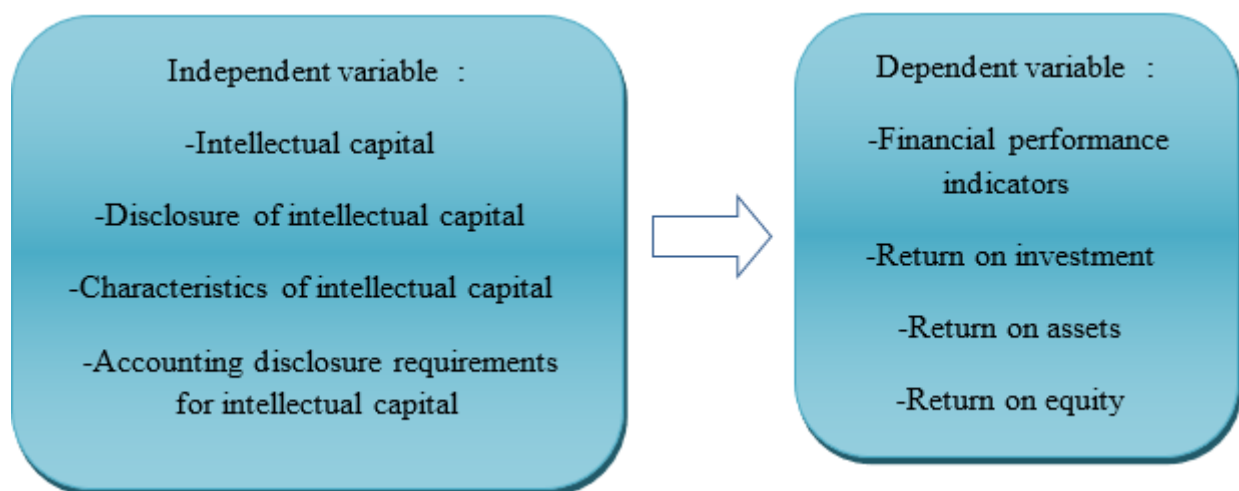
1. To explain the challenges impeding the disclosure of intellectual capital information on the financial performance indicators of the companies listed in the Egyptian Stock Exchange.
2. To elucidate the benefits of including the intellectual capital information in the intangible assets of the companies and its effects on corporate performance.

3. To establish the significance of the effect of intellectual capital disclosure in the profitability of the firms listed in the Egyptian Stock Exchange.
4. To determine the significance of accounting standards in the reporting of the intellectual capital.

Research Hypotheses:

1. First Hypothesis : The information on intellectual capital in financial statements has a statistically significant relation with the performance of a company.
2. Second Hypothesis: The relationship between the effect of intellectual capital disclosure and financial performance indicators is statistically significant.
3. Third Hypothesis: The relationship between the effect of the disclosure of intellectual capital and the indicators of financial performance is not statistically significant.

Research Model:



Theoretical Framework:

Definition of Intellectual Capital:

"Intangible assets that have no physical form - they are used in the production or supply of goods and services, leasing, etc., or for administrative purposes, and can be distinguished and controlled by entities as a result of past events. Intangible assets are divided into two types: identifiable assets (intellectual property) and unidentifiable assets." (Stiefo et al., 2013)

Egyptian Accounting Standard No. 23 of 2002 addresses the concept of intellectual property assets, defining intangible assets as "assets of a non-monetary nature that are identifiable," with no physical existence, used to produce or provide goods or services, or used for lease when controlled by the entity due to past events, and expected to generate future economic benefits, which can include revenues from the sale of products or services, cost savings, or other benefits derived from the use of the asset. (Shaheen, 2016)

It is evident that the definition of intellectual capital depends on the company's use of knowledge, experience, skills, and human capabilities to create tangible future economic benefits for the company and increase its value. Regularly in the accounting academia, intellect capital is regularly divided into the following three categories: (Amro et al., 2018)

Components of Intellectual Capital (Louiza, 2016):

Intellectual capital is divided into human capital, structural capital, and organizational capital.

Human Capital:

Represents the value of factory employees, including their knowledge, skills, experience, creativity, training, education, and motivation.

Structural Capital:

This represents the company's ability to leverage human intellect and create value. Its elements include processes, strategy, operations, patents, inventions, and copyrights.

