
العلاقة بين كفاءة رأس المال الفكري وجودة الأرباح - دراسة تطبيقية

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A Thesis Submitted to the Department of Economic and Admin Sciences in Partial Fulfillment of the Requirements for the Master Degree in Accounting

2018-1440
بسم الله الرحمن الرحيم

(وبنَّی موسى عز الربّ تدْفَعُونْ فِی الرّؤْیَةِ مِنْ أُمَرِ رَبِّكُمْ وَمَا أُوحِیَ مِنْ الْعِلْمِ مِنَ اللّهِ عَلِیمَ)

(الْبَسْرَةِ ۸۵)
Dedication

To the soul of the greatest man in my life. To those who inspiring me love in his absence, my father who taught me the actual meaning of patience.

To my beloved mother, who kept praying for me and the origin of my success.

To the souls of martyrs, who sacrificed their lives for Palestine.

To all the prisoners and the wounded.

To my beloved son Yasser.

To all my sisters and brothers.

To all my dear friends, I dedicate this humble study.
ACKNOWLEDGMENTS

IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL. Peace and blessing of Allah be upon all the prophets and messengers, especially on Mohammed, the last of the prophets who, said,” Who does not thank people (for their favors), will not thank Allah”.

First, I am thankful to Allah, the Almighty, for granting me the energy and health to complete my study.

I am grateful to Al-Azhar University, Deanship of Graduate Studies and Deanship of Faculty of Economics and Administrative sciences for offering me the opportunity to undertake this study.

I would like to extend my thanks to my supervisor Prof. Jabr Ibrahim Al- Daour, who devoted his time and effort to provide me with fruitful advice, support and guidance.

My appreciation and gratitude are due to my doctors at Al-Azhar University, for their support and encouragement throughout this study. To these who taught me a letter in my life” thank you”.

Many thanks to the judgment committee for their great consultations……

My deep gratitude to my mother, wife, sisters, brothers, and my son for their unwavering support and love.

I am so grateful to my brother Dr. Feras Mohammed Shehada, who contributed his time and effort to help me during this study. I thank him for helping me implement the techniques of this study. I would like also to express my special thanks to my colleagues in the university with whom I spent the most enjoyable time.

Finally, my sincere appreciation and respect to the wonderful people who have dedicated their time to help and support me from the beginning till the completion of this study. I pray that Allah will bless you all for the contributions you made.
Abstract

The study aims to investigate the relationship between intellectual capital efficiency represented on (human capital efficiency, structural capital efficiency and capital employed efficiency) and earnings quality for the listed banks in Palestine exchange (PEX) during 2009-2017. The study also focuses on innovative and creative capabilities owned by individuals in companies and work to activate, develop and maintain it, which will contribute to achieve effectiveness and efficiency.

The data of sample obtained from financial report for banks listed on PEX to measuring intellectual capital and its components and earnings quality. A statistical analysis was carried out using the EVIEWS program, and appropriate tests of this type were carried out in order to test the hypotheses and to obtain indications of values that support the subject of the study.

For the purpose of measuring the variables, the study relies on VAIC coefficient developed by Pulic (2000) to measure intellectual capital. It also measures earnings quality by using two popular models Modifies Jones model and Miller ratio.

The study findings indicate that there is no relationship between intellectual capital and earnings quality for the listed banks in PEX. The results also indicate that there is no relationship between intellectual capital components and earnings quality.

The study recommends that banks need to pay attention to the human factor because it is important in improving the value of the establishment and decrease the earnings management. It also recommends improving the structure of institutions and support of decision makers, which in turn will help to improve the earnings quality, and pay attention to the components of intellectual capital as so as tangible assets.
الملخص

تهدف الدراسة إلى دراسة العلاقة بين كفاءة رأس المال الفكري المتمثلة في (كفاءة رأس المال البشري، كفاءة رأس المال الهيكلي و كفاءة رأس المال العام) وجودة الأرباح للبنوك المدرجة في بورصة فلسطين خلال الفترة 2009-2017. كما وترتكز الدراسة أيضًا على القدرات الإبداعية التي يمتلكها الأفراد في الشركات والعمل على تنشيطها وتطويرها، الأمر الذي سيستهم في تحقيق الفعالية والكفاءة.

بيانات العينة تم الحصول عليها من التقارير المالية المنشورة من البنوك المدرجة في بورصة فلسطين لقياس رأس المال الفكري ومكوناته وجودة الأرباح. وقد تم عمل تحليل إحصائي لها باستخدام برنامج التحليل الإحصائي VIEWS وإجراء الاختبارات المناسبة لمشتت هذا النوع بهدف اختبار الفرضيات والوصول إلى دلالات ذات قيم تدعم موضوع الدراسة.


تشير نتائج الدراسة إلى عدم وجود علاقة بين رأس المال الفكري وجودة الأرباح بالنسبة للبنوك المدرجة في بورصة فلسطين. وكذلك تشير النتائج إلى عدم وجود علاقة بين مكونات رأس المال الفكري وجودة الأرباح.

توصي الدراسة بأن على البنوك أن تولي اهتماماً للعامل البشري لما له أهمية في تحسين قيمة المنشأة وتقليل إدارة الأرباح. كما توصي بتحسين هيكل المؤسسات ودعمصناعة القرار، الأمر الذي سيساعد بدوره على تحسين جودة الأرباح، وإيلاء الاهتمام لمكونات رأس المال الفكري مثل الأصول الملموسة.
Contents

Dedication........................................................................................................................................ iii
ACKNOWLEDGMENTS......................................................................................................................... iv
List of Abbreviations.......................................................................................................................... ix
Abstract .................................................................................................................................................. v
Arabic Abstract...................................................................................................................................... vi

Chapter one: Background of the study. ............................................................................................... 1
  1.1 Introduction: .................................................................................................................................. 2
  1.2 Statement of the study: ..................................................................................................................... 3
  1.3 Purpose of the Study: ......................................................................................................................... 3
  1.4 Importance of the study: .................................................................................................................... 3
  1.5 Methodology: .................................................................................................................................... 4
  1.6 Study limitations: .............................................................................................................................. 4
  1.7 Hypotheses: ....................................................................................................................................... 4
  1.8 Variables: .......................................................................................................................................... 5
  1.9 Literature Review: ............................................................................................................................. 5
  1.10 Plan of the study: .............................................................................................................................. 15

Chapter two: Theoretical Framework of Intellectual Capital. ........................................................... 16
  2.1 Introduction: - ................................................................................................................................. 17
  2.2 Definitions of intellectual capital and its elements. .............................................................. 18
  2.3 Importance of intellectual capital. .................................................................................................. 21
  2.4 Models of measuring and valuation of intellectual capital. .................................................. 25
  2.5 Difficulties in measuring intellectual capital ................................................................................ 35
  2.6 Conclusion: - ................................................................................................................................. 36

Chapter three: Theoretical Framework of earnings quality............................................................. 38
  3.1 Introduction. ..................................................................................................................................... 39
  3.12 Definitions of Earnings Quality. ..................................................................................................... 40
  3.13 Importance of Earnings Quality. .................................................................................................... 42
  3.14 Models of measuring earnings quality. ........................................................................................ 43
  3.5 Attributes of earnings: ................................................................................................................... 46
  3.6 Factors affecting earnings quality. ................................................................................................. 50
  3.7 Conclusion..................................................................................................................................... 52

Chapter Four: Methodology .............................................................................................................. 54
  4.1 Introduction. ..................................................................................................................................... 55
  4.2 Sample and data collection. ........................................................................................................... 55
## List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQ</td>
<td>Accruals Quality</td>
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<tr>
<td>ASE</td>
<td>Amman Stock Exchange</td>
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<td>BSC</td>
<td>Balanced Score Card</td>
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<td>CE</td>
<td>Capital Employed</td>
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<td>DD</td>
<td>Dechow and Dechow Model</td>
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<tr>
<td>EQ</td>
<td>Earnings Quality</td>
</tr>
<tr>
<td>EVA</td>
<td>Economic Value Added</td>
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<td>HC</td>
<td>Human Capital</td>
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<td>IC</td>
<td>Intellectual Capital</td>
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<td>ICD</td>
<td>Intellectual Capital Disclosure</td>
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<td>MJM</td>
<td>Modified Jones Model</td>
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<td>MJROA</td>
<td>Modified Jones Model with Return on Assets</td>
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<td>MR</td>
<td>Miller Ratio</td>
</tr>
<tr>
<td>PAFS</td>
<td>Professional Accounting Firms</td>
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<td>PEX</td>
<td>Palestine Exchange</td>
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<tr>
<td>R &amp; D</td>
<td>Research and Development</td>
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<td>ROA</td>
<td>Return on Assets</td>
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<td>ROE</td>
<td>Return on Equity</td>
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<td>SC</td>
<td>Structural Capital</td>
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<td>STVA</td>
<td>Value added efficiency of Structural Capital</td>
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<td>VACA</td>
<td>Value added efficiency of Capital Employed</td>
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<tr>
<td>VAHU</td>
<td>Value added efficiency of Human Capital</td>
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<tr>
<td>VAIC</td>
<td>Value added Intellectual Coefficient</td>
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</table>
Chapter one:

Background of the study.

1.1 Introduction.
1.2 Statement of the study.
1.3 Purpose of the Study.
1.4 Importance of the study.
1.5 Methodology.
1.6 Variables.
1.7 Literature Review.
1.8 Hypotheses.
1.9 Plan of the study.
1.1 Introduction:

The managing and reporting of intellectual capital are necessary for the assessment, the decision of the investors and reporting of the performance to beneficiaries. In knowledge-based economy, the success of organizations is dependent on the intellectual capital management.

Knowledge or intellectual capital become more important in compared with other production factors such as land, capital and machinery. So that in this economy, knowledge is considered as the most important production factor and it is named as the most important competitive advantage of organizations (Seetharaman et al., 2002), thus, the present and future success in the competition between organizations mainly will be based on strategic management of knowledge. From a strategic perspective, intellectual capital can be used in creating and applying knowledge to increase the organization value (Roos et al., 1997).

Stayer (1990), defined intellectual capital as a mental capacity that represents real wealth of companies which is owned by accountants, while Mafraji and Saleh (2003), defined it as a part of the human capital of the organization represented by workers which own a wide range of knowledge and organizational capacity, that enable these capabilities to produce new ideas or to develop an old ideas that enable the organization to expand its market position and maximize their strengths.

Intellectual capital is one of the modern concepts which has become more and more important from day to day, both in terms of concept and measurement. Intellectual capital is a constantly evolving and constantly changing concept due to the environment surrounding it. Many companies misunderstand or misuse the intellectual capital and its relationship in developing and improving the quality of disclosure of financial reports and improving the nature of earnings.

In recent years, following the bankruptcy of some large companies in the world, researchers and financial analysts, note earnings quality is an important aspect of evaluating an entity’s financial health, yet investors, creditors and other financial statement users often overlook it (Darabi et al., 2012).

Palestine Exchange Banks are considered to be the leading firms in the labor market. They tend to train and develop the experiences and skills of their employees in order to exploit the critical times for achieving better market value.
1.2 Statement of the study:

The statement problem of the study is based on the lack of interest of Palestinian companies with regards to intellectual capital and to make the primary focus on profitability in order to maintain its position in the labor market.

In the Palestinian business environment, companies aim to earn profits through the exploitation of the limited cases of political stability. Where the researcher believes that the best use of these times is to invest in intellectual excellence in human resources and strengthening human possibilities and capabilities, thus the intellectual capital becomes the sustainable tool to earn profits.

In addition, the expansion of companies either internally or externally led some companies’s managers to disclose information related to financial and non-financial assets that affects the quality of earnings disclosed in the financial reports, So the research question is represented in the following main question: Does the efficiency of intellectual capital related to earnings quality in the Banks listed in the Palestine Exchange?

The following sub-questions.

1. What is the relationship between human capital efficiency and earnings quality?
2. What is the relationship between structural capital efficiency and earnings quality?
3. What is the relationship between capital employed efficiency and earnings quality?

1.3 Purpose of the Study:

The main purpose of the study is to explain the relationship between intellectual capital and earnings quality, thus the subsidiary purposes are to:

1. Explain the concept of intellectual capital and to clarify its components (human capital, structural capital, and capital employed).
2. Identify factors affecting measurement of the quality of earnings.
3. Investigate the relationship between intellectual capital components and earnings quality.

1.4 Importance of the study:

The importance of the study is derived from the importance of investigating the relationship between intellectual capital and quality of earnings, where the researcher believes that the efficiency of intellectual capital has appositive impact on earnings quality.
So, the importance of the study is to focus on innovative and creative capabilities owned by individuals in companies and work to activate, develop and maintain them, this will contribute to improving effectiveness and efficiency, which in turn will enhance the market position and maximize profits and benefits, this will result in success for the Palestinian Banks, thus activating the Palestinian labor market and increasing competition among companies.

The study considers as one of the first studies explaining the relationship between intellectual capital and earnings quality in the PEX.

1.5 Methodology:
The study will rely on descriptive and analytical approach by collecting data from primary sources, books, working paper, researches, and financial statement.

Secondary data was collected from financial statements to measure intellectual capital and earnings quality. Intellectual capital measured by using pulic’s model, this model allows the quantification of intellectual capital and the categorization of its elements into ‘human capital efficiency, structural capital efficiency and capital employed efficiency, which also enables to get more insight of their effects.

Earnings quality measured by using modified Jones’s model and Miller Ratio.

1.6 Study limitations:
The study has several limitations which are:

1- It is restricted to listed banks working in the Palestinian environment only.
2- It tests the relationship between intellectual capital and earnings quality through 2009-2017.

1.7 Hypotheses:
The main hypothesis of the study is:

There is a significant relationship between intellectual capital efficiency and earnings quality.

The subsidiary hypotheses are:

1. There is a significant relationship between human capital efficiency and earnings quality,
2. There is a significant relationship between structural capital efficiency and earnings quality.
3. There is a significant relationship between capital employed efficiency and earnings quality.

1.8 Variables:
**Independent variable:** - intellectual capital efficiency, which is measured from summing the following items:

1. Human capital efficiency.
2. Structural capital efficiency.
3. Capital employed efficiency.

**Dependent variable:** - earnings quality, which is measured by using modified Jones model and Miller model as indexes of earnings quality.

**Control variables:** - according to previous literatures the study depends on two control variables:

1. Size: - firm’s natural logarithm of total assets at fiscal year-end t.
2. Leverage: - total debt divided by total assets for firm I at fiscal year-end t.

1.9 Literature Review:
Literatures classified to three categories.

1. literature related to intellectual capital.
2. literature related to earnings quality.
3. Literature related to intellectual capital and earnings quality.

1.9.1 Literature related to intellectual capital:

Massaro et. al (2018) “Practitioners’ views on intellectual capital and sustainability: From a performance-based to a worth-based perspective”.

The purpose of this study was to investigate the relationship between intellectual capital (IC) and sustainability using practitioners’ perspectives and by developing an analysis of comments and practices published in 1,651 blog posts in one of the leading sources of sustainability research: CSRwire.com.
A total of 1,651 posts, containing more than 1.5 million words, published by experts in the field of sustainability are analyzed using Leximancer and content analysis.

