



Factors affecting credit risk and Risks Reduction Techniques: An analytical study of indicators for measuring credit risk in Iraqi commercial banks

Hanan Jumaa Hanzal Al kanani¹, Waheeda Jebr Khalaf²

Abstract

The study aims to clarify credit risks and ways to reduce them, describe the foundations of credit risks, and analyze credit risk indicators in Iraqi commercial banks for the period (2010-2020). Total deposits and the ratio of doubtful debts to total assets, and some challenges faced by commercial banks, including the weakness of banking services in Iraq, compared to the number of types of services provided by Arab and international banks. The study reached a set of conclusions, the most important of which is that the total credit ratio The cash to total deposits was high compared to other indicators. The study also recommended that banks diversify their investment portfolio and not focus on a specific field to avoid any banking crisis.

KeyWords: Credit Risk, Credit Risk Indicators, Iraqi Commercial Banks

DOI Number: 10.14704/NQ.2022.20.12.NQ77303

NeuroQuantology2022;20(12): 3040-3050

3040

Introduction

The subject of credit risk occupies particular importance in commercial banks, especially in recent times after the global crises that led to the collapse of many commercial banks due to the dangers faced by those banks. Today, banks face various banking risks that vary in degree of seriousness from one bank to another, the most important of which is credit risk. The Iraqi banking sector is one of the most critical sectors in the country, as it is witnessing remarkable growth in all its indicators, which calls for maintaining this development and studying credit risks to come up with recommendations that help mitigate these risks in Iraqi commercial banks, as the instability in the Iraqi banking environment as a result of uncertainty and the difficulty of predicting the future made it necessary for banks to protect themselves from credit risks. Therefore, this study analyzes credit risk indicators in Iraqi commercial

give a clear vision of the state of the bank and clarify the likelihood of risk exposure. The importance of this study stems from the importance of commercial banks and the need to highlight the indicators of credit risk in them during the period of the study (2020-2010) to avoid the occurrence of any shocks or setbacks that may lead if they occur to significant problems at the level of the national economy as a whole, especially if we know that credit risk is one of the essential indicators of the success or failure of commercial banks in performing their activity. The study attempts to reach several of them, including building a knowledge framework to show and clarify the relationship between credit risk indicators in Iraqi commercial banks, explain the factors affecting credit risk and methods of reducing them, and know the level of relationship between credit risk indicators in Iraqi commercial banks.

banks. There are a set of indicators of credit risk in Iraqi commercial banks that must be analyzed to

Corresponding author: Hanan Jumaa Hanzal Al kanani

Address: ^{1,2}Department of Economics / College of Administration and Economics, Mustansiriya University, Baghdad, Iraq

E-mail: hananjumaa259@gmail.com

dr_wahada@Uomustansiriya.edu.iq



The Theoretical framework of Credit Risk Concept and Sources

Credit risks arise due to the bank's resort to providing loans or credit to individuals and various economic sectors, with its inability to recover its rights represented in the principal of the loan and its interests on the specified maturity date. Credit risks have increased since the last century, especially after the previous world war, due to the increase in credit. Its duration has improved and grown in the current century, especially after the last financial crisis, due to the separation of the monetary economy from the real one. Debt) is large beyond the capacity of the economy or market.

The Concept of Credit Risk

Credit risk is the possibility that the borrower will not repay the loan under the agreed terms that result when an individual or company defaults on a financial obligation. This risk increases with an increased probability of default (ARINDAM). Borrowers are unable or unwilling to meet their commitments. Thus the lenders do not obtain the loan principal and the accrued interest, which leads to interruption of cash flows and an increase in collection costs (). Completing the resulting obligations and then agreeing upon them by the contracting parties means failure to provide goods and services, refusal to provide loans or banking facilities, or failure to pay all borrowed amounts on time (). The credit risk arises from the following four circumstances ():

1. A counterparty defaults on a basic financial obligation.
2. Increasing the possibility of defaulting on the agreed-upon obligation.
3. A higher-than-expected risk of loss resulting from a lower-than-expected decline, recovery, or higher-than-expected exposure at the time of default.
4. The default of the counterparty concerning the payment of funds for goods or services that have already been provided (settlement risk), which includes variables that directly affect credit risk, namely: -

A- The ability and willingness of the debtor (lender, counterparty, issuer, etc.) to fulfill its obligations.

b- The external environment (operating conditions, country risks, business climate, etc.) to the extent that it affects the probability of default or the

severity of the loss or exposure upon default.

