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The Influence of Value-Added Intellectual Coefficient on Stock Returns and Performance; Evidence from Banks Listed on the PEX and ASE

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Thesis Approval

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Declaration

I, Adel Issa Mohammad Hassan, affirm that the thesis presented here is the result of my original work (except where acknowledgments indicate otherwise). Furthermore, I confirm that neither the entire work nor any portion of it has been, is currently being, or will be submitted for another degree at this university or any other academic institution. I grant the University full permission to reproduce the entire contents or any part thereof, in any manner deemed necessary for research purposes.

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Abstract

Intellectual capital is a valuable strategic resource that plays a pivotal role in enhancing firm performance and attaining competitive advantage and innovation within the knowledge economy.

Purpose: The study examines the effect of value-added intellectual coefficient on the total stock returns and performance of banks listed on ASE and PEX.

Design/methodology/approach: The study sample comprised 21 banks that were listed on both the PEX and the ASE from 2009 to 2021. The study methodology involved evaluating the effectiveness of IC, as measured by the (VAIC^{TM}) model and its pillars, and on impact to total stock return and performance. Performance indicators such as EPS, ROE, ROA, and Tobin's Q, along with descriptive analysis, correlation analysis, and multiple regression to examine relationships between variables.

Findings: The findings indicate a positive influence of intellectual capital (IC) on both the total stock return and performance of banks.

Study limitations: Although the study utilizes the VAIC^{TM,} model in the banking sector, its inherent limitations may impact the accuracy and comprehensiveness of the findings. Therefore, it is crucial to interpret the results with caution.

Originality/value: This study presents the first study of the intellectual relationship with banks performance in both Palestine and Jordan together.

Keywords: Intangible assets, knowledge economy, intellectual capital, performance, VAIC^{TM}, banks.

Study type: Master thesis.

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List of Abbreviations

Abbreviation		Definition
ASE	:	Amman Stock Exchange
ATR	:	Asset Turnover Ratio
BAC	:	Bank Classification
BAN	:	Bank Nationality
BV	:	Book Value
CA	:	Competitive Advantage
CBJ	:	The Central Bank of Jordan
CE	:	Capital Employed
CEE	:	Capital Employed Efficiency
EPS	:	Earnings Per Share
FS	:	Financial Statements
GAAP	:	Generally Accepted Accounting Principles
HC	:	Human Capital
HCE	:	Human Capital Efficiency
IA	:	Intangible Assets
IC	:	Intellectual Capital
IFRS	:	International Financial Reporting Standards
IT	:	Information Technology
MENA region	:	Middle East and North Africa region
MV	:	Market Value
MV/BV	:	Market-to-Book Value ratio
OECD	:	Organization for Economic Co-operation and Development
PEX	:	Palestine Exchange
PMA	:	Palestine Monetary Authority
R&D	:	Research and Development
RC	:	Relational Capital
Real GDP	:	Real Gross Domestic Product
ROA	:	Return on Assets
ROE	:	Return on Equity
S&P	:	Standard & Poor's
SA	:	Strategic Assets
SC	:	Structural Capital
SCE	:	Structural Capital Efficiency
TA	:	Tangible Assets
TSE	:	Tehran Stock Exchange
TSR	:	Total Stock Return
VA	:	Value Added
VAIC™	:	Value Added Intellectual Coefficient
VC	:	Value Creation

"Intellectual growth should commence at birth and cease only at death."

Albert Einstein

Chapter One

General Introduction

1.1. Introduction

In the contemporary business landscape, the role of intellectual capital (IC) in creating value-added is paramount, and it represents a fundamental shift from the traditional performance-oriented approach to one rooted in knowledge-based economics. Each company possesses a unique blend of knowledge, skills, values, and innovative solutions, which can be harnessed and transformed into market value (MV), (Fijalkowska, 2008; Mouritsen, Bukh, & Marr, 2004). Effectively managing these intangible resources is no longer a mere choice; it has evolved into an absolute necessity for achieving a competitive edge, enhancing productivity, and bolstering MV. The pertinent question is not **"**why**"** we should manage IC but rather **"**how**"** we can do so effectively (Pulic, 2004).

To appreciate the economic transformation that has transpired, it is vital to recognize the shift from the old economy to the new. King, (1991) argue that in the past, wealth creation was linked to mass production and measured by metrics like revenue, costs, and profit. However, there has been a significant shift towards valuing the relationship between business outcomes and resources used in the new economy (Bhartesh & Bandyopadhyay, 2005). Wealth is now generated by adding value to products and services. Therefore, measurement systems need to adapt to reflect this change (Pulic, 1998).

Resources of organizations are the most crucial requirement to root and retain competitive advantage (CA), (Lipunga, 2015). At present, economy is knowledge-based (Janošević, Dženopoljac, & Bontis, 2013); intangible assets (IA) often fuel growth and wealth.

According to the OECD (2008), many businesses now spend money on R&D, IT, customer relationships, intellectual knowledge, and employee training. These assets are known as IA.

This demonstrates how the wealth created in this knowledge-based economy depends primarily on intangible assets **"**technical expertise of employees, intellectual creativity, mental intelligence of employees, their expertise, intellectual property, goodwill, and advanced technology**"**, while depends to a lesser extent on the mix of tangible assets **"**equipment, tools, machinery, furniture, buildings, and land**"** (Purwaningsih, 2018).

Everyone acknowledges this reality; thus, the global market is moving steadily toward technical innovation and knowledge, looking for new tracks to increase CA (Nassar, 2020). IA are one of the strategic assets (SA) significant in the firm to achieve sustainable CA (Janošević, Dženopoljac, & Bontis, 2013; Ozkan, Cakan, & Kayacan, 2017).

Many authors, such as Sveiby (1997), Pulic (2004), Zeghal & Anis (2010) and Lipunga (2015) assert that this is transformation from productive work, which depends on production, to the knowledge factor, which depends on employee's capabilities and intellectual skills as a primary source for economic productivity. It is the knowledge economy.

Thus, IA are becoming more significant than ever as they are the factor that most ensures the continuation and existence of businesses (Lipunga, 2015). IC refers to all of these IA as a whole (Luthy, 1998).

Handzic, Durmic, Kraljic, Kraljic, & Chase, (2016); Ashton, (2005) and Pulic, (2000); assert that the importance of measuring and managing IC efficiency. Failing to measure IC efficiency or using inappropriate metrics can hinder business success. The focus should be on how and what to measure in the context of intellectual work. Developing suitable methodologies and performance indicators is crucial for making informed decisions and thriving in the knowledge-driven economy (Bieat, 2020).

1.2. Statement of Problem

Organizations should focus on CA for strategic survival, as markets, goods, technologies, rivalry, and laws are changing rapidly. Investors view knowledge as the most significant lasting CA, and efforts to lead it and utilization of intellectual property have had success in directing the business. As the knowledge-based economy expands, a company's IA and IC are the keys to achieving long-term CA.

Studies in recent years show that there is a change in the structure of assets in favor of IA. In 1925, TA outnumbered IA by a proportion of 30 to 70, but in 1990, it significantly changed to 63 to 37. Today, everything has changed; IA become 80 compared to 20 for TA (Umboh & Dewi, 2022; Lipunga, 2015; Moradi, Saeedi, & Hajizadeh, 2013).

Then, the literature on IC confirms that growth in MV is more than their BV growth. Therefore, in a knowledge-based economy, the drivers of CA and business consistency are knowledge (Marian, 2011).

Actually, financial statements (FS) only serve to gauge the short-term financial balance and TA, not the corporate value, even though it helps in understanding the organization (Gan & Saleh, 2008).

It should be highlighted that since TA is easily duplicable or exchangeable on a free market, they cannot serve as a company's SA. Instead, intellectual property is typically developed internally and is typically concealed in employees' knowledge and experience (Alipour, 2012). Since these traits are special and one-of-a-kind and cannot be duplicated or copied, they are important to businesses and can give them a competitive edge in the future (Choong, 2008).

Intellectual and knowledge assets are particularly susceptible to this risk due to their intangible nature. Unfortunately, a considerable portion of these assets remains unacknowledged in financial statements following IFRS/GAAP guidelines (Abu Shameh, 2015). Consequently, their impact on performance metrics is disregarded, significantly diminishing the information's usefulness for stakeholders and decision-makers. However, by recognizing and incorporating intellectual assets into FS, the ability of users to make informed decisions is enhanced, benefiting internal management, external reporting, business transactions, and overall performance (Nassar, 2019). This viewpoint is supported by Pour Zamani et al. (2012).

Financial decisions require careful consideration of many factors, but the evaluation of business performance indicators is the most crucial one for knowledgeable investors. There are numerous criteria for categorizing and evaluating the performance of businesses, and there are numerous methods for each of these criteria, but selecting an appropriate measure from the available criteria and a method that fits the criteria is the

source of much debate. There have been some moves made in this direction recently with the growth of financial markets (Cabrita & Bontis, 2008). The effectiveness of the intellectual capital that is used in the existing business structure is more significant than the financial return on the capital that is used. Then, financial assets have decreased in importance due to the increasing importance of intellectual capital in long-term profitability (Ahuja, 2012).

1.3. Purpose of the Study

In this particular context, this study aims to assess the IC performance of banks, including both commercial and non-commercial **"**Islamic**"** ones, that are publicly listed on the Palestine Exchange (PEX) and Amman Stock Exchange (ASE).

This dissertation highlights the practical impact of its findings on the economies of both countries, particularly within the banking sector. Additionally, it contributes to the advancement of scientific understanding of IC and its vital role in strengthening the banking industry and fostering a robust economy. Furthermore, the study seeks to conduct a comparative analysis between the economies of Jordan and Palestine, shedding light on the influence of IC on performance and stock returns. By examining the extent to which banks can effectively leverage IA, this research provides valuable insights to practitioners in the banking sectors of Palestine and Jordan, offering an overview of the current state of IC performance and suggesting areas for improvement to enhance its efficiency.

The first main objective:

1. Examine the effect of (VAIC^{TM}) model on the total stock returns .
    1.1. Examine the effect of human-capital efficiency on the total stock returns .

1.2. Examine the effect of structural-capital efficiency on the total stock returns.

1.3. Examine the effect of capital-employed efficiency on the total stock returns.

The second main objective:

2. Identify the effect of (VAIC^{TM}) model on performance (ROA, ROE, EPS, Tobin's Q).

2.1. Identify the effect of human-capital efficiency on performance (ROA, ROE, EPS, Tobin's Q).

2.2. Identify the effect of structural-capital efficiency on performance (ROA, ROE, EPS, Tobin's Q).

2.3. Identify the effect of capital-employed efficiency on performance (ROA, ROE, EPS, Tobin's Q).

The third main objective:

3. Conduct a comparative analysis between the economists of Jordan and Palestine, by examining the impact of IC on performance and stock returns. In particular, the study of the extent to which banks are able to exploit intangible resources.

1.4. Research Questions

The study aims to answer the following questions:

1. Is there an effect of (VAIC^{TM}) model on total stock returns?

1.1. Is there an effect of human-capital efficiency on total stock returns?

1.2. Is there an effect of structural-capital efficiency on total stock returns?

1.3. Is there an effect of capital-employed efficiency on total stock returns?

2. Is there an effect of (VAIC^{TM}) model on performance (ROA, ROE, EPS, Tobin's Q)?

2.1. Is there an effect of human-capital efficiency on performance (ROA, ROE, EPS, Tobin's Q)?

2.2. Is there an effect of structural-capital efficiency on performance (ROA, ROE, EPS, Tobin's Q)?

2.3. Is there an effect of capital-employed efficiency on performance (ROA, ROE, EPS, Tobin's Q)?

1.5. Significance of the Study

The study contributes to the literature through:

1. It fills in a gap in the literature, by looking at whether the new paradigm (VAIC^{TM}) effectively measures company performance over time. In particular, the time frame of the study covers thirteen years (2009-2021), the period after the last global financial crisis (the 2008 subprime crisis), which was characterized by financial stability and economic growth, allowing a test to measure the model for the post-crisis period. This will provide a better understanding of the effectiveness of the new model (VAIC^{TM}) in measuring performance in the corporate environment in Palestine and Jordan.
2. This study presents the first study of the intellectual relationship between bank performance in both Palestine and Jordan together. Inconclusive results from previous studies in developing countries indicated the need to study banks in two closely related countries, such as Palestine and Jordan.

1.6. Scope of the Study

In broad terms, the scope of this study refers to the extent to which the subject matter can be comprehensively addressed.

This study endeavor aims to encompass a wide range of tools and techniques employed for measuring performance. By striving to incorporate nearly all relevant methodologies, this study seeks to provide a comprehensive analysis of the field.

The VAIC™ was employed in this study for the purposes of setting intellectual capital, performance measurement, and business valuation.

The study uses 21 leading banks listed on the PEX and the ASE, based on market capitalization, for the period 2009 to 2021.

1.7. Study Model

Given that IC comprises human-capital, structural-capital, and relational-capital, and based on the reviewed literature, this study establishes the following study model[1] (refer to Figure 1).

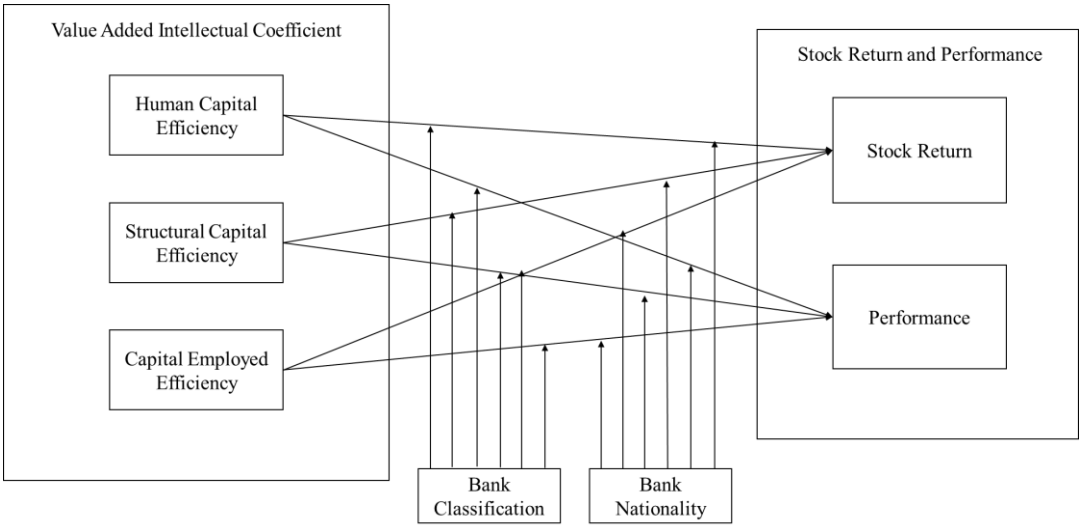


Figure 1: Study Model

1.8. Hypotheses

1. There is a positive effect of the (VAIC™) model on total stock returns.

   1.1. There is a positive effect of human-capital efficiency on the total stock returns.

[1] NOTE: The third chapter includes a detailed explanation of the study model.

1.2. There is a positive effect of structural-capital efficiency on the total stock returns.

1.3. There is a positive effect of the capital-employed efficiency on the total stock returns.

2. There is a positive effect of the ($VAIC^{TM}$) on performance.

2.1. There is a positive effect of human-capital efficiency on performance (ROA, ROE, EPS, Tobin's Q).

2.2. There is a positive effect of structural-capital efficiency on performance (ROA, ROE, EPS, Tobin's Q).

2.3. There is a positive effect of capital-employed efficiency on performance (ROA, ROE, EPS, Tobin's Q).

1.9. Operational Definitions

- Intangible assets (IA): IAS 38 (2004), defines an intangible asset is an identifiable non-monetary asset without physical substance. In addition to “IA,” further synonyms for IC include “non-material resources,” “intangible capital,” “value added,” “value creation,” and “intellectual property” (Choong, 2008; Zeghal & Anis, 2010). "Intangible" refers to something that cannot be touched, described, or shared (Janošević, Dženopoljac, & Bontis, 2013).
- Strategic assets (SA): “difficult to trade and imitate, scarce, appropriable, and specialized resources and capabilities that bestow the firm's competitive advantage” (Jugdev, 2005). Examples of strategic assets include “brand recognition, patents, technological capability, superior managerial skills, culture,

intellectual property, managerial skills, competencies, and goodwill" (Barne, 1998; Jugdev, 2005) to be a strategic asset, the resource must possess four characteristics (Bollinger & Smith, 2001). It must be: (1) valuable; (2) rare; (3) inimitable and (4) non-substitutable.

- Tangible assets (TA): In contrast to intangible assets, tangible assets are physical resources that can be seen, touched, and felt.
- Knowledge economy: define production and services based on knowledge-intensive activities that hasten the progress of science and technology and hasten obsolescence. A knowledge economy's defining feature is its increased emphasis on intellectual talents as opposed to physical inputs or natural resources (Powell & Snellman, 2004).
- Intellectual capital (IC): It is known as the intangible asset (IA) that positively affects a company's performance but is not expressly shown on its balance sheets (Ozkan, Cakan, & Kayacan, 2017).
- Competitive advantage (CA): Competitive advantage is unique attributes or strategies that set a business apart. And makes it achieve higher performance than its competitors (Newbert, 2008).

1.10. Organization of the study

The first chapter introduces the notion of intellectual capital and its importance to business performance, advocating for the introduction of new firm performance indicators. The study's purpose and significance, as well as its addition to the current literature on a novel model (VAIC^{TM}), are provided, followed by the research topic to be addressed. It also included the study's difficulty side. Following that, the scope of the

study is provided, and the chapter concludes by summarizing the research in the following chapters.

The second chapter provides an outline of the characteristics of intellectual capital. The value-added intellectual coefficient model is also widely discussed. The chapter concludes with a summary and conclusion emphasizing the need for more study owing to the inconclusive outcomes of prior studies as well as the limited number of studies on the Palestine and Jordan markets.

In five sections, the third chapter discusses the research approach

The third chapter discusses the methodology of study; divided it is that into six sections. The first section serves as the chapter's introduction, while the second contains the sampling. The third section discusses the variables of the research. The fourth section discusses the study model, while the fifth section discusses statistical methods. The sixth section provides a summary.

The fourth chapter covers the findings in three sections. The first section is a statistical description of the variables, while the second and third sections cover the multiple linear relationship test. The final section discusses the key findings.

The fifth chapter provides a summary of the thesis, following the most relevant conclusions, as well as the study's limitations and potential future studies.

Chapter Two

Literature Review

2.1. Preface

Businesses are in a new phase of economic growth, marked by the spread of innovation, communications, organizational structures, and intangible elements. They function in what is referred to as the knowledge economy (Fijalkowska, 2008). Firer & Williams, (2003); Mouritsen, Bukh, & Marr, (2004) assert, the coming of the knowledge economy has risen the importance of intangible assets. Nevertheless, the plurality of these assets is not disclosed in the statement of financial position.