The results revealed IC and sustainability to be complex topics under active discussion by practitioners, and several links to the IC literature are identified and compared. The findings focused on the managerial practices applied by leading companies, as discussed by practitioners, that show IC and sustainability influence each other in answering a plurality of demands or logics.


The purpose of this study was to examine the extent and quality of voluntary intellectual capital disclosures (ICD) by professional accounting firms (PAFs) in the UK.

The method adopted for this study is content analysis considering the ICD in firms’ annual reports, corporate social responsibility reports, websites and recruitment materials. The sample for this research is based on 20 PAFs ranked by fee income. The study employs institutional theory as its theoretical lens.

The findings of this study show that ICDs vary across different forms of reports. The most frequently reported disclosure category is human capital, while the least reported category is internal capital. Monetary disclosures are most likely to relate to internal capital, while pictorial disclosures are most likely to relate to human capital.


The study aimed to investigate the impact of intellectual capital efficiency on the economic, financial and market performance of companies with Value Added Intellectual coefficient (VAIC). The sample contained 14 companies listed in the Palestinian exchange through 2008-2013.

Data of the sample was obtained from the audited financial reports to measure the components of intellectual capital. The sample consistrd of different sectors: Banks and Financial services, investment and service sectors.

The study found that there is a significant positive relationship between Intellectual capital efficiency, human capital efficiency and economic performance. The study also
found there is an insignificant positive relationship between intellectual capital and financial performance and market performance.

Anuonye and Ngozi (2016) "Effect of Intellectual Capital on Return on Assets of Insurance Firms in Nigeria"

The purpose of the study was to evaluate the effect of IC in the value creation of insurance firms in Nigeria using their ROA. Ex-post facto research design was adopted in the selection of data. Primary and secondary data were employed. The target population consisted of 150 workers in the 3 strategic departments of human resources. The results show that structural capital had statistically insignificant impact on return on assets of the insurance companies under review whereas human capital and relational capital had statistically significant impacts on the return on assets of the companies under review.

Wong et. al (2015) "Impacts of Intellectual Capital on Profitability: An Analysis on Sector Variations in Hong Kong".

The purpose of the study was to examine the relationship between intellectual capital and profitability as well as its impacts on companies in different sectors of Hong Kong. Data is drawn from the companies included in the Hang Seng Composite Index, a commonly-used benchmark index for blue-chip stocks listed on the Hong Kong Stock Exchange (HKSE).

The study found that the finance sector is efficient to leverage human capital to achieve better profitability, while properties sector and commerce and industries sector were efficient to use structural capital to enhance their profitability.

Kamath (2015) "Impact of Intellectual capital on Financial Performance and Market Valuation of Firms in India".

The Objective of this study was to investigate the impact of intellectual capital on the financial performance and market valuation of firms in India. The analysis was carried out over the period 2008-2009 to 2012-2013 for 30 firms from across various manufacturing and service sectors from S&P BSE SENSEX. Multiple linear Regression analysis is used to study the impact of IC on financial performance and market value.

The study used the VAIC methodology to evaluate the data and finds that the financial performance and market value is indeed influenced by the IC of the firms. The study found that profitability of the select BSE index firms is strongly affected by its intellectual capital
efficiency (VAIC). Among the components, human capital and structural capital of the firm have greater influence on profitability than capital expended. The study also found that there was a clear evidence regarding the overall impact. Among the components of IC, it was only capital expended efficiency which showed influencing market valuation of the firms. There was no evidence on Human capital and structural capital influence on market valuation.


The study aimed to investigate the relationship between the Intellectual Capital and performance measurement. The Statistical population was the pharmaceutical companies admitted in the Tehran Stock Exchange from 1387 to 1391 amounting to 30 companies in total. The software of the Stock Exchange has collected data relevant to variables. The collection of data has been carried out by means of SPSS. The study used the descriptive and inferential statistics (Spearman test) and the results show that there is statistical significance between intellectual capital and performance measurement, the value added of the market and economic value added.

The results found 1. there is statistical significance between intellectual capital and performance measurement, 2. There is no statistical significance between the intellectual capital and ROR of the owners’ salary, 3. There is no statistical significance between the intellectual capital and the ROR of the properties, 4. There is statistical significance between the intellectual capital and the value added of the market, 5. There is statistical significance between the intellectual capital and economic value added.


This study examined the intellectual capital (IC) performance of listed banks in Saudi Arabia using value-added intellectual coefficient (VAIC) methodology, and investigated the impact of IC on financial performance. It identified the IC components that may be the drivers of the traditional indicators of bank success.

The results of a survey of a sample of all listed banks during 2008 to 2010, show that IC performance of Saudi banks is low and it is positively associated with bank financial
performance indicators. However, when VAIC is split into its components, the relationships between these components and bank financial performance indicators vary.

A'layi (2014)” The impact of intellectual capital on returns and stock prices of listed companies in Tehran Stock Exchange”.

The purpose of the study was to investigate the effects of intellectual capital on profitability, through reviewing return on equity, earnings per share, the stock price on the company’s shares profit and the ratio of market value to book value of listed companies on the Stock Exchange. Statistical population of the study was the listed companies in Tehran Stock Exchange for the period from 2007 to 2010.

The study depends on linear regression form, and to assess the significance of independent variables coefficient in each model t-statistic is used.

The study found that there are significant and positive impact of Intellectual capital on the efficiency of the assets of the company (ROAi), return on equity (ROEi) and earnings per share (EPSi). It also found that Intellectual capital of firms has significant impact on Tobin’s Q ratio of corporate.

Boujelbene, and Affes (2013) "The impact of intellectual capital disclosure on cost of equity capital: A case of French firms".

The purpose of the study was to examine empirically the impact of intellectual capital disclosure (IC) on cost of Equity capital. The empirical research based on companies listed in the French SBF 120 stock market index. The findings confirmed the hypotheses that stipulate the existence of a significant and negative association between intellectual capital disclosure with its two components (human capital, structural capital) and the cost of equity. However, the negative impact of the relational capital disclosure is not validated.

The results of the study were considerable importance to both policy makers and firms. Moreover, with regard to managers of firms, the results show the benefit of enhanced IC disclosure regarding the reduction in their cost of capital.

Djamil al., el (2013) "The Impact of Intellectual Capital on a Firm’s Stock Return: Evidence from Indonesia".

The objective of this study was to understand the impact of intellectual capital on firm’s stock return. The banking sector in Indonesia chosen as the data sample for the research. Intellectual capital measured by VAICTM, a method developed by Prof. Dr. Ante Pulic.
This method allowed the quantification of intellectual capital and the categorization of its elements into ‘human capital efficiency’, ‘structural capital efficiency’ and ‘capital employed efficiency’, which also enabled to get more insight of their effects. The regression models explored the relationship between current and future stock returns, intellectual capital, and its constituents.

The findings show that intellectual capital does not affect the current stock return, but it contributes to stock return growth. Only one element of intellectual capital affects the stock return. The results may indicate that changes of stock returns are mostly determined by external factors such as inflation, exchange rate and socio-economic conditions.

1.9.2 Literature related to earnings quality.

Machdar et. al (2017) "The Effects of Earnings Quality, Conservatism, and Real Earnings Management on the Company’s Performance and Information Asymmetry as a Moderating Variable".

The study investigates the role of information asymmetry as a moderating variable to strengthen or to weaken the effects of earnings quality, conservatism, and real earnings management on the company’s performance. The study utilizes data from Indonesia and Singapore for years 2004-2013.

The results of the study show that earnings quality positively affects the company’s performance; however, accounting conservatism does not affect the company’s performance and real earnings management negatively affects the company’s performance.

Eliwa et. al (2016)" The association between earnings quality and the cost of equity capital: Evidence from the UK".

The purpose of the study is to examines the association between earnings quality and the cost of equity focuses on earnings quality measures that are based on US GAAP. The study extends the analysis of Francis et al. (2004) for a sample of UK listed firms during the period 2005 to 2011. This setting and time period enable to examine the effect of IFRS based earnings on the pricing of earnings quality and how this relation is influenced by a period of severe macro-economic turbulence as in the case of the recent global financial crisis.

The study finds a significant negative association between each accounting-based earnings quality proxy considered separately and the cost of equity.
Results also indicate that during the financial crisis the relationship between earnings quality and cost of equity becomes more prominent than in the pre-crisis period.

Carmo et. al (2016) "Earnings quality and cost of debt: evidence from Portuguese private companies".

The purpose of this study is to test the relationship between earnings quality and the cost of debt for private companies in a “code-law” country. The study uses the ordinary least squares regression technique to test the relationship between earnings quality and the cost of debt.

The finding shows a negative relationship between earnings quality and the cost of debt, and controls for company size and debt level. Such a relationship is stronger when the company information is audited.

Ranjbar et.al (2013) "The study of relationship between earnings quality and investment in capital assets on Tehran stock exchange companies.

The study examines the relationship between earnings quality and investment in capital assets of accepted companies in Tehran Stock Exchange. 109 sample companies with required information for 4-year period (2007-2010) of study were selected in judgmental form and based on the defined limitations. The combined data are used to test the hypotheses. In combined data method, the F-test Lyme is used for selection of fixed effects methods and common effect and the Breusch- Pagan test is used for random effect methods and common effect. In the case of selection between fixed effects and random effects method, the Hausman test is applied. Statistical analysis is done through software EVIEWS.

The result of the study indicates that there is a significant relationship between earnings quality and investment in capital assets in both retrospective approach and the prospective approach.


The study aims to verifying the quality of earnings in the industrial corporations listed in Amman Stock Exchange (ASE). The study also examines factors that affect the level of earnings quality in tested companies which are: accounting conservatism, company size, debt contracts, return on investment, corporate governance, auditing quality and audit
committees. To achieve these goals, two different methods were used to measure level of earnings quality. The study sample is composed of (50) companies listed in (ASE) during the period 2004-2009. They were arranged in a way that makes it possible to apply the (Pooled Data Regression).

The study results indicate that there is a high level of earnings quality in Jordanian industrial corporations. It also found evidence that company size, debt contracts and auditing quality have effect on earnings quality.

**Abdelghany (2005) "Measuring the quality of earnings".**

The aim of the study is to measuring the quality of earnings on companies listed in NYSE. Uses a sample of 90 companies listed in the NYSE. The study uses three basic approaches to measure the quality of earnings which control three different dimensions of earning management.

The results show that different approaches of measuring the quality of earning lead to different assessment, and one industry or one company cannot be labeled as having low or high quality of earning based on the result of one approach only. The results also suggest that the stakeholders before making any financing, investing decision or taking any corrective action, have to use more than one approach to assess the quality of earnings.

**Francis et. al (2002)" The Market Pricing of Earnings Quality".**

The study investigates the relationship between earnings quality and the costs of debt and equity capital, the study examines eight proxies for earnings quality (four based on the modified Jones approach to estimating abnormal accruals; three based on the Dechow and Dichev [2002] approach which relates working capital accruals to cash flows; and one based on a factor analysis of the other seven). The sample contains 33,770 firm-year observations from 1988 to 1999.

The findings of the study refer that firms with lower quality earnings have higher costs of capital as evidenced by lower debt ratings, larger realized costs of debt, larger industry-adjusted earnings-price ratios, larger equity betas, and positive loadings on an earnings quality factor added to one-factor and three-factor asset pricing regressions.
1.9.3 Literature related to intellectual capital and earnings quality.


The purpose of this study was to explore whether intellectual capital affects the probability that a particular firm will default. The study also tests whether including intellectual capital performance in bankruptcy prediction models improves their predictive ability.

Using a sample of US public companies from the period stretching from 1985 to 2015, the study tests whether intellectual capital performance reduces the probability of bankruptcy. The study uses the VAIC as an aggregate measure of corporate intellectual capital performance.

The findings show that the intellectual capital performance is negatively associated with the probability of default. The findings also indicate that the bankruptcy prediction models that include intellectual capital have a superior predictive ability over the standard models.

Sarea (2016)" The relationship between intellectual capital and earnings quality: evidence from listed firms in Bahrain Bourse".

The study examined the relationship between the intellectual capital and earnings quality for the listed firms in Bahrain Bourse. To measure the efficiency of firm's IC, the study uses Pulic (2000) model, and uses the modified Jones model (Jones, 1991) in order to measure earnings quality.

The results of the study concluded to have high level of intellectual capital and earnings quality as well as a positive relationship between them in all listed firms at Bahrain Bourse. The findings show significant support for the current debate regarding the relationship between the intellectual capital and earnings quality in the Bahraini market.

Mojtahedii (2013)" The Impact of Intellectual Capital on Earning Quality: Evidence from Malaysian Firms".

The main purpose of the study was to explain the effect of intellectual capitals ingredients (human capital, structural capital and relational capital) on earning quality. Multiple regressions and panel data analysis have been used to predict this relation.

The study found that intellectual capital has a positive and significant impact on earning quality. The results demonstrated that there are significant and positive relationships between human capital, structural capital and relational capital efficiency and earning quality.
Darabi et. al (2012) "The Relationship between Intellectual Capital and Earnings Quality".

The main purpose of the study was to investigate the association between intellectual capital of firms and their earnings quality. The sample conducted with 158 accepted companies and 948 firm-year observations from Iran stock market for the period from 2005 to 2010. Empirical studies were conducted based on hypothesis by Value Added Intellectual Coefficient as measures of intellectual capital and taking absolute value of Discretionary Accruals as measures of earnings quality.

The results of the study show that intellectual capital and its human capital component have a significant positive impact on earnings quality. On the other hand, two components of intellectual capital have no significant relationship with earnings quality.

❖ Comments on previous studies:

The studies that related to intellectual capital verify the importance of intellectual capital on several aspects in the firms. It is noticed that intellectual capital helps in improving economic performance, profitability, market value, stock prices and creating value of the firms.

It is found from previous studies that paying attention at intellectual capital and its components and earnings quality will improve the performance of firm’s, market valuation, stock prices and returns and creating value of companies.

All studies test the relationship between intellectual capital and earnings quality emphasize that there is significant relationship between intellectual capital and earnings quality. Moreover, there are arguments about intellectual capital components and it is divided into several views as discussed in the following chapter.

There are lack of Arabian studies as general and Palestinian studies specially talking about the nature of the relationship between intellectual capital and earnings quality. So, this study is one of the few studies that test the relationship between intellectual capital and earnings quality. The different between this study and others that testes the relationship between intellectual capital and earnings quality is that this study consider the first study made in the Palestinian environment and depends totally at financial information from financial reports.
1.10 Plan of the study:

To achieve the goal of the study, the study divided into the following sections.

Chapter one: Background of the study.

Chapter two: Theoretical framework of intellectual capital.

Chapter three: Theoretical framework of Earnings Quality.

Chapter four: Research methodology.

Chapter five: data analysis and testing hypotheses.

Chapter six: Results and recommendations.
Chapter two:

Theoretical Framework of Intellectual Capital.