C- Characteristics of the related credit instrument (product, issuance facilities, debt guarantee, loan...etc.).

d- The quality and adequacy of any credit risk mitigation means (credit enhancement guarantees...etc.).

Components of intellectual capital efficiency

Intellectual capital efficiency consists of structural and human capital and assets (thinking and non-thinking). This distinction was reached because people (human capital) need different management methods than structural capital. Another difference was proposed by Brooking, which identifies four components of intellectual capital efficiency: (Brennan & Connell, 2000: 5). Market assets. Human-focused assets. INTELLECTUAL PROPERTY ASSETS. Infrastructure assets

The importance of intellectual capital efficiency

The efficiency of intellectual capital is of great importance in the organization and has been explained by (Shahzad et al., 2021: 3 & Olarewaju & Msomi, 2020: 1 & Castillo et al., 2019: 568 & (de Pablos, 2005: 145) as follows:

1. Intellectual capital efficiency gives a more robust organizational culture to the organization and thus supports a high level of innovation in products and processes and also motivates staff to demonstrate more productive behavior

Intellectual capital efficiency is one of the critical factors in a market environment that promotes the growth and competitiveness of the organization.

3. Helps assess the abilities and skills of people in the organization to generate knowledge from individual learning.

4- It is a differential factor for the new economy as it acts as a production factor capable of generating competitive advantages in the organizations.

5. Capture employees' different experiences for the organizational benefit and share their collective knowledge across different operational levels, maximize production with minimal resources, and do things correctly from the first time.

Managing the efficiency of intellectual capital

Most scholars rely on two frameworks for managing intellectual capital efficiency: the Skandia & Dow Chemical Framework. 2010: 382 & Brennan & Connell, 2000: 19). Dow Chemicals has



developed a vision, functional systems, and tools to manage its intellectual assets that have been in use since 1993. 2000: 20).

Portfolio phase: Identifies existing intellectual assets.

Classification stage: The "use" of intellectual assets is determined in terms of what works are.

Strategy phase: Integrating intellectual assets to maximize value and identify the intellectual assets needed to fill any strategic gaps.

Evaluation phase: Developing a strategy and harmonizing the management of intellectual assets.

Competitive evaluation phase: understanding the competitive environment of intellectual assets.

Investment Journey: Buy the technology needed to achieve strategic business objectives.

Ways to measure the efficiency of intellectual capital

Qualitative way to measure intellectual capital efficiency: Measuring intelligent capital efficiency can be classified into four indicators: human resources, customers, technology, and processes. However, they are not accurately defined and may overlap in some cases. For example, processes are included in the other three categories of indicators. Therefore, these indicators have also been used to develop a measurement model.

Human resources: Human-focused measurements reflect and develop human capital in companies.

Customer: The customer focuses on assessing customer value for companies.

Technology: Effective use of technology. Information technology and expenditure are also measured for each employee within the organization.

Processes: The process focuses on efficiency measures such as time, workload, error ratios, and quality. The authors and researchers have identified measures of intellectual capital efficiency in three dimensions:

Human capital: Members of the Organization have implicit individual knowledge (i.e., internal skills necessary to perform their functions). Subramaniam & Youndt (2005: 451) has defined human capital as "the knowledge, skills, and capabilities that exist with individuals and are used by them."

Customer Capital: Knowledge of marketing channels and customer relationships is the central theme of customer capital. Frustrated managers often don't realize they can benefit from a wealth of knowledge from their customers. Factual

knowledge is embedded in customers, suppliers, government, or industrial unions (Bontis, 1998:67). (Mavridis, 2004: 94) has defined physical capital as "the knowledge embedded in the interactions between individuals and available through them and used through interactions between individuals and their mutual relationship networks.