External Capital (Al-Sadiq, 2018):

This represents the company's ability to interact with external stakeholders. Its elements include customer loyalty, customer satisfaction, relationships with suppliers, branding, reputation, and supply and distribution channels. Given the increasing importance of information and intellectual capital, the development of knowledge economies and methods of disclosure aims to transfer information, describe the value of the organization comprehensively, and make this value available to stakeholders through various channels (including hidden balance sheets), reason gateways, supplementary disclosures, and dashboards on value chain performance and intellectual capital stock.

Importance of Disclosing Intellectual Capital (Meligy, 2020):

The importance of disclosing intellectual capital in financial statements lies in two cases:

- First Case: The general significance related to the importance of general accounting disclosure, as this disclosure helps improve the fairness of income distribution and return allocation. Alternative investments reduce risk levels, lower capital costs, rationalize investment decisions, and create balance in the capital market.
- Second Case (Mohammad, 2019): The revelation of intellectual capital in particular, as a reaction to the shortcomings and constraints inherent in traditional financial reporting which often cannot forecast risk satisfactorily in current economic circumstances, deserves to be subjected to a high level of scrutiny. Through the disclosure of internally created assets like strategic relationship with suppliers or customers, they will be able to minimize the exposure to risk and their overall cost of capital will decline as well.

Main Reasons for Disclosing Intellectual Capital in Financial Reports (Mohammad, 2019):

- ✓ The acquisition and maintenance of new customers.
- ✓ Onboarding new workers into the company.
- ✓ Laying stress on the role of human assets as one of the most significant assets.
- ✓ Boosting financial reporting publicity.

Characteristics of Intellectual Capital:

- ✓ Intangible: It is not easily quantifiable.
- ✓ Multidimensional: Ideas, trademarks, patents.
- ✓ Renewable: It is renewable and developable.
- ✓ Protectable: It can be covered by the intellectual property rights.
- ✓ Long-term Value: Helps in making additional profit in the long-run.

Accounting Disclosure of Intellectual Capital as an Asset in Financial Statements Conditions (Mohammad, 2019):

Financial Accounting Standards Board (FASB) provides the conditions under which intellectual capital should fulfill the requirements of accounting disclosure as an intangible asset, and in this respect, it is mainly concerned with the following:

- Recognition: The traditional accounting method classifies human resource expenditures as expenses incurred in the accounting period whereas human resources accounting method classifies the expenditure as assets with the financial effect to be allocated to future claimants.
- Measurement: The elements should be measurable which involves the following basic conditions:
 - It should have the right features, including cost, value, or number of employees based on qualifications (Mohammad, 2019).
 - Relevance: Information is relevant if it can influence decisions. Relevant information is that which can change the direction of a decision, whereas a lack of this information can lead to incomplete decisions and, often, incorrect decisions.
 - Reliability: This characteristic implies that the information is trustworthy, free from bias to a reasonable extent, and represents what it claims. The information must be objective, truthful, and unbiased, useful to specific user groups. This standard is linked to measuring the level of certainty of an event. The higher the level of uncertainty, the lower its reliability. Therefore, this criterion affects the timing of recognition and accounting for human resources.

The Role of Accounting Disclosure of Intellectual Capital and Its Impact on Financial Performance:

Measuring the impact of intellectual capital on the four evaluation indicators (Meligy, 2020):

Financial performance in applied research includes: return on assets, return on equity, return on equity, and market value to book value. This was tested, and the indicators were consistent with the study variables.

Here is a brief discussion of the four indicators and how to measure them:

Return on Assets (ROA):

This ratio measures the efficient use of assets, indicating operational performance regardless of the source of funding for those assets, whether through creditors, shareholders, or shareholders alone. This should not affect the property valuation. The successful use of these assets from the outset is what counts. This indicator is considered a good measure of profitability for management's ability.

$ROA = \text{Net Income} / \text{Average Total Assets}$

Return on Equity (ROE) (Shaheen, 2018):

This ratio measures the return on the funds invested by the owners (shareholders) and also assesses the profitability of the capital structure. The Payback to the shareholders is the net income, which covers returns of all certain sources, both operational and non-operational.