This chapter presents the term of Intellectual Capital in general and in depth, it will divide into the following sections:

2.1 Introduction.
2.2 Definitions of intellectual capital and its elements.
2.3 Importance of intellectual capital.
2.4 Models of measuring and valuation of intellectual capital.
2.5 Difficulties in measuring intellectual capital.
2.6 Conclusion.
2.1 Introduction: -

David Moore, research director for the CICA (Canadian Institute for Chartered Accountants) states: Financial performance measures derived from information in financial statements or other financial sources have been used by publicly listed companies for many years. They highlight specific aspects of a company’s profitability, solvency, liquidity, productivity or market strength. Such performance measures, are however based on historical and transaction-based information that does not take into account changes in values or internally generated intangibles. There is the growing view that financial performance measures by themselves are inadequate for strategic decision making. They need to be supplemented or even to some extent, replaced by nonfinancial measures that cover such matters as, for example, customer satisfaction and operating efficiency (Waterhouse and Svendsen, 1998; Bontis, 2001).

In other words, the knowledge-based economy organizations make their concerns on knowledge, so the intellectual capital became the main important element of innovation process, because it has the ability of transforming knowledge into added value, as well it is an asset that does not depreciate over time, in contrast it increases when invested on it. Therefore, survival of organizations, especially within the globalized world, depends on its ability to innovate.

The added value can be generated by intangibles not always reflected in financial statements and forward-looking companies have realized that these are an integral part of fully understanding the performance of their business. We can touch these terms by focusing on the height of the dotcom boom, companies within no assets in the traditional sense of the word were having their stocks more highly rated than industrial global and British companies. Thus, much of the discussion about intangibles grew out of early attempts to account for the sometimes-staggering difference between the so-called book and market values of companies.

Organizational intelligence, represented by information and knowledge systems, the skills and abilities of employees, the quality of production processes and customer service, each have a great impact on its ability to innovate. To succeed in this context, or simply remain viable, organizations must be innovative (Govindarajan and Trimble, 2005).

The text of intellectual capital has largely increased due to shifting from manufacturing economy to knowledge economy, which described by Thomas Stewart as
"The new wealth of organizations" (Stewart, 1997). In a knowledge-based economy, one must take into consideration not only the traditional ways to measure the company value, but also to recognize intellectual capital as well. Traditional measures of a company’s performance, which are based on conventional accounting principles, may be unsuitable in the knowledge–based economy, which is driven by intellectual capital (Gan and Saleh, 2008).

2.2 Definitions of intellectual capital and its elements.

In the evolution of the concept of intellectual capital, theorists offered numerous definitions of intellectual capital from different perspectives. The term 'intellectual capital' was first published by John Kenneth Galbraith. His concept of the term incorporated a degree of 'intellectual action' rather than 'intellect as pure intellect'. The implication of this view is that intellectual capital is likely to be a dynamic rather than a static form of capital. He describes intellectual capital as behavior that requires the exercise of the brain (Galbraith, 1969).

However, Intellectual capital has been identified as a set of intangibles (resources, capabilities and competences) that drives the organizational performance and value creation (Roos and Roos, 1997; Bontis, 1998; Bontis et al., 2000; Cabrita and Vaz, 2005).

Tom Stewart, defines IC as intellectual material: knowledge, information, intellectual property and experience that can be used for the generation of wealth. Stewart further defines it as a sum of everything everybody in a company knows that gives competitive edge. He describes it in Fortune magazine's series as something you can't touch but which makes you (Stewart, 1999).

While, Edvinsson and Sullivan (1996), defines IC as knowledge that can be converted into value for the company. Larry Prusak, Ernst & Young's spokesman on intellectual capital, defines it as 'intellectual material that has been formalized, captured, and leveraged to produce a higher-valued asset. (Edvinsson and Sullivan, 1996). European Commission (2006), sees IC as the combination of the Human, Organizational and Relational resources and activities of an organization (Emma et al., 2015). In other words, intellectual capital is represented by the company’s stock, such as skilled employees, knowledge and management philosophy (Anuonye, 2016).

Brooking (1996), believes that IC is the combination of all intangible assets which enable the company to function. Klein (1998), has defined intellectual capital as
“knowledge, experiences, expertise, and associated soft assets, rather than their hard physical and financial capital”. Bontis and Holland (2002), in their article, defined intellectual capital as: Intellectual capital shows a storage of knowledge that there is at a certain point of time in an organization.

Brief look at the definitions of intellectual capital, it seems that all these definitions are based on the principle that intellectual capital is a broad concept which is often split into different elements most commonly human capital, capital employed and structural capital.

**Intellectual Capital Components:**

Several views were negotiated about intellectual capital component, managerial perspective divided IC into more than four components (Human capital, Structural capital, Relational capital) (Edvinson and Malon, 1997; Mavridis and Kyrmizoglou, 2005; Wall, 2007; Ruta, 2009; Maditinos et al., 2011). Social capital (Subramanian and Yound, 2005; Nazari and Herremans, 2007; Ruta, 2009). Innovation capital (Joia, 2000; Bounfour, 2005).

(Pulic, 2000; Firer and Williams, 2003) divided intellectual capital into three components as accounting perspective for IC (Human capital, Structural capital, Capital employed). This study uses the accounting view of intellectual capital.

1- **Human Capital:**

Increased attention to human capital has often been associated with the emergence of the knowledge worker in the context of the knowledge corporation of the new economy. This type of worker is considered to be different than older types of workers in that their skills can be acquired after many years of formal education, so he is able to apply theoretical knowledge and may continuously pursue the updating of his knowledge (Drucker, 1994; Andrikopoulos, 2009).

Human capital is considered as a key driver in creating value for a firm and in achieving effective performance and competitive advantage (Chen et al., 2009; Dokko and Rosenkopf, 2009; Nordenflycht, 2011).

Adopting Mayo’s (2001) approach to the classification of human capital, we can identify the following components of human capital:

- The employees’ capabilities (educational background, professional skills,
experience, attitude, network of contacts, values and ideals).

- The employees’ potential to grow (the employees’ potential to meet organizational objectives beyond the boundaries of their present role).
- The employees’ motivation and commitment (employees are more valuable when aligned to the firm’s values).
- The employees’ innovativeness (contribution to the development of novel products and services, friendliness to organizational change, eagerness to learn).

2- Structural capital:

Structural capital includes organizational capital (all the resources supporting the company’s operations) as well as relational capital (relationships with stakeholders). Structural capital relates to an organization’s knowledge and codified experience; these are part of its organizational culture, its knowledge management system, efficient processes and top management support (Yang and Lin, 2009).

Organizational and relational capital jointly form structural capital, as these assets are more specific to the organization. As opposed to the components of human capital which may not be available to the company, should an employee decide to seek employment somewhere else; organizational culture and strategy is more independent from the specific workforce employed as compared to, say, the employees’ communicative skills (Andrikopoulos, 2009).

3- Capital employed:

Capital employed defined as total capital harnessed in a firm's fixed and current assets. Viewed from the funding side, it equals to stockholders' funds (equity capital) plus long-term liabilities (loan capital). However, if it is viewed from the asset side, it equals to fixed assets plus working capital (Bozbura, 2004). It includes aspects such as brand equity, market share, customer base and customer information, customer and community relations, customer access points, and trade agreements (UNGERER and UYS, 2005).

Researcher summarize the definitions of Intellectual Capital elements according to views of different scientists in the following table.
### Table (1).

**Definitions of intellectual capital components**

<table>
<thead>
<tr>
<th>Terms</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human capital</td>
<td><strong>Edvinsson 1996</strong>&lt;br&gt;The collective capabilities of employees to solve customer problems includes the collective experience, skills, and general know-how of all of the firm's employees.</td>
</tr>
<tr>
<td></td>
<td><strong>Bontis 2001</strong>&lt;br&gt;The combined knowledge, skill, innovativeness and ability of the company’s individual employees to meet the task at hand.</td>
</tr>
<tr>
<td></td>
<td><strong>Hudson 1993 (Maditinos, D. et, al. 2010)</strong>&lt;br&gt;A combination of four factors: culture; experiences; inheritance; and attitude</td>
</tr>
<tr>
<td>Structural capital</td>
<td><strong>Edvinsson 1996</strong>&lt;br&gt;The codified, tangible, or physical descriptions of specific knowledge to which the company can assert ownership rights and that they can readily trade in disembodied form</td>
</tr>
<tr>
<td></td>
<td><strong>Bontis 2001</strong>&lt;br&gt;The hardware, software, databases, organizational structure, patents, trademarks and everything else of organizational capability that supports those employees’ productivity</td>
</tr>
<tr>
<td>Capital employed</td>
<td><strong>Al-Ali 2003</strong>&lt;br&gt;includes customer relations, feedback, input as to the product/service, suggestions, experience, and tacit knowledge.</td>
</tr>
<tr>
<td></td>
<td><strong>Edvinsson and Richtner 1999 (Maditinos, D. et, al. 2010)</strong>&lt;br&gt;the value of customer position, customer relationships and customer potential.</td>
</tr>
</tbody>
</table>

A key feature of the definitions of intellectual capital is that researchers recognize the link between intellectual capital and the structure and performance of an organization. The study concludes that according to the lack of reporting a definition of intellectual capital researchers defines this term from their point of view and in accordance with empirical and experimental models. Thus, the study defines intellectual capital as sum of information, techniques, experiences and knowledge used by and through human capital, structural capital, and capital employed as integrated part to create or improve value of organizations which is has effects of improving the quality of earnings.

#### 2.3 Importance of intellectual capital.

Guthrie (2001), has the same opinion and points out four arguments which emphasizes the importance of IC.

1. The revolution in information technology and the information society
2. The rising importance of knowledge and the knowledge-based economy
3. The changing patterns of interpersonal activities and the network society
4. The emergence of innovation and creativity as the principal determinant of Competitiveness.

Moreover, the genesis of the modern organization and the rise of an information or knowledge economy, created what is mentioned as new knowledge-based intangibles, i.e. organizational structures and processes, know-how, intellectual and problem-solving capacity. However, its importance has increased as a consequence of a business world defined by global competition; the need for constant strategic adaptation, ever-increasing customer demands and an explosion of service-based industries. This is a world where the relative importance of intangible assets is increasing and tangible assets, such as factories and land, are decreasing (Guthrie and Pretty, 2000).

On the other hand, Andriessen (2004), has categorized the reasons for measuring intellectual capital into three main groupings:

- improving internal management.
- improving external reporting.
- statutory and transactional motives.

**The first group of motives includes:**

1. What gets measured gets managed.
2. Improving the management of intangible resources.
4. Monitoring effects from actions.
5. Translating business strategy into action.
6. Weighing possible courses of action.
7. Enhancing the management of the business as a whole.
8. **The second group of motives includes:**
    1. Closing the value gap between book and market value.
    2. Improving information to stakeholders about the real value and future performance of the enterprise.
    3. Reducing information asymmetry.
    4. Increasing the ability to raise capital.
    5. Enhancing corporate reputation and affecting stock price
The third group of motives includes:

1. Transaction pricing and structuring for the sale, purchase, or license of an intangible asset
2. Financing securitization and collateralization for both cash flow-based financing and asset-based financing
3. Taxation planning and compliance, with regard to all sorts of possible deductions, tax compliance, and estate planning
4. Bankruptcy and reorganization, including the value of the estate in bankruptcy and the assessment of the impact of proposed reorganization plans
5. Litigation support and dispute resolution, including infringement of intellectual property rights and breach of contract

Another author sets the group of issues that describes the importance of IC as follow (Andrikopoulos, 2009):

**1- Intellectual capital is value relevant:**

Evaluating intellectual capital is extremely difficult, resulting in no single credible model as a reference. Currently, there is considerable room for future research development in this area (Robert et al., 2006).

However, there has been considerable evidence that IC can help explain variations in the companies’ market valuations and in the cross section of expected stock returns (Andrikopoulos, 2009). IC and its components have been found to explain variations in market value for manufacturing (Tseng and Goo, 2005) and also IT companies (Wang and Chang, 2005).

In other world of view, the direct relationship of intellectual capital disclosure (ICD) to share price (i.e. its value relevance) is affected by country-specific and industry-specific factors. ICD is found to provide investors with value relevant (Vafaei et al., 2011).

Value relevance as a research method for investigating the importance of IC suffers from several limitations. Firstly, it only provides insight on a limited range of IC types, particularly those for which measurement proxies exist. Secondly, it is unable to account
for the value created by interactions and complementarity within and among IC types and financial/physical capital. Thirdly, results of studies adopting this method are often descriptive and cannot explain how IC information is related to stock price (Abhayawansa and Guthrie, 2014).

2- Intellectual capital is important in sustaining competitive advantage:

According to Todericiu and Stanit (2015), a sustainable competitive advantage is the one that allows an organization to maintain and improve the competitive advantage on the market. Which will be definitely achieved only by the organizations that has understood the true resources of the 21st century are knowledge, information, innovation, creativity and intellectual capital – which explains the increasing interest and preoccupation over the past decades for the acquisition, development and preservation of these intangible assets.

Moreover, according to the resource-based view of the firm, IC is a strategic asset helping knowledge-based firms create and sustain competitive advantage: it is value relevant, hard to imitate and transfer, it has a long economic life and, sometimes, it can provide the owner with rents (Martin-de-Castro et al., 2006). The value relevance of IC and its association to a sustainable competitive advantage has been documented in theoretical (Lubit, 2001) as well as empirical work (Riahi-Belkaoui, 2003).

Intangible sources of wealth are principal value drivers in the knowledge economy (Clarke and Rollo, 2001). As a knowledge management initiative, the adoption of intellectual capital reporting as a managerial technology may help develop an organizational appreciation for organizational learning (Mouritsen and Flagstad, 2004). It is the holistic nature of intellectual capital analysis and reporting mechanism that can help structure organizational priorities to better fit a knowledge intensive firm and a knowledge economy (Andrikopoulos, 2009).

The study shows there is an increasing value of the company derived from factors such as innovative capacities and employee knowledge. So, the role of intellectual capital in creating value became more crucial in achieving competitive advantages in the marketplace, this value is considered as unrecorded value that is not shown in financial reports. On the other hand, intellectual capital may help investors, lenders, analysts and others to meet their expectations of the sustainability of the organizations by studying the organization’s capacities.
2.4 Models of measuring and valuation of intellectual capital.

Depending on the scope and basic concepts involved some authors claim that there are major differences between financial accounting and the measurement of intellectual capital. Those differences, though, are not stated clearly in detail, but rather at a high level of abstract evaluation. Mainly, IC measurement is supposed to be oriented towards the future while financial accounting is supposed to look backwards. IC measurement is further claimed to capture so called soft-facts (qualities), while financial accounting is believed to focus on hard facts (quantities). (Bornemann et al., 1999). IC measurement is seen as a resource-oriented concept with a focus on the causes of value creation, while financial accounting is seen as reflecting the outcome of the latter. But, if we look at matters more closely, some differences fade away (Sveiby 1998; Edvinsson and Malone 1997; Stewart, 1997; Amidon, 1997; Roos et al., 1998; Danish Trade and Industry Development Council, 1997; Bornemann et al., 1999).