This has generated the emergence of an information gap in the market, indicating the significant difference between BV and the MV. This informational gap has attracted financial companies, researchers and many parties to explore the invisible value that has been excluded from the statement of financial position (AL-Shubiri, 2011).

Lev & Radhakrishnan, (2003) has been shown that between 1977 and 2001, the market-to-book value ratios (MV/ BV) of USA (S&P) 500 firms rose from slightly above 1 to over 5, indicating that nearly 80% of MV has not been reflected in FS. This confirms the fact that MV is not reflected by physical products, but by the creation of IC.

IC can be defined according to its pioneers: Sullivan, (2000); Pulic A., (2004); Al Momani, et al, (2020): the individuals or staff who have the knowledge and skills necessary to apply that knowledge, and ability to convert knowledge into tangible profit or value added. The IC components are human-capital (HC), structural-capital (SC) and capital-employed (CE), with percentages (36: 29: 35) % respectively (Ramanauskaitė & Rudžionienė, 2013).

There are hundreds of methods for classifying and measuring IC so, one of which is the most well-known is the VAIC™ model proposed by Pulic, (2004) which was used in this study. This method combines human-capital efficiency (HCE), structural-capital efficiency (SCE) and capital-employed efficiency (CEE) to measure the company's performance, so this method does not measure IC, but measures IC in terms of impact on performance (efficiency of IC).

This chapter serves the purpose of presenting the literature relevant to the subject matter and plays a crucial role in providing the theoretical foundation that underpins this research endeavor. The literature review aims to explore existing theoretical frameworks and integrate them with practical perspectives from the public domain. To accomplish this, a systematic extraction of relevant scholarly works, publications, and research by diverse researchers, academics, and practitioners is conducted. The objective is to amalgamate the significant ideas and findings from these sources into the body of work presented in this study.

This chapter focuses on IC, its definition, and its significance. This chapter delves into an exploration of the concept of IC, providing a clear understanding of its definition and shedding light on its importance. By examining various perspectives and research studies, the chapter aims to elucidate the crucial role played by IC in organizations and its impact on overall performance.

Moving forward, this chapter elaborates on the significance of the dimensions of IC and introduces the value-added intellectual coefficient model (VAIC™) as a measurement tool for IC. Furthermore, the chapter explores the advantages and disadvantages associated with the utilization of the VAIC™ model.

In addition, this chapter elucidates the traditional performance measures and provides an explanation of total stock returns (TSR). Moreover, it outlines the unique contributions that this study brings to the existing literature, establishing its value and relevance within the field.

2.2. Theoretical Framework

2.2.1.The concept of intellectual capital (IC)

The concept of IC appeared in the late 1990s, and the term IC began to spread in economic and accounting literature and became seen as the real source of wealth for business organizations. Stewart, (1997) defined IC as intellectual material that includes knowledge, information, intellectual property, and experience that is put to use for wealth creation (added value). So, Roos, et. al., (2001); IC refers to the acquisition of knowledge and the application of expertise, skills, technologies, and relationships within the organization to achieve its strategies.

Pulic (2008) assured IC is the skills, experience, and knowledge possessed by individuals in the organization so that knowledge can be transformed into new products in order to create added value for the organization.

Researchers believe that one of the most important results of the four industrial revolution-4IR ❝ technology and knowledge ❞ is that a different phenomenon has begun in business organizations, which is the rise in materiality importance of IA, as it has become constituted four-fifths of organization's assets (Abu Shameh, 2015).

The importance of IC emerges from the fact that it itself represents a CV for the organization, especially since organizations compete today on the basis of the

knowledge and information that they possess (Al Momani, et. al., 2020). Therefore, interest in it is an inevitable matter imposed by the nature of the technical and technological challenge contemporary. Stewart, (1997); Abu Shameh, (2015); determining IC is a guide to determining the significance of this type of capital, which will contribute to strengthening the competitive position of the organization and achieving added value. The importance of IC is highlighted in the following; Ashton, (2005); Cabrita & Bontis, (2008); OECD, (2008); Zagreb & Masmeh, (2020);

- The force that ensures the sustainability of the organization.
- Competitive advantage (CA).
- Strategic assets (SA).
- Creating smart organizations.
- Smart organizations equal;

$$SO = IC + IT + V\&E$$

Where;

- Abbreviation SO is called smart organizations;
- Abbreviation IC is called Intellectual Capital;
- Abbreviation IT is called information technology;
- Abbreviation V&E is called values and ethics;

There is no general agreement on the main components of IC, but it is common, based on the relevant literature, to divide IC into three pillars (Stewart, 1997):

1. Human-capital (HC).
2. Structural (organizational) capital (SC).
3. Relational or customer capital (RC). The following figure show this:

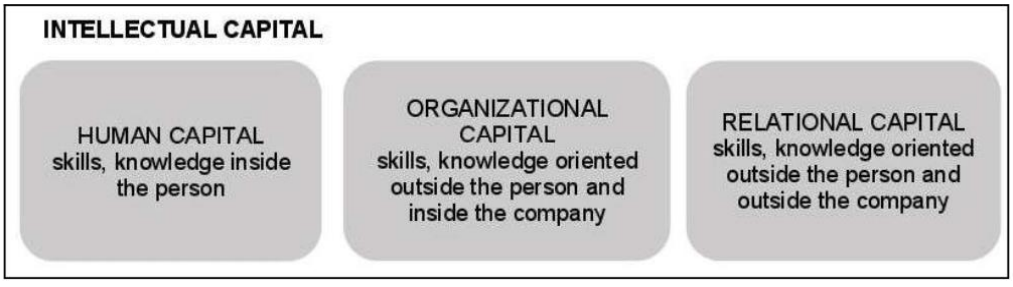


Figure 2.1: Pillars of IC

Source: Holienka & Pilkova, (2014)

Human-Capital (HC)

Human-capital (HC) serves as the fundamental component of IC, encompassing a blend of knowledge elements that pertain to skills, accumulated experience, creativity, innovation, and the capabilities of an organization's personnel to fulfill their roles (Bhartesh & Bandyopadhyay, 2005; Müller, 2011; Shaneeb & Sumathy, 2021). It is important to note that HC is non-proprietary in nature and does not constitute ownership of the organization (Kamath, 2007).

Structural-Capital (SC)

The second pillar of IC, Luthy, (1998) explained that SC is anything in the organization that supports employees in performing their tasks, such as infrastructure, buildings, machines, equipment, technological systems, software, and patents (Zeghal D. , 2000). SC is owned by the organization and remains with it even when employees leave (AL-Shubiri, 2011).

Relational-Capital (RC)

According to Bontis, Dargonetti, Jacobsen, & Roos, (1999), an organization's relationships with clients, suppliers, competitors, business groups, government and stakeholders are all considered to be part of its RC.

2.2.2.Value added intellectual coefficient (VAIC^{TM}) method

The VAIC^{TM} model is a framework used to measure and evaluate an organization's IC and its impact on value creation (VC). This model is developed by Pulic (1995) whose interest was the processes of VC in the knowledge economy and the role of IC. Three

years later, Pulic (1998) submitted the concept and application of the VAIC^{TM} model to measure the IC efficiency of firms (Pulic, 2000).

This model's aim is to give facts regarding how effectively TA and IA inside an organization create value.

The ability of the firm to value added (VA) is the first factor to be taken into account. VA is the outputs (sales) after excluding inputs (including all costs associated with generating the revenue, with the exception of payroll costs, which are a capital expense rather than an operating cost):

$$VA = OUT - IN$$

or

$$VA_i = Int_{Exp\,i} + Dep_i + Div_i + Tax_{Exp\,i} + NCI_i + Ret_{Ear\,i}$$

Where:

- VA_i = value added for entity i
- $Int_{Exp\,i}$ = interest expenses for entity i
- Dep_i = depreciation expenses for entity i
- Div_i = dividends declared for entity i
- $Tax_{Exp\,i}$ = tax expenses for entity i
- NCI_i = non-controlling interest in net income for entity i
- $Ret_{Ear\,i}$ = returned earnings for entity i

The 2^{d} step of VA is capital-employed efficiency (CEE). This serves as a gauge for the VA produced by one unit of physical capital employed (CE).

$$CEE_i = VA_i \div CE_i$$

Where:

- CEE_i = capital-employed efficiency for entity i
- VA_i = value added for entity i
- CE_i = capital-employed for entity i equal is net assets for entity i

The third step is human capital (HC) and value added (VA). Human-capital efficiency (HCE) demonstrates how much value is added for every dollar invested in human

resources. The dilemma is how to compute the HC. The payroll costs are a measure of a firm's HC.

$$HCE_i = VA_i \div HE_i$$

Where:

- HCE_i = human-capital efficiency for entity i
- VA_i = value added for entity i
- HE_i = payroll costs for entity i

The fourth step is to calculate the structural-capital efficiency (SCE). In the VAIC^{TM} model, SC difference between VA and HC.

$$SCE_i = SC_i \div VA_i$$

Where:

- SCE_i = structural-capital efficiency for entity i
- SC_i = structural-capital for entity i and its equal is;
  value added for entity i minus for capital-employed for entity i
- VA_i = value added for entity i

The sum of the three factors (CEE, HCE and SCE) is the amount of value added intellectually to the firm.

$$VAIC_i = CEE_i + HCE_i + SCE_i$$

Where:

- $VAIC_i$ = valued value intellectual coefficient for entity i

Advantages of the VAIC^{TA} model to measure performance instead of using traditional measures according to (Mavridis, 2004; Mohiuddin, et. al. 2006; Lipunga, 2015)**:**

1. Comprehensive Assessment: The VAIC^{TM} model provides a holistic assessment of IC by considering multiple dimensions and components, giving a more complete picture of the organization's VC potential.

2. Strategic Insights: The model offers strategic insights into how the organization can leverage its IC to enhance competitiveness, innovation, and long-term performance (Janosević, et. al. 2013). It helps identify areas of strength and weakness in IC management and guides for strategic decision-making.
3. Comparability: The VAIC^{TM} model enables comparisons across different organizations or industries, as it provides a standardized framework for evaluating IC.
4. Pulic's model is practical, easy to use, and can measure intellectual performance without altering business setup approaches (Mavridis, 2004). It enables stakeholders to monitor and evaluate the efficiency of VA by a firm's total assets and major assets components. It calculates absolute values and analyzes contributing factors like CE, HC and SC, highlighting the contribution of each component to VC.
5. Pulic's model is more objective than other methods, because it is easy to validation (Kamath, 2007; Gan & Saleh, 2008).
6. VAIC^{TM} is suitable for intellectually inclined firms like banks (Kamath, 2007).

In general, the VAIC^{TM} model is associated with the following limitations or disadvantages, Janosević et al. (2013):

1. Data Availability and Reliability: Gathering accurate and reliable data for all the components of the model, particularly for IA and relational capital, may pose challenges. Organizations may face difficulties in quantifying and measuring these components effectively.
2. Simplified Representation: The VAIC^{TM} model simplifies the complex nature of IC into a single coefficient, which may not fully capture the nuances and

complexities of a firm's IC dynamics. It should be used as a complementary tool rather than the sole indicator of VC.

In conclusion, the VAIC^{TM} model provides a structured framework for assessing and measuring IC impact on VC. It offers insights into an organization's IC efficiency and guides strategic decision-making. However, it is important to consider the limitations and adapt the model to suit specific organizational contexts.

2.2.3.VAIC and performance ratios

Accounting and market performance measures are factors that can impact how an organization employs various forms of IC and generates a lot of revenue. It can be used to assess an organization's health over a certain period, as well as to compare it to other businesses in the same industry and other economic sectors (Marian, 2011; Moradi, et. al., 2013).

Performance ratios and indicators allow us to measure characteristics, such as volume, that vary within a sector and across industries (Lotfi, Elkabbouri, & Ifleh, 2016). These measures of performance can be used to compare performance over time, across industries, against benchmarks, or within certain sectors (Katchova & Enlow, 2013).

The most widely used accounting performance measures like return on equity (ROE), return on assets (ROA), earnings per share (EPS), and the most widely used market performance measures like total stock returns (TSR), Tobin's Q.

Those aforementioned indicators and ratios are the focus of this study, and they are considered commonly used performance measures.

The relationship between the efficiency of IC and performance is a positive direct relationship, the greater the efficiency of IC, the greater the performance (discussed in detail in the section of literature review in this chapter).

Nour & Al Momani, (2021) confirms the relationship of IC with performance, as measured by the ROE, in their studies, which sought to test the impact of IC on the ROE of commercial banks listed on the ASE.

Nadeem, Dumay, & Massaro, (2019) examined the relationship between the intellectual capital (IC) of firms as measured by the use of (VAIC^{TM}) model and their financial performance. Their study used four performance indicators: return on equity (ROE); Earnings per share (EPS), asset turnover ratio (ATR), and price to book value (MV/ BV). The study showed a positive correlation between IC and performance.

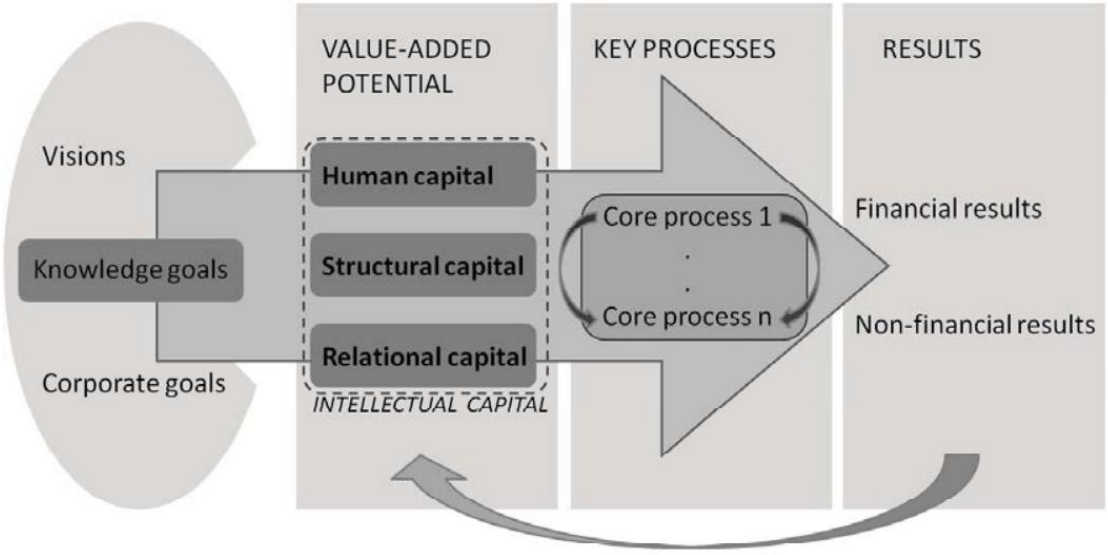


Figure 2.2: Process of Influence of Intellectual Capital Components on Performance

Source: Holienka & Pilkova, (2014)

In the context of the above, emphasize that will use the following indicators and ratios in this study:

Return on equity (ROE)

ROE is an accounting metric that measures the profitability of a firm by assessing how effectively it generates profits from equity. It provides insights into the company's ability to utilize its equity investment to generate earnings (Abu Alsoud, Rajhaa, & Abu Qalbeein, 2014). It is equal to dividing the net income of a firm by its average equity and expressing the result as a percentage. It is often used to evaluate a company's performance and compare it to industry peers.

Return on assets (ROA)

ROA is an accounting metric that measures a firm's profitability by calculating its net income relative to its total assets (Al Momani, Jamaludin, Zalani, Abdullah, & Nour, 2020). It indicates how effectively a company is utilizing its assets to generate profits.

Earnings per share (EPS)

EPS is an accounting metric that measures the portion of a company's profit allocated to each outstanding share of common stock (Alipour, 2012). EPS is an important indicator for investors as it helps assess a company's profitability on a per-share basis.

Total stock return (TSR)

TSR is a financial metric that measures the total return generated by an investment, including both changes in stock price and any dividends or distributions received by shareholders over a specific period (Bollen, 1998).

Tobin's Q

Tobin's Q, named after economist James Tobin, is a financial metric used to assess the valuation of a company. It compares the market value of a company to the replacement cost of its assets (Djamil, Razafindrambinina, & Tandeans, 2013). Tobin's Q is calculated by dividing the market value of a company by the replacement cost of its assets. If Tobin's Q is greater than 1, it suggests that the market value of the firm is higher than the replacement cost of its assets.

2.2.4.Conceptual framework

Based on the theoretical framework and study model, the conceptual framework of this study has been formulated. This conceptual framework serves as the foundation for the study and is visually presented in Figure (3.3). The figure provides a clear depiction of the interrelationships among the variables under investigation, offering a visual representation of the conceptual framework.

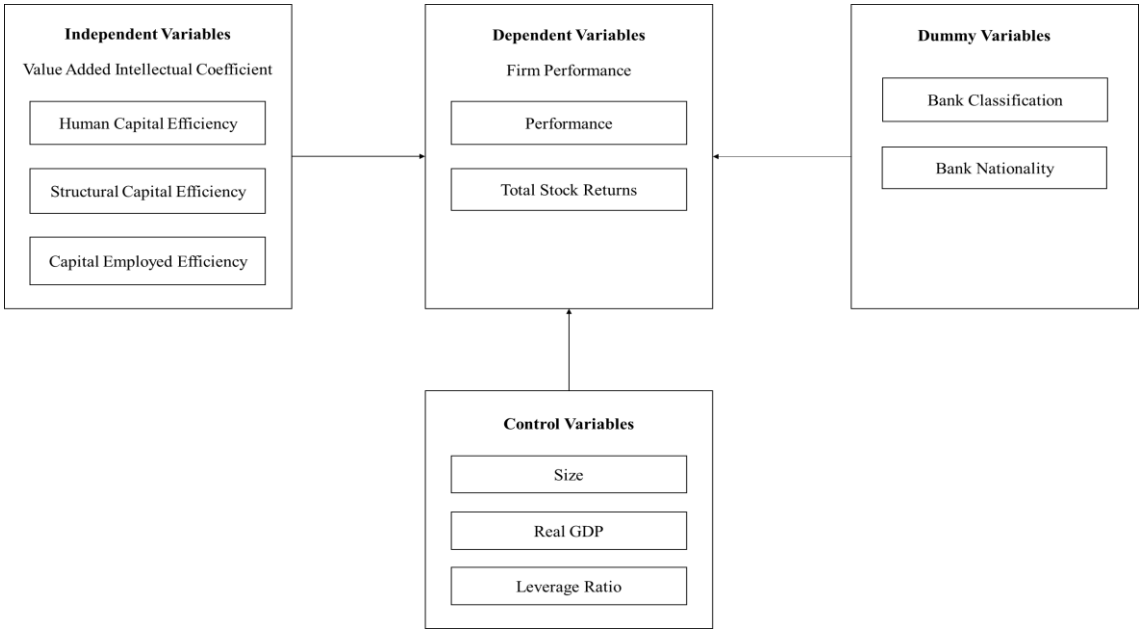


Figure 2.3: Conceptual framework

The depicted figure illustrates the relationships among the variables examined in this study. It highlights the process of building IC, measured by the VAIC^{TM} model, comprising three pillars: CEE, HCE, and SCE, which serve as independent variables. Additionally, the figure light the connections between IC and the dependent variables, namely TSR and performance (like ROE, ROA and EPS). Moreover, the figure shows the role of control variables, such as the Size of Firms, GDP Growth, and Leverage Ratio, in verifying the relationship between IC and performance.