Structural capital: The organization embodies the implicit structural knowledge, which exists in countless relationships that enable the organization to operate in a coordinated manner, but is reasonably understood by the participants in the relationship and a few others. Business in general. An individual can have a high level of intelligence. Still, if the organization has poor systems and procedures to track its actions, the efficiency of total intellectual capital will not reach its full potential (Bontis, 1998: 66).

The way you measure the efficiency of my thought capital

In this way, we divide the efficiency of intellectual capital into three components: human capital, structural capital, and physical capital. t that uses the financial statements and the following notes

$$VAIC = HCE + SCE + CEE$$

VAIC: Represents the added value of intellectual capital efficiency and CEE: represents the efficiency of physical capital

HCE: Represents the efficiency of human capital and represents SCE: structural capital efficiency

This model begins with the organization's ability to create added value. Value added is the difference between home and abroad.

Value Added (VA): Value-added can be calculated by the following equation:

$$R - S VA =$$

While VA: Represents Value Added and Represents R: Revenue S: Represents Costs

B. Human Capital Efficiency (HCE): The human capital efficiency factor refers to the amount of value-added (VA) per amount spent on employee expenses (wages and salary) in the company
 $CE = VA / HCH = (\text{value added}) / (\text{Total employee expenses for company salary and benefits})$

HC = total paid salary and human resources wages = total expenses of the company's employees

Where HCE represents the efficiency of human capital, VA: represents value-added HC: represents employee expenses (wages and salary)

C. Physical Capital Efficiency (CEE): This item refers to the value-added ratio (VA) to the physical capital used, the index of which can be obtained through the following relationship:



$$EEC = VA / EC$$

= Value-added/tangible assets, where CE = total assets - intangible assets = tangible assets.

CEE represents the efficiency of physical capital :
VA: represents CE value-added: represents tangible assets

D- Structural Capital Efficiency (SCE): The second relationship is "Structural Capital Efficiency (SCE)," which refers to the contribution of structural capital to the creation of value-added. HC. In this way, the second relationship between VA and SC will be calculated in the following way:

$$SCE = SC / VA$$

$$= (\text{structural capital}) / (\text{value-added})$$

$$SC = VA - HC$$

$$= (\text{value-added}) - (\text{total employee salary expenses for the company})$$

Where SCE: Represents structural capital efficiency, SC: Represents structural capital, VA: represents value-added, and HC: represents employee expenses.

The concept of value-added to shareholders

The value added to shareholders is one of the different factors affecting stock prices. This is done by understanding how information affects the share price, as the faster the price responds to information, the more efficient market (Chung & Hrazdil, 2011: 12). Value-added can also be labeled as economic profit.

It can also be defined as the wealth the organization has created with its efforts and workers, including wages, interest, dividends, taxes, extinction, and retained profit. It uses the characterization of performance as a measure of the value of wealth that the organization has created during a given period. Still, a value-added list is a tool for assessing the performance of the accounting unit from the point of view of the national economy because it gives us an indication of the contribution of the accounting unit to the creation of income and national products. In the eyes of economists, the added value of the project means the value of the project's total output minus the value of the inputs and the disappearance of the fixed assets resulting from its production. (Venugopal et al., 2018: 5). He also defined it (Mahmoud, 2006:23) as (the increase in the market value of goods and services used by the enterprise, which emerged from the facility as a final result of its activity).

Owners of the company

They are individuals or groups with interests or share with the company, giving them the right to ask about the nature and how they perform." As a result, the organization can maximize the wealth of shareholders. In addition, investors will invest in the company. Therefore, the organization has left its old activities from increasing sales to focusing on adding value to the company (Alexander and Destriana 2013).

Key factors that can create added value for the organization

Here are some of the critical factors that help create added value for the organization as mentioned by Largania, 2012: 495; Chari; Mohanty, 2009: 19) as follows:

1. Cost leadership and differentiation: Michael Porter distinguishes between two types of competitive advantages: cost leadership and differentiation. If a company decides on a cost-driving strategy, its goal will be to achieve the lowest costs in its industry to produce a particular commodity or service. With a differentiation strategy, the organization tries to differentiate itself from its competitors by selecting the features that customers want other companies in the same market cannot copy.

2. Adapting the Organization: Constant change requires technological leadership from companies to remain in the global market.

3. Strategic innovation: Strategic innovations do more than just help achieve a competitive advantage, helping undermine competitors' standing.