So many theories and models have been formulated by various scholars with respect to intellectual capital measurement and application. Present day scholars of intellectual capital accounting have used these theories as bases for their current study. Some studies showed that intellectual capital management can be approached from two separate, but related, streams of thought (Roos et al., 1997; Sullivan, 2000): -

- A strategic value creation paradigm where the focus is primarily on the creation, development and leveraging of the firm’s knowledge through activities such as organizational learning, conversations and innovation.
- A value extraction and measurement paradigm where the focus is on the realization of direct economic value from a firm’s unique combination of intellectual capital and tangible resources. Ungerer (2005), summarized the two views on IC according Sullivan in the following table:
IC valuation and measurement methods address a wide variety of problems, it can group these into problems around improving internal management or improving external reporting (Andriessen, 2002; Andriessen, 2004).

The current study describes some of the numerous theories related to IC measurement and evaluation in the following section.

First, the following section will describe the intellectual capital measurement methods which are:

1. **Skandia Navigator**.
2. **Intellectual Capital Index**.
3. **Balanced scorecard**.
4. **Performance prism**.
5. **Value added approach**.
6- Tobin’s q.
7- Value-added intellectual capital coefficient.

1- Skandia Navigator:

Skandia considered the first large company made a truly coherent effort at measuring knowledge assets (Bontis, 1996; Huseman and Goodman, 1999). Skandia first developed its IC report internally in 1985 and became the first company to issue an IC addendum accompanying its traditional financial report to shareholders in 1994. Other companies, including Dow Chemical’s initiatives in valuing its R&D and patent process, have relied extensively on Skandia’s multi-dimensional conceptualization of organizational value. Leif Edvinsson, the chief architect behind Skandia’s initiatives, developed a dynamic and holistic IC reporting model called the Navigator with five areas of focus: financial, customer, process, renewal and development and human capital. This new accounting taxonomy sought to identify the roots of a company’s value by measuring hidden dynamic factors that underlie ‘the visible company of buildings and products’ (Edvinsson and Malone, 1997).

According to Skandia’s model, the hidden factors of human and structural capital comprise intellectual capital when added together (Al-Ali, 2003).

The Skandia IC report uses up to 91 new IC metrics plus 73 traditional metrics to measure the five areas of focus making up the Navigator model (Bontis, 2001). Edvinsson and Malone, acknowledge that various indices may be redundant or of varying importance. Yet in trying to use their experience to create a universal IC report, they still recommend 112 metrics (Edvinsson and Malone, 1997).

The following form describes Skandia IC scheme.

Skandia intellectual capital scheme.

Figure (1), Source: Edvinsson and Malone (1997).
The human capital considers as the main generator of intangibles, because it is combining of their knowledge, experience, talents and skills is in a continuous transformation of human knowledge into structural capital. Structural capital is more “tangible” compared with human capital and can be used from the company as assets or as tools to generate future incomes (Marti, 2012).

The study shows human capital is the combination of knowledge and the employee’s skills to adapt to the different requested tasks in the company. While structural Capital is composed of any other intangibles except human capital such as patents, trademarks, copyrights, database, computer software etc.

**Skandia Navigator model:**

Figure (2), Source: Edvinsson and Malone (1997).

The Skandia Navigator consists as illustrated in figure of five areas of focus. The financial focus is the balance sheet and represents the past. The Customer focus and
Process focus is where the company is today. Renewal & Development focus is the company’s capabilities for the future. What connects the four components is the Human focus, which is the part of the company that goes home every day. The implementation of Skandia Navigator is not an easy task, as it need several steps to be successfully settled such as: creating a strategy for the company to follow, identify the core actions/focuses to be taken in order to realize the settled strategy, for each action/focus a set of measurement indicators should be selected in accordance to the company specifications and at late but not an easy task is the combination of all these measurement units into a single monetary value for intangibles and a single ratio for the intellectual coefficient. Skandia Navigator ratios and measurement methods are wide used in the internal reporting, especially in banks and medical care where human capital and investment in processes like database protection and different investments made in IT (Sulanjaku, 2014).

2- Intellectual capital Index:

Is the process that attempt to consolidate all the different individual indicators into a single index, and to correlate the changes in intellectual capital with changes in the market (Roos et al., 1997; Bontis, 2001). but it still seeks to improve the visualization of the value-creating processes of the company so that they can be managed comprehensively, but in effect create a bottom-line for IC. This synthesis allows managers to assess the IC situation of a company holistically, whereas the first-generation practices give information only on the single components of intellectual capital (bontis, 2001).

According to (Roos et al., 1997) the IC-Index has several distinct features:

- it is an idiosyncratic measure.
- it focuses on the monitoring of the dynamics of IC.
- it is capable of considering performance from prior periods.
- it sheds light on a company different from an external view typically based on an examination of physical assets.
- it is a self-correcting index in that if performance of the IC-Index does not reflect changes of the market value of the company, then the choice of capital forms, weights and/or indicators is flawed.

The IC-Index approach is based on an IC distinction tree which splits IC into human capital and structural capital, separating “thinking” and “non-thinking” knowledge
assets. In other words, knowledge embodied in employees is separated from the structural knowledge assets of a company (Marr et al., 2004).

The following figure describes the IC distinction tree:

In general, IC-index consolidates all individual indicators representing intellectual properties and components into a single index. Changes in the index are then related to changes in the firm’s market valuation (Marti and Cabrita, 2012).

**3- Balanced scorecard:**

The balanced scorecard is a strategic performance measurement system developed by Robert S. Kaplan and David P. Norton to help organizations achieve breakthrough results by embedding strategy at the heart of the organization (Bible et al., 2006).

The BSC model attempts to present a balanced view of organizational performance by focusing on nonfinancial measures of performance as well. These measures are intended to focus the attention of top management on business factors that are critical to the success of the business, and hence are indicators of future performance (Kaplan and Norton, 1996).

Over the past decade, the balanced scorecard has evolved from being a measurement framework to being a strategy implementation tool. It represents a set of cause-and-effect relationships among output measures and performance drivers in the four perspectives (Zizlavska, 2014):

- Financial measures: how do we look to shareholders, for example, cash flow and profitability;
Customer measures: how do our customers see us, for example, price as compared with competitors and product ratings;

Internal process measures: what must we excel at, for example, length of cycle times and level of waste;

Learning and growth measures: can we improve and create value, for example, percentage of sales derived from new products.

Kaplan and Norton stress the importance of visualizing causal relationships of measures and objectives in so-called strategy maps. These are essentially communication tools that visualize an organization's strategy and the processes and systems needed to implement it (Starovic, 2003).

The study shows that the BSC method can create a more comprehensive picture of an organization’s health than financial metrics and that it can be easily applied at any level of an organization, and it measures closer to an event. Reporting can therefore be faster and more accurate than pure financial measures.

4- Performance prism:

Approach developed by Cranfield School of Management in collaboration with consultancy Accenture. It recognizes the importance of companies taking a holistic approach to stakeholder management in today’s culture of involvement. Its advantages are that it addresses all stakeholders – not only investors but customers and intermediaries, employees, suppliers, regulators and communities (Starovic, 2003).

The Performance Prism aims to manage the performance of an organization from five interrelated ‘facets (ACCA, 2012): -

1. **Stakeholder satisfaction** – who are our stakeholders and what do they want?

2. **Stakeholder contribution** – what do we want and need from our stakeholders?

3. **Strategies** – what strategies do we need to put in place to satisfy the wants and needs of our stakeholders while satisfying our own requirements too?

4. **Processes** – what processes do we need to put in place to enable us to execute our strategies?

5. **Capabilities** – what capabilities do we need to put in place to allow us to operate our processes?
The flexibility of the performance prism allows it to be applied to any organization or organizational component. The focus on intangible performance drivers makes the framework useful for companies attempting to measure their intellectual capital. Also, it creates a visual map of how the different areas of performance interrelates (Starovic, 2003).

On the other hand, The Prism is designed to be a flexible tool – it can be used for commercial or non-profit organizations, big and small. When light is shined into a prism, it is refracted, thus the Prism shows the hidden complexity of white light. According to Neely and Adams, the Performance Prism illustrates the true complexity of performance measurement and management (ACCA, 2012).

5- Value added approach

This valuation technique was proposed by Robinson and Kleiner (1996) and comprises a framework of two parts. The first part uses Porter’s value chain concept. The basic premise, from an industrial perspective, is that raw materials enter from one end of the chain and, as they go through the processes that will eventually convert them into finished goods, value is added to them. Production is not the only function involved as the raw materials have to be procured and the finished goods marketed and sold. The second part of the framework is borrowed from the economic value added (EVA) theory, which has its roots in corporate finance and was developed by Stern Stewart, a New York-based consultancy. If the return on capital for any project is greater than the cost of capital then the company should proceed with it (Wall et.al, 2003).

The primary objective of a business enterprise is to create shareholder value, and EVA has been found to be the best available financial metric for measuring value (Burksaitiene, 2009; Yao, Sutton and Chan, 2009; Young and O'Byrne, 2000). Most importantly, EVA differs from other metrics in the sense that it incorporates both the enterprise profits and the capital costs for such profits (NTHOESANE, 2016). So, Changes in EVA provide an indication of whether the firm’s Intellectual Capital is productive or not.

EVA defines as the difference between a company’s net operating income after taxes and its cost of capital of both equity and debt. It is based on the calculation of economic profit through value creation (Chen and Dodd, 2001; Anuonye, 2015). Otherwise, EVA is the cash generated from the operations during the specified accounting period less the
amount needed to replenish capital less the opportunity cost of holding the capital used by the business during that period (Goldberg, 1999), and is calculated as:

\[
EVA = NOPAT - IC \times WACC
\]

Where:

NOPAT: net operating profit after tax

IC: total capital invested

WACC = weighted average cost of capital

In the calculation of NOPAT, all non-operating items like interest and dividends on securities invested outside the business and non-operating expenses are not considered. The total capital invested is the sum of all shareholders’ funds and loans. In determining WACC, cost of debt is taken as after-tax cost and cost of equity is determined on the basis of capital asset pricing model (CAPM) (NTHOESANE, 2016). And is given by the following formula:

\[
Ke = Rf + \beta_i (Rm - Rf).
\]

Where,

Rf = risk free return

\(\beta_i\) = the measure of systematic risk of a security, the tendency of a security’s returns to respond to swings in the broad market

Rm = expected market rate of return.

6- Tobin’s q:

Another way of getting around the depreciation rate problem when comparing the intellectual capital between firms is to use Tobin’s ‘q’ (Dzinkowski, 1999). The “q” developed by economist James Tobin, Tobin argued that firms’ investment level should depend on the ratio of the present value of installed capital to the replacement cost of capital. This ratio is Tobin’s q. The q theory of investment argues that firms will want to increase their capital when q > 1 and decrease their capital stock when q < 1. If q > 1, a firm can buy one dollar’s worth of capital (at replacement cost) and earn profits that have present value in excess of one dollar (Parker, 2010).
Technology and human capital assets were traditionally associated with high q values. It could be argued that Tobin’s q is more accurate than the market-to-book method because it uses replacement, rather than historic, costs. However, finding these replacement costs is more difficult than simply referring to a balance sheet (Stewart, 1997; Starovic, 2003).

This measurement approach cannot provide an accurate figure for individual intellectual assets (Starovic and Marr, 2003). Tobin’s q methods’ major advantages lie in their simplicity; it is easy and quick to apply. The value is fast to calculates, but it has three major general disadvantages. First, the changes in the stock market value are not entirely under management control (influence), particularly in times of takeovers, short business cycles and other unpredictable events, which can often cause oscillation in a company’s intellectual capital. The second problem lies in determining the company’s book value. Namely, different accounting methods, procedures and standards mean different presentations of categories. This fact diminishes credibility of calculated results and limits the possibility to compare end results across countries. And third, the method did not offer any guidelines for a business improvement in the future (Stewart, 1999).

7- Value-added intellectual capital coefficient:

Pulic, developed a suitable method for measuring the intellectual capital. He argued that the market value of the companies is created by capital employed and intellectual capital and also intellectual capital is composed of structural capital and human capital. In this method the information about value creation efficiency is measured by both intangible (human capital and structural capital) and tangible assets of an organization. this method is called VAIC and it indirectly measure intellectual capital through the value-added efficiency of capital employed (VACA), value added efficiency of human capital (VAHU) and value-added efficiency of structural capital (STVA) (Pulic, 2000).

This method calculates the difference between sales and all inputs (except labor expenses), divided by intellectual capital, which is estimated by total labor expenses. The higher the ratio, the more efficient the company is at using IC assets. However, the main advantage of this approach is simplicity. The figures are easy to obtain from any annual report and, once calculated for a year, can be used for inter- or intra-company comparisons. However, this straightforwardness has many disadvantages. Comparing an organization's labor expenses to its IC would appear to undervalue IC when compared with other methods such as the market-based approach. Also, a company could be using its labor resources
inefficiently, but this could be masked by a more efficient use of other inputs leading to a similar ratio (Starovic, 2003).

VAIC method operates with the main concepts of intellectual capital – such as structural capital, human capital and the efficiency of intellectual capital. These components referring to intellectual capital are, however, calculated directly from variables obtainable from company accounts, and, notwithstanding the concepts of intellectual capital, they do not contain actual content that refers to intellectual capital. So, in reality VAIC measures a company’s operating efficiency in a different way, but its connection to intellectual capital remains non-existent. When the components of intellectual capital are changed into financial figures in a linear and non-analytical way, the connection itself to the content of intellectual capital disappears (Stahle et.al, 2011).

The main advantages of the VAIC™ method are its simplicity and explanation of the created value based on investment. Whereas, all the necessary data are already available in standard balance sheets and business reports. The method is simple and easy to understand and the results are easily benchmarked with the results from other companies (Pulic, 2004). Another very important feature is the possibility to apply this method to all the company’s management levels or business processes (Sitar and Vasic 2004). The main disadvantage lies in its inability to identify the value creation drivers and offer some information about possible business improvements (Sitar, 2003).

According to the previous methods, the study concludes that each of these models tend to divide intellectual capital into several components and areas. Each method has been developed in order to measure the effects of intangible and hidden assets on the financial performance and creating value.

All expressed methods are considered to be easy methods with which to measure intellectual capital. In this study the researcher relied on VAIC because of its advantages and that the outputted number might be more accurate than others.

2.5 Difficulties in measuring intellectual capital.

A lot of challenges faced during measuring IC, Andrikopoulosa (2009), states a set of challenges to meet in order to expanding the adoption of IC in the accounting profession.
1- **Intellectual capital is hard to codify.**

In the context of an efficient accounting framework, IC would have to be coded and its elements would have to be accounted for separately as independent IC assets. Codification is -to some extent- feasible: the number of new products, metrics on the loyalty of customers, the percentage of the employees holding a university degree are all quantifying approximations of IC assets (innovation, customer, human capital) However, the components of IC and their dynamics are interdependent (Edvinsson, 1997; Wang and Chang, 2005), and hence they are not readily amenable to reporting as separate assets and it is this complex nature of IC that has lead so far to the inclusion of a plethora of IC assets in a single account: goodwill (Colley and Volkan, 1988).