The provided figure visually represents the fundamental hypotheses of the study. The first main hypothesis suggests a statistically significant impact of IC on TSR. The second main hypothesis explores the effect of IC on performance. The figure serves as a visual representation of these hypotheses and their underlying relationships.

2.3. Literature Review

The VAIC^{TM} model has gained significant popularity as a tool for assessing the IC performance of organizations across various countries and sectors (Nadeem, Gan, & Nguyen, 2018). Consequently, a considerable number of studies have been carried out utilizing the VAIC^{TM} model to examine the influence of IC on performance.

Most studies'impact of IC on performance examines how the IA and knowledge within an organization contribute to its overall success. The studies explore the relationship between IC and various performance indicators, such as innovation, productivity, financial performance, and CA such as (Ahuja & Ahuja, 2012; Alipour, 2012; Cabrita & Bontis, 2008; Choong, 2008).

Several authors and researchers have contributed to this field, and their studies have consistently shown positive associations between IC and performance. The following is an inference of studies, From these studies, (Barney, 1998; Francis, 1999; Kothari,

2001; Choong, 2008; Gan & Saleh, 2008; Assaf, 2011; Ahuja & Ahuja, 2012; Alipour, 2012; Al Momani, et. al., 2020), the findings of these studies indicated that there is a strong correlation between IC and orgaizations performance. In contrast to other studies (Chan, 2009; Ghosh & Mondal, 2009), the findings of which did not show any relationship between IC and orgaizations performance.

Bontis, N. (1998); Bontis introduced the concept of IC and its components: HC, SC, and RC. The study highlighted the importance of effectively managing and leveraging these forms of capital to enhance performance. Edvinsson, L., & Malone, M. (1997); study edvinsson and Malone emphasized the significance of IC in creating value and CA. They argued that IC, particularly HC, is the primary driver of organizational success.

Stewart, T. (1997); focused on the importance of knowledge assets and IC in shaping organizational performance. The study emphasized that IC should be treated as a strategic asset and managed accordingly to achieve long-term success.

Pulic, (1998); conducted a pioneering study using the VAIC^{TM} model to examine the impact of IC on the banking sector. In the realm of global research, the majority of studies employing the VAIC^{TM} model tend to concentrate on the banking and financial sectors. This study analyzed the effectiveness of IC within a group of 24 prominent banks operating in Austria between 1993 and 1995, yielding valuable findings. Pulic, (1998); argues that enhancing the efficiency of IC is the most economically viable and reliable approach to ensure the long-term stability and sustainability of the banking sector.

Young, et. al., (2009) conducted a study examining the performance of IC in commercial banks across 8 Asian economies. The study utilized VAIC^{TM} model to

enable cross-country comparisons. The regression analysis results indicate of past ten that, while controlling for loan quality, fund utilization, and the Asian financial crisis, IC emerge as a significant factor in VA. Calisir et al. (2010) discovered that company leverage ratio, size, and HCE serve as predictors of profitability in ITC firms listed in BIST. Additionally, CEE was identified as a significant predictor not only of profitability but also of ROE and MV within the same sector.

In a study conducted by Nazari, (2010), the relationship between the pillars of IC and the financial gaining of firms was examined and explained. The study analyzed 775 firms between the years 1996 and 2006. The results indicate a significant positive correlation between HC and SC, suggesting that improvements in HC positively impact the overall company performance. It employed the VAIC^{TM} model to calculate the various pillars of IC and measured performance using methods such as ROA, ROE, and sales growth ratio.

In Iran, Hosein et. al., (2016) conducted a study to investigate the influence of IC efficiency, measured using VAIC^{TM} model, on the performance of pharmaceutical firms listed on the TSE. The study employed financial performance metrics such as the MV/ BV ratio and Tobin's Q index. The findings revealed that the VAIC^{TM} has a noteworthy impact on market performance variables of pharmaceutical firms accepted in the TSE. Moreover, among the pillars of VAIC^{TM} model, both human and physical capital demonstrated significant effects on performance variables, with physical capital having the most substantial impact.

Mojtehed , et. al., (2010) conducted a study that explored the efficiency of IC in 3,100 SMEs in Kenya. The study findings indicated a significant positive relationship between

IC and growth. This implies that SMEs with higher levels of IC efficiency tend to experience greater levels of growth.

The study by Ozkan, Cakan, & Kayacan, (2017) findings revealed that HCE significantly influences the IC performance of the Turkish banking sector. Furthermore, the study observed a positive relationship between CEE and HCE with the performance of banks.

In their research, Al Momani, et. al., (2020) investigated the influence of IC on firm performance. The study's findings revealed a positive relationship between IC and performance, as assessed through metrics such as MV/ BV and EPS. The study suggests that companies with a stronger IC base tend to exhibit better performance in the Jordanian industrial sector. In the same vein, Ahuja & Ahuja, (2012) findings suggest that a higher level of IC within the banking sector in India is likely to contribute to improved performance. Vidyarthi, (2019) conducted a study on 38 Indian banks and discovered that increased investment in IC leads to enhanced operating efficiency and VA within banks.

Nadeem, et.al, (2018) conducted a comprehensive study investigating the dynamic relationship between IC and firm performance. The study examined 571 listed companies in Australia from 2005-2014. The findings of this study highlight the positive and significant impact of IC efficiency on both ROA and ROE, thus aligning with the principles of the resource-based theory. These results have practical implications for various stakeholders, including management, shareholders, and potential investors, as they provide valuable insights for making informed economic decisions. Additionally, the study emphasizes the need for further extensive research in this area to deepen our understanding.

Shaneeb & Sumathy, (2021) conducted a study that investigated the influence of IC on the financial performance of the Indian textile industry, utilizing the VAIC^{TM} model. The findings revealed a positive relationship between IC efficiency and both profitability and ROE. Specifically, the study highlighted that CEE emerged as the most significant component, while HCE only exhibited an impact on profitability. The study results indicate that the significance of the SCE pillar concerning the profitability, productivity, and ROE of the Indian textile industry was found to be negligible.

Gallegos, et. al., (2021) asserts that despite the importance of research on the subject of IC, the evidence and facts in developing economies are scarce and outdated. Where they studied the impact of IC and its pillars on the financial performance of electricity firms in Argentina, Chile, and Peru, as the results of their study revealed that they are inconclusive and that when applying the measures, there is a positive relationship for each pillar of IC (HC, SC, and RC).

Njuguna, (2009), as a company's unique production processes, software, copyrights, intellectual, and other resources play a crucial role in its operations, Handzic,et. al., (2016) conducted a study aiming to examine the impact of IC on VC within a company. The findings substantiated that effective IC fosters a supportive work environment within the firm, ultimately enabling the achievement of optimal productivity levels efficiently and effectively. Consequently, this enhancement in productivity leads to improved financial performance (Nadeem, et. al., 2018).

Another study conducted by Nadeem, Dumay, & Massaro, (2019) utilized a modified VAIC^{TM} model to assess the impact of IC on macro performance across 10 economies comprising developed and developing countries. The study aimed to enhance the

reliability and consistency of results compared to previous research. Through the new model, the study obtained more consistent and reliable results than previous studies

The findings revealed a noteworthy positive association between IC and its components, namely HC, SC and RC, with firms' performance. These results highlight the significance of IC in driving positive outcomes for organizations on a macro scale.

In the Palestine market, there are a few studies, including recent Nassar, (2020) conducted a study to examine the correlation between IC, measured using the VAIC^{TM} model, and financial performance, measured through three traditional performance indicators (ROA, ROE, and EPS). The study-analyzed data from thirty-four companies listed on the PEX during the period from 2012 to 2018. The findings revealed that HCE had the most significant impact on VC among the components of IC, surpassing SC and employed capital. However, the study also indicated that the potential of IC to generate value remains limited within Palestinian listed companies, as the overall impact was relatively weak.

In their 2021 study conducted in Jordan, Hashem and Al-Khalieh centered their research on the banking sector, with the objective of investigating the impact of IC on the performance of Jordanian commercial banks within the period spanning from 2012 to 2018. They utilized the VAIC^{TM} model to quantify IC and evaluated the outcomes using the ROA, ROE, and EPS metrics. The research results unveiled a statistically significant and favorable association between IC and the performance of Jordanian commercial banks.

In contrast to the results of the Hashem and Al-Khalieh study, the results of the Nour and Momani, (2019) study showed that there is no statistically significant impact of HC on ROE in Jordan, by examining the impact of HCE on the performance of commercial

banks listed on the ASE during the period 2010 to 2015, the study was applied to 14 entities, which HC was measured through the (VAIC^{TM}) model, and used the ROE as a measure of performance.

In a study carried out by Alrabba & Amoudi, 2021 the examination of IC, encompassing its various components (human, structural, and customer), and its influence on the performance of companies listed on the PEX during the period from 2012 to 2016 was undertaken. The study was conducted on a sample of 21 industrial firms. The Value-Added Intellectual Coefficient (VAIC^{TM}) model was employed to gauge IC, and performance was assessed using metrics such as ROA, MV/BV, and assets turnover ATO.

The results highlighted a notable variation in the application of IC components within Palestinian companies, which subsequently manifested in their overall performance. Notably, liquidity emerged as control factor in enhancing the productivity and profitability of these enterprises. These findings deviated from the results obtained in the Jordanian industrial sector, as previously discussed by Momani et al. (2020).

2.4. Contribution of This Thesis

Given the significance of IC for organizations and the evolving operating environment, it is reasonable to expect a corresponding shift in the management focus of these entities. However, Chan, (2009); Ghosh & Mondal, (2009); Nassar, (2020) noted that there was still a lack of managerial awareness regarding the importance of human and intellectual capital (IC). This observation implies that either insufficient efforts have been made to raise awareness or that managers still maintain a production-era mindset, hindering their ability to recognize and interpret environmental changes or fully comprehend the awareness brought to their attention. Consequently, there is a pressing

need for intensified efforts to enhance managerial awareness on this subject. So, despite the widespread popularity of IC within the research community in developed economies, there is a dearth of studies that examine the implications of IC for specific sectors in developing economies (Kamath, 2007).

This knowledge gap requires attention and addressing, as globalization has subjected all entities to heightened global competition (Jugdev, 2005; Newbert, 2008; OECD, 2008; Janošević, Dženopoljac, & Bontis, 2013). In this context, IC has become equally crucial for the survival of entities worldwide. Therefore, there is an imperative to encourage research and studies focusing on developing countries as well.

The significance of IC extends beyond sectoral variances, but it holds particular significance within the banking sector (Pulic, 2000). The nature of banking operations relies heavily on intellectual or personnel-intensive activities, and the staff within this sector tends to possess more homogeneous IC compared to other sectors (Mavridis, 2004). Consequently, banks heavily rely on substantial investments in human capital and customer capital for their survival (Puli, 2004; Kamath, 2007). Therefore, the banking sector is often characterized as a knowledge-intensive, skill-based, and relationship-rich sector (Abdulsalam, et al., 2011).

In conclusion, the success of banking operations heavily hinges on customer interaction and the integration of information and communication technologies for the development of products and services. IC plays a vital role in ensuring the quality of services offered to customers. The competitiveness of banks relies on the excellence of their human intellectual capital and their capacity to effectively harness these talents. In the dynamic landscape of the banking sector and the economy, IC efficiency is of paramount importance for banks to create innovative strategies and stay ahead of the curve.

Chapter Three

Methodology

3.1. Introduction

This chapter emphasizes the suggested and eventually implemented theatrical execution of the study while concentrating on the research methodologies used in its execution. The techniques employed were designed to give the researcher insights into how IC management, specifically the human, structure and capital employed aspect of IC, were understood and embraced within the banks in a drive to raise performance and stock returns.

It is crucial to emphasize that this research was intended to use just quantitative research methods when it was adopted. This chapter will focus on providing the arguments, assumptions, and rationale for adopting a quantitative research paradigm away from the qualitative methods that are not commensurate with the purposes of this research.

This research study discusses the research methodology that was used in this study. The elements of the case study approach are discussed herein. These components include the methods used to gather the data, the methods used to analyze the data, the tools used to collect the data, the measurement of the variables, and its models.

3.2. Data and Sampling Selection

The sampling under study is the banks listed on the PEX and the ASE. Palestine and Jordan are emerging bank-based economies where banks play a vital role in financing Palestinian and Jordanian companies.

The occurrence of the global financial crisis in 2007/2008, primarily triggered by the subprime crisis, had widespread ramifications for numerous countries, resulting in

income and employment declines (Huang, Chiang, & Tsai, 2015). Palestine and Jordan serve as notable examples of nations affected by this crisis. Various sectors of their economies, including the banking sector, faced significant negative repercussions, which exposed vulnerabilities within the banking sector.

As that impact was not significant on the two municipalities, and once the years passed, the economies of Palestine and Jordan recovered quickly, thanks to the strict measures and policies taken by the PMA as well as the CBJ, especially governance measures, hedging, activating capital buffers, and applying best practices (Alradah, 2000). The recovery of banks from the global financial crisis was not consistent across different regions. In comparison to European banks, US banks demonstrated a faster recovery, largely attributed to aggressive political interventions and rigorous regulations (Deloitte, 2018). For instance, the profits of the top five European banks experienced a significant decline from USD 60.0 billion in 2007 to USD 17.5 billion, representing a reduction of 70.8% by 2017 (Deloitte, 2018).

The sample of companies used in this study was based on all Palestinian and Jordanian banks, which were listed, on the PEX and ASE for the period of 2009 to 2021.

This research used a mixture of primary and secondary data collected from annual financial reports, the PMA and the CBJ.

The originality of our study consists in the examination of the main sector of the economy. Therefore, it is the banking sector. Therefore, reports appear that more than 85% of the assets of the listed companies are invested in the banking sector, and about 28.2% of the market capitalization of the companies listed on the PEX for banks, and about 49.4% (half) of the market capitalization of the companies listed on the ASE for banks.

And the banking sector has been selected as the focal point of this study due to its reputation for embodying a substantial presence of intangible assets. Choosing a sample exclusively from this sector also serves the purpose of ensuring data homogeneity.

The original data sample consisted of about 219 companies that had realized the biggest contribution to the value added in Palestine and Jordan during 2022.

The following selection criteria were then applied to the original data sample:

- Following Pulic (2004), Cabrita & Bontis (2008), AL-Shubiri, (2011), Lotfi, Elkabbouri, & Ifleh, (2016), Banjarnahor, (2019), Shehada (2019) Neves & Proenca, (2021), Hashem & Al-Khalieh, (2021) and others; non-financial and non-banking companies were excluded from the sample.
- Depending to Firer & Williams (2003), Shiu (2006), and Zeghal & Anis, (2010); excluded from the sample were companies/ banks with a negative book value of equity as well as companies/ banks with negative HC or SC values.
- Banks with incomplete and missing data (annual reports unavailable due to repurchase, suspension, or delisting) were also excluded.
- To control for the presence of extreme observations in the sample, banks with outliers were excluded.
- Finally, the banks that merged in 2022, listed on the stock exchange during the period 2009 to 2021, were added.

This sample selection process led us to a final sample composed of 21 Palestinian and Jordanian banks (Table 3.1).

Table 3.1: Sample Selection Procedures

Criteria	PEX	ASE	Sum
The initial sample: listed companies in 2022	49	170	219
Detract: Non-financial and non-banking companies	-42	-155	-197
Detract: Banks missing data on selected variables	-1	0	-1
Detract: Banks with negative HC or SC values	0	-1	-1
Detract: Extreme observations or "outliers"	0	0	0
Add: Banks that merged or were acquired in 2022*	0	1	1
Final sample: The total of banks that categorized sample during thirteen years for the period 2009 to 2021.	**6**	**15**	**21**

*At the end of July 2022, Societe Generale Bank-Jordan (the merging company) was merged with Capital Bank of Jordan (the merged company).

Source: Data that have been processed

In fact, the new economy literature shows that the banking sector of the economy has felt the impact of increased intellectual capital in VC (Bhartesh & Bandyopadhyay, 2005**,** Ashton, 2005; Zeghal & Anis, 2010)

Considering these recommendations, this study has adopted a strategy of dividing the sample into distinct sub-samples to facilitate cross-sectional analysis. To ensure a robust classification, we have carefully reviewed the sector classification criteria utilized in the existing literature and ultimately decided to adhere to the comprehensive classification provided by the PMA and CBJ.

The banking sector classification benchmark sub-sectors into two groups:

1. Commercial banks.
2. Non-commercial banks[2] (Table 3.2).

[2] Non-commercial banks are called Islamic banks.

Table 3.2 shows the sample distribution by sub-sector groups. As can be seen, our sample is dominated by the group of commercial banks (81.0 percent of the whole sample). Therefore, the other group, i.e. non-commercial banks, represents 19.0 percent of the whole sample.

Table 3.2: Final Sample

Sub-sectors	PEX	ASE	Sum
Commercial banks	4	13	**17**
Non-commercial banks	2	2	**4**
Final sample	**6**	**15**	**21**

Source: Data that have been processed

3.3. Measurement of the Variables

3.3.1. Dependent variables

Financial performance has been measured in various ways in previous studies, including measures such as ROA, ROE, EPS, Tobin's Q, MV/ BV, revenue growth, and employee productivity (Shiu, 2006; Zeghal & Anis, 2010; AL-Shubiri, 2011; Clarke, Seng, & Whiting, 2011; Moradi, Saeedi, Hajizadeh, & Mohammadi, 2013; Aslam, Makki, Nawaz, & Latif, 2014; Isanzu, 2016; Nadeem, Gan, & Nguyen, 2018; Purwaningsih, 2018; Shehada, 2019; Hashem & Al-Khalieh, 2021).

In this study; EPS, ROE, ROA, Tobin's Q, and TSR which are the traditional measures of performance, were used to represent the performance of banks (Djamil, et. al., 2013; Hosein , et. al., 2016).

Earnings per share (EPS) is used as an accounting performance measure, calculated as a bank's net income divided by the outstanding shares of its common stock. The greater this indicator, the greater the share's profit and this may represent greater stability; for

this reason, this is one of the main measures of bank profitability (Neves & Proenca, 2021). ROA and ROE are financial ratios that are commonly used to assess a company's profitability and efficiency.

ROA measures a company's ability to generate net income from its average assets (Neves & Proenca, 2021).

ROE measures the return that shareholders receive on their investments in the company. A higher ROE indicates that the company is generating more profit per dollar of shareholders' equity. This ratio is particularly relevant to shareholders and can help in evaluating the company's ability to provide a good return on their investment (Al Momani, et. al., 2020).