$ROE = \text{Net Income} / \text{Average Shareholders' Equity}$

Earnings Per Share (EPS) (Louiza, 2016):

This value gives the extent of profit to common shareholders and has the potential to grow in equity to determine how stocks will rise in price in the capital market due to increased value. The interest of maximizing the EPS will result in maximization of the shareholder wealth in the long run. In this instance, the dividends paid on preferred stocks are not to be included in the net income because they are paid to the holders of preferred shares who are not the common shareholders but the preferred share. As a result, EPS will be computed using the equation below:

$EPS = (\text{Net Income} - \text{Preferred Stock Dividends}) / \text{Average Number of Shares}$

Market-to-Book Value (Louiza, 2016):

The measure determines how much is invested in a share against its book value. It is determined by dividing the market value per share with the book value per share. The value of the share per share is calculated by multiplying the outstanding shares with the share price. The book value of shares as at the end of the year will be calculated by the product of the outstanding share and the book value per share as at year-end.

In cases where the company has preferred stock, the book value of the preferred stock is excluded.

The use of this indicator can be applied in comparison of businesses and other companies whose shares are traded in the stock market. It is also useful in estimating the risks that are posing threat to the value of the business, particularly where the investments are long term. Also, it aids in making investment choices and emphasizes the capability of the asset to pay-off the funds that have been invested in the shares.

Applied Aspect:

Design:

- ✓ Spatial Boundaries: Arab Republic of Egypt.
- ✓ Time Boundaries: The questionnaire was administered in two weeks (May 2024).

Subject Boundaries: The effect of intellectual capital disclosure on financial performance measures of the companies traded in the Egyptian Stock Exchange.

Participants:

The sample of study will be the companies that are listed on Egyptian Stock Exchange in the period which refers to between 2019 and 2022.

Study Sample:

- Questionnaire Sample: The sample of the companies listed in the Egyptian Stock Exchange was randomly chosen to determine the effects of intellectual capital disclosure on the financial performance indicators of the companies. The sample size was (98) companies, and the questionnaire was distributed via email, social media networks, and a list of individuals, accountants, and investors within the companies.

Procedures:

Data Collection Sources:

➤ **Secondary Sources:**

These are books, scientific journals, publications, articles, and websites that touched on the topic of study directly or indirectly, which were heavily referred to in order to supplement the theoretical framework of the study.

Primary Sources:

The study methodology can be termed the guide that has been applied to execute the study as it has the problem, significance, study objectives, data analysis tools, and the application of the quantitative approach to analyze the data using the questionnaire.

The questionnaire was created to address all questions associated with the subject matter of the research, and the research instrument (including twenty-two items) was created on the basis of the existing literature and it was divided into two axes:

➤ **First Axis: Disclosure of Intellectual Capital Information.**

Second Axis: Measuring Financial Performance Indicators.

The five-point Likert scale was used.

Very Weakly	Weakly	Moderately	Strongly	Very Strongly
1	2	3	4	5

Study Tools:

First: Questionnaire Reliability:

To measure the reliability of the study tool (the questionnaire), Cronbach's Alpha coefficient was used on a pilot sample consisting of 20 items, as shown in the following table:

Table (1) Cronbach's Alpha Coefficient for Measuring the Reliability of the Study Questionnaire

Case Processing Summary			
		N	%
Cases	Valid	98	100.0
	Excluded ^a	0	.0
	Total	98	100.0
a. Listwise deletion based on all variables in the procedure.			

	Axis	Axis Reliability	Number of Items
A	First Axis	0.604	7
B	Second Axis	0.432	11
	Overall Reliability of the Questionnaire	0.734	17

Source: Results of Statistical Analysis Using SPSS Software

It is clear from the previous table that the overall reliability coefficient for the study axes (Cronbach's Alpha coefficient) is high, reaching 0.734 for the total 11 items of the questionnaire. The reliability of the axes ranges between 0.304 as a minimum for the first axis (Impact of Disclosure of Intellectual Capital Information) and 0.432 as a maximum for the second axis (0.3028). Overall, the questionnaire demonstrates a good level of reliability (greater than the minimum acceptable level of 0.7) and can be relied upon for field application in the study.