Moreover, apart from the well-known inefficiency of numbers to fully capture quality- it is very difficult to translate these quantitative measures into monetary values so as to include them in a financial report or a valuation mechanism (Mouritsen, 2003).

2- **The market for Intellectual capital is inefficient**

In the theory of finance, capital markets are characterized as efficient if prices reflect all relevant information (Fama, 1970). The efficiency of capital markets is essential in asserting that information asymmetries among market participants will not lead to increased risk, agency conflicts, monitoring costs and, possibly, market failures. Additionally, the efficiency of capital markets is fundamental in the assessment of any equilibrium pricing model. Asset pricing is the outcome of transactions and in most cases, one cannot enter a contractible transaction for the transfer of ownership over an IC asset: for instance, an organization’s encouraging attitude towards innovation (structural capital) cannot be separated from other IC assets and then be sold, in a contractual setting, from the current owner to the prospective one. A major source for these contractual problems is the fact that an organization’s innovative spirit is directly affected by a lot of stakeholders - employees, society, the suppliers of capital- and since ownership is hard to hold (Lev, 2001).

2.6 **Conclusion:**

In this chapter the study discusses definitions of intellectual capital from several scientist’s views. The study defines intellectual capital as the sum of information, techniques, experiences and knowledge used by and through human capital, structural capital, and capital employed as integrated part to create or improve the value of organizations in order to improve the quality of earnings. Which agrees with a lot of

On the other hand, this chapter discusses the components and the importance of intellectual capital and the reasons of shifting to disclose the non-financial information including intellectual capital.

Then, the study represents models for measuring intellectual capital and its valuation. The study believe that companies must pay more attention to intellectual capital and make more efforts towards measuring it because of the important role in creating value of the company. Also, it has core place on sustainability of organizations. And finally, the study lists some difficulties in measuring the intellectual capital. In the following chapter the study will take in consecration the theoretical framework of earnings quality.
Chapter three:

Theoretical Framework of earnings quality.

The goal of this monograph is to provide structure for understanding “earnings quality”. So, it will consist of the following sections.

3.1 Introduction.

3.2 Definitions of earnings quality.

3.3 Importance of earnings quality.

3.4 Models of measuring earnings quality.

3.5 Attributes of earnings:

3.6 Factors affecting earnings quality.

3.7 Conclusion.
1.11 Introduction.

Decisions based on earnings information differ depending on the different users of the financial statements. Shareholders view earnings as a measure of managers’ performance and reward, lenders rely on earnings to make credit decisions. While investors rely on earnings to assess their investments through the predictive ability of consistently earnings in the coming periods, However, depending on the earnings figure alone without taking into account the factors that may lead to reduce the quality of earnings: such as earnings management, it could lead the user to make non-rational decisions; to focus on the amount of earnings without focusing on quality.

Recently the United States has been home to some of the largest corporate frauds in the world. Enron Corporation use of special-purpose entities enabled it to keep billions of dollars’ worth of debt off its balance sheet, with investment bankers, lawyers, and accountants showing the company how. WorldCom used a simple scheme to capitalize more than $11 billion of expenditures as assets rather than expenses. Tyco International has been charged with failure to disclose millions of dollars of low-interest and interest-free loans to its executives. Qwest Communications International was forced to restate its revenues by $2.4 billion after the U.S. Securities and Exchange Commission discovered that its impressive revenue growth was mainly the result of swapping network capacity. Waste Management capitalized all sorts of expenditures that should have been expensed. And the list of financial accounting abuses goes on and on (Dechow and Schrand, 2004).

All financial statements users agree that fraudulent reporting is considered to be as earnings quality problem. Although if earnings contain unusual items or lack of transparency, they are considered as earnings quality problem even if they are reported in accordance with accounting standards.

Earnings quality is a key characteristic of financial reporting. It embodies the principle that financial reports should be as useful as possible to investors and other capital providers in making their resource allocation decisions. Investors and other users should be interested in high-quality financial accounting information. High-quality financial reports should improve decision making and, thus, capital market efficiency. Earnings quality is however an elusive construct and people tend to understand it in various different ways (Mojtahedi, 2013). Bernstein stated “earnings quality arose out of a need to provide a basis of comparison among the earnings of different entities as well as from the need to recognize such differences in “quality” for valuation purposes” (Bernstein, 1993).
Accounting abuses was one of the main reasons of these failing by using accrual accounting and its interaction with economic cycles. Under accrual accounting, current experience is used to make accounting estimates for future periods and these estimates feed back into current-period earnings. Thus, the positive effect of real performance on earnings during booming economies is leveraged by the effects of optimistic forecasts concerning continued growth and investment opportunities. As the economy slows down, however, managers find it increasingly difficult to meet the high earnings hurdles set during the boom times. Downturns mean fewer sales, more bad debts, and more obsolete inventory (Dechow and Schrand, 2004).

Numerous studies used to show the trends of earnings quality over time; throughout enforcement and corporate governance to evaluate changes in financial accounting standards and in other institutions, to compare financial reporting systems in different countries; and to study the effect of earnings quality on the cost of capital (Mojtahed and Payam, 2013). As Penman states that the purpose of accounting quality analysis is to distinguish between the “hard” numbers resulting from cash flows and the “soft” numbers resulting from accrual accounting (Abdelghany, 2005).

More generally, the quality of earnings term has been growing concern, for that purpose the financial press has noted managers’ tendencies to put a good face on earnings. In the context of intellectual capital, to the extent that the market fixates on reported income and does not take into-account the quality of firms’ historical earnings, there may be temporary accurate on prices around their correct values.

When talking about earnings quality we must distinguish between whether it can be attributed to the innate features of a firm’s operating environment (termed as innate earnings quality), or if it is influenced by the actions taken in the short run (termed discretionary earnings quality; Francis et al., 2008).

1.12 Definitions of Earnings Quality.

The definition of earnings quality depends on the decision maker’s objectives and the role that earnings play in the decision model (Dechow et al., 2010). In general, earnings quality is associated with relevant attributes like the magnitude of accruals, persistence, predictability, smoothness, value relevance, timeliness and conservatism (Schipper and Vincent, 2003; Dechow and Schrand, 2004; Christensen et al., 2005; Dechow et al., 2010). It also depends on the financial reporting model and on the business environment (Miranda, 2016). As Yee stated “defining earnings quality involves considering two aspects of reported earnings: first, the fundamental attribute and second, the financial
reporting attribute”. Fundamental earnings are the accounting performance measure for assessing the company’s ability to generate future cash flows. Reported earnings are the imperfect signal of fundamental earnings announced by the company (Yee, 2006). Thus, earnings quality depends on how quickly and precisely reported earnings reveal fundamental earnings (Miranda, 2016). Hodge (2003), defines earnings quality as the degree to which reported net income differs from true earnings. Richardson et al. (2001), defines earnings quality as the degree of stability of earnings performance in future period.

While Chan et al., describe earnings quality as the degree to which reported earnings reflect operating fundamentals (Chan et al., 2004). Furthermore, White et al, define earnings quality as the degree of conservatism in a firm’s reported earnings (White et al., 2003).

Ewert and Wagenhofer (2009), define earnings quality as the reduction of the market’s uncertainty about the firm’s terminal value due to the earnings report and compare this measure with value relevance, persistence, predictability, smoothness, and accrual quality.

Dechow and Dichev (2002), define earnings as high quality if the contemporaneous cash flows are greater (less) than the recognized revenues or gains (expenses or losses), and low quality if the associated cash flows are less than (greater than) the recognized revenues or gains (expenses or losses).

The concept of earnings power is recognized and described in the FASB’s conceptual framework as follows (FASB No 1):

“Investors, creditors, and others often use reported earnings and information about the components of earnings in various ways and for various purposes in assessing their prospects for cash flows from investments in or loans to an enterprise. For example, they may use earnings information to help them estimate “earning power” or other amounts they perceive as “representative” of long term earning ability of an enterprise. Measures of earnings and information about earnings disclosed by financial reporting should, to the extent possible, be useful for those and similar uses and purposes.”

On another point of view earnings quality is negatively associated with earnings management, which arises when judgment in financial reporting is used by managers to adjust financial reports to either affect contractual outcomes that rely on reported accounting numbers or to deceive number of stakeholders about the fundamental economic performance of a firm (Schipper, 1989; Healy and Wahlen, 1999; Leuz et al., 2003; Eliwa and Yasser, 2015).Earnings management defines as “The use of managerial discretion over (within GAAP) accounting choices, earnings reporting choices, and real economic
decisions to influence how underlying economic events are reflected in one or more measures of earnings”. So, when companies have higher earnings quality, they also have lower earnings managements and vis versa (Walker, 2013).

From previous descriptions of the definitions, the current study agrees with Hodge 2003, Richardson 2001, Chen et.al 2004 and Ewert and Wagenhofer 2009 definitions. So, the study defines earnings quality as “earnings quality should represent the real value of organization that help users of financial statement to predict the future value of organization”.

1.13 Importance of Earnings Quality.

The earnings of the company, regardless of their quality - whether they have been subjected to earnings management practices or not are important factors in the process of financial, investment and other decision. Earnings are also used in many predictive and evaluative studies of the company's current and future performance.

In 1994, Dechow noted that corporate earnings are of great importance, as this is due to the use of earnings in evaluating performance by a large number of users (Dechow, 1994).

Shareholders require accurate and timely financial information for appropriate economic decision-making until is based on that take the best decision. So, they are looking for indicators to use it in the analysis of investment. One of the proposed indicators in investment decision-making process is the earnings quality (Ranjar et al., 2013).

By another world, higher quality earnings provide more information about the features of a firm’s financial performance that are relevant to a specific decision made by a specific decision-maker (Dechow et al., 2010).

The objectives of financial analysis of earnings quality are to evaluate the performance of the company, to assess the extent to which current performance is indicative of future performance, and based on this analysis, to determine whether the current stock price reflects intrinsic firm value. From this perspective, a high-quality earnings number is one that accurately reflects the company’s current operating performance, is a good indicator of future operating performance, and is a useful summary measure for assessing firm value (Dechow and Schrand, 2004).

Mahadeva (2015), sets a group of earnings quality benefits which summarized into the following:
1- It is important for a company’s financial wellbeing, because it improves capital market efficiency. Companies with high earnings quality are considered less risky because their earnings can be taken to the “bank.”

2- It is important for an equity investor or creditor to understand earnings quality to gain a clear understanding of a company’s true state of financial health.

3- Companies with high earnings quality have compelling traits, some of which are observable. Ethical culture and clear, concise and transparent disclosures are two such traits.

4- Quality financial statements should reflect economic reality.

5- In the long run, in an economic recovery, companies that reflect high-quality earnings will be rewarded with higher stock prices than those that muddy the waters.

By the other view, if accruals reflect real investment growth, then the growth will lead to higher sales, while if accruals increase with no changes in sales. The diminishing marginal returns explanation for accruals predicts a relation between accrual increases and sales growth but does not predict a relation between accrual increases and declines in efficiency (Richardson et al., 2006).

The study shows that earnings quality helps the users of financial information to make better decisions about company health. High quality of earnings reflects the true side of management control over organization’s policies which encouraging investors and other users of financial report. While, manipulating information decrease the quality of earnings which confuse financial reports users.

1.14 Models of measuring earnings quality.

Previous studies have investigated a number of proxies of earnings quality. These proxies can be categorized as either accounting-based, which depend on accounting information only, or market-based, which depending on both accounting and market data (Francis et al., 2004). In addition, the difference between accounting and market-based proxies lies in reference constructs. In particular, accounting-based proxies assume that the functions of earnings are to assign cash flows to reporting periods via accruals, whereas the market-based proxies assume that the function of earnings is to reflect economic income as shown by stock returns (Francis et al., 2006).

Focusing on the accounting-based characteristics, (Dechow and Dichev, 2002) and (Francis et al., 2005) investigate accruals quality by using the mapping between cash
flows, earnings and accruals. Penman, Zhang, and Richardson et al. focus on persistence of earnings over time (Penman and Zhang, 2002; Richardson et al., 2005). While Leuz et al. (2003) investigate the smoothness proxy as a time series property of earnings.

Turning to market-based proxies, Collins et al., Francis and Schipper use the value relevance of earnings (Collins et al., 1997; Francis and Schipper 1999). Other market-based proxies such as timeliness and conservatism have also been investigated (Basu, 1997; Watts, 2003; Bushman et al., 2004; Bushman et al., 2011; Eliwa, 2015).

Empirical measures of earnings quality classified it into three different groups: earnings quality properties, investors’ reactions to earnings quality, and other external indicators of earnings quality and concluded that earnings quality is a multidimensional concept, composed by various earnings properties that are expected to increase earnings’ usefulness for decision making (Dechow et.al 2010).

Four popular measurement models of earnings quality will be discussed in the current study, the modified Jones model (MJ) (Dechow, 1995), the modified Jones model with return on assets (MJROA) (Koathari et.al.,2005), the accruals quality (AQ) (Dechow and Dichev, 2002) (McNichloas, 2002), and Miller ratio 2007.

First model (Modified Jones Model) developed by Dechow 1995, he attempts to reduce the error that occurs when the accruals model classifies accruals as normal when they are not, which appears with the Jones model by modifying the model through the adjustment of sales growth to be growth in credit sales, as they argued that credit sales are often manipulated. This adjustment increases the explanatory power of the model (Eliwa, 2015). The Modified Jones model attempts to reduce the increases in receivables from variations in sales, since it assumes that there is the possibility of manipulating sales made on credit. Thus, the model excludes growth of receivables, identifying them as manipulation in the period (Sancerre et.al., 2015).

The modified Jones model assumes that all changes of credit sales in the event period result from earnings management. This is based on the reasoning of ability to manage earnings by exercising discretion over the recognition of revenue on credit sales than it is to manage earnings by exercising discretion over the recognition of revenue on cash sales. If this modification is successful, then the estimate of earnings management should no longer be biased toward zero in samples where earnings management has taken place through the management of revenues. (Dechow et al., 1995).

Accruals are the difference between earnings and cash flows, so one of the primary functions of accruals is to adjust the recognition of cash flow through periods. In this case,
the use of adjusted earnings may be a good measure for a firm's performance. Therefore, accruals quality is defined as “the extent to which working capital accruals map into cash flow realizations, where a poor match signifies low accruals quality” (Dechow and Dichev, 2002; Eliwa, 2015).

Ahrens (2009), sets weakness of Modified Jones model which is arguably related to the limitation of observations that should be sufficiently large to obtain valid coefficient estimates; however, this problem can be solved by estimating the model cross-sectional (Eliwa, 2015).

**Second model.** Modified Jones model with return on assets (performance match method), developed by Kothari et al (2005), they add return on assets (ROA) to the Jones model to control the normal level of accruals conditioning to ROA. They try to solve the problems that related to Jones and modified Jones models by countering the concerns of the high correlations between the residuals and performance in both models (Kothari et al., 2005).

The motivation to use ROA as the matching variable was for two reasons. First, the Dechow et al. (1998) model of accruals suggests ROA controls for the effect of performance on measured discretionary accruals. Second, matching on ROA follows Barber and Lyon’s (1996) approach to detecting abnormal operating performance (Barber and Lyon do not focus on accruals) using a matched-firm research design. This approach is designed to provide a comparison of the effectiveness of performance matching versus including a performance measure in the accrual’s regression (Kothari et al., 2005).