Tobin's Q, developed by economist James Tobin, is a financial metric that compares a firm's market value to its asset replacement cost. It indicates a company's over-valued or under-valued status in the market.

A Q ratio greater than 1 indicates over-valuation, while a Q ratio less than 1 indicates under-valuation.

While TSR is the ratio of increase in stocks value, it is represented as the current value of stocks in addition to any dividends already paid compared to the original value at which stocks were purchased on an annual basis (usually).

Table 3.3 provides a comprehensive overview of the dependent variables under consideration, offering insights into the specific methods used to measure them and their corresponding abbreviations. This table serves as a valuable reference point for understanding the key factors being analyzed within the given context.

Table 3.3: Definition of Dependent Variables and Their Measures

Dependent Variables	Abbreviation	Measurement
Earnings per share	*EPS*	$EPS = \frac{Net\ Income - Preferred\ Dividends}{no.of\ outstanding\ shares}$
Return on equity	*ROE*	$ROE = \frac{Net\ Income}{Average\ equity}$
Return on assets	*ROA*	$ROA = \frac{Net\ Income}{Average\ assets}$
Tobin's Q	*Tobin's Q*	$Q = \frac{Market\ Value}{Replacement\ cost\ of\ assets}$
Total stock return	*TSR*	$TRS = \frac{(Capital\ Gains + Income\ Generated\ )}{Initial\ Investment} * 100$ Where; • Capital Gains is the change in the stock price over the investment period. • Income Generated is any dividends or interest received. • Initial Investment is the initial amount of money you invested in the stock.

Source: Djamil, et. al., 2013, Aslam, et. al., 2014 and Nurwulandari, 2021.

3.3.2. Independent variables and their mathematical formulas

To measure the level of intellectual capital in the banks we applied the VAIC^{TM} model developed by Pulic (1998, 2000, 2004, and 2008), consistent with other related studies (Pulic A., 2004, Ashton, 2005, Shiu, 2006, Zeghal & Anis, 2010, Nadeem, Gan, & Nguyen, 2018, et. al). The VAIC^{TM} method measures how effectively capital and IC contribute to the creation of value for the business, taking into consideration three main elements: HC, SC, and CE. It provides on how much new value has been produced for each dollar invested in resources (Gan & Saleh, 2008, Lipunga, 2015).

According to the VAIC^{TM} model, VA is determined by the difference between total revenues (OUT) and cost of bought in materials, components, and services (IN). The basic definition is as follows:

$$VA_i = OUT_i - IN_i$$

Where:

VA_i = Value added for the entity i

OUT_i = Gross revenus for the entity i

IN_i = Cost of bought in materials, components and services for the entity i **or**

= Total expenses – payroll cost

Value added can be also calculated from the entity as a formula:

$$VA_i = Int_{Exp\,i} + Dep_i + Div_i + Tax_{Exp\,i} + NCI_i + Ret_{Ear\,i}$$

NOTE: These and abbreviations are discussed in the second chapter.

To measure the VAIC^{TM} value, this composite coefficient is calculated as a sum of HCE, SCE, and CEE.

NOTE: The sum of HCE and SCE is called the intellectual capital coefficient (ICE).

The pillar I, HCE appears how much VA is created by HC **"**payroll costs representing the investment in knowledge workers**"**. The calculation formula looks as follows:

$$HCE_i = VA_i \div HC_i$$

Where:

HCE_i = Human-capital efficiency for the entity i

VA_i = Value added for the entity i

HC_i = Total payroll costs duties for the entity i

Pillar II, (SCE) measures the share of SC **"**here HC and SC are inversely proportional, in the creation of value added**"**. The calculation formula looks as follows:

$$SCE_i = SC_i \div VA_i$$

Where:

SCE_i = Structural-capital efficiency for the entity i
SC_i = VA – HC
VA_i = Value added for the entity i

So, the third pillar-the latter coefficient (CEE) acts as an indicator of resource value efficiency, and it represents the VA created by one unit of the physical and financial capital of a company (CE). The calculation formula looks as follows:

$$CEE_i = VA_i \div CE_i$$

Where:

CEE_i = Capital-employed efficiency for entity i
VA_i = Value added for entity i
CE_i = book value of the net assets of entity i

Then, we show an integrated visualization of the VAIC™ formula in Figure 3.1

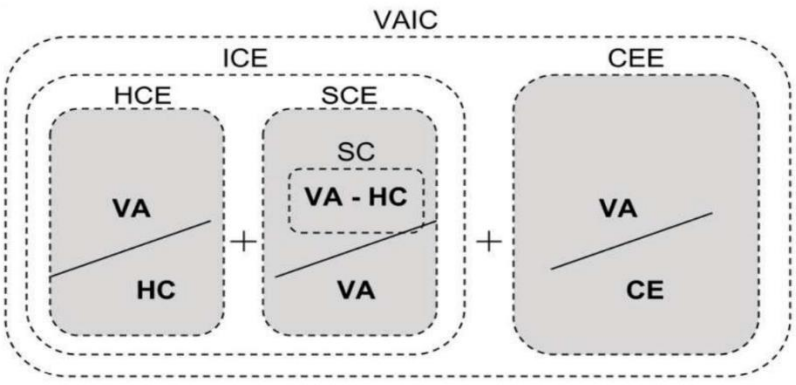


Figure 3.1: VAIC™ formula visualization

Source: Holienka & Pilkova (2014)

Table 3.4, independent variables (VAIC™ model) are displayed alongside their measurement methods and corresponding abbreviations.

Table 3.4: Summary of Independent Variables

Independent Variables	Abbreviation	Measurement
Value-Added Intellectual Coefficient	VAIC™	$VAIC = CEE + HCE + SCE$ or $VAIC = ICE + CEE$
Capital-employed efficiency	CEE	$CEE = VA \div CE$
Human-capital efficiency	HCE	$HCE = VA \div HC$
Structural-capital efficiency	SCE	$SCE = SC \div VA$

Source: Pulic A., (2004)

3.3.3. Control variables

Three control variables were used in this study to control for the effect on stock return and performance. it was the size of the bank (LNTA), and measured by the natural log of the market capitalization of the bank, GDP growth, and leverage ratio (Nassar, 2019, Nadeem, Dumay, & Massaro, 2019, Neves & Proenca, 2021).

Table 3.5, control variables are presented along with their measurement methods and corresponding abbreviations.

Table 3.5: Control Variables Measurement

Control Variable	Abbreviation	Measurement
Size of the bank	*LNTA*	$LNTA = natural\ log\ of\ market\ capitalization$
GDP growth	*GDPG*	$\frac{GDP\ in\ the\ current\ period - \text{GDP in the previous period}}{\text{GDP in the previous period}}$
Leverage ratio	*LVE*	$LVE = Total\ debt \div Total\ equity$

Source: Nadeem, Dumay, & Massaro, (2019); Zeghal & Anis, (2010)

3.3.4. Dummy variables

As in other studies in the literature (Alipour, 2012, Ozkan, Cakan, & Kayacan, 2017), two dummy variables were used in this study, it's the bank nationality (Palestinian vs Jordanian) and classification (commercial vs non-commercial bank).

We used the bank classification variable to measurethe impact of the business model difference (commercial vs non-commercial bank) on stock return and accounting performance. Inaddetinal, the nationality variable of the bank is used to measure the effect of the difference in the economic environment (Palestinian vs Jordanian) on the stock return and accounting performance.

In Models 2 and 4, the commercial bank takes the value 1 for banks classified as commercial banks, according to the PMA and CBJ, and zero otherwise. And Palestinian banks take the value 1 and zero otherwise.

Table 3.6, dummy variables are presented along with their measurement methods and corresponding abbreviations.

Table 3.6: Dummy Variables measurements

Dummy Variable	Abbreviation	Measurement
Bank nationality	*BAN*	1, If the bank is Jordanian 0, If the bank is Palestinian
Bank classification	*BAC*	1, If the bank is Non-Commercial 0, If the bank is commercial

Source: Ozkan, Cakan, & Kayacan, (2017)

3.4. Research models

In order to respond to the purpose of our study, we propose to test the following four equations (models) related to the VAIC™.

Models 1 and 2 are related to TSR, where model 1 measures the relationship between the VAIC™ and TSR, and model 2 measures the relationship between the individual VAIC™ components, the control variable, dummy variables and TSR. Whereas, models 3 and 4 are related to performance, where model three measures the relationship between the VAIC™ and performance (EPS, ROE, ROA, Tobin's Q), and model 4 measures the relationship between the components of the VAIC™ individually, the controlling variable, dummy variables and performance (EPS, ROE, ROA, Tobin's Q).

Table 3.7: Empirical Models

Model	Hypothesis	Regression equation
1	H_1	$TSR = \beta_0 + \beta_1 VAIC_{it} + \beta_2 LNTV_{it} + \beta_3 GDPG_{it} + \beta_4 LEV_{it} + \beta_5 BAN_{it} + \beta_6 BAC_{it} + \varepsilon_{it}$
2	$H_{1.1}$ $H_{1.2}$ $H_{1.3}$	$TSR = \beta_0 + \beta_1 CEE_{it} + \beta_2 HCE_{it} + \beta_3 SCE_{it} + \beta_4 LNTV_{it} + \beta_5 GDPG_{it} + \beta_6 LEV_{it} + \beta_7 BAN_{it} + \beta_8 BAC_{it} + \varepsilon_{it}$
3	H_2	$Performance = \beta_0 + \beta_1 VAIC_{it} + \beta_2 LNTV_{it} + \beta_3 GDPG_{it} + \beta_4 LEV_{it} + \beta_5 BAN_{it} + \beta_6 BAC_{it} + \varepsilon_{it}$
4	$H_{2.1}$ $H_{2.2}$ $H_{2.3}$	$Performance = \beta_0 + \beta_1 CEE_{it} + \beta_2 HCE_{it} + \beta_3 SCE_{it} + \beta_4 LNTV_{it} + \beta_5 GDPG_{it} + \beta_6 LEV_{it} + \beta_7 BAN_{it} + \beta_8 BAC_{it} + \varepsilon_{it}$

Source: Al Momani, et. al., (2020), Neves & Proenca, (2021)

3.5. The Statistical Methods

The statistical methods used in this study are as follows;

i. Descriptive statistics: the main characteristics of our sample and basic links between the variables, including the mean, median, standard deviation, minimum and maximum variables,

ii. The kurtosis and skewness analysis (Chakravarti, Laha, & Roy, 1967) to test for normality to see if data is normality distributed,

iii. Correlation matrix (Jensen, 2007) to find out the max degree of liner relationship that can be obtained between two or more independent variables and a single dependent variable,

iv. Multiple Regression Analysis: to test the hypotheses (H_1: $H_{1.1}$ $H_{1.2}$ $H_{1.3}$ and H_2: $H_{2.1}$ $H_{2.2}$ $H_{2.3}$) of the study, the multiple regression models used (models 1, 2, 3, and 4).

$$TSR = \beta_0 + \beta_1 VAIC_{it} + \beta_2 LNTV_{it} + \beta_3 GDPG_{it} + \beta_4 LEV_{it} + \beta_5 BAN_{it} + \beta_6 BAC_{it} + \varepsilon_{it} \quad \textbf{(1)}$$

$$TSR = \beta_0 + \beta_1 CEE_{it} + \beta_2 HCE_{it} + \beta_3 SCE_{it} + \beta_4 LNTV_{it} + \beta_5 GDPG_{it} + \beta_6 LEV_{it} + \beta_7 BAN_{it} + \beta_8 BAC_{it} + \varepsilon_{it} \quad \textbf{(2)}$$

$$Performance = \beta_0 + \beta_1 VAIC_{it} + \beta_2 LNTV_{it} + \beta_3 GDPG_{it} + \beta_4 LEV_{it} + \beta_5 BAN_{it} + \beta_6 BAC_{it} + \varepsilon_{it} \quad \textbf{(3)}$$

$$Performance = \beta_0 + \beta_1 CEE_{it} + \beta_2 HCE_{it} + \beta_3 SCE_{it} + \beta_4 LNTV_{it} + \beta_5 GDPG_{it} + \beta_6 LEV_{it} + \beta_7 BAN_{it} + \beta_8 BAC_{it} + \varepsilon_{it} \quad \textbf{(4)}$$

NOTE: Performance measured by (EPS, ROE, ROA and Tobin's Q).

3.6. Summary

In this chapter, an overview of the methods and procedures employed in conducting the research project has been provided. The chapter discusses the selected data collection methods that the researcher deems suitable. The study tools have been presented, accompanied by comprehensive explanations that aim to justify the choices made in their selection.

The data and sampling techniques, sampling processes, and final sample have been presented. In the other part, the study variables were defined and measured. In the next part, the empirical models (4 models) of the study were presented.

In summary, this chapter has focused on discussing the statistical methods employed in research and their integration within the context of this particular study. Moving forward, the subsequent chapter will present the research findings and provide a comprehensive context for the collection of case study evidence in exploring the impact of VAIC^{TM} on both TSR and performance.

Chapter Four

Findings

4.1. Introduction

The pivotal section of the study is the findings chapter, serving as the essence of the study. This chapter encompasses the descriptive analysis of various study variables, including independent, dependent, dummy, and control variables. Its purpose is to grasp the data characteristics of the study population and ascertain the data's nature. It explores the direction and strength of relationships, ultimately culminating in a discussion of the statistical outcomes of the study models.

4.2. Descriptive Statistics

Descriptive characteristics of independent variables								
	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Observations
CEE	0.281	0.290	0.725	0.009	0.128	0.032	2.911	273
HCE	3.816	3.906	12.612	0.231	2.093	1.031	4.940	273
SCE	0.618	0.744	0.921	-3.326	0.350	-6.176	63.176	273
VAIC	4.716	4.998	14.173	-3.087	2.413	0.611	4.446	273

Table 4.1: Descriptive characteristics of independent variables

Table 4.1 presents the descriptive statistics for the independent variables in the study, namely the efficiency of IC and its pillars (HC, SC and RC) for banks listed on both the PEX and the ASE. The table includes the mean, median, maximum, minimum, standard deviation, skewness, and kurtosis, providing a comprehensive overview of these variables.

The mean relational capital efficiency (CEE) was found to be 0.281, with a median of 0.290. The maximum recorded was 0.725, while the minimum was 0.009. For human capital efficiency (HCE), the mean was 3.816, with a median of 3.906. The maximum observed was 12.612, and the minimum was 0.231. The standard deviation for this variable was 2.093. In terms of structural capital (SCE), the mean efficiency was 0.618,

with a median of 0.7. The maximum value recorded was 0.921, while the minimum value was -3.326. The standard deviation for structural capital was 0.350.

The mean value of the sum intellectual capital pillars (VAIC) was 4.716, indicating a generally good performance by the banks (Kamath, 2007; Lipunga, 2015). The median value was 4.998, with the maximum recorded being 14.173 and the minimum being 3.087, representing a negative performance or loss. The standard deviation was 0.611. The skewness value was less than 1, confirming a normal distribution for VAIC. Additionally, the kurtosis coefficient was 4.446, slightly exceeding 3, suggesting that the data follows a normal distribution.

Notably, the distribution of the pillars of IC was (81: 13: 6%) for each HCE, SCE, and CEE respectively. This distribution indicates that banks place significant emphasis on investing in their human resources, prioritizing them over physical capital. This finding aligns with numerous studies, including those (Mohiuddin, et. al., 2006; Chan, 2009; (Abdulsalam, et. al., 2011). Figure 4.1 visually represents the material significance distribution of the intellectual capital pillars.

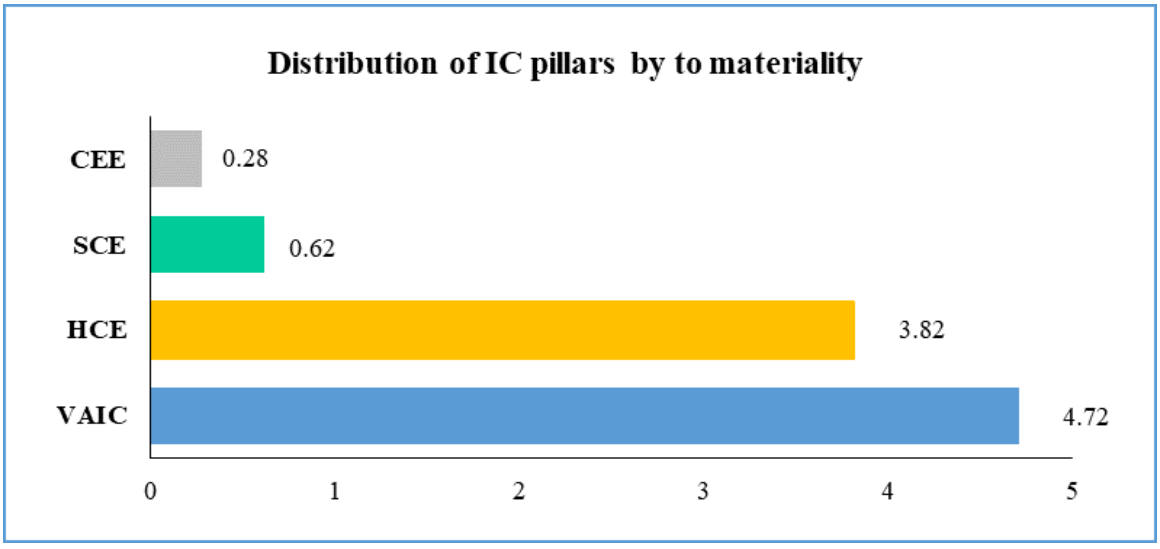


Figure 4.1: Distribution of IC pillars by to materiality

Upon analyzing the trend of the mean intellectual capital (IC) and its components, it is observed that the level of intellectual capital (IC) decreased from 4.90 in 2009 to 4.54 in 2021. However, despite this decline, the performance of banks still maintained a satisfactory level (Good performance). The trend analysis of intellectual capital (IC) and its pillars can be visually followed through Figure 4.2.