Internal Consistency Validity:

The internal consistency of that questionnaire was confirmed by the means of computing Pearson correlation coefficient between each score of the questionnaire with the total score of an axis in which a particular item belongs (independence and dependence).

Table (2) Pearson Correlation Coefficients Between the Scores of Each Item in the First and Second Axis and the Total Score.

Correlations								
		ROA	ROE	EPS	M/B	Relia bility	Releva nce	Meas urem ent
ROA	Pearson Correlation	1	.549**	-.173-	.060	.100	-.067-	.240*
	Sig. (2-tailed)		.000	.089	.554	.327	.514	.017

	N	98	98	98	98	98	98	98
ROE	Pearson Correlation	.549*	1	-.207*	-.010-	.094	.137	.230*
	Sig. (2-tailed)	.000		.041	.919	.356	.178	.023
	N	98	98	98	98	98	98	98
EPS	Pearson Correlation	-.173-	-.207*	1	.137	-.228*	.012	.138
	Sig. (2-tailed)	.089	.041		.179	.024	.909	.177
	N	98	98	98	98	98	98	98
M/B	Pearson Correlation	.060	-.010-	.137	1	-.087-	-.020-	.272*
	Sig. (2-tailed)	.554	.919	.179		.396	.847	.007
	N	98	98	98	98	98	98	98
Reliability	Pearson Correlation	.100	.094	-.228*	-.087-	1	-.095-	.272*
	Sig. (2-tailed)	.327	.356	.024	.396		.352	.007
	N	98	98	98	98	98	98	98
Relevance	Pearson Correlation	-.067-	.137	.012	-.020-	-.095-	1	.062
	Sig. (2-tailed)	.514	.178	.909	.847	.352		.545
	N	98	98	98	98	98	98	98
Measurement	Pearson Correlation	.240*	.230*	.138	.272**	.272*	.062	1
	Sig. (2-tailed)	.017	.023	.177	.007	.007	.545	
	N	98	98	98	98	98	98	98
Overall Pearson Correlation Coefficient		.723	.732	.845	.685	.658	.723	.859

As it can be seen in Table (2), every Pearson correlation coefficient between the items in the first axis and the overall score of the first axis is statistically significant at the 0.1 level of significance, and the lowest correlation coefficient is 0.685 and the highest one is 0.859. As such, the items in this axis are consistent with each other, and this axis is internally consistent, which validates the internal consistency validity of the items in the first axis.

Table (3) Pearson correlation coefficients between the scores of each item and the total score of the second axis: Financial Performance Indicators.

Correlations											
Pearson Correlation	1	-0.721	0.880	-0.722	-0.740	0.157	0.644	0.068	0.645	0.361	0.860
Sig. (2-tailed)		0.869	0.436	0.832	0.697	0.122	0.670	0.505	0.659	0.548	0.283
N	98	98	98	98	98	98	98	98	98	98	98

Based on the above table, it is clear that every correlation coefficient in the second axis is significant at the 0.01 level of significance with the least correlation coefficient of 0.283 and the highest of 0.869. This implies that items in the second axis are consistent with one another thus the internal consistency validity of the items in the second axis is acceptable.

T-Test:

We performed T-Test to analyze the discrepancy between the anticipated means of the statistical population. The five-point likert scale was applied and the means of the independent and dependent variables in the study were compared through the T-Test.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
The independent variable	98	3.7755	.73961	.07471
The independent variable	98	4.0408	.78541	.07934

T-Test						
One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The independent variable	50.534	97	.000	3.77551	3.6272	3.9238
The dependent variable	50.931	97	.000	4.04082	3.8834	4.1983

It appears from this test that there is a significant difference between the independent variable, which is the disclosure of intellectual capital, and the dependent variable. The value for the independent variable is 3.775, which is lower than the dependent variable's value of 4.040. This indicates that the opinions of the sample group lean towards the idea that the disclosure of intellectual capital impacts the financial performance of companies.

Additionally, we observe that there is no statistically significant difference in the averages of the study's items and the study's axes (the impact of intellectual capital disclosure on the financial performance indicators of companies listed on the Egyptian Stock Exchange).

Averages and Standard Deviations of the Study's Axes:

The disclosure of intellectual capital information on the financial performance indicators of companies listed on the Egyptian Stock Exchange.