The difference between the Modified Jones and the Modified Jones with ROA models is that the second one uses a new control for estimating non-discretionary accruals. As well as considering the net revenue and receivables variables, the model considers the return on assets (ROA) variable in the estimation of non-discretionary accruals (Sincerre et al., 2016).

Kothari et al, identify a firm in the same industry which has a similar rate of ROA to the sample firm and then subtract the residuals of that firm from those of the sample firm to produce ‘‘performance-matched’’ residuals. However, it is better to use this model when correlated performance is an important issue as it is likely to add noise to the measure of discretionary accruals (Kothari et al., 2005). Moreover, this model will extract too much discretion, if the earnings are being managed (Dechow et al., 2010).

**Third model.** Accrual quality model, which is extend of Dechow and Dichev model, it is developed by McNichols, the model attempts to adjust DD model by
distinguishing whether the estimation errors happen because of low management experience, high variability of business environment and intentional earnings management (McNichols, 2002).

The model adds the growth in revenue in an attempt to reflect performance, and they add PPE, which expands the model to a broader measure of accruals that includes depreciation (Al-Attar and Maali, 2017).

On the other hand, the model argues with DD model with assuming that the errors are uncorrelated to each other and to cash flows, she also concludes that DD model ignores some important aspects such as acquisitions and mergers and it may contain measurement errors (McNichols, 2002).

**Fourth and final model** discussed in this study is Miller ratio, which is considered as a tool to study the relationship between cash flows from operating activities and change in working capital to detect earnings management, and it is designed to study current accruals, and not total accruals, the variable of PPE is not being considered. Consequently, the MR does not imply that any of the previous models are in error, nor are their variables inappropriate. The study of the MR complements the previous studies while providing practitioners and regulators a practical method of detecting earnings management. Specifically, the further from zero the MR, the more probability of earnings management, since it detects discretionary accruals. It is the level of discretionary accruals that suggest earnings management (Miller, 2009). Furthermore, the MR is designed to be used on a case-by-case situation to assist financial analysts and other stakeholders, this was a significant step forward in the application of the MR (Miller, Miller, 2011).

From previous discussion the current study depends on Modified Jones Model and Miller Ratio to measure earnings quality because they tend to solve the problem faced in other approaches, and its simplicity to use.

### 3.5 Attributes of earnings:

There are seven attributes of earnings, such as accruals quality, persistence, predictability, smoothness, value relevance, timeliness and conservatism, scientists characterize the seven earnings attributes as either "accounting-based" or "market based" to capture the differences in underlying assumptions about the function of earnings, which are, in turn, reflected in the way the attributes are measured. They refer to (accrual quality, persistence, predictability, and smoothness) as "accounting-based attributes.". (Value relevance, timeliness, and conservatism) as "market-based attributes" (Francis et al., 2004).
3.5.1 Accounting based attributes:

These attributes take cash or earnings as the reference construct and thus are measured using accounting information only.

1. Accruals quality:

Dechow, Dichev and Francis measured accruals quality by using either the mapping of current accruals into last-period, current-period, and next-period cash flows or by measuring of abnormal accruals (Dechow and Dichev, 2002; Francis et al., 2005).

Francis et al., concluded that accruals quality as having the most direct link to information risk. Accrual quality captures variation in the mapping of earnings into operating cash flows. They posit that accruals quality is influenced by two factors. The first factor, the innate component, which reflects the business models and operating environments in which a firm operates. The second, the discretionary component, which reflects the managerial choices including intentional reporting choices, forecasting errors and implementation errors (Francis et al., 2004).

2. Persistence:

Sloan 1996, considered as one of the leading studies in this attribute. According to Sloan, earnings are composed of two underlying elements; a cash component and an accrual component, the former being relevant and reliable while the latter one is relevant but less reliable.

Persistent earnings are viewed as desirable because they are recurring (Penman and Zhang, 2002; Revsine et al., 2002; Richardson, 2003; Francis et al., 2004). Whereas, Sloan (1996) documented that the persistence of earnings performance is shown to depend on the relative magnitudes of the cash and accrual components of earnings.

Persistence is seen as the degree to which earnings performance persists into the next period, some authors see this persistence in a direct link with earnings quality, while others just analyze persistence without mentioning earnings quality (Hermanns, 2006).

Greater persistence is associated with a more sustainable earnings stream. If earnings are persistent, then investors need not be concerned about the extent to which the innovation in this period's earnings will continue, and this reduces one source of uncertainty (Francis et al., 2004).
3. **Predictability:**

Predictability defines as the ability of preceding earnings to predict future earnings (Lipe, 1990). Predictability is viewed as a desirable attribute of earnings because it increases the precision of earnings forecasts. The time series of earnings is affected by the volatility of operations, the economic environment and the accounting systems employed (Perotti and Wagenhofer, 2014). Based on the notion of earnings, earnings predictability reflects the extent to which current earnings are useful in predicting future earnings (Eliwa et al., 2016).

4. **Smoothness:**

Smoothness is a desirable earnings attribute that derived from the view of manager's usage of their private information about future income to smooth out transitory fluctuations and achieve a more representative (Ronen and Sadan, 1981; Chaney and Lewis, 1995; Demski, 1998; Francis et al., 2004). Moreover, smoothness is necessarily a desirable property of earnings or an objective of the accruals process (Dechow et al., 2010).

Therefore, current earnings that are more representative of future earnings, are of higher quality; thus, smoother earnings reflect higher quality earnings (Francis et al., 2006; Rountree et al., 2008; Eliwa et al., 2016).

On the main view, smoothness considered as to be a consequence of earnings management, because it attempts to mask a firm’s true performance, and reduces the information value of reported earnings, making them less useful. Earnings smoothness reflects the extent to which financial accounting standards permit managers to artificially reduce earnings variability, to obtain certain benefits from the capital markets (Leuz et al., 2003).

3.5.2 **Market based attributes:**

These attributes take returns or prices as the reference construct; consequently, measures of these attributes are based on the estimated relation between accounting earnings and market price or returns.

1. **Value relevance.**

Value relevance describes as a direct measure of decision usefulness. (Joos and Lang, 1994; Collins et al., 1997; Francis and Schipper, 1999; Lev and Zarowin, 1999; Francis et al., 2004). Some studies (Ali and Zarowin, 1992) imply that the relative importance of earnings levels and earnings changes in explaining stock returns depends upon earnings permanence. Other study suggests that earnings level is the most important variable in
explaining stock returns and that the value-relevance of earnings levels does not depend upon the earnings permanence (Cheng et al., 2012).

Value relevance captures information reliability and the latter increases earnings precision as an indicator of FCF, greater value relevance will reduce information risk. Value relevance can also be linked directly to information risk (Francis et al., 2004).

2. Timeliness:

According to the IASB’s Conceptual Framework, timeliness is one of the enhancing qualitative characteristics to provide useful financial reports. It simply means “having information available to decision-makers before it loses its capacity to influence decisions”. Providing relevant information sooner can enhance its capacity to influence decisions, while delay in provision of information can render its effectiveness and usefulness. In relation to accounting information, timeliness is the extent to which current accounting income incorporates current economic income (Dechow, 2010).

The timeliness of income recognition refers to the extent that current earnings reflect value relevant information. The timely incorporation of both favorable and unfavorable information in earnings facilitates effective monitoring of managers by the board of directors and external investors. However, timeliness is not expected to be uniform across firms – it will vary as a result of firms’ available investment and growth opportunities. Timeliness has also been shown to differ across legal, institutional and financial reporting regimes (Pope and Walker, 1999; Ball et al., 2000; Beekes et al., 2004).

3. Conservatism

Conservatism is then defined as the extent to which current accounting income asymmetrically includes economic losses, relative to economic gains. Thus, earnings conservatism refers to bad news being reflected more quickly than good news in earnings (Beekes et al., 2004).

In highlighting the conservatism concept in respect of earnings quality, accounting practice prefers skepticism in recording gains when “some uncertainty attaches to the successful completion of the transaction” and requires a higher threshold of verifiability before recognizing gains. In contrast, incorporation of losses from incomplete transactions is subject to less stringent requirements, as mandated (MARTOWIDJOJO, 2017). Thus, conservatism is conditional on the demand to record losses faster than gains, in which a timelier recording of losses reflects a more conservative accounting system (Watts, 2003).
To achieve better earnings quality, it noticed that all accounting and market attributes of earnings must achieved in order to decrease the manipulated information in the financial reports. Each attribute interactive with other one and they consider as integrated process in creating high quality of earnings.

3.6 Factors affecting earnings quality.

There are several factors affecting earnings quality specially when firm’s management tend to presents the firm in better view. Thus, when they need to do such issue, management incentives consider the main factors affecting quality of earnings.

1. Meeting analysts’ expectations.
2. To avoid debt-covenant violations.
3. Political incentives.

1. Meeting analysts’ expectations:

The pressure to meet revenue expectations is particularly intense and may be the primary catalyst in leading managers to engage in earning management practices that result in questionable or fraudulent revenue recognition practices. Magrath and Weld indicate that improper revenue recognition practices were the cause of one-third of all voluntary or forced restatements of income filed with the SEC from 1977 to 2000. It is common practice for companies to provide earnings estimates to analysts and investors. Management is often faced with the task of ensuring their targeted estimates are met (Abdelghany, 2005).

Several studies investigate the role of earnings management and analyst’s forecasts; they conclude that positive forecast error indicate that actual earnings beat the forecast. In another world, there are smaller positive forecast errors than small negative forecast errors (Dechow and Schrand, 2004).

Dechow and Schrand, said that the company might meet analysts’ forecasts because analysts are good at forecasting earnings, because the company’s earnings are easy to forecast, or because managers provide “guidance” to analysts about expected earnings. Nonetheless, the fact that a company consistently just meets the consensus forecast is a potential red flag that earnings quality is low (Dechow and Schrand, 2004).

Skinner and Sloan, set that not every company meets its forecast, the stock prices of the companies are particularly hard hit by investors when the companies subsequently miss the consensus forecast. They called it “torpedo”, that means company does not meet
revenue growth expectations but still manages to meet earnings expectations (Skinner and Sloan, 2002). By the way, Kasznik (2009), documented abnormally high positive discretionary accruals when earnings would otherwise have been below management forecasts.

2. **To avoid debt-covenant violations:**

   Some firms have the incentive to avoid violating earnings-based debt covenants. If violated, the lender may be able to raise the interest rate on the debt or demand immediate repayment. Consequently, some firms may use earnings-management techniques to increase earnings to avoid such covenant violations (Abdelghany, 2005).

   DeAngelo et al. and Sweeney found somewhat conflicting evidence on earnings management related to debt covenants. They predicted that companies would engage in income-increasing behavior to avoid costly violation of debt covenants. DeAngelo et al., did not find evidence of such behavior for a sample of “financially troubled” companies. The accrual behavior of the companies with binding covenants and those with nonbinding covenants was not significantly different. DeAngelo et al. also provided some evidence that the more troubled companies with binding constraints had more negative accruals, but the accruals were related to inventory write-offs, which are probably a result of real troubles, not discretionary decisions (Dechow and Schrand, 2004).

   In contrast, other study finds evidence that as company’s approach violation of their debt covenants, they respond with more income-increasing accounting changes (Dechow, Sloan and Sweeney, 2005).

3. **Political incentives:**

   Some firms have the incentive to have lower earnings in order to minimize political costs associated with being seen as too profitable.

   Hall and Stammerjohan (1997), argue that the link between accounting numbers and damage awards appears to be similar to the link between accounting numbers and political costs. In both cases, managers’ reporting of lower earnings is expected to have an implicit effect on the process determining costs. The influencing the political process in the one case and the legal process in the other. The two situations differ in that the plaintiff may have greater incentives to undo managers' manipulations (Jones, 1991).
DeAngelo and DeAngelo, suggested that managers have incentives to manage earnings downward before labor union negotiations to strengthen their bargaining positions (DeAngelo and DeAngelo, 1991).

4. **Bonus incentives:**

Healy, noted that earnings-based bonus plans frequently have upper and lower bounds. If earnings are below the lower bound, no bonus is awarded; when earnings are above the upper bound, no additional bonus is paid; and when earnings are between the bounds, the bonus is a function of earnings. For such arrangements, Healy predicted that managers had an incentive to increase earnings in order to increase the bonus only when unmanaged earnings were between the bounds (Healy, 1985).

The incentive to manage earnings to maximize bonuses may have decreased, but it may have been replaced by incentives to manage earnings to influence the stock price and maximize stock-based compensation. The conjecture that managers have incentives to manage earnings-related to stock-based compensation is predicated on the assumption that managers believe the managed earnings will be mispriced and the manager will be able to take advantage of the mispricing before it is corrected—either by selling shares or by exercising options. (Dechow and Schrand, 2004).

Nwaeze et. Al (2006), find that firms with less persistent earnings have lower weight placed on earnings relative to cash flows in compensation. This result implies that compensation committee’s decisions are affected by earnings persistence, and thus persistence is decision useful information.

Baber et al. (1998), find that earnings persistence increases the positive relation between unexpected earnings and the annual change in various components of compensation.

**3.7 Conclusion.**

As mentioned in chapter two intellectual capital was divided into three categories. Furthermore, for reviewing the effecting mechanism of IC on earning quality, has stated the trend of human capital, structural capital and capital employed on earning quality.

The following figure summarizes the theoretical relationship between intellectual capital and its components on earnings quality.
Figure (4). Intellectual capital and earnings quality.

Figure (4) describes the researcher conclusion about the relationship between intellectual capital represented on human capital, structural capital and capital employed, and earnings quality. The study suggests when companies improve the components of intellectual capital then it will increase the quality of earnings.

The relationship between human capital and earnings quality is interesting for several reasons. First, users of financial statements consider the external reputation of top management to be a key factor in assessing the quality of financial reporting. Second, survey evidence shows that chief financial officers indicate that career concerns, especially those related to external reputation, exert a significant influence on their financial reporting decisions. Third, anecdotal evidence suggests that highly reputed managers rely on earnings management to maintain their reputation for "delivering" earnings to the market.

Structural capital defined as a level of knowledge and technology which internalized in the firms, whichever the level of this capital going up will effect on the quality of information which communicated to the stakeholders. Thus, risk averse management will less rely on the information which is based on the discretionary accruals (Mojtahedi, P 2013).
Chapter Four:  
Methodology.

4.1 Introduction.
4.2 Sample and data collection.
4.3 Variables definitions and measurement.
4.4 Conclusion.
4.1 Introduction.

This research is an applied research to examine the relationship between the independent and dependent variables. The combined data which depends on time series and cross section data will used. Actual and historical data were extracted from all relevant sites, such as the Palestine Exchange, electronic archives, papers, books, and related documentation will use.

In this chapter, the study will explain the sample and data collection, Variables definitions and measurements.