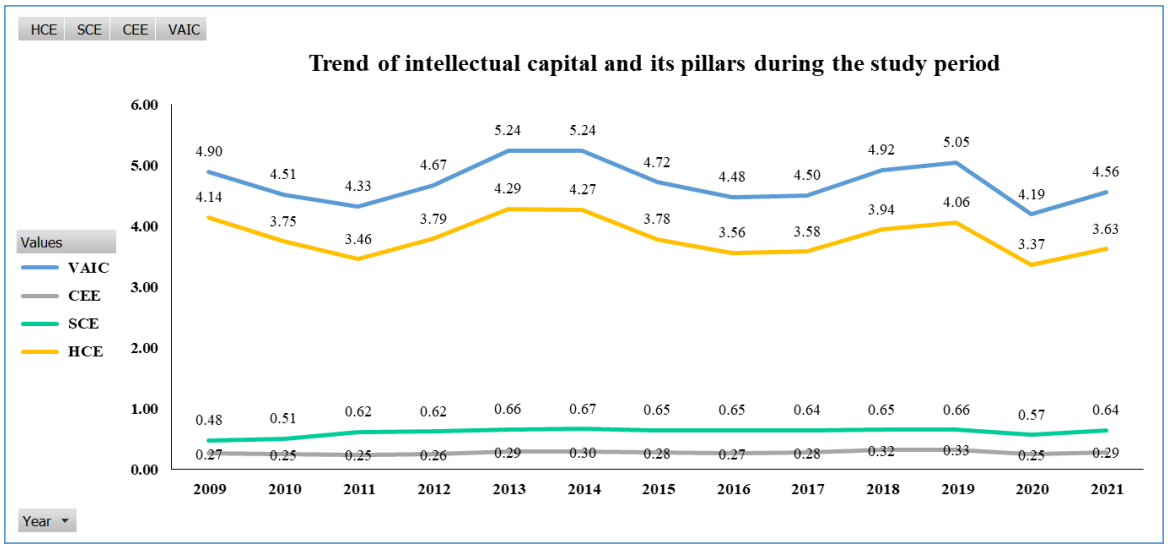


Figure 4.2: Trend of intellectual capital and its pillars during the study period

Descriptive characteristics of dependent variables								
	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Observations
EPS	0.215	0.169	0.959	-0.560	0.192	1.06	5.38	273
ROA	0.010	0.010	0.025	-0.013	0.005	-0.36	3.86	273
ROE	0.079	0.081	0.217	-0.047	0.044	0.18	3.42	273
TOBIN Q	0.967	0.983	1.188	0.394	0.135	-2.87	12.37	273
TSR	0.036	0.023	1.224	-0.666	0.219	0.47	6.74	273

Table 4.2: Descriptive characteristics of dependent variables

Table 4.2 shows the descriptive statistics of the variables dependent on the study, TSR and performance (EPS, ROA, ROE, and Tobin's Q) for banks listed on the PEX and the ASE. It displays the mean, median, maximum, minimum, standard deviation, skewness, and kurtosis respectively.

The mean EPS was 0.215 (twenty cents for every $1 invested), the median was 0.169, the maximum was 0.959, the minimum was -0.560 (loss), and the standard deviation was 0.192.

As for the mean (ROA), it reached 1% (it is worth mentioning that the percentage is low due to the specificity of banks, as the volume of bank assets is largely due to the high leverage **"**debt-to-equity**"**, i.e., the volume of bank deposits), and the median reached 1%, the maximum 2.5%, and the limit. The minimum is -1.3% (loss), the standard deviation is 0.005, the mean ROE is 7.9%, the median is 8.1%, the maximum is 21.7%, and the minimum is -4.7% (loss).

The mean Tobin's Q was 0.967, which is slightly below 1, indicating that the replacement cost is slightly higher than its market value. The average total stock return (TSR) was 3.6%, with a median of 2.3%. The highest recorded TSR was 122.4%, while the lowest was -66.6%.

Figure 4.5 displays the ROA, ROE, and TSR.

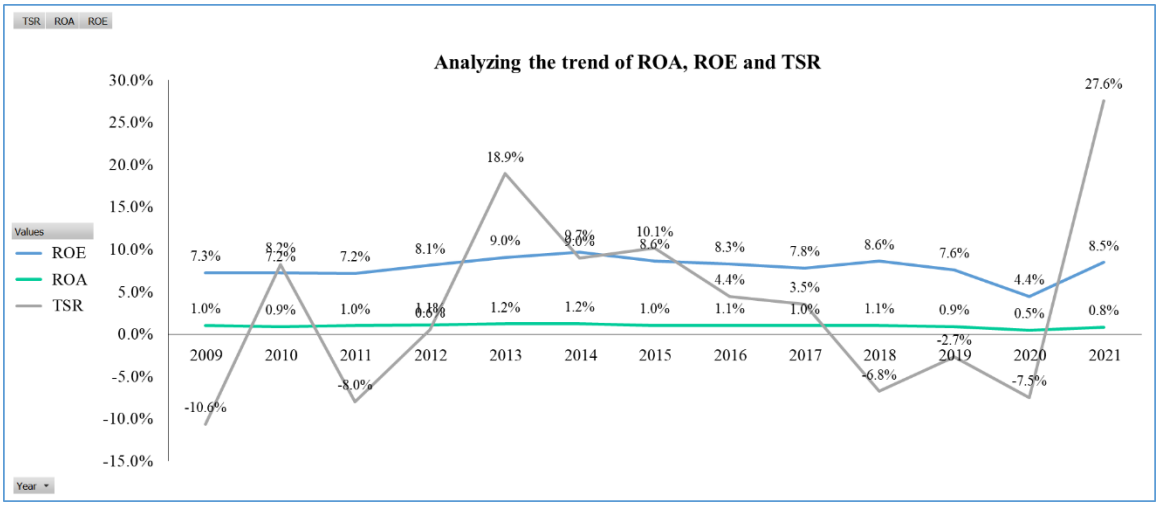


Figure 4.3: Analyzing the trend of ROA, ROE and TSR

Descriptive characteristics of dummy and control variables								
	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Observations
BAC	0.190	0.000	1.000	0.000	0.393	1.58	3.49	273
BAN	0.714	1.000	1.000	0.000	0.453	-0.95	1.90	273
GDP	-0.012	-0.002	0.188	-0.197	0.059	-0.97	8.47	273
LEVARAGE	0.833	0.863	0.930	0.174	0.132	-3.53	14.77	273
SIZE	19.111	18.928	22.593	16.874	1.101	1.02	4.44	273

Table 4.3: Descriptive characteristics of dummy and control variables

Table 4.3 presents the descriptive statistics for the dummy variables (bank nationality: Palestinian-Jordanian and bank nature: commercial-non-commercial) as well as the control variables (Size, GDP growth, leverage ratio). The table includes the mean, median, maximum, minimum, standard deviation, skewness, and kurtosis values for each respective variable.

It is observed that the mean value of BAC is 0.190, with a median of zero. The upper limit is 1, indicating that 19% of the banks are classified as non-commercial **"**Islamic**"**, while the remaining 81% are categorized as commercial banks. Regarding the mean value of BAN, it is 0.714, with a median of zero. The upper limit is 1, suggesting that 71% of the banks are Jordanian, while the remaining 29% are Palestinian banks.

The mean GDP growth rate was -1.2%, indicating a decline. The mean leverage ratio stood at 83.3%, which is relatively high due to the structure of liabilities, ownership of banks, and the substantial volume of deposits they hold. Additionally, the mean logarithm of bank size was 19.111, implying a mean market value of $463 million.

Upon analyzing the trend of IC by the economy (Palestinian or Jordanian), Figure 4.4 substantiates those Jordanian banks exhibit a significantly higher level of intellectual capital, with a mean of 5.73. Their performance index is also notably high. In contrast, Palestinian banks demonstrate a weaker level of IC, averaging below 2.5 degrees (with a mean of 2.17). This implies a negative indication of the ability of Palestinian banks to efficiently invest in IC.

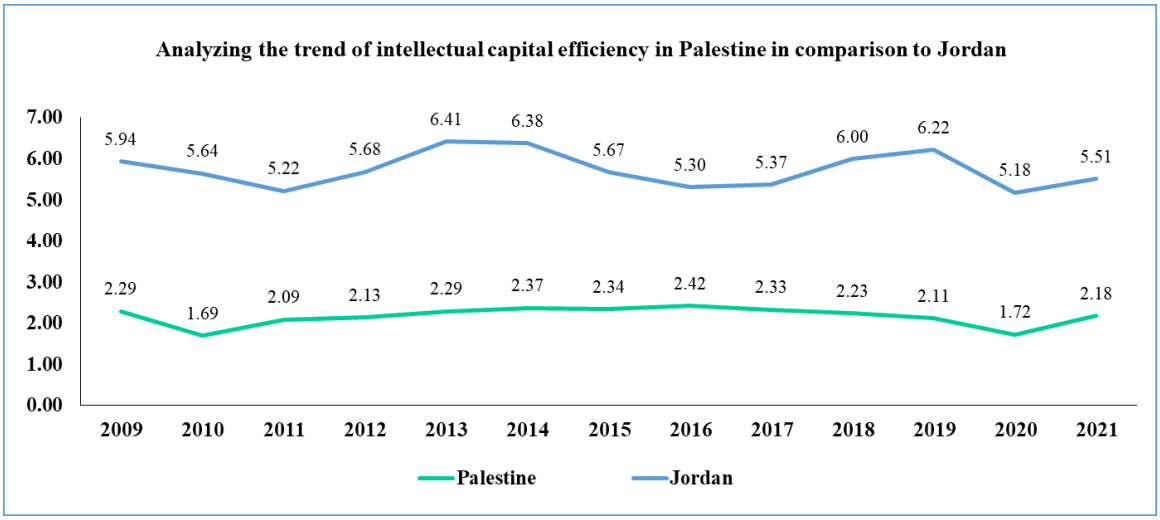


Figure 4.4: Trend of IC efficiency in Palestine in comparison to Jordan

By analyzing the trend of IC according to the nature of the bank (commercial, non-commercial), we find that the IC of commercial banks maintained a good performance, despite its decline from 5.84 in 2009 to 4.92 in 2021. As for non-commercial banks, they had a major role in raising. The performance of IC and its transfer from the weak region in 2009 to the satisfactory performance region in 2021 highlights the interest and awareness of non-commercial banks of the importance of investing in IC and its development. Figure 4.4 shows this;

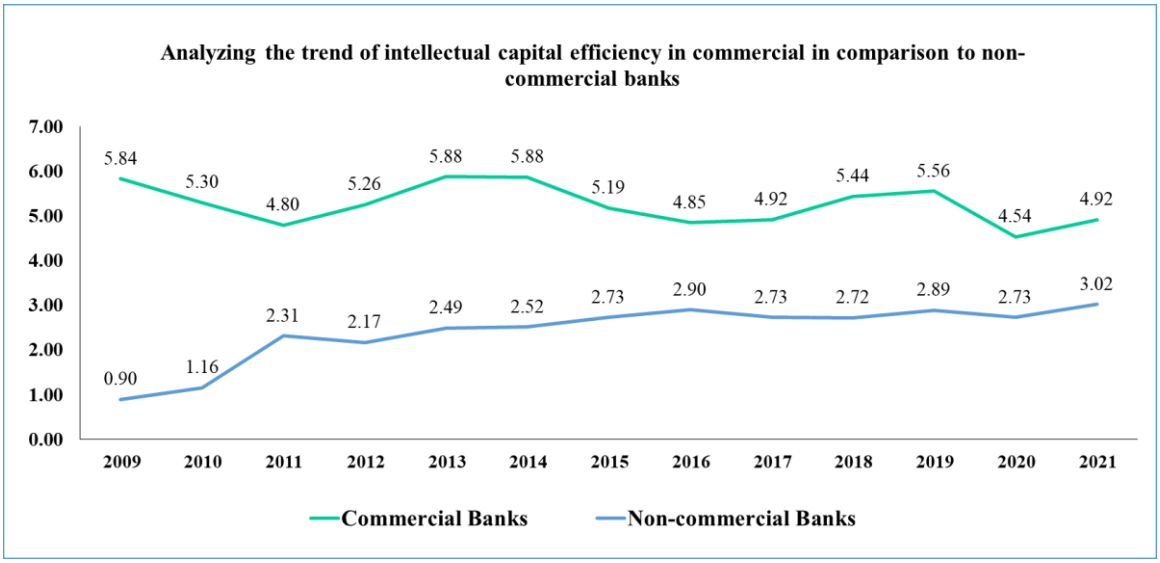


Figure 4.5: Trend of IC efficiency in commercial in comparison to non-commercial banks

4.3. Correlation Matrix

Correlation matrix														
Variables	TSR	VAIC	SIZE	BAC	BAN	GDP	LEVARAGE	EPS	HCE	CEE	ROA	ROE	SCE	TOBIN Q
TSR	1.000													
VAIC	-0.001	1.000												
SIZE	-0.004	0.269	1.000											
BAC	0.110	-0.465	-0.180	1.000										
BAN	-0.142	0.668	0.380	-0.230	1.000									
GDP	0.205	-0.088	-0.004	0.029	-0.127	1.000								
LEVARAGE	0.111	0.163	-0.107	-0.460	-0.178	0.095	1.000							
EPS	0.125	0.351	0.750	-0.127	0.355	-0.011	-0.173	1.000						
HCE	-0.020	0.992	0.248	-0.435	0.662	-0.113	0.118	0.322	1.000					
CEE	0.111	0.676	0.097	-0.531	0.434	-0.037	0.546	0.227	0.632	1.000				
ROA	0.140	0.339	0.309	-0.170	0.130	0.001	-0.052	0.670	0.300	0.315	1.000			
ROE	0.290	0.233	0.326	0.028	0.057	0.044	-0.176	0.654	0.190	0.285	0.850	1.000		
SCE	0.069	0.715	0.338	-0.408	0.493	0.078	0.218	0.414	0.625	0.519	0.428	0.365	1.000	
TOBIN Q	0.121	0.099	0.061	-0.452	-0.215	0.023	0.887	-0.054	0.071	0.411	0.055	-0.135	0.108	1.000

Table 4.4: Correlation analysis

Table 4.4 presents the Pearson correlation matrix among the study variables, offering insights into the strength and direction of their relationships. The matrix indicates that there are no significant correlations between the variables, as all correlation coefficients mentioned have absolute values below 0.80 (>0.80, <-0.80). However, there are a few exceptions: the correlation between ROA and ROE has a coefficient of 0.85, the correlation between Tobin's Q and leverage is 0.88, and the correlation between VAIC

and HCE is 0.99. It is worth noting that such correlations are expected since these variables reflect company performance, and they do not pose a challenge in statistical analysis. Thus, it can be concluded that there is no evidence of a potential issue of multicollinearity among the independent variables, although it requires a multicollinearity test.

NOTE: The threshold of 0.80 is used as a guideline to identify strong relationships between variables, and this can be important for various reasons:

1. Strong correlations among independent variables can lead to multicollinearity, which affects the stability and interpretability of regression models.
2. Strong correlations between dependent variables in a multivariate analysis might indicate potential redundancies or complexities in the data.
3. In some cases, strong correlations among control variables can complicate the interpretation of the impact of the main independent variables on the outcome.

Therefore, it's important to assess the relationships between variables to determine if multicollinearity is an issue.

The specific threshold, like 0.80, is not set in stone and can vary based on the field of study, the research question, and the data at hand. It is a common guideline to identify strong relationships, but should use the judgment and domain expertise to determine when a correlation is practically significant and when further investigation or action is necessary (Boateng, et. al., 2018).

Table 4.5 displays the results of a multicollinearity test, revealing that the VIF (Variance Inflation Factor) values for all variables are below 5. This confirms that the data is free from the issue of multicollinearity.

	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
CEE	0.000	17.798	3.043
HCE	0.000	12.330	2.844
SCE	0.000	8.130	1.971
LN_SIZE	0.000	386.737	1.275
BAC	0.000	2.029	1.642
BAN	0.000	8.702	2.486
GDP	0.000	1.113	1.067
LEVARAGE	0.000	94.551	2.307
C	0.000	479.371	NA

Table 4.5: Multicollinearity test

4.4. Multiple Regression Model

In this section, we present the multiple regression analysis[3] results that examine the impact of IC on both TSR and performance.

Model 1				
Dependent Variable: TSR				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.922	0.294	-3.137	0.002
VAIC	0.030	0.013	2.289	0.023
LN_SIZE	0.034	0.012	2.876	0.004
BAC	0.168	0.027	6.124	0.000
BAN	-0.147	0.099	-1.481	0.140
GDP	0.628	0.269	2.334	0.020
LEVARAGE	0.300	0.143	2.095	0.037
Adjusted R-squared		0.104		
F-statistic		6.285		
Prob (F-statistic)		0.000		

Table 4.6: Regression analysis for TSR (Model 1)

Table (4.6) presents the adjusted R-square values for Model 1 (TSR) as 0.104. This indicates the model's ability to elucidate the variation in TSR, or simpler terms, how well the independent variable accounts for changes in the dependent variable (TSR). The adjusted R-square value suggests that the polled effect model provides a better explanation than the random effect model. This is evident from the F-statistic values, which are greater than 2 and the corresponding probability (F-statistic) being less than 5% for both models (P&F effect). These findings affirm the model's validity in capturing changes in the dependent variable, representing TSR.

[3] Please note that:

- We utilized a panel ordinary least squares (OLS) random effects model, incorporating white cross-section weights. The standard errors and covariance were estimated using panel-corrected standard errors (PCSE) with the degrees of freedom correction. The model consists of a constant (intercept).
- Acceptable levels of significance are at 1%, 5%, and 10%, respectively.

At a significance level of 2%, a statistically significant positive association is observed between intellectual capital (VAIC^{TM} model) and TSR. This implies that increasing investment in intellectual capital by one unit will result in an increase in TSR. These findings align with the research conducted by Jenson (2007), suggesting that investing in intellectual capital promotes competitiveness, fosters innovation, attracts skilled and creative employees, and enhances overall company efficiency. As a result, this contributes to higher profits, and an increase in MV, and ultimately leads to an elevation in TSR.

The findings reveal a statistically significant positive correlation between various variables (size, bank type as commercial or non-commercial, GDP growth, and leverage ratio) and TSR. The significance levels for size, bank type, GDP growth, and leverage ratio are 0%, 0%, 2%, and 3.7% respectively. This implies that larger bank size, particularly in the commercial sector, along with economic growth and increased leverage, contribute to an increase in TSR. These results align with the findings presented by; Djamil, Razafindrambinina, & Tandeans, 2013, Awan, Siddique, & Sarwar, 2014; Aslam, Makki, Nawaz, & Latif, 2014 and Nurwulandari, 2021.

Although there is a negative correlation between the bank's nationality (Palestine or Jordanian) and TSR, it is not statistically significant. This is logical, the economies of Palestine and Jordan are similar and close to each other and both are developing economies that have similar characteristics.

In Model 2, the individual pillars of IC (CEE, HCE, and SCE) are examined to assess their impact on TSR. The R-square values for Model 1 (TSR) are observed at 0.123, indicating the model's capability to explain variations in TSR. Furthermore, the F-

statistic value exceeds 2, and the associated probability (F statistic) is less than 5%, reaffirming the validity of the model in explaining changes in the dependent variable (consistent with Model 1). These results align logically with the study.

Model 2				
Dependent Variable: TSR				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.714	0.273	-2.617	0.009
CEE	0.583	0.261	2.228	0.027
HCE	0.009	0.015	0.625	0.532
SCE	0.068	0.021	3.307	0.001
LN_SIZE	0.032	0.012	2.697	0.008
BAC	0.174	0.029	5.997	0.000
BAN	-0.180	0.096	-1.872	0.062
GDP	0.604	0.275	2.193	0.029
LEVARAGE	0.000	0.145	-0.002	0.999
Adjusted R-squared		0.123		
F-statistic		5.752		
Prob (F-statistic)		0.000		

Table 4.7: Regression analysis for TSR (Model 2)

The correlation results between variables in Model 1 and Model 2 indicate similarities, particularly in the relationship between IC pillars (CEE, GCE, and CSE) and TSR. These pillars exhibit a positive correlation with TSR in both models.