Questions	Weighted Average	Standard Deviation	Total
Disclosure of Human Capital	4.2449	0.59311	416
Disclosure of Structural Capital	4.2041	0.7316	412
Disclosure of External Capital	3.7755	0.73961	370
Characteristics of Intellectual Capital	4.0408	0.78541	396
Reliability	3.8163	0.69382	374
Relevance	3.9796	0.71767	390
Measurement	3.9184	0.78219	384
ROA	3.8776	0.74978	380
ROE	3.9184	0.75537	384
EPS	3.7755	0.73961	370
M/B	4.1224	0.8029	404

The weighted averages recorded a high degree for the study's themes regarding the disclosure of intellectual capital information on financial performance indicators of companies listed on the

stock exchange. It is noticeable that all opinions achieved a high percentage of standard deviations, with the disclosure of structural capital at 0.5931, reliability at 0.731, data characterized by a high degree of relevance at 0.693, ROA at 0.717, intellectual capital characteristics at 0.782, ROE at 0.7497, EPS at 0.7553, and measurability at 0.8029.

Summary of Results:

Study of the Relationship Between the Independent and Dependent Variables:

First Hypothesis:

There is a statistically significant relationship between intellectual capital information and company performance in financial statements. It is evident from the correlation that there is a strong positive correlation between intellectual capital information and the financial performance indicators of companies. That is, the more intellectual capital information is disclosed in an appropriate, truthful, and reliable manner, the more likely the financial performance indicators of listed companies will improve.

Correlation Coefficient			
The independent variable	The dependent variable		
	Pearson Correlation	.100	.794
	Sig. (2-tailed)	.327	.356
	N	98	98

Hypothesis 2: The amount of intellectual capital information disclosed has a statistically significant relationship with financial performance indicators.

We accept this hypothesis based on the results of the findings because the correlation between the disclosure of intellectual capital information and the financial performance indicators was strong and highly significant. It means that in the case of companies that report intellectual capital details in a transparent and reliable manner, it affects their financial performance in a positive way as the performance indicators (ROA, ROE, and EPS) show.

Financial Performance Indicators	Disclosure of Intellectual Capital	
	Pearson Correlation	0.857
	Sig. (2-tailed)	.514
	N	98

Results:

1. Intellectual Capitals are dimensional and multidimensional: Accountants do not agree on a single definition of an intellectual capital. Instead, researchers can define intellectual capital as a pool of intangible assets and cognitive processes internal and external that are combined with others to gain future gains according to knowledge-based economy.
2. Intellectual capital comprises of intellectual capital that encompasses human capital, structural capital in an organization and relational capital: Accountants concur that intellectual capital is comprised of human capital, organizational structural capital and relational capital. These elements cannot be isolated because they do not work in isolation but they are interdependent in producing value to the organization.
3. The rising significance and role of the intellectual capital: Accountants concur that intellectual capital plays a significant role in facilitating the business competitive advantage.

4. Significance of revealing intellectual capital in financial statements: This disclosure assists in equitably allocating returns and risks, overseeing and rationalizing the cost of capital investment choices, and establishing equilibrium in the financial market situations.
5. It has not yet achieved a unified model of measurement of intellectual capital: Accountants are yet to come to a consensus on a single, standardized model of measurement of intellectual capital.
6. The information of the intellectual capital has statistically significant correlation with the performance of companies in the financial statements: The research revealed that there is a strong statistically significant relationship between the disclosure of intellectual capital information and financial performance of companies, which is important in financial analysis.

Recommendations:

1. Examine the requirements of the recognition of intangible assets in the revised Egyptian Accounting Standard No. (23) since this contradicts the concept of intellectual capital. This creates problems of identifying intellectual property in the balance sheet especially by entities especially the intangible property like customer loyalty, customer relationship and reputation.
2. All intangible investments that yield benefits in the future that are more than the cost of the asset should be capitalised, such that some assets that did not used to be recognised can be recognised.
3. The revised Egyptian Accounting Standard No. (29) assists investors in judging the companies and making decisions regarding the investments.
4. Firms that would like to be listed on Egyptian Stock Exchange ought to develop intellectual property portfolio and disclose all the information regarding the constituents and cost of intellectual capital to create transparency and disclosure needs.

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