Compensation and incentives: The division of ownership and control in large public companies results in what is known as agency costs.

Improving the capital structure: Since high indebtedness often increases the total cost of capital, the organization can create added value for its shareholders by paying off excess capital (capital).

. Financial engineering: In the financial sector, in particular, there are several ways in which financial engineering can increase the organization's value.

7. Communications: Information is a critical factor in increasing shareholder value

8. Search for Opportunities: Seeing the gaps between current products in the market and the needs and desires of the consumer.

9. Understanding customers: Understanding what the customer finds valuable. Why buy the product?



What are the primary benefits they want? Are there other factors they consider?

Shareholder Value Added Index

The value-added shareholder index represents economic profits from the business that exceeds the minimum required returns from all RAS L providers. Al, 2012: 3391). SVA is calculated through the following equation:

$$SVA = \text{Corporate Value} - \text{Debt}$$

The researcher measured the value-added of shareholders (Largani et al., 2012: 495) with two variables: 1- Market value adjusted for dividends and changes.

The market adjusts natural stock returns. Both variables are grouped over the president's term.

The Methodology of Research

Industrial companies in Iraq faced several difficulties and challenges that caused the decline of the industrial sector. They affected the economic performance in general, as the industrial sector in Iraq was paralyzed by the deteriorating security situation and the suspension of most production lines and the obsolescence of the technology used, and the adoption of the policy of commodity dumping as well as the financing problems of the distrust of commercial banks due to the losses suffered by these companies.

Intellectual capital efficiency is a strategic resource that possesses all the characteristics of strategic assets and relies primarily on the human element to achieve sustainable competitive advantage. Depending on individuals' skills, expertise, and competencies helps to create added value that will improve efficiency and performance in general, necessarily leading companies to reach the required level of performance in the long run (Alwan, 2018:179).

This research highlights how value-added to shareholders is created by investing the efficiency of intellectual capital in manufacturing companies listed on the Iraqi Stock Exchange and how this value affects value-added shareholder indicators.

Through the preceding, the problem of research lies in the central question:

(How much does intellectual capital efficiency contribute to strengthening value-added indicators for shareholders in industrial joint-stock companies in Iraq?) A range of questions can arise from the research problem, the most prominent of which are:

What is the level of intellectual capital efficiency in Iraqi companies under study?

What is the level of value-added indicators for shareholders in Iraqi companies under study?

How does intellectual capital efficiency affect improving value-added indicators for shareholders in industrial companies under study?

What kind of relationship exists between the brain head's efficiency and shareholders' added value in the industrial companies under study?

The importance of the current research lies in two main aspects, namely the theoretical and practical aspects, where the scarcity of previous cognitive efforts which addressed the variables of the everyday research-based on related literature to know the causal relationship between the variables of the current broadcast, stimulated by addressing an intangible variable represented by the efficiency of intellectual capital and the extent to which it affects the indicators of value-added to shareholders. The current research variables are one of the main pillars of organizations at present and help industrial joint-stock companies to benefit from their intellectual capital in the long run.

Current research helps draw Iraqi manufacturing companies' attention by knowing how to invest intangible resources in these companies effectively.

The current research results help improve the reality of industrial companies contributing to Iraq by knowing the availability of the efficiency of intellectual capital.

The current research helps draw the attention of researchers and specialists to the implications of intangible resources and how they affect shareholder's added value in Iraqi manufacturing companies.

The efficiency of intellectual capital is a relatively recent topic, especially in Arab countries, so relying on this model in the current research will contribute significantly to achieving positive results that will reflect on the performance of the organizations if applied and employed correctly.

Urge industrial companies in Iraq to develop and invest in intellectual capital efficiency by relying on talent and competencies, reducing career sagging and thereby reducing costs and maximizing value.

The current research seeks to achieve a set of objectives reviewed by the researcher successively the below

To know the level of intellectual capital efficiency indicators in industrial joint-stock companies in



Iraq.

Find out the level of value-added indicators for shareholders in Iraqi companies under study and how to use their financial resources to achieve this level.

Find the relationship between intellectual capital efficiency and value-added indicators for shareholders in industrial joint-stock companies in Iraq.