A statistically significant positive relationship is observed between CEE and TSR, with a significance level of 2.7%. This implies that increasing investment in CEE by one-unit leads to an increase in TSR. This finding aligns with the study conducted by Aslam, Makki, Nawaz, & Latif, (2014). Similarly, there is a statistically significant positive correlation between SCE and TSR, with a significance level of 0%. Investing an additional unit in SCE results in an increase in TSR. These results are also consistent with the findings of Jensen, (2007). However, the positive relationship between HCE and TSR is not statistically significant, indicating poor efficiency of human capital

(HCE) in enhancing TSR. These results are in line with the studies conducted by Johnson (2007) and Mohamed (2009).

Tables (4.8, 4.9, 4.10, and 4.11) display the adjusted R-square values for model 3 (a, b, c, and d) as 0.362, 0.290, 0.215, and 0.563 respectively. These values indicate the models' capability to explain variations in performance. In other words, they reflect how well the independent variables account for changes in the dependent variables (EPS, ROE, ROA, and Tobin's Q). Based on the R-square values, it is evident that the polled effect model provides a superior explanation compared to the random effect model. This is supported by the F-statistic values, which exceed 2, and the corresponding probabilities (F statistic) being less than 5% for both models (P&F effect). These findings affirm the validity of the model in explaining changes in the dependent variables, representing performance.

Model 3a				
Dependent Variable: EPS				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.646	0.261	-6.309	0.000
VAIC	0.042	0.010	4.360	0.000
LN_SIZE	0.105	0.013	7.953	0.000
BAC	0.030	0.040	0.767	0.444
BAN	-0.104	0.037	-2.800	0.006
GDP	0.083	0.068	1.232	0.219
LEVARAGE	-0.332	0.067	-4.945	0.000
Adjusted R-squared		0.362		
F-statistic		26.701		
Prob (F-statistic)		0.000		

Table 4.8: Regression analysis for EPS (Model 3a)

Table 4.8 presents the analysis of the impact of intellectual capital on EPS in model 3a. The findings reveal a significant positive correlation at a 0% level of significance. This implies that investing in intellectual capital by one unit leads to an increase in EPS

according to the specified model coefficient. Indeed, investing in IC has the potential to enhance a company's EPS. IC encompasses the economic value derived from knowledge, experience, intellectual property, business relationships, brands, and other intangible assets that are not easily quantifiable. When a company focuses on developing and strengthening its IC, it can enhance its ability to generate higher profits and gain a competitive edge in the market. As a result, the company's performance improves, leading to increased profitability. These results are consistent with; (Nadeem, Dumay, & Massaro, 2019); (Al Momani, Jamaludin, Zalani, Abdullah, & Nour, 2020);

The findings demonstrate a statistically significant positive correlation between size and EPS, with a significance level of 0%. Furthermore, there is a statistically significant negative correlation observed between the leverage ratio and EPS, with a significance level of 0%., which aligns with logical expectations. As the reliance on debt for financing assets increases, it leads to higher costs associated with servicing the debt. Consequently, this has a detrimental impact on the company's profits, resulting in a negative correlation with EPS. Although there is a negative correlation between the nationality of the bank (Palestine, Jordanian) and EPS, it is not statistically significant.

Model 3b				
Dependent Variable: ROE				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.264	0.058	-4.577	0.000
VAIC	0.015	0.003	5.200	0.000
LN_SIZE	0.019	0.002	8.988	0.000
BAC	0.029	0.016	1.799	0.073
BAN	-0.061	0.012	-5.048	0.000
GDP	0.034	0.023	1.488	0.138
LEVARAGE	-0.063	0.028	-2.235	0.026
Adjusted R-squared		0.290		
F-statistic		19.528		
Prob (F-statistic)		0.000		

Table 4.9: Regression analysis for ROE (Model 3b)

In Table 4.9, Model 3b is presented, where it indicates that there is a statistically significant positive correlation at the 0% significance level, between intellectual capital and ROE. Whenever one unit is spent on IC, it leads to an increase in ROE.

The results show that there is a statistically significant positive correlation between IC and size at the 0% level. It also showed that there is a statistically significant negative correlation between IC and the nationality of the bank, and the leverage ratio at the level of 0% and 0%, respectively. The level of significance for the correlation between IC and the classification of the bank, as well as the GDP growth, was found to be 79.8% and 43.1% respectively. These values indicate that there is no statistically significant correlation observed between them. These results are consistent with; Gan & Saleh, 2008; Nadeem, et.al., & Nguyen, 2018. Nassar, 2019.

Similarly, the results of Model 3c and Model 3b exhibit similarities, as depicted in Table 4.10.

Model 3c				
Dependent Variable: ROA				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.006	0.007	-0.823	0.412
VAIC	0.002	0.000	3.846	0.000
LN_SIZE	0.001	0.000	4.075	0.000
BAC	-0.001	0.002	-0.256	0.798
BAN	-0.007	0.002	-4.355	0.000
GDP	0.003	0.004	0.790	0.431
LEVARAGE	-0.014	0.004	-3.693	0.000
Adjusted R-squared		0.215		
F-statistic		13.453		
Prob (F-statistic)		0.000		

Table 4.10: Regression analysis for ROA (Model 3c)

In contrast to the findings of models 3a, 3b, and 3c, model 3d presented in Table 4.11 indicates a positive correlation between intellectual capital and Tobin's Q. However, it is important to note that this correlation is not statistically significant, as the level of significance is observed at 40.6%. These results are consistent with; (Hosein, et. al., 2016).

Model 3d				
Dependent Variable: TOBIN_Q				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.271	0.081	-3.331	0.001
VAIC	0.003	0.004	0.831	0.406
LN_SIZE	0.046	0.005	9.442	0.000
BAC	-0.069	0.009	-7.834	0.000
BAN	-0.105	0.026	-3.989	0.000
GDP	-0.133	0.061	-2.167	0.031
LEVARAGE	0.527	0.055	9.594	0.000
Adjusted R-squared		0.563		
F-statistic		59.401		
Prob (F-statistic)		0.000		

Table 4.11: Regression analysis for Tobin's Q (Model 3d)

Models 4 (a, b, c, and d) test the effect of IC pillars (CEE, HCE, and SCE) on performance through the variables (EPS, ROE, ROA, and Tobin's Q), respectively.

Tables (4.12, 4.13, 4.14, and 4.15) present the adjusted R-square values for model 4 (a, b, c, and d) as 0.503, 0.597, 0.439, and 0.561 respectively. These values indicate the models' capability to explain variations in performance, or in other words, how well the independent variables (CEE, HCE, and SCE) account for changes in the dependent variables (EPS, ROE, ROA, and Tobin's Q). The adjusted R-square values make it evident that the polled effect model provides a better explanation compared to the random effect model. This is supported by the F-statistic values, which are greater than 2, and the corresponding probabilities (F-statistic) being less than 5% for both models (P&F effect). These findings affirm the validity of the model in explaining changes in the dependent variables that represent performance. (Janošević, Dženopoljac, & Bontis, 2013; Abu Shameh, 2015; Nadeem, et. al., 2019; Al Momani, et. al., 2020).

Model 4a				
Dependent Variable: EPS				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.835	0.313	-2.667	0.008
CEE	0.999	0.206	4.850	0.000
HCE	-0.002	0.006	-0.322	0.748
SCE	0.197	0.038	5.178	0.000
LN_SIZE	0.089	0.013	6.674	0.000
BAC	0.006	0.041	0.144	0.886
BAN	-0.179	0.041	-4.377	0.000
GDP	0.009	0.079	0.108	0.914
LEVARAGE	-1.099	0.142	-7.732	0.000
Adjusted R-squared		0.503		
F-statistic		35.365		
Prob (F-statistic)		0.000		

Table 4.12: Regression analysis for EPS (Model 4a)

Table 4.12 examines the effect of the IC pillars (CEE, HCE and SCE) on (EPS), expressed by model 4a. The results reveal a statistically significant positive correlation at the level of 0% between (CEE and SCE) and EPS, which means that Banks focus on structural capital and physical capital, despite the presence of a negative correlation

between HC and EPS, it is important to note that this relationship is not statistically significant. These results are consistent with; (Al Momani, et. al., 2020; Nour & Al Momani, 2021).

Underestimating the significance and role of HC within IC can have adverse consequences for a company's performance and overall success. HC encompasses the skills, knowledge, and capabilities possessed by a company's employees, making it a crucial component for attaining CA (Kehle, 2016).

With a robust HC base, a company can enhance productivity, drive innovation, and elevate the quality of its products or services. Conversely, neglecting the development and investment in HC can result in a decline in skill levels and overall team performance, thereby exposing the company to losses and potentially limiting future growth and development prospects. It is imperative for companies to recognize the importance of nurturing and investing in their HC to foster long-term success and maintain a competitive edge (Lipunga, 2015).

Model 4b				
Dependent Variable: ROE				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003	0.060	0.048	0.962
CEE	0.390	0.069	5.680	0.000
HCE	-0.003	0.002	-1.601	0.111
SCE	0.069	0.005	14.045	0.000
LN_SIZE	0.015	0.002	6.335	0.000
BAC	0.020	0.010	2.021	0.044
BAN	-0.087	0.009	-9.161	0.000
GDP	0.005	0.020	0.263	0.793
LEVARAGE	-0.344	0.039	-8.727	0.000
Adjusted R-squared		0.597		
F-statistic		51.387		
Prob (F-statistic)		0.000		

Table 4.13: Regression analysis for ROE (Model 4b)

Table 4.13, model 4b displays the outcomes of examining the influence of intellectual capital (IC) pillars (CEE, HCE, and SCE) on ROE. The findings reveal a significant positive correlation between CEE and ROE, as well as between SCE and ROE, with significance levels of 0% for both variables. Conversely, a negative correlation is observed between HCE and ROE; however, this relationship is not statistically significant. The significance level for HCE is 11%, exceeding the thresholds of 1%, 5%, and 10%.

Model 4c				
Dependent Variable: ROA				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.027	0.008	3.287	0.001
CEE	0.035	0.008	4.221	0.000
HCE	0.000	0.000	0.188	0.851
SCE	0.010	0.001	8.765	0.000
LN_SIZE	0.001	0.000	2.751	0.006
BAC	-0.002	0.002	-1.551	0.122
BAN	-0.011	0.002	-6.683	0.000
GDP	-0.001	0.003	-0.289	0.773
LEVARAGE	-0.049	0.006	-8.402	0.000
Adjusted R-squared		0.439		
F-statistic		27.619		
Prob (F-statistic)		0.000		

Table 4.14: Regression analysis for ROA (Model 4c)

Table 4.14 presents the findings from examining the influence of IC pillars (CEE, HCE, and SCE) on ROA. The results demonstrate a significant positive correlation between CEE and ROA, as well as between SCE and ROA, with significance levels of 0% for both variables. Additionally, a positive correlation is observed between HCE and ROA; however, this relationship is not statistically significant. The significance level for HCE is 85%, surpassing the thresholds of 1%, 5%, and 10%.

Model 4d				
Dependent Variable: TOBIN_Q				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.283	0.125	-2.265	0.024
CEE	-0.049	0.066	-0.749	0.455
HCE	0.005	0.002	2.388	0.018
SCE	0.008	0.021	0.373	0.709
LN_SIZE	0.047	0.005	9.267	0.000
BAC	-0.073	0.012	-5.957	0.000
BAN	-0.108	0.031	-3.457	0.001
GDP	-0.134	0.059	-2.258	0.025
LEVARAGE	0.525	0.102	5.129	0.000
Adjusted R-squared		0.561		
F-statistic		44.415		
Prob (F-statistic)		0.000		

Table 4.15: Regression analysis for Tobin's Q (Model 4d)

In Table 4.15, Model 4d examines the association between IC pillars (CEE, HCE, and SCE) and Tobin's Q. The results reveal a statistically significant positive correlation between HCE and Tobin's Q, with a significance level of 1%. However, the findings indicate that the relationship between SCE and Tobin's Q, as well as CEE and Tobin's Q, is not statistically significant, with significance levels of 45% and 70% respectively, surpassing the thresholds of 1%, 5%, and 10%.

These outcomes suggest that companies are inclined to prioritize investments in HC and development over investments in CEE and SCE. This implies the existence of weaknesses in these latter aspects, which can potentially influence overall performance. Furthermore, the results indicate that the opportunities for enhancing performance might be limited if effective investments are not made in all pillars of IC.

4.5. Multiple Linear Regression for the Portfolios Analysis

On this side, we introduce multiple linear regression (MLR) as a means of analyzing[4] portfolios, specifically focusing on the Jordanian and Palestinian portfolios. We aim to assess the influence of IC on TSR and performance of banks in both regions.

Tables (4.16, 4.17, 4.18, 4.19 and 4.20) present the results that the multiple linear regression of the study models in portfolio analysis (Jordan and Palestine). The results show that all models have the ability to explain the relationships between variables, as all models have a statistical value of F for a statistic of more than of 2 and has a probability (F statistic) of less than 5% (P&F effect). This indicates the validity of the models in their ability to explain the change in the dependent variable, which represents the total stock return, and performance (EPS, ROE, ROA, and Tobin's Q).

The analysis results in Table 4.16 indicate a positive correlation between IC and TSR in both Jordanian and Palestinian banks, with statistical significance. The results also demonstrate a positive correlation between the components of IC and TSR in Jordanian banks, and they are statistically significant for both CEE and SCE. In contrast, there is a negative correlation between HC and TSR, while there is a positive correlation between the components of IC (CEE and SCE) and TSR, although none of them are statistically significant. This confirms the strength and advancement of the portfolio model of Jordanian banks compared to Palestinian banks.

[4] Please note that:

- We utilized a panel ordinary least squares (OLS) random effects model, incorporating white cross-section weights. The standard errors and covariance were estimated using panel-corrected standard errors (PCSE) with the degrees of freedom correction. The model consists of a constant (intercept).
- Acceptable levels of significance are at 1%, 5%, and 10%, respectively.

The regression analysis results, focusing on the influence of IC on the performance of Jordanian and Palestinian banks, reveal that the portfolio of Jordanian banks outperforms the portfolio of Palestinian banks in analyzing the relationship between capital and performance. These findings are supported by the data presented in Tables 4.17, 4.18, 4.19, and 4.20.

Model 1								
Dependent Variable: TSR								
	Jordan				Palestine			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.759	0.185	-4.099	0.000	-0.490	0.566	-0.866	0.390
VAIC	0.025	0.010	2.588	0.010	0.089	0.026	3.435	0.001
LN_SIZE	0.017	0.009	1.869	0.063	-0.025	0.025	-1.025	0.309
BAC	0.234	0.037	6.261	0.000	0.054	0.032	1.664	0.101
GDP	0.888	0.238	3.730	0.000	0.246	0.280	0.877	0.383
LEVARAGE	0.349	0.100	3.496	0.001	0.957	0.420	2.281	0.026
Adjusted R-squared		0.087				0.104		
F-statistic		4.677				2.785		
Prob(F-statistic)		0.000				0.023		

Model 2								
Dependent Variable: TSR								
	Jordan				Palestine			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.005	0.186	-5.401	0.000	-0.308	0.629	-0.489	0.626
CEE	0.766	0.242	3.168	0.002	0.350	0.735	0.477	0.635
HCE	0.011	0.011	0.942	0.348	-0.054	0.136	-0.398	0.692
SCE	0.046	0.027	1.722	0.087	0.259	0.073	3.567	0.001
LN_SIZE	0.030	0.010	3.125	0.002	-0.014	0.030	-0.453	0.652
BAC	0.329	0.052	6.272	0.000	0.054	0.036	1.477	0.144
GDP	0.880	0.234	3.770	0.000	0.217	0.289	0.751	0.455
LEVARAGE	0.108	0.102	1.059	0.291	0.643	0.792	0.812	0.420
Adjusted R-squared		0.140				0.097		
F-statistic		5.498				2.188		
Prob(F-statistic)		0.000				0.046		

Table 4.16: Multiple regression model 1 and 2 for the portfolios analysis

Model 3a								
Dependent Variable: EPS								
	Jordan				Palestine			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.325	0.163	-14.276	0.000	-0.878	0.135	-6.525	0.000
VAIC	0.019	0.004	4.624	0.000	0.140	0.028	4.959	0.000
LN_SIZE	0.137	0.010	14.176	0.000	0.018	0.010	1.761	0.082
BAC	0.001	0.025	0.025	0.980	-0.004	0.012	-0.362	0.719
GDP	0.019	0.093	0.201	0.841	0.011	0.024	0.462	0.645
LEVARAGE	-0.220	0.032	-6.790	0.000	0.406	0.108	3.769	0.000
Adjusted R-squared	0.579				0.826			
F-statistic	54.270				74.177			
Prob(F-statistic)	0.000				0.000			

Model 4a								
Dependent Variable: EPS								
	Jordan				Palestine			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.517	0.155	-16.286	0.000	-0.608	0.088	-6.889	0.000
CEE	0.695	0.169	4.101	0.000	0.525	0.063	8.299	0.000
HCE	0.003	0.003	1.224	0.223	-0.030	0.033	-0.926	0.358
SCE	0.067	0.015	4.589	0.000	0.329	0.094	3.492	0.001
LN_SIZE	0.147	0.008	17.332	0.000	0.031	0.003	9.853	0.000
BAC	0.088	0.036	2.420	0.017	-0.005	0.009	-0.585	0.561
GDP	-0.023	0.106	-0.212	0.832	-0.021	0.031	-0.673	0.503
LEVARAGE	-0.452	0.063	-7.201	0.000	-0.033	0.090	-0.368	0.714
Adjusted R-squared	0.645				0.902			
F-statistic	51.315				102.317			
Prob(F-statistic)	0.000				0.000			

Table 4.17: Multiple regression model 3a and 4a for the portfolios analysis

Model 3b								
Dependent Variable: ROE								
	Jordan				Palestine			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.035	0.041	-0.855	0.394	-0.376	0.051	-7.385	0.000
VAIC	0.008	0.002	4.510	0.000	0.062	0.007	9.324	0.000
LN_SIZE	0.009	0.001	8.591	0.000	0.005	0.003	1.471	0.146
BAC	-0.001	0.013	-0.042	0.967	0.008	0.002	4.757	0.000
GDP	0.046	0.029	1.591	0.113	-0.007	0.034	-0.213	0.832
LEVARAGE	-0.115	0.026	-4.430	0.000	0.261	0.027	9.802	0.000
Adjusted R-squared	0.223				0.875			
F-statistic	12.155				108.584			
Prob(F-statistic)	0.000				0.000			