4.2 Sample and data collection.

The research tool includes financial statements, complementary notes and financial reports of the studied banks, which all of the related information is issued by Palestine Exchange. The sample contains all banks listed in Palestine Exchange during 2009 to 2017, under the following conditions:

1. The firms are listed in Palestine Exchange before 2009 and still continues its activities after 2017.
2. All financial information and other variables required for calculating the study variables should be available.
3. The financial year of the firms is based on the calendar year.

The final sample was selected according to the previous requirements, which contains six banks (Bank of Palestine, Arabic Islamic Bank, Palestine Islamic Bank, Palestine Investment Bank, Al-Quds Bank, The National Bank) listed in the PEX.

The study depends on the listed banks in the PEX because its concerns about qualifying, trainings and improving efficiency of its employees and considering them as the main assets of the organizations. The study also selects the listed banks in PEX because it concerns about Palestinian environment and does not deal with foreign banks.

4.3 Variables definition and measurement.

4.3.1 Independent variable: Intellectual Capital.

The study defines intellectual capital as the sum of information, techniques, experiences and knowledge used by and through human capital, structural capital, and capital employed as integrated part to create or improve the value of organizations which is has effects of improving the quality of earnings.

The study uses the value-added intellectual coefficient (VAIC) model developed by Pulic (2000) to measure the intellectual capital of the banks listed in Palestine Exchange.
In this study, VAIC will be used to measure IC which was introduced by Ante Pulic (2002). This model measures the total value created by physical and financial capital of the firm as well as its human and structural capital.

VAIC model involves four steps:

- **Step 1**: calculating the value added, which is the difference between the output and input of the enterprise. Output is total sales and input is the cost of bought-in materials, components, and services. Expenses related to employees are not treated as cost but represent as investment. Value added equation is:

  \[
  \text{VA} = \text{OP} + \text{EC} + \text{A} + \text{D}
  \]

  Where:
  - \(\text{OP}\): operating profit of the firm.
  - \(\text{EC}\): employee costs.
  - \(\text{A}\): amortization.
  - \(\text{D}\): depreciation.

- **Step 2**: calculating efficiency of capital employed.

  \[
  \text{CEE} = \frac{\text{VA}}{\text{CE}}
  \]

  Where:
  - \(\text{CEE}\): capital employed efficiency.
  - \(\text{VA}\): value added.
  - \(\text{CE}\): capital employed, which is equal to the book value of the company’s total assets minus intangible assets.

- **Step 3**: calculating human capital efficiency.

  \[
  \text{HCE} = \frac{\text{VA}}{\text{HC}}.
  \]

  Where:
  - \(\text{HCE}\): human capital efficiency.
  - \(\text{VA}\): value added.
  - \(\text{HC}\): human capital, which represent the total salaries and wages of the firm.

- **Step 4**: calculating structural capital efficiency.

  \[
  \text{SCE} = \frac{\text{SC}}{\text{VA}}.
  \]

  Where:
  - \(\text{SCE}\): structural capital efficiency.
  - \(\text{VA}\): value added.
SC: structural capital, which is calculated by deducting human capital from value added. So, it represents as, SC = VA-HC.

- Finally, calculating VAIC by summing CEE, HCE and SCE.

\[
VAIC = CEE + HCE + SCE.
\]

The study uses the Pulic’s model because of its advantages. Andriessen stated that the main advantage of Pulic’s model is that IC can be evaluated using the raw data extracted from the financial statement of firms (Andriessen, 2004). Pulic argues that VAIC is the best measure of the value added obtained from all the resources available to an organization. Moreover, this coefficient is calculated from audited information, thus having a high level of verifiability (Pulic, 2000; Pulic, 2004).

The following table summarizes the VAIC for banks listed in PEX.

**Table (3). VAIC measurement**

<table>
<thead>
<tr>
<th>Banks</th>
<th>Year</th>
<th>CEE</th>
<th>HCE</th>
<th>SCE</th>
<th>VAIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank of Palestine</td>
<td>2009</td>
<td>0.032173</td>
<td>3.954317</td>
<td>0.747112</td>
<td>4.733602</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>0.04377</td>
<td>4.313369</td>
<td>0.768163</td>
<td>5.125303</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>0.049807</td>
<td>4.641075</td>
<td>0.784533</td>
<td>5.475415</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>0.045067</td>
<td>4.472345</td>
<td>0.776404</td>
<td>5.293816</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>0.045371</td>
<td>4.724716</td>
<td>0.788347</td>
<td>5.558434</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>0.045262</td>
<td>4.500693</td>
<td>0.777812</td>
<td>5.323767</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>0.045113</td>
<td>4.712962</td>
<td>0.787819</td>
<td>5.545894</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>0.03936</td>
<td>4.612882</td>
<td>0.783216</td>
<td>5.435458</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>0.040828</td>
<td>4.535126</td>
<td>0.779499</td>
<td>5.355453</td>
</tr>
<tr>
<td>average</td>
<td>2009</td>
<td>0.042972</td>
<td>4.496387</td>
<td>0.776989</td>
<td>5.316349</td>
</tr>
<tr>
<td>Arabic Islamic Bank</td>
<td>2009</td>
<td>0.034788</td>
<td>4.398916</td>
<td>0.772671</td>
<td>5.215375</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>0.042956</td>
<td>3.786641</td>
<td>0.735914</td>
<td>4.56551</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>0.040161</td>
<td>3.233518</td>
<td>0.690739</td>
<td>3.964418</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>0.037157</td>
<td>3.641933</td>
<td>0.725421</td>
<td>4.40451</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>0.032759</td>
<td>3.701577</td>
<td>0.729845</td>
<td>4.464181</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>0.032055</td>
<td>3.830455</td>
<td>0.738934</td>
<td>4.601445</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>0.031828</td>
<td>3.800629</td>
<td>0.736886</td>
<td>4.569543</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>0.03215</td>
<td>4.001395</td>
<td>0.7501</td>
<td>4.783845</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>0.030703</td>
<td>3.937609</td>
<td>0.746039</td>
<td>4.714351</td>
</tr>
<tr>
<td>average</td>
<td>2009</td>
<td>0.035551</td>
<td>3.814764</td>
<td>0.736283</td>
<td>4.586998</td>
</tr>
<tr>
<td>Palestine Islamic Bank</td>
<td>2009</td>
<td>0.036672</td>
<td>2.637971</td>
<td>0.620921</td>
<td>3.295564</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>0.049455</td>
<td>3.317662</td>
<td>0.698583</td>
<td>4.0657</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>0.034946</td>
<td>2.79254</td>
<td>0.641903</td>
<td>3.469389</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>0.034984</td>
<td>2.872649</td>
<td>0.651889</td>
<td>3.559522</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>0.036846</td>
<td>2.958504</td>
<td>0.661991</td>
<td>3.657341</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>0.045127</td>
<td>3.727466</td>
<td>0.731721</td>
<td>4.504314</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>0.049702</td>
<td>4.089084</td>
<td>0.755446</td>
<td>4.894232</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>0.054296</td>
<td>4.519148</td>
<td>0.778719</td>
<td>5.352164</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>0.049193</td>
<td>4.249013</td>
<td>0.764651</td>
<td>5.062857</td>
</tr>
<tr>
<td>average</td>
<td>2009</td>
<td>0.043469</td>
<td>3.462671</td>
<td>0.700647</td>
<td>4.206787</td>
</tr>
<tr>
<td>Palestine Investment Bank</td>
<td>2009</td>
<td>0.034443</td>
<td>4.155621</td>
<td>0.759362</td>
<td>4.949426</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>0.041909</td>
<td>4.038537</td>
<td>0.752386</td>
<td>4.832892</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>0.045248</td>
<td>3.233604</td>
<td>0.690847</td>
<td>3.970735</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>0.04316</td>
<td>3.082257</td>
<td>0.675562</td>
<td>3.809979</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>0.04412</td>
<td>3.531171</td>
<td>0.717368</td>
<td>4.299951</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>0.040614</td>
<td>3.528062</td>
<td>0.716558</td>
<td>4.285235</td>
</tr>
</tbody>
</table>
The previous table shows that banks have differences in the application and understanding of the concept of intellectual capital, especially since all banks have significant differences in the differentiation of intellectual capital components (human capital, structural capital and capital employed).

The table also shows that human capital is the more composed of the components of intellectual capital with sufficient knowledge. In the study period, the mean of human capital head was 3,964. This indicates that each unit invested in human capital has the ability to add value to the banks at the rate of 3.964. Structural capital and working capital are relatively few compared to human capital. This is because banks rely on employees and their efficiencies to create added value for the banks.

### 4.2.2 Dependent variable: Earnings Quality.

The study defines earnings quality that should represent the real value of the organization that help users of financial statement to predict the future value of the organization.

The study measures earnings quality by investigating the level of discretionary accruals by using the modified Jones model (2005) and Miller Ratio (2007).
The modified Jones model designed to eliminate the conjectured tendency of the Jones model to measure discretionary accruals with error when discretion is exercised over revenues.

- Calculating discretionary accruals using Modified Jones model has three steps:

**Step 1**: calculate total accruals.

\[ TA_{i,t} = NI_{i,t} - CFO_{i,t} \]

Where:

- \( TA_{i,t} \): total accruals of the firm \( i \) for the year \( t \).
- \( NI_{i,t} \): net income of the firm \( i \) for the year \( t \).
- \( CFO_{i,t} \): cash flow from operating activities of the firm \( i \) for the year \( t \).

**Step 2**: estimate parameters of the cross-sectional modified model.

\[
\frac{TACC_t}{A_{t-1}} = \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} + \alpha_3 \frac{PPE_t}{A_{t-1}} + \varepsilon_t
\]

Where:

- \( TACC \): Total accruals in year \( t \) divided by total assets in year \( t-1 \).
- \( \Delta REV \): Revenues in year \( t \) less revenues in year \( t-1 \).
- \( \Delta REC \): Delta revenues in year \( t \) less delta net receivables in year \( t-1 \).
- \( PPE \): Gross property plant and equipment in year \( t \).
- \( A_{t-1} \): Total assets in year \( t-1 \).
- \( \alpha_1, \alpha_2 \) and \( \alpha_3 \): Parameters to be estimated, namely alphas.
- \( \varepsilon_t \): Residuals in year \( t \).

**Step 3**: Calculate the discretionary accruals, the discretionary accruals will be calculated with the next formula.

\[ DA_t = TA_t - NDA_t \]

Where Non-discretionary accruals (NDA) can calculated by the following formula:

\[
\frac{NDACC_t}{A_{t-1}} = \hat{\alpha}_1 \frac{1}{A_{t-1}} + \hat{\alpha}_2 \frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} + \hat{\alpha}_3 \frac{PPE_t}{A_{t-1}}
\]
Where:

\( NDACC_t \) : Non-discretionary accruals divided by total assets in year \( t - 1 \),
\( \Delta REV_t \) : Revenues in year \( t \) less revenues in year \( t - 1 \),
\( \Delta REC_t \) : Net receivables in year \( t \) less net receivables in year \( t - 1 \),
\( PPE_t \) : Gross property plant and equipment in year \( t \),
\( A_{t-1} \) : Total assets in year \( t - 1 \),
\( \hat{\alpha}_1, \hat{\alpha}_2, \) and \( \hat{\alpha}_3 \) : Estimated parameters, namely alphas.

The following table represents the measurement of earnings quality according MJM.

**Table (4). Earnings quality (MJM).**

<table>
<thead>
<tr>
<th>Banks</th>
<th>Year</th>
<th>DACC</th>
<th>Banks</th>
<th>Year</th>
<th>DACC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palestine Investment Bank</td>
<td>2009</td>
<td>95225115.12</td>
<td>Bank of Palestine</td>
<td>2009</td>
<td>446089756.9</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>13545505.84</td>
<td></td>
<td>2010</td>
<td>146208657.3</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>209170995.9</td>
<td></td>
<td>2011</td>
<td>1167808746</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>26809761.98</td>
<td></td>
<td>2012</td>
<td>212688934.3</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>44784584.5</td>
<td></td>
<td>2013</td>
<td>254054939.1</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>5.40167E+13</td>
<td></td>
<td>2014</td>
<td>2.81022E+14</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>106976910.6</td>
<td></td>
<td>2015</td>
<td>121685042.7</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>1508506.346</td>
<td></td>
<td>2016</td>
<td>8326084.856</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>9634453.24</td>
<td></td>
<td>2017</td>
<td>72314572.93</td>
</tr>
<tr>
<td>AlQuds Bank</td>
<td>2009</td>
<td>111368845</td>
<td>Arabic Islamic Bank</td>
<td>2009</td>
<td>85870231.6</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>38068999.09</td>
<td></td>
<td>2010</td>
<td>17472718.32</td>
</tr>
<tr>
<td></td>
<td>2011</td>
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<td>78150670.97</td>
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<td>2012</td>
<td>46776126.05</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>97513963.89</td>
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<td></td>
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<td>2014</td>
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</tr>
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<td></td>
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<td></td>
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<tr>
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<td>2016</td>
<td>17851734.52</td>
<td></td>
<td>2016</td>
<td>48116514.37</td>
</tr>
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<td></td>
<td>2017</td>
<td>47525976.7</td>
<td></td>
<td>2017</td>
<td>120278377.9</td>
</tr>
<tr>
<td>The National Bank</td>
<td>2009</td>
<td>85870231.6</td>
<td>Palestine Islamic Bank</td>
<td>2009</td>
<td>130592871.4</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>22013123.32</td>
<td></td>
<td>2010</td>
<td>28640172.48</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>207364845.7</td>
<td></td>
<td>2011</td>
<td>270786633.7</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>11257737.8</td>
<td></td>
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</tr>
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<td></td>
<td>2013</td>
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<td>32619930.74</td>
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<td></td>
<td>2014</td>
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<td></td>
<td>2014</td>
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</tr>
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<td></td>
<td>2015</td>
<td>92893988.13</td>
<td></td>
<td>2015</td>
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<td></td>
<td>2016</td>
<td>10120864.41</td>
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<td>2017</td>
<td>49531860.22</td>
<td></td>
<td>2017</td>
<td>62615377.18</td>
</tr>
</tbody>
</table>

**Miller Ratio** considered as the tool to study the relationship between cash flows from operating activities and change in working capital. This model explains the relationship between the change in working capital as an element of manipulation and cash flow from operational activities as a non-manipulative element. This ratio can be used to detect the manipulation of earnings where the value is zero if there is no manipulation, but if the
value is different from zero, this indicates that there is a manipulation of the number of earnings. The model illustrates the following assumptions:

- No earnings management.
  \[(WC / CFO)_{t-o} - (WC / CFO)_{t-1} = 0\]
- Existence of earnings management.
  \[(WC / CFO)_{t-o} - (WC / CFO)_{t-1} \neq 0\]

Where the following table represent the earnings quality measurement using MR.