To know the extent to which the components of intellectual capital efficiency and any of these components have the most significant impact on achieving the added value of shareholders.

Hypotheses Development

Identifying the research problem to be studied and seeing the previously identified efforts related to it requires the researcher to find specific hypotheses that serve as proposed temporary or preliminary solutions to be tested in different ways and means to confirm or deny them.

1. The central hypothesis: it has been assumed that there is a morally significant impact related to the efficiency of intellectual capital in the added value of shareholders
2. The hypothesis of the first branch: a morally significant impact relationship has been assumed for the efficiency of human capital in the added value of shareholders.
3. The second sub-hypothesis was assumed to have a morally significant impact related to the efficiency of structural capital in the value-added of shareholders.
4. Sub-hypothesis III: A morally significant impact relationship has been assumed for the efficiency of physical capital in the value-added of shareholders.

Data collection tools

Theoretical aspect: The researcher used to cover this aspect of the research with the available foreign sources of studies and analysis available on the Internet, as the Internet was an essential aspect in the researcher's access to the latest research and studies that covered the theoretical aspect of the research.

Practical aspect: Reports will be adopted from the income statement and balance sheet of industrial companies listed on the Iraqi Stock Exchange that have been published on their website.

The target research community is usually selected before selecting the research sample as the

research sample must include the same characteristics as the community concerned. As it is helpful to choose the community that achieves the research objectives and then the sample is selected, the target community of the current research is the industrial joint-stock companies listed on the Iraqi Stock Exchange, the 25 joint-stock companies.

The research sample was selected under the current research requirements, as the industrial sector of Iraqi joint-stock companies listed on the Iraqi Stock Exchange was identified as the total number of (25) joint-stock companies, as ten joint-stock industrial companies were selected and whose financial statements are available for the period from (2010) to (2020).

The results

The analysis of the human capital efficiency ratio of industrial companies

Table (1) shows that the industrial rate of human capital efficiency (1.127) was the standard deviation (2.631) and that the companies that achieved higher rates than the public sector rate are Mansour Pharmaceutical Industries Company (2.631) 4.365), Baghdad Soft Drinks Company (2.833), Al-Saa'a Furniture and Carpet Company (2,628), Iraqi Date Manufacturing and Marketing Company (2.183) and Al Kindi Production Company Veterinary vaccines (1.584) and modern sewing company which reached (1.369) while the companies that achieved more petite than the general rate of companies are Baghdad Packaging Materials Industry Company (0.773) and Company Chemical and plastic industries (0.363), modern chemical manufactures (0.223) and ready-to-wear production(0.043) is a negative indicator.

Financial analysis of the structural capital efficiency ratio of industrial companies

According to the results of table 1, which shows that the general industrial rate of structural capital efficiency ratio (0.284) was the standard deviation (3.271) and that the companies that achieved a higher rate than the public sector rate are Mansour Pharmaceutical Industries Company (2.290) and Baghdad Beverage Gas (1.698), furniture and carpet industry (1.637), Iraqi date manufacturing and marketing (1,400), modern sewing company (1.084) and Baghdad packaging materials industry (0.971) production Ready-made clothing (0.874), modern chemical manufactures (0.606), chemical and plastic industries (0.361) and Canadian veterinary vaccine production (0.094) are a



negative indicator.

Financial analysis of the efficiency of the physical capital of industrial companies

Table 1 states the overall industrial rate of the efficiency of the physical capital (0.732) The standard deviation (1.524) and the companies that achieved higher rates than the public sector were the furniture and carpet manufacturers (4,164) and the modern sewing company (1.570) and the production of ready-made clothing (1.442), Al Mansour Pharmaceutical Industries (1.424), Chemical and Plastic Industries (1.256), Iraqi Dates Manufacturing and Marketing (0.706), and Canadian Veterinary Vaccine Production (0.398) and Baghdad Soft Drinks (0.316) Modern chemical manufactures (0.114) and Baghdad packaging materials industry(0.086) it is a negative indicator.