Model 4b								
Dependent Variable: ROE								
	Jordan				Palestine			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.087	0.041	-2.101	0.037	-0.132	0.023	-5.720	0.000
CEE	0.278	0.055	5.063	0.000	0.398	0.011	36.529	0.000
HCE	-0.001	0.001	-0.597	0.551	0.070	0.004	15.895	0.000
SCE	0.050	0.006	7.951	0.000	-0.011	0.005	-2.469	0.016
LN_SIZE	0.011	0.001	8.100	0.000	0.003	0.001	1.905	0.061
BAC	0.035	0.012	3.034	0.003	0.003	0.001	3.245	0.002
GDP	0.003	0.036	0.090	0.928	0.005	0.005	0.998	0.322
LEVARAGE	-0.218	0.024	-9.051	0.000	-0.036	0.011	-3.355	0.001
Adjusted R-squared	0.522				0.987			
F-statistic	31.269				859.970			
Prob(F-statistic)	0.000				0.000			

Table 4.18: Multiple regression model 3b and 4b for the portfolios analysis

Model 3c								
Dependent Variable: ROA								
	Jordan				Palestine			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004	0.004	-1.224	0.222	-0.006	0.005	-1.105	0.273
VAIC	0.001	0.000	2.810	0.006	0.008	0.001	12.443	0.000
LN_SIZE	0.001	0.000	6.954	0.000	0.000	0.000	1.380	0.172
BAC	-0.003	0.001	-1.984	0.049	0.000	0.000	1.376	0.173
GDP	0.002	0.004	0.393	0.695	-0.003	0.004	-0.739	0.462
LEVARAGE	-0.011	0.002	-6.013	0.000	-0.011	0.002	-5.718	0.000
Adjusted R-squared	0.162				0.883			
F-statistic	8.516				117.334			
Prob(F-statistic)	0.000				0.000			

Model 4c								
Dependent Variable: ROA								
	Jordan				Palestine			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.007	0.005	-1.323	0.188	0.016	0.004	4.009	0.000
CEE	0.018	0.007	2.517	0.013	0.038	0.002	19.751	0.000
HCE	0.000	0.000	0.705	0.482	0.009	0.001	11.870	0.000
SCE	0.005	0.002	2.812	0.005	0.001	0.002	0.415	0.679
LN_SIZE	0.001	0.000	6.957	0.000	0.000	0.000	1.029	0.307
BAC	-0.001	0.002	-0.316	0.752	0.000	0.000	0.317	0.753
GDP	-0.002	0.006	-0.412	0.681	-0.002	0.001	-1.394	0.168
LEVARAGE	-0.018	0.003	-7.060	0.000	-0.037	0.003	-11.408	0.000
Adjusted R-squared	0.256				0.966			
F-statistic	10.560				309.786			
Prob(F-statistic)	0.000				0.000			

Table 4.19: Multiple regression model 3c and 4c for the portfolios analysis

Model 3d								
Dependent Variable: TOBIN_Q								
	Jordan				Palestine			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.366	0.096	-3.797	0.000	0.210	0.217	0.966	0.337
VAIC	-0.002	0.003	-0.932	0.353	0.007	0.007	1.013	0.314
LN_SIZE	0.027	0.003	9.013	0.000	0.047	0.006	7.324	0.000
BAC	0.012	0.016	0.716	0.475	0.004	0.004	1.042	0.301
GDP	-0.334	0.058	-5.724	0.000	0.006	0.072	0.089	0.930
LEVARAGE	0.978	0.044	22.440	0.000	-0.102	0.223	-0.455	0.650
Adjusted R-squared	0.884				0.419			
F-statistic	297.360				12.101			
Prob(F-statistic)	0.000				0.000			

Model 4d								
Dependent Variable: TOBIN_Q								
	Jordan				Palestine			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.417	0.064	-6.567	0.000	0.170	0.224	0.758	0.451
CEE	-0.097	0.047	-2.035	0.043	-0.049	0.082	-0.604	0.548
HCE	0.006	0.001	4.741	0.000	0.025	0.028	0.906	0.368
SCE	-0.080	0.014	-5.560	0.000	-0.010	0.021	-0.487	0.628
LN_SIZE	0.029	0.003	10.204	0.000	0.046	0.008	5.811	0.000
BAC	-0.003	0.010	-0.290	0.772	0.005	0.004	1.155	0.252
GDP	-0.246	0.043	-5.748	0.000	0.009	0.072	0.128	0.898
LEVARAGE	1.041	0.027	38.641	0.000	-0.041	0.267	-0.153	0.879
Adjusted R-squared	0.905				0.405			
F-statistic	266.057				8.500			
Prob(F-statistic)	0.000				0.000			

Table 4.20: Multiple regression model 3d and 4d for the portfolios analysis

Chapter Five

Summary, Discussion and Conclusions

5.1. Introduction

Pulic A., (2004), assert that the theory of IC encompasses the recognition and strategic management of intangible assets that contribute to an organization's VC and competitive-advantage (CA). It comprises three core components: HC, SC, and RC. HC represents the knowledge, skills, and capabilities of individuals within an organization, and its effective development and utilization are associated with improved performance and innovation. SC refers to the supportive infrastructure, systems, and processes that facilitate knowledge sharing, innovation, and organizational learning. RC emphasizes the value derived from strong relationships with stakeholders, including customers, suppliers, and strategic partners, which can enhance collaboration, trust, and knowledge exchange.

Scientific research has established the significance of IC in driving organizational success. Studies have found positive correlations between IC and financial performance, productivity, MV, and innovation outcomes. Effective management of IC involves identifying and measuring these IA through frameworks and metrics such as the Balanced Scorecard and Value-Added Intellectual Coefficient (VAIC^{TM}) model. Moreover, organizations that prioritize intellectual capital management and investment tend to outperform their competitors.

In the knowledge economy, IC has emerged as a critical driver of sustainable competitive-advantage (CA). Organizations must actively cultivate and leverage their IC assets to adapt to evolving market dynamics and technological advancements. By fostering a culture of knowledge sharing, continuous learning, and innovation,

companies can enhance their ability to create value, respond to change, and thrive in a complex and dynamic business environment.

5.2. Discussion and Summarize the Main Findings

The results of the multiple regression analysis, which showed that there is a strong influence of the efficiency of IC and its components on TSR and performance of banks, are explained by several reasons:

- Competitive-Advantage: IC, such as knowledge, skills, and innovations, are sources of competitive-advantage (CA) for companies. When banks can effectively manage their IC, they can develop unique products and services and achieve competitive advantages that positively affect their financial performance and TSR.
- Innovation and development: The efficiency of IC affects the competitiveness of the bank by promoting innovation and development. When banks can employ IC effectively, they can produce innovative products and services that meet customer needs and achieve high levels of performance, which is positively reflected in stock returns.
- Customer relations: IC can influence the quality of a bank's customer relations and customer satisfaction. When banks can use their knowledge and experience and interact with customers effectively, they can provide excellent services and achieve customer satisfaction, which enhances financial performance and TSR.
- Investment decisions: IC can influence investment decisions and risk management in banks. When banks can analyze information accurately and make informed investment decisions based on knowledge and experience, they can achieve higher returns and improve their financial performance.

In summary, the efficiency of IC and its components influence TSR and performance by enhancing competitiveness, innovation, development, customer relations, and investment decisions.

Nevertheless, it should be noted that the Palestinian and Jordanian economies do not operate as a unified entity. There exists a disparity in the implementation of IC components between the two countries, with Jordan having an advantage in this regard. The reasons behind these results can be attributed as follows:

- Firstly, the disparity in the longevity of Jordanian banks compared to the relative newness of Palestinian banks, with the latter still being in their early stages.
- Secondly, the classification of the ASE as a strong or semi-strong market, while the PEX is classified as a weak market. This implies that the price reflection of information on shares of Palestinian banks is inefficient.
- Thirdly, the operational challenges and persistent economic difficulties faced by Palestinian banks operating in a challenging market environment.

This calls for Palestinian banks to intensify their efforts to foster better integration and synergy among the pillars and components of IC. In their pursuit to deliver superior customer services, it is crucial for Palestinian banks to invest in human resources, attract talented individuals, and provide them with meaningful incentives. Additionally, efficient investment in physical capital is essential to support their endeavors. By adopting these measures, Palestinian banks can enhance their overall performance and ensure the provision of excellent services to their customers.

The one result that enjoys unanimous agreement is that Palestinian banks are striving to emulate the distinguished experience of Jordanian banks in offering a diverse range of banking services.

5.3. The Main Conclusions

This study examined the influence of the value-added intellectual coefficient (VAIC^{TM}) on TSR and performance of banks listed on PEX and ASE, during the period from 2009 to 2021.

To measure the efficiency of IC, the study employed Pulic's model and its three pillars (human-capital efficiency, relational-capital efficiency, and structural-capital efficiency) as independent variables. The study selected total stock returns, ordinary share profitability, return on equity, return on assets, and Tobin's Q as performance indicators for the dependent variable. Control factors included size, growth in the gross domestic product (GDP), and leverage ratio, and two dummy variables were considered: bank nationality and bank classification.

The study models (1, 2, 3, and 4) were tested using multiple regression analysis, yielding the following results. There is a significant positive correlation observed between the value-added coefficient of IC and TSR. The findings indicate that the pillars of IC, except for HCE, which was excluded from the model, are positively associated with TSR and demonstrate statistically no significance. This gives rise to a noteworthy discussion on the importance of the interplay and correlation between IC components and TSR, particularly for the banking sector as a whole. The sector heavily relies on the human element as a fundamental pillar in delivering customer services. The

results further highlight the significant roles played by physical capital and relational capital in the banking industry.

The highlights findings of the study regarding the role of IC in enhancing bank performance, particularly in the Jordanian and Palestinian economies. The results indicate that the management of IC in Jordanian banks has been effective, leading to high performance. However, in the Palestinian economy, the performance of IC was limited and modest, suggesting room for improvement.

Furthermore, the study found that non-commercial banks exhibited a greater focus on managing IC compared to other types of banks. Despite this emphasis, the performance of banks in utilizing IC is still in its early stages, indicating the potential for further growth and advancement.

Overall, the components of IC were found to contribute positively to enhancing bank performance. The results suggest that there are many opportunities for continuous development and improvement in leveraging IC to drive better outcomes in the banking sector.

5.4. Limitation of the Study

This study has certain limitations that should be acknowledged. Firstly, the sample size of the study is restricted to only 21 banks, selected based on their banking sector only. This limited sample may not fully represent the diversity of all economic sectors and could affect the generalizability of the findings. Additionally, the study relies on the VAIC^{TM} model as the measure of IC performance in banks. While the VAIC^{TM} model is a commonly used metric, it is important to recognize that it also has its limitations, which might influence the accuracy and comprehensiveness of the results obtained in

this study. Therefore, it is essential to interpret the findings with caution, considering the constraints associated with the sample size and the chosen measurement approach.

The utilization of the VAIC^{TM} model as a surrogate for company performance is a notable limitation of this study. As the assessment of intellectual capital (IC) performance is still developing, relying solely on this proxy may not accurately capture a firm's intellectual capital (Zambon, 2017). It is worth noting that there is currently no universally accepted methodology for evaluating intellectual capital (Assaf, 2011). Nonetheless, the VAIC^{TM} model has been widely used as a readily available measure of intellectual capital over the past two decades. In order to ensure comparability, the same model parameters were employed to quantify IC for all four independent variables in this study. However, it is important to acknowledge that different research studies incorporating varying control factors may yield different outcomes.

5.5. Future Research

Based on the findings of this study, which focused on the banking sector in two developing economies (Palestine and Jordan), we recommend conducting a more comprehensive investigation. This would involve a comparative study encompassing two economic sectors where human resources, knowledge, and technology play a crucial role, such as the technology, communications, and banking sectors. It is essential to examine a broader range of economies, particularly within the Middle East and North Africa (MENA) region. Such an approach would enable the attainment of accurate and generalizable results that can be leveraged at a macro level for the benefit of these economies.

References

1. Abdulsalam, F., Al-Qaheri, H., & Al-Khayyat, R. (2011). The intellectual capital performance of Kuwaiti banks: an application of VAIC model. IBusines, 3(1), 88-96.

2. Abu Alsoud, G., Rajhaa, K., & Abu Qalbeein, A. (2014). Impact of the ownership structure on the financial performance of companies (Vol. 17). Amman: The Arab Journal of Accounting.

3. Abu Shameh, F. (2015). The Role of intellectual capital in achieving competitive advantage "An Applied Study in hospitals in the south of West Bank". Hebron University Research Journals.

4. Ahuja, B. R., & Ahuja, N. (2012). Intellectual capital approach to performance evaluation: a case study of the banking sector in India. International Research Journal of Finance and Economics, 93(1), 110-122.

5. Al Momani, K. M., Jamaludin, N., Zalani, W., Abdullah, W., & Nour, A. N. (2020). The effects of intellectual capital on firm performance of industrial sector in Jordan. Humanit. Soc. Sci., 184-192.

6. Alipour, M. (2012). The effect of intellectual capital on firm performance: an investigation of Iran insurance companies. Measuring Business Excellence, 16(1), 53-66.

7. Alrabba, H. M., & Amoudi, M. R. (2021). The Impact of Intellectual Capital on Performance of Palestinian Corporations. Jordan Journal of Business Administration, 353-373.

8. Alradah, N. (2000). Palestinian-Jordanian Foreign Trade: Reality and Future Prospect. Palestine Economic Policy Research Institute (MAS).

9. AL-Shubiri, F. N. (2011). Testing the Relationship between the Efficiency of Value Added Intellectual Coeffi cient and Corporate Performance at

Commercial Banks in Amman Stock Exchange (ASE). Zagreb International Review of Economics & Business, 14(1), 1-22.

10. Ashton, R. H. (2005). Intellectual capital and value creation: a review. Journal of Accounting Literature, 53-134.

11. Aslam, S., Makki, M. A., Nawaz, H. M., & Latif, M. (2014). Mediating Role of Intellectual Capital Efficiency in Capital Structure and Financial Performance of Quoted Banks of Pakistan. Research Journal of Finance and Accounting, 5(17), 141-150.

12. Assaf, N. A. (2011). Longitudinal study of the relationship between board attributes and firm performance in South Africa. University of Cape Town.

13. Atwood, T. J. (2012). Home country tax system characteristics and corporate tax avoidance: International evidence. Accounting Review, 87(6), 1831-1860.

14. Awan, A. G., Siddique, K., & Sarwar, G. (2014). The effect of economic value added on stock return: evidence from selected companies of Karachi stock exchange. Research Journal of Finance and Accounting, 140-152.

15. Ball, R. &. (1968). An empirical evaluation of accounting income numbers. Journal of Accounting Research, 6(2), 159-178. .

16. Ball, R. &. (1968). An empirical evaluation of accounting income numbers. Journal of Accounting Research, 6(2), 159-178.

17. Banjarnahor, E. (2019). Analysis of value added intellectual capital to the financial performance of listed banking companies in Indonesia. International Journal of Contemporary Accounting, 1(1), 59-74.

18. Barney, J. B. (1991). Firm resource and sustainable competitive advantage. Journal of Management, 99-120.

19. Barney, J. B. (1998). On becoming a strategic partner: The role of human resources in gaining competitive advantage. Human Resource Management, 31-46.

20. Barth, M. E. (2000). Valuation-based accounting research: Implications for financial reporting and opportunities for future research. Accounting & Finance, 40(1), 7-31.

21. Beaver. (1998). Financial reporting: an accounting revolution. Upper Saddle River, N.J: Prentice Hall.

22. Bhartesh, K. R., & Bandyopadhyay, A. K. (2005). Intellectual capital: concept and its measurement. Finance India, 19(4), 1365-1674.

23. Bieat, K. (2020). Capital structure and its impact on the financial performance of Public shareholding companies in Palestine Exchange:An Empirical study.

24. Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: a primer. Frontiers in Public Health.

25. Bollen, N. P. (1998). note on the impact of options on stock return volatility. Journal of banking & Finance, 22(9), 1181-1191.

26. Bollinger, A., & Smith, R. (2001). Managing organizational knowledge as a strategic asset. Journal of Knowledge Management.

27. Bontis, N., Dargonetti, N. C., Jacobsen, K., & Roos, G. (1999). The knowledge toolbox: A review of the tools available to measure and manage intangible resource. European Management Journal, 17(4), 391-402.

28. Bruns, W. (1998). Profit as a performance measure: power concept, insufficient measure", Performance measurement- Theory and practise: the first international conference on performance measurement. Cambridge, 14-17.

29. Busari, K. &. (2021). Comparing the Value Relevance of Selected Accounting Information in Consolidated and Separate Financial Statements: The Case of Nigerian Listed Financial Service Firms. Journal of Economics and Sustainability.

30. Cabrita, M., & Bontis, N. (2008). Intellectual capital and business performance in the Portuguese banking industry. International Journal of Technology Management, 43(3), 212–236.

31. Calisir, F., Gumussoy, C., Bayraktaroglu, A., & Deniz, E. (2010). Intellectual capital in the quoted Turkish ITC sector. Journal of Intellectual Capital, 11(4), 538-554.

32. Central Bank of Jordan. (2023). CBJ Annual Report 2022. CBJ .

33. Chakravarti, Laha, & Roy. (1967). Handbook of Methods of Applied Statistics. John Wiley and Sons, 392-394.

34. Chan, H. K. (2009). Impact of intellectual capital on organisational performance: An empirical study of companies in the Hang Seng Index. The Learning Organization, 16(1), 22-39.

35. Choong, K. (2008). Intellectual capital: definitions, categorization and reporting models. Journal of Intellectual Capital, 9(4), 609–638.

36. Clarke, M., Seng, D., & Whiting, R. H. (2011). Intellectual capital and firm performance in Australia. Journal of intellectual capital, 505-529.

37. Deloitte. (2018, 12 31). Deloitte. Retrieved 11 15, 2022, from 2019 Banking and Capital Markets Outlook: Reimagining transformation: https://www2.deloitte.com/content/dam/Deloitte/us/Documents/financial-services/us-fsi-dcfs-2019-banking-cap-markets-outlook.pdf

38. Djamil, A. B., Razafindrambinina, D., & Tandeans, C. (2013). The impact of intellectual capital on a firm's stock return: Evidence from Indonesia. Journal of Business Studies Quarterly, 176-183.

39. Fijalkowska, J. (2008). Management and communication of the companies' knowledge: Guidelines for intellectual capital statement. Journal of Systemics, Cybernetics and Informatics, 6(2), 42-47.

40. Firer, S., & Williams, S. (2003). Intellectual capital and traditional measures of corporate performance. Journal of Intellectual Capital, 4(3), 348-360.

41. Gallegos, J. A., Diaz, C., Vega-Vargas, J., Arellano-Prada, R., & Blas-Yucra, M. (2021). The impact of intellectual capital on financial performance in Argentina, Chile and Peru. African Journal of Business Management,, 15(9), 242-249.