<table>
<thead>
<tr>
<th>Banks</th>
<th>Year</th>
<th>MR</th>
<th>Banks</th>
<th>Year</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<td>2013</td>
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</tr>
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<td></td>
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<tr>
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</tr>
<tr>
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<td>2017</td>
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<td></td>
<td>2017</td>
<td>-1.066197711</td>
</tr>
<tr>
<td>The National Bank</td>
<td>2009</td>
<td>0.006787296</td>
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<td>2009</td>
<td>-0.064771484</td>
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<tr>
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<tr>
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<td>2013</td>
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<td>2015</td>
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</tr>
<tr>
<td></td>
<td>2016</td>
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<td></td>
<td>2016</td>
<td>-3.237114394</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>-1.300620895</td>
<td></td>
<td>2017</td>
<td>-0.12371074</td>
</tr>
</tbody>
</table>

From the previous table, the study noticed that there are variances from banks in earnings quality, it is noticed through study period that there are earnings management from banks because the assumption of Miller Ratio stated.

So, all banks manipulate their information by different levels and the quality of earnings is low.
4.2.3 Control variables:

According to the prior literature and comprises the choice of control variables included two variables have influence the earnings quality. Specifically, the selected control variables are Leverage (LEV) and firm size (SIZE), with the coefficients on them expected to be negative. These variables are measured as follows:

\( \text{LEV}_i, t = \frac{\text{total debt}}{\text{total assets}} \) for firm \( I \) at fiscal year-end \( t \).

\( \text{SIZE}_i, t = \text{firm’s natural logarithm of the total assets} \) at fiscal year-end \( t \).

Table (6) represents the control variables measurement:

<table>
<thead>
<tr>
<th>Banks</th>
<th>Year</th>
<th>SIZE</th>
<th>LEV</th>
<th>Banks</th>
<th>SIZE</th>
<th>LEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palestine Investment Bank</td>
<td>2009</td>
<td>19.31929828</td>
<td>0.659189921</td>
<td>Bank of Palestine</td>
<td>20.97155</td>
<td>0.818158647</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>19.31929828</td>
<td>0.659189921</td>
<td></td>
<td>21.15831</td>
<td>0.822048614</td>
</tr>
<tr>
<td></td>
<td>2011</td>
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<td>0.634976194</td>
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<td>21.22644</td>
<td>0.800679009</td>
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<tr>
<td></td>
<td>2012</td>
<td>19.37114008</td>
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<td>21.41866</td>
<td>0.81067009</td>
</tr>
<tr>
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<td>2013</td>
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<td>0.68620977</td>
<td></td>
<td>21.57685</td>
<td>0.80969801</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>19.58637136</td>
<td>0.710882512</td>
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<td>21.609</td>
<td>0.797319927</td>
</tr>
<tr>
<td></td>
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<td>19.60782344</td>
<td>0.699832701</td>
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<td>2016</td>
<td>19.68116438</td>
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<td></td>
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<td></td>
<td>22.3094</td>
<td>0.835292173</td>
</tr>
<tr>
<td>AlQuds Bank</td>
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<td>0.659189921</td>
<td>Bank of Palestine</td>
<td>20.97155</td>
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<tr>
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<td>Bank of Palestine</td>
<td>20.97155</td>
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<tr>
<td></td>
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<td>0.659189921</td>
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<td>0.835292173</td>
</tr>
</tbody>
</table>

4.4 Conclusion

In this chapter the study presents the sample tested in the applied study and its procedure of collecting data. It is also presented the definitions of variables and calculation process for measuring it.

In the following chapter the study will talk about data analysis and testing hypothesis through several statistical tests.
Chapter five:
Data analysis and test hypotheses.

5.1 Introduction.
5.2 Descriptive statistics.
5.3 Coefficients correlation.
5.4 Test hypothesis.
5.1 Introduction.
In this chapter the study will describe the statistical tests used in order to achieve
the purpose of the study and testing hypothesis.

5.2 Descriptive Statistics.
The study was based on descriptive statistical measures (arithmetic mean, standard
deviation, lower value and greater value) to describe the data of the study variables.

5.3 Coefficients Correlation.
Person Correlation (correlation coefficient) was used to measure the strength of the
linear relationship between the variables of the study. The result of the Pearson correlation
coefficient can be inferred from the presence.

First: Description of the study data
Table (7) shows the descriptive statistics of the study variables for the entire sample
of the banks operating in the Palestine Stock Exchange from 2009 to 2017. The table
shows the mean, the largest and smallest value for the variables. Table (3) shows the
descriptive statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEE</td>
<td>0.041779</td>
<td>0.008956</td>
<td>0.073675</td>
<td>0.027416</td>
</tr>
<tr>
<td>DACC</td>
<td>1.28E+13</td>
<td>4.70E+13</td>
<td>2.81E+14</td>
<td>-1.17E+09</td>
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<tr>
<td>HCE</td>
<td>3.964309</td>
<td>0.865605</td>
<td>8.107298</td>
<td>2.637971</td>
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<tr>
<td>LEVERAGE</td>
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<td>0.231719</td>
<td>0.843875</td>
<td>0.226035</td>
</tr>
<tr>
<td>MILLER</td>
<td>-0.0864</td>
<td>8.169307</td>
<td>38.65412</td>
<td>-36.0401</td>
</tr>
<tr>
<td>SCE</td>
<td>0.73853</td>
<td>0.046206</td>
<td>0.876654</td>
<td>0.620921</td>
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<tr>
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<td>0.790632</td>
<td>22.3094</td>
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<td>VAIC</td>
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<td>0.913957</td>
<td>9.057627</td>
<td>3.295564</td>
</tr>
</tbody>
</table>

From data of the previous table the study notes that through the analytical
descriptive statistics of the sample of the study that the standard deviation of variable
(earnings quality by using DACC and MILLER) was large compared to the arithmetic
mean of standard deviation, this because to the manipulation of the management of
companies in the financial statements in order to mislead users of financial statements and
improve the image of the company in the labor market.
Second: Validation of data for statistical analysis.

Before starting data analysis, estimating the study models and testing the hypotheses, the validity of the data must first be verified. This is done through a set of tests, normal distribution, Pearson's correlation to independent variables, and collinearity. Since Panel Data was used in the data display, EViews was used for analysis purposes.

1. Normal distribution test:

In order to verify the proximity of the data to its normal distribution, the Jarque-Bera test was used where the decision to accept the null hypothesis, the data follows normal distribution if the probability of the Smirnov-Kolmogorov test is greater than 5%.

The results of the normal distribution test, as shown in Table 8, show that the probability of Smirnov-Kolmogorov for some variables is less than 5%, which means that they do not follow the normal distribution. and to skip the problem of non-distribution normality, the natural logarithm (ln) was taken for those variables to approximate their normal distribution.

<table>
<thead>
<tr>
<th>Table (8).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal distribution test</td>
</tr>
<tr>
<td>J-B</td>
</tr>
<tr>
<td>CEE</td>
</tr>
<tr>
<td>DACC</td>
</tr>
<tr>
<td>HCE</td>
</tr>
<tr>
<td>LEVERAGE</td>
</tr>
<tr>
<td>MILLER</td>
</tr>
<tr>
<td>SCE</td>
</tr>
<tr>
<td>SIZE</td>
</tr>
<tr>
<td>VAIC</td>
</tr>
</tbody>
</table>

2. Pearson's correlation:

Table (9) shows a high correlation between some independent variables (HCE and SCE) with a correlation value of 93.1%.
This correlation may result in the Collinearity problem and it requires a Variance Inflation Factor (VIF) test.

The strength of the linear model depends on the hypothesis of the independences of each independent variable. If this condition is does not met, the linear model is then not applicable and cannot be considered as good for the process of estimating the information. To achieve this, the Collinearity Statistics were used by calculating the VIF coefficient for each independent variable, this test is a measure the effect of correlation between independent variables.

Table (10) shows that the value of VIF is less than (10), which means that the study models are free of the problem of interference and linear participation after modification.

5.4 Test hypotheses:

- The main hypothesis of the study is:
  
  There is significant relationship between intellectual capital efficiency and earnings quality.

- The subsidiary hypotheses are:
  
  - There is a significant relationship between human capital efficiency and earnings quality.
  
  - There is a significant relationship between structural capital efficiency and earnings quality.
• There is a significant relationship between capital employed efficiency and earnings quality.

The study used the multiple regression test and panel data. The Robust_Standard_Errors test was used also to adjust the Heteroscedasticity error of the research models; the white statistic was less than 0.05 for all the research models. This means that we reject the null hypothesis that the models of the research have a problem of variance instability the random error.

For the purpose of testing the hypotheses, the simple linear regression method was used, so that regression models were tested at the sample as a whole. And to find out the appropriate method for this study between cross-section fixed method or cross-section random method (known as heterogeneity), the Cross-section Fixed method was used.

In order to know the significance of the correlative effect of independent and dependent variables in a practical and effective manner.

If Sig.R (> 5%) hypothesis is accepted H0. (There is no relationship).
If Sig.R (<5%) hypothesis H1 is accepted. (There is a relationship).

The following table describes the regression results of testing hypotheses:

<table>
<thead>
<tr>
<th>Table (11)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INDEPENDENT VARIABLES</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>VAIC</td>
</tr>
<tr>
<td>CEE</td>
</tr>
<tr>
<td>HCE</td>
</tr>
<tr>
<td>SCE</td>
</tr>
<tr>
<td>SIZE</td>
</tr>
<tr>
<td>LEVERAGE</td>
</tr>
<tr>
<td>SIG.</td>
</tr>
<tr>
<td>$R^2$</td>
</tr>
</tbody>
</table>

Testing the main hypothesis:

• There is a significant relationship between intellectual capital efficiency and earnings quality.

From the previous table the study rejects the hypotheses of there is significant relationship between intellectual capital and earnings quality “using both Modified
Jones Model and Miller Ratio Model”, where sig = .3011 by MJM and .5692 by MR and it is greater than 5%, which indicates that there is no relation between variables. The researcher suggests that the lack of relationship because the gap of understanding the term of intellectual capital and its importance to restrict the manipulated activities in order to achieve better earnings quality by the listed banks at PEX and put their concerns at financial information only.

Theoretically, financial performance, market performance, ROR of properties and stock return consider as elements improve the quality of earnings. So the result of this hypothesis supported by supported by the result of Ashour (2016), which was in the same environment where it concludes that the intellectual capital had an insignificant relationship with financial performance and market performance. The result also supported by the results of Javadi et.al (2015) where the intellectual capital has no significant relationship with ROR of owner's salary and ROR of properties, and it is supported by the results of Djamil at.al (2013) which conclude that intellectual capital does not affect the current stock return.

Testing the subsidiaries hypothesis:

- **There is a significant relationship between human capital efficiency and earnings quality.**

  From table (7), the study rejects the hypotheses of there is significant relationship between human capital and earnings quality, where sig = .3082 and .6705 by using MJM and MR respectively which is greater than 5% that indicate there is no relation between variables. the researcher suggests the reason of an insignificant relationship is that employee do not have enough experience, knowledge, and ability to improve their background about the importance of intellectual capital in restrict the manipulations and improving financial information.

  The result of testing this hypothesis is in contrast with all studies testing its relation with other variables. From the view of Duff (2018), the human capital is the most frequently reported disclosure. Ashour (2016), which tests the relationship between human capital efficiency and economic performance approve the positive significant relationship between human capital and economic performance. Otherwise, Anuonye and Ngozi (2016) noticed that human capital has statistically significant impact on ROA.
Wong et.al (2015) and Kamath (2015) also were in contrast with the result of this hypotheses, where they conclude human capital achieve better profitability.

- **There is a significant relationship between structural capital efficiency and earnings quality.**

From previous table the study accepts the null hypotheses which stated that there is no relationship between structural capital efficiency and earnings quality and rejects the hypotheses of there is a significant relationship between structural capital efficiency and earnings quality, where sig = .544 and .6172 by MJM and MR respectively which is greater than 5% that indicate there is no relation between variables. The researcher suggests the reason of an insignificant relationship is that banks do not utilizing their structural capital in right way in order to added value to the banks.

This result supported by Duff (2018) where the structural capital was from the least reported category, and the study of Djamil (2013) where the structural capital does not affect the current stock return.

Because profitability is one of the main factors affecting earnings quality, Wong et.al (2015) and Kamath (2015) were in contrast with the result of this hypothesis, where they approve the importance of structural capital on improving and enhancing profitability of the firms.

- **There is a significant relationship between capital employed efficiency and earnings quality.**

The aim of this hypotheses is to investigate the relationship between capital employed and earnings quality, the findings in table (7) conclude that the study accepts the null hypothesis which stated that there is no relationship between capital employed efficiency and earnings quality and rejects the hypothesis of there is a significant relationship between capital employer efficiency and earnings quality. The table describes that there is no relationship between variables where sig = .5765 by using MJM which is greater than 5%, and MR insure that where sig = .8329. which mean rejects the hypotheses.
Chapter six:

Results and recommendations

6.1 Introduction.
6.2 Results.
6.3 Recommendations.
6.1 Introduction.

The study aimed at identifying the relationship between intellectual capital and earnings quality of the listed banks in PEX. The financial reports were used to collect the preliminary data related to the subject of the study over the nine years 2009-2017. The study was applied to all the banks listed in PEX, which are (6) banks.

The main objective of the study was to reach a set of conclusions and recommendations that would be useful to decision-makers to improve the quality of earnings of the listed banks in the PEX.

6.2 Results.

The study concludes two different types of results:

1- Theoretical results.
2- Practical results.

1- Theoretical results:

From theoretical understanding of previous studies that testing intellectual capital and earnings quality or both together the study noticed the following results:

1. Intellectual capital is a modern concept has not totally identified.
2. There are several methods for measuring intellectual capital.
3. There are some factors that are on obstacle in apply the concept of intellectual capital.
4. Firms attend to have better earnings quality by applying some concepts.
5. Intellectual capital is one of the most influence factor in improving earnings quality.

2- Practical results:

The result was similar to the same as study of Darabi et al (2012) where two components of intellectual capital (structural capital and capital employed) has no significant relationship with earnings quality, the result differed with the same study results in Mojtahedi (2013) and Sarea (2016) where relationships between intellectual capital represented on (human capital, structural capital and capital employed efficiency) and earnings quality.
From practical test, the study concludes the following results:

1- There is no relationship between intellectual capital and earnings quality, the researcher suggests that the lack of relationship because the gap of understanding the term of intellectual capital and its importance to restrict the manipulated activities in order to achieve better earnings quality by the listed banks at PEX and put their concerns at financial information only.

2- There is no relationship between human capital and earnings quality, the researcher suggests the reason of an insignificant relationship is that employee do not have enough experience, knowledge, and ability to improve their background about the importance of intellectual capital in restrict the manipulations and improving financial information.

3- There is no relationship between structural capital and earnings quality, the researcher suggests the reason of an insignificant relationship is that banks do not utilizing their structural capital in right way in order to added value to the banks.

4- There is no relationship between capital employed and earnings quality.

6.3 Recommendations: -

In the context of the results of the current study, the researcher recommends the following:

1- Banks must pay attention to the human factor because it is important in improving the value of the establishment and decrease the earnings management.

2- Banks must improve the structure of institutions and support of decision makers, which in turn will help to improve the earnings quality.

3- The study also recommends banks to pay attention to the components of intellectual capital as so as tangible assets.

4- Palestinian companies as general and banks specially should pay more attention about intellectual capital terms.

5- To use the results of the study to utilize intellectual capital truly to improve earnings quality.

6- Palestinian Exchange should