capital for industrial companies

Table (1) shows that the general industrial rate of intellectual capital efficiency has reached (2.143)

and the standard deviation has reached (3.237) this indicates a rise for all industrial companies sample study and that companies that achieved higher rates in The public sector rate are Mansour Pharmaceutical Industries (8.079), The Furniture and Carpet Industry (5,155) and Baghdad Soft Drinks (4.847) Modern Sewing Company (4.023) and Canadian Production Veterinary vaccines (2.076) and Iraqi dates manufacturing and marketing (1.489) chemical and plastic industries (1.258) and ready-made clothing production (0.611) modern chemical manufactures (0.497) and Bagdadpackaging (0.112)

Financial analysis of the efficiency of jaw-ray

Table 1 Financial Analysis of the ratio of the physical, structural, physical, and intellectual capital efficiency of industrial companies research sample for the period (2010 to 2020)

The efficiency of human capital										
Compan ies	Baghd ad Packa ging Mater ials Indust ry	Baghd ad Soft Drin ks	Iraqi Dates Manufact uring and Marketin g	Furnit ure and carpe t indust ry	Canadi an Vaccin e Produc tion	Mansour Pharmace utical Industrie s	Chemica l manufac tures Modern	Mode rn Sewin g Comp any	Produc tion of ready-made clothin g	Chemi cal and plastic indust ries
Set up for the compan y	0.773	2,833	2.183	2,628	1.584	4.365	0.223	1.369	0043	0.363
Standar d deviatio n	0.637	1.421	2.269	2.793	0.664	1.539	3.171	2.306	2,888	0.459
Structural capital efficiency										
Compan ies	Baghd ad Packa ging Mater ials Indust ry	Baghd ad Soft Drin ks	Iraqi Dates Manufact uring and Marketin g	Furnit ure and carpe t indust ry	Canadi an Vaccin e Produc tion	Mansour Pharmace utical Industrie s	Modern chemical manufac tures	Mode rn Sewin g Comp any	Produc tion of ready-made clothin g	Chemi cal and plastic indust ries



Company rate	0.971	1.698	1.400	1.637	0.094	2.290	0.606	1.084	0.874	0.361
Standard deviation	2.673	2.419	2.369	2.439	6.817	2.985	4.654	2.335	2.241	0.676
The efficiency of physical capital										
Companies	Baghdad Packaging Materials Industry	Baghdad Soft Drinks	Iraqi Dates Manufacturing and Marketing	Furniture and carpet industry	Canadian Vaccine Production	Mansour Pharmaceutical Industries	Modern chemical manufactures	Modern Sewing Company	Production of ready-made clothing	Chemical and plastic industries
Company rate	0.086	0.316	0.706	4.164	0.398	1.424	0.114	1.570	1.442	1.256
Standard deviation	0.095	0.105	1,255	2,310	0.306	1.059	3,096	1.780	3,352	2.806
Intellectual capital efficiency										
Companies	Baghdad Packaging Materials Industry	Baghdad Soft Drinks	Iraqi Dates Manufacturing and Marketing	Furniture and carpet industry	Canadian Vaccine Production	Mansour Pharmaceutical Industries	Chemical manufactures Modern	Modern Sewing Company	Production of ready-made clothing	Chemical and plastic industries
Company rate	0.112	4.847	1.489	5,155	2.076	8,079	0.497	4,023	0.611	1.258
Standard deviation	2.445	2.793	4.096	4.151	7.059	3.472	6.367	5,115	7.099	2.534

3047

Financial analysis of the added value of shareholders of industrial companies

Table 2 shows that the general industrial rate of the added value of shareholders is (0.984), the standard deviation is (3.721) and that companies that have achieved higher rates than the public sector rate are the modern sewing company (5.462) the Iraqi Company for the Manufacture and Marketing of Dates (1.842) and Baghdad Soft

Drinks (1.085) Chemical and Plastic Industries Company (0.855) and Mansour Pharmaceutical Industries (518) 0) Canadian veterinary vaccine production (0.434), ready-made clothing production (0.304), Iraqi Carpet and Furnishings Company (0.137) and Baghdad Packaging Materials Manufacturing Company (0.058) Modern Chemical Manufactures Company (0.014)



Table 2: The value-added analysis of shareholders of industrial companies in the research sample for the period (2010 to 2020)