42. Gan, K., & Saleh, Z. (2008). Intellectual Capital and Corporate Performance of Technology-Intensive Companies: Malaysia Evidence. Asian Journal of Business and Accounting, 113 - 130.

43. Ghosh, S., & Mondal, A. (2009). Indian software and pharmaceutical sector ic and financial performance. Journal of Intellectual Capital, 10(3), 369-388.

44. Goncharov, I. W. (2009). Legislative demands and economic realities: Company and group accounts compared. International Journal of Accounting, 44(4), 334-362.

45. Goncharov, I. W. (2009). Legislative demands and economic realities: Company and group accounts compared. International Journal of Accounting, 44(4), 334-362.

46. Gynther, R. (1967). Accounting Concepts and Behavioral Hypotheses. The Accounting Review, 42 274–290.

47. Handzic, M., Durmic, N., Kraljic, A., Kraljic, T., & Chase, R. (2016). An Empirical Investigation of the Relationship Between Intellectual Capital and Project Success. Journal of Intellectual Capital, 17(3), 471–483.

48. Hanlon, M. K. (2005). Evidence for the possible information loss of conforming book income and taxable income. The Journal of Law and Economics, 48(2), 407-442.

49. Hashem, F., & Al-Khalieh, A. (2021). Intellectual capital effectiveness of Jordanian banks financial performance. WSEAS Transactions on Business and Economics, 552-568.

50. Hendrikson, E. (1965). Accounting Theory. Irwin: Homewood.

51. Holienka, M., & Pilkova, A. (2014). Comparing Impact of Intellectual Capital on Firm Performance Before and After Crisis. In Proceeding of The 6th European Conference on Intellectual Capital (ECIC).

52. Hosein , M., Mehrjardi, R., Sadrabadi, M., & Mehrjardi, F. (2016). The impact of intellectual capitals of pharmaceutical companies listed in Tehran stock exchange on their market performance. Procedia Economics and Finance, 291-300.

53. Huang, T. H., Chiang, D. L., & Tsai, C. M. (2015). Applying the New Metafrontier directional distance function to compare banking efficiencies in Central and Eastern European Countries. Economic Modelling, 188-199.

54. IFAC. (2015). Handbook of international Quality Control, Auditing, Review, Other Assurance, and Related Services Pronouncements. New York City: International Federation of Accountants.

55. Isanzu, J. N. (2016). The relationship between intellectual capital and financial performance of banks in Tanzania. Journal on Innovation and Sustainability RISUS, 7(1), 28-38.

56. Janošević, S., Dženopoljac, V., & Bontis, N. (2013). Intellectual capital and financial performance in Serbia. Knowledge and Process management, 20(1), 1-11.

57. Jensen, A. R. (2007). Clocking the mind. The Netherlands: Elsevier.

58. Jugdev, K. (2005). Project Management as a Strategic Asset: What does it look like and how do companies get there? Project Management Institute.

59. Kamath, G. B. (2007). The intellectual capital performance of Indian banking sector. Journal of Intellectual capital, 96 –123.

60. Katchova, A. L., & Enlow, S. J. (2013). Financial performance of publicly-traded agribusinesses. Agricultural Finance Review, 73(1), 58 – 73.

61. Kehle, K. E. (2016). Strategic intellectual capital management : case study in the banking and financial services sector in Zimbabwe. Doctoral dissertation.

62. Kennerley, M. N. (2002). A framework of the factors affecting the evolution of performance measurement systems. International Journal of Operations and Production Management, 22, 1222–1245.

63. King, A. M. (1991). In the Library: Measure Up! Yardsticks for Continuous Improvement. Strategic Finance, 72(9), 61.

64. Kothari, S. P. (2001). Capital markets research in accounting. Journal of Accounting and Economics, 31(1-3), 105-231.

65. Lev, B., & Radhakrishnan, S. (2003). The measurement of firm specific organization capital. NBER Working Paper.

66. Lipunga, A. M. (2015). Intellectual capital performance of the commercial banking sector of Malawi. International journal of business and management, 10(1), 210-222.

67. Litschka, M., Markom, A., & Schunder, S. (2006). Measuring and analysing intellectual assets: an integrative approach. Journal of Intellectual Capital, 160-173.

68. Lotfi, M., Elkabbouri, M., & Ifleh, Y. (2016). The relationship between intellectual capital, firm value and financial performance in the banking sector: empirical evidence from Morocco. International Journal of Innovation and Applied Studies, 17(3), 1004-1012.

69. Luthy, D. (1998). Intellectual Capital and its measurement. APIRA.

70. Makki, M., & Lodhi, S. A. (2009). Impact of intellectual capital on return on investment in Pakistani corporate sector. Australian Journal of Basic and Applied Sciences, 3(3), 2995-3007.

71. Marian, G. C. (2011). The influence of intellectual capital on Romanian companies financial performance. Annales universitatis Apulensis series oeconomica, 9.

72. Mavridis, D. G. (2004). The intellectual capital performance of the Japanese banking sector. Journal of, 92 – 115.

73. Modigliani, F. &. (1958). The cost of capital, corporation finance and the theory of investment. American Economic Review, 48(3), 261-297.

74. Mohiuddin, M., Najibullah, S., & Shahid, A. I. (2006). An Exploratory Study on Intellectual Capital Performance of the Commercial Banks in Bangladesh. The Cost and Management, 40–54.

75. Mojtehed , V., Alavi , S., & Mehdizadeh, M. (2010). The Relationship of Intellectual Capital (Human, Customer and Structural) and the Performance of Insurance Industry. Accounting and Auditing Review, 17(2), 110-119.

76. Moradi, M., Saeedi, M., & Hajizadeh, H. (2013). The influence of intellectual capital on the improvement of companies' financial performance. International Journal of Economics, Business and Finance, 1(5), 120-139.

77. Moradi, M., Saeedi, M., Hajizadeh, H., & Mohammadi, M. (2013). The influence of intellectual capital on the improvement of companies' financial performance. International Journal of Economics, Business and Finance, 1(5), 120-139.

78. Mouritsen, J., Bukh, P. N., & Marr, B. (2004). Reporting on intellectual capital: why, what and how? Measuring Business Excellence, 8(1), 46-54.

79. Nadeem, M., Dumay, J., & Massaro, M. (2019). If you can measure it, you can manage it: a case of intellectual capital. Australian Accounting Review, 29(2), 395-407.

80. Nadeem, M., Gan, C., & Nguyen, C. (2018). The importance of intellectual capital for firm performance: Evidence from Australia. Australian Accounting Review, 28(3), 334-344.

81. Nassar, S. (2019). The influence of intellectual capital on corporate performance of the Turkish wholesale and retail trade companies. IUG Journal of Economics and Business, 27(3), 1-14.

82. Nassar, S. (2020). The Impact of Intellectual Capital on Corporate Performance: Evidence from Palestine. EJBMR, European Journal of Business and Management Research, 5(6), 1-6.

83. Nazari, J. A. (2010). An Investigation of the Relationship between the Intellectual Capital Components and Firm's Financial Performance. Doctoral dissertation, University of Calgary, Canada.

84. Neves, E., & Proenca, C. (2021). Intellectual capital and financial performance: evidence from Portuguese banks. International Journal of Learning and Intellectual Capital, 18(1), 93-108.

85. Newbert, S. L. (2008). Value, rareness, competitive advantage, and performance: a conceptual-level empirical investigation of the resource-based view of the firm. Strategic management journal, 29(7), 745-768.

86. Njuguna, J. I. (2009). Strategic Positioning for Sustainable Competitive Advantage: An Organizational Learning Approach. KCA Journal of Business Management.

87. Nour, A., & Al Momani, K. (2021). The influence of human capital on return of equity among banks listed in the Amman stock exchange. An-Najah University Journal for Research, 35(9), 1499–1530.

88. Nour, A., & Momani, K. A. (2019). The influence of human capital on return of equity among banks listed in the Amman stock exchange. An-Najah University Journal for Research-B (Humanities), 1499-1530.

89. Nurwulandari, A. (2021). Intellectual Capital, the Capital Market, and Their Effect on the Value of Indonesian Manufacturing Firms Listed on the Indonesian Stock Exchange (IDX) from 2017 to 2020. In 2nd Annual Conference on

blended learning, educational technology and Innovation (ACBLETI2020), 162-165.

90. OECD. (2008). Intellectual Assets and Value Creation – Synthesis Report. OECD, Paris.

91. Ohlson, J. A. (1999). Discussion of "An Analysis of historical and future-oriented information in accounting-based security valuation models. Contemporary Accounting Research, 16(2), 381- 384.

92. Ozili, P. K., & Olayinka, U. (2017). Ownership concentration and bank profitability (Vol. 3). Future Business Journal.

93. Ozkan, N., Cakan, S., & Kayacan, M. (2017). Intellectual capital and financial performance: A study of the Turkish Banking Sector. Borsa Istanbul Review, 17(3), 190-198.

94. Palestinian Monetary Authority. (2023). PMA Annual Report 2022. PMA.

95. Pellens B., G. J. (2003). Distribution policy of listed companies in Germany. DBW, 63, 309-332.

96. Powell, W. W., & Snellman, K. (2004). The knowledge economy. Annu. Rev. Sociol, 199-220.

97. Pulic, A. (1998). Measuring the performance of intellectual potential in knowledge economy. In 2nd McMaster word congress on measuring and managing intellectual capital by the Austrian team for intellectual potential, 1-20.

98. Pulic, A. (2000). Vaic: An Accounting Tool for Ic Management. International Journal of Technology Management, 20(5-8), 702-714.

99. Pulic, A. (2004). Do we know if we create or destroy value? International Journal of Entrepreneurship and Innovation Management, 4(4), 349-359.

100. Pulic, A. (2004). Intellectual capital, does it increase or destroy value? . Measuring business excellence, 8(1), 62-68.

101. Pulic, A. (2008). The Principles of Intellectual Capital Efficiency - A Brief Description. Croatian Intellectual Capital Center, Zagreb, 2-25.

102. Purwaningsih, E. (2018). The Influence of value added intellectual capital to financial performance with ownership structure as moderating Variable. International Journal of Academic Research in Accounting, Finance and Management Sciences, 8(3), 277-290.

103. Ramanauskaitė, A., & Rudžionienė, K. (2013). Intellectual Capital Valuation: Methods and Their Classification. Issn Ekonomika, 92(2), 1392–1258.

104. Roos, G., Bainbridge, A., & Jacobsen, K. (2001). Intellectual Capital analysis as a strategic tool. Strategy and Leadership, 29(4).

105. Shaneeb, P., & Sumathy, M. (2021). Impact of intellectual capital on financial performance in Indian textile industries. Academy of Accounting and Financial Studies Journal, 25(4), 1-14.

106. Shehada, M. M. (2019). The Relationship Between Intellectual Capital Efficiency and Earnings Quality: An Applied Study (master dissertation). Gaza: Al-Azhar University.

107. Shiu, H. J. (2006). The application of the value added intellectual coefficient to measure corporate performance: evidence from technological firms. International Journal of Management, 23(2), 356-365.

108. Stewart, T. A. (1997). Intellectual Capital: The New Wealth of Organisation. Nicholas Brealey, London, 67.

109. Sullivan, P. H. (2000). Valuing intangible companies- an intellectual capital approach. Journal of Intellectual Capital, 1(4), 328–340.

110. Sveiby, K. (1997). The New Organisational Wealth: Managing and Measuring Knowledge Based Assets. San Francisco, USA: Berrett-Koehler.

111. Tector, S. (2023, February 5). Top 20 Largest Companies In the World (2023). Retrieved from New Vision Theatres: https://www.newvisiontheatres.com/largest-companies-in-the-world

112. Umboh, F. F., & Dewi, D. M. (2022). Analysis of the Effect of Intellectual Capital on Financial Performance, Revenue Growth, and Value of Manufacturing Companies on the Indonesia Stock Exchange 2016-2019. Open Access Indonesia Journal of Social Sciences, 5(2), 678-686.

113. Vidyarthi, H. (2019). Dynamics of intellectual capitals and bank efficiency in India. The Service Industries Journal, 39(1), 1-24.

114. Yang, Y. (2019). o accruals earnings management constraints and intellectual capital efficiency trigger asymmetric cost behaviour? Evidence from Australia. Australian Accounting Review, 29(1), 177-192.

115. Young, C. S., Su, H. Y., Fang, C. S., & Fang, S. R. (2009). Cross-country comparison of intellectual capital performance of commercial banks in Asian economies. The Service Industries Journal, 29(11), 1565-1579.

116. Zagreb, H., & Masmeh, B. (2020). Effect of Ownership Structure on Performance of Companies Listed in Palestine Exchange. Journal of the Islamic University of Economic and Administrative Studies, 01-19.

117. Zambon, S. (2017). Intangibles and intellectual capital: an overview of the reporting issues and some measurement models. The economic importance of intangible assets.

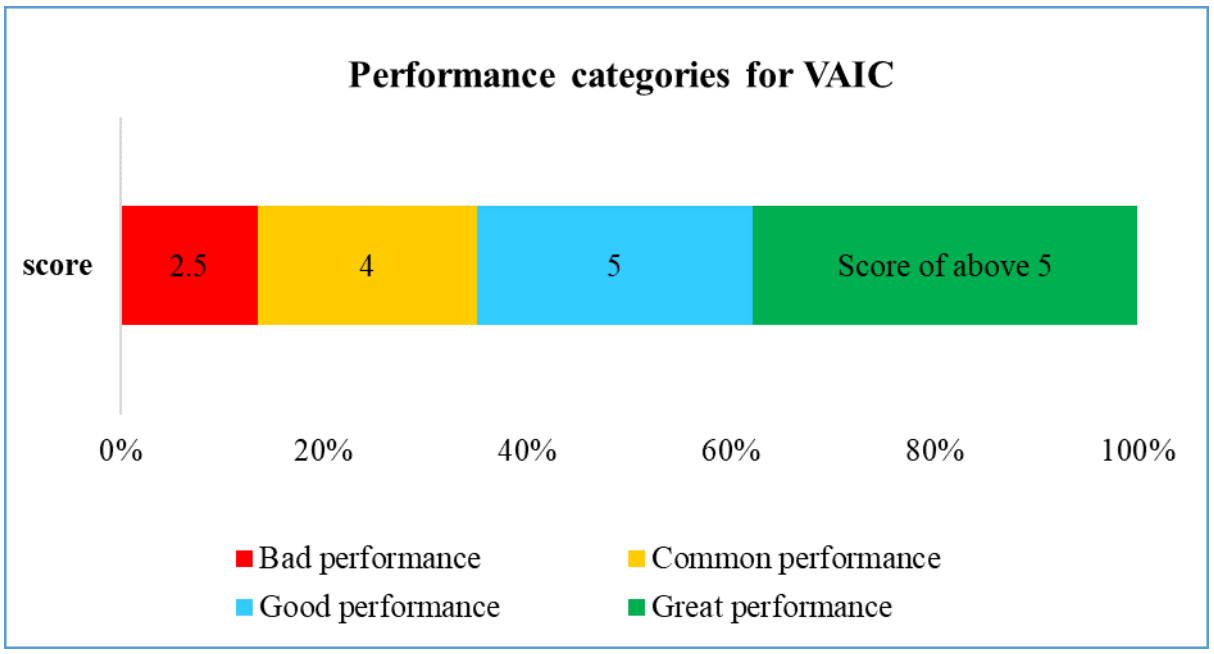
118. Zeghal, D. (2000). New assets for the new economy. FMI Journal, 11(2), 35-40.

119. Zeghal, D., & Anis, M. (2010). Analysing value added as an indicator of intellectual capital and its consequences on company performance. Journal of Intellectual capital, 11(1), 39-60.

Appendices

Appendices (A): Performance categories for VAIC

The figure below displays the performance levels according to the VAIC parameter (Kamath, 2007; Lipunga, 2015);



Appendices (B): Pillars of intellectual capital (IC)

Human capital	Structural capital	Relational capital
Expertise	Organizational culture	Relationship with customers
Practical experience	Quality of cooperation and communication within the organization	Relationship with suppliers
Social competencies	IT-infrastructure (hardware and software)	Relationship with investors/owners
Motivation	Knowledge transfer and knowledge retention	Relationship with external educational institutions
Leadership competencies	R+D infrastructure related to product development	Acquisition of external knowledge
Personal skills and competencies	R+D infrastructure related to process innovation	Social responsibility
Continuous professional training	Organizational structure	Corporate image
Training of new entrants	Organizational processes	Relationship with other social and economic actors
Participation in higher education	Usage of information and communication technologies	
Participation in other forms of education	Organizational forms that support learning	

Source: based on (CEDEFOP, 2012, p.23).

الجامعة العربية الامريكية

كليـــة الدراســـات العليـــا

تأثير معامل القيمة الفكرية المضافة على عوائد الاسهم والاداء: دليل من البنوك المدرجة في بورصة فلسطين وبورصة عمان.

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تم تقديم هذه الرسالة استكمالاً لمتطلبات درجة الماجستير في تخصص

المحاسبة والتدقيق

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الملخص

رأس المال الفكري يمثل موردًا استراتيجيًا يمكن أن يساهم في تعزيز الأداء العام للشركة وتحقيق التفوق التنافسي والابتكار في اقتصاد المعرفة.

الهدف: تبحث الدراسة في اختبار تأثير معامل القيمة الفكرية المضافة على إجمالي عوائد الأسهم وأداء المصارف المدرجة في بورصة فلسطين وبورصة عمان.

المنهجية: تكونت العينة من 21 بنك مدرج في بورصة فلسطين وبورصة عمان خلال الفترة 2009 الى 2021، تضمنت المنهجية اختبار كفاءة راس المال الفكري مقاساً بمعامل القيمة الفكرية المضافة وركائزه، على عوائد الاسهم والأداء؛ حيث تم قياس الاداء من خلال (ربحية السهم العادي، العائد على الملكية، العائد على الاصول، مؤشر Tobin's Q)، وتم اجراء التحليل الوصفي، وتحليل مصفوفة الارتباط بين المتغيرات، واجراء اختبار الانحدار المتعدد لنماذج الدراسة.

النتائج: تشير النتائج إلى وجود تأثير إيجابي لرأس المال الفكري على كل من عوائد الأسهم وأداء البنوك.

القيود: على الرغم من أن الدراسة تستخدم معامل القيمة الفكرية المضافة في القطاع المصرفي، إلا أن قيود النموذج المستخدم قد تؤثر على دقة وشمولية النتائج. لذا من الأهمية تفسير النتائج بحذر.

القيمة/ المساهمة: تعتبر هذه الدراسة الأولى، كونها تبحث في علاقة راس المال الفكري وعوائد الأسهم وأداء البنوك في كل من فلسطين والأردن معًا.

كلمات مفتاحية: الأصول غير الملموسة، اقتصاد المعرفة، راس المال الفكري، الأداء، معامل القيمة الفكرية المضافة، البنوك.

نوع البحث: رسالة ماجستير.