Companies	Baghdad Packaging Materials Industry	Baghdad soft drinks	Iraqi Dates Manufacturing and Marketing	Furniture and carpet industry	Canadian Vaccine Production	Mansour Pharmaceutical Industries	Chemical manufactures Modern	Modern Sewing Company	Production of ready-made clothing	Chemical and plastic industries
Company rate	0.058	1.085	1.842	0.137	0.434	0.518	0.014	5.462	0.304	0.855
Standard deviation	0.346	3.261	6.092	1.157	1.209	1.422	3.165	17.427	2.538	1.778

Table (3) Testing the impact of intellectual capital efficiency indicators on shareholder value-added

Independent Indicators	Affiliate index	Estimates Coefficient	Standard error Std. Error	t-Statistic	Morale level Prob.	Resolution
The efficiency of human capital	Value added to shareholders	0.291	0.136	2.141	0.004	Accept
Structural capital efficiency	Value added to shareholders	0.492	0.150	3.278	0.000	Accept
The efficiency of physical capital	Value-added to shareholders	0.425	0.092	4.612	0.000	Accept
constant (C)	0.87	Ct method of micro-squares Method: Pooled Least Squares $Y = (0.87) + (0.291)x_1 + (0.492)x_2 + (0.425)x_3$				
coefficient of determination (R2)	0.71					
statistics (F) F-statistic	24.297					
Morale level (F)	0.000					
Differentiation between banks by constant impact Fixed Effects (Cross)			Differentiation between periods by the constant effect Fixed Effects (Period)			
banks (Cross)	Estimates Coefficient	Order	(Period)	Estimates Coefficient	Order	
08—C	4.59	1	2016--C	5.53	1	
03—C	1.37	2	2020--C	1.30	2	
10—C	-0.11	3	2018--C	0.01	3	

3048



02—C	-0.23	4	2015--C	-0.11	4	
09—C	-0.42	5	2013--C	-0.27	5	
04—C	-0.75	6	2012--C	-0.50	6	
06—C	-0.92	7	2014--C	-0.84	7	
07—C	-0.95	8	2019--C	-0.88	8	
01—C	-1.01	9	2011--C	-1.03	9	
05—C	-1.57	10	2017--C	-1.31	10	

Source: Prepared by The Researcher based on Outputs (EViews)

According to table 3, the selection coefficient (R2) was (0.71). Its morale level (0.000), and this indicates the discrepancy shown by the indicators of intellectual capital efficiency (human capital efficiency, structural capital efficiency, physical capital efficiency) in the added value of shareholders, and this indicates the quality of the model between indicators and the accuracy of the results it proves, so the hypotheses will be tested as in table (3) as follows:

The first hypothesis: The researcher assumed a significant and positive effect of indicators of intellectual capital efficiency (efficiency of human capital in the added value of shareholders). When increased, the human capital efficiency index will lead to an expected change of (0.29). It is moral at the indicative level (0.05), accepting this hypothesis at the banking level and the period under study.

The second hypothesis: The researcher assumed that there is a significant and positive effect of indicators of intellectual capital efficiency (structural capital efficiency in the added value of the contributors. When increased, the human capital efficiency index will lead to an expected change of (0.49). It is moral at the indicative level (0.05), accepting this hypothesis at the banking level and the period under study.

The third hypothesis: The researcher assumed that there is a significant and positive effect of indicators of intellectual capital efficiency (structural capital efficiency in the added value of shareholders. When increased, the human capital efficiency index will lead to an expected change of (0.425). It is moral at the significance level (0.05) and accepts this hypothesis at the level of banks and the period under study.

Conclusions and Recommendations

The modified model of intellectual capital efficiency is one of the most important models that seek to measure the organization's ability to create added value for shareholders. Investing in intellectual

capital efficiency indicators is the main source of value-added creation for long-term shareholders. Intellectual capital efficiency is an essential source of competitive advantage in organizations because it is characterized by the inability to imitate, copy or trade it and can be increased by innovation, unlike other material assets that decrease by extinction. The money spent by organizations on the development and investment of human capital, such as knowledge, skills, and expertise, contributes to increasing the organization's economic value, and the development programs of individuals working as an investment help to create added value for future shareholders. The contribution of the capital used is necessary to support and develop intangible assets in creating value-added to shareholders. Shareholders are value-added when there is the optimal use of available resources, and waste and cost are minimized through intellectual capital efficiency. Furthermore, the added value of shareholders helps sustain organizations by providing liquidity and ensuring continued cash flows supporting shareholders, ensuring that profits are achieved and that they achieve the appropriate revenues. The results showed that the best companies in human capital tests are Mansour Pharmaceutical Industries, structural capital is Al Mansour Pharmaceutical Industries, and physical capital is the furniture and carpet company.

Intellectual competence directly impacts enhancing and improving the added value of shareholders because of its direct association with it.

Accordingly, the authors suggest the following recommendations

- 1- The need for senior departments in Iraqi manufacturing companies to pay attention to intellectual resources
2. Study sample companies with little added value should compare themselves with other high-value-added companies to identify weaknesses related to intellectual capital efficiency
3. Sample companies should focus on the human resource because of their active role in creating



value-added to shareholders

4- The need for the study sample companies to maintain a strong and sustainable network of relationships with both suppliers, customers, and all stakeholders, through the optimal investment of relational capital

5. It has become essential for low-level study sample companies of structural capital to create a favorable regulatory culture

6. The need to allocate more research and studies to determine the growth of the mind to measure the efficiency of intellectual capital in the companies sample study

7. Sample companies should maintain high levels of value-added to shareholders

References

- Alwan, S.A.A., & Siham Ahmed Alwan. (2018). Value-added entry for measuring the financial capital at the University of Zagazig. *Educational Administration*, 19(19), 179-337.
- Mahmoud, Amr Abdel Aziz (2006), VAT and its relationship to income tax, unpublished master's thesis in accounting, AlderSat Higher College, National University of Success.
- Ahmad, I., Alam, M. S., & Yameen, M. (2019). A study of economic value added (EVA) & market value added (MVA) of Hindustan Petroleum Corporation Limited. *Global Journal of Economics and Business*, 6(1), 225-237.
- Alkhateeb, Abdullah N. A., Yao, Liu, Kie, Cheng Jack, (2018), Review Of Intellectual Capital Components Research, *Journal Of Advanced Social Research* Vol.8 No.6, Pp. 01-14.
- Al-Zwaini, Z. J., & Mohammed, B. H. (2021). Evaluating The Performance Of The Economic Unit Using The EVA Index. *Iraqi Journal For Economic Sciences*, 19(68).
- Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Management decision*.
- Brennan, N., & Connell, B. (2000). Intellectual capital: current issues and policy implications. *Journal of Intellectual capital*.
- Brennan, N., & Connell, B. (2000). Intellectual capital: current issues and policy implications. *Journal of Intellectual capital*.
- Chu, S. K. W., Chan, K. H., & Wu, W. W. (2011). Charting intellectual capital performance of the gateway to China. *Journal of intellectual capital*.
- Hill, M. (2003). Financing corporate real estate: the impact of corporate real estate in the shareholder value equation. *Briefings in Real Estate Finance: An International Journal*, 2(4), 313-325.
- Largani, M. S., Kaviani, M., & Abdollahpour, A. (2012). A review of the application of the Shareholder Value Added (SVA) concept in financial decisions. *Procedia-Social and Behavioral Sciences*, 40, 490-497.
- Matinfard, M., & Khavari, A. (2015). The impact of intellectual capital on firm performance: Evidence from Tehran Stock Exchange. *Management Science Letters*, 5(11), 1005-1016.
- Mavridis, D. G. (2004). The intellectual capital performance of the Japanese banking sector. *Journal of Intellectual capital*.
- Yogesh Hole et al 2019 J. Phys.: Conf. Ser. 1362 012121
- Olarewaju, O. M., & Msomi, T. S. (2020). Intellectual capital and financial performance of South African development community's general insurance companies. *Heliyon*, 7(4), e06712.
- Shah, M. P. (2019). AN EMPIRICAL STUDY ON FINANCIAL SUSTAINABILITY AND SHAREHOLDER VALUE CREATION.
- Subramaniam, M., & Youndt, M. A. (2005). The influence of intellectual capital on the types of innovative capabilities. *Academy of Management Journal*, 48(3), 450-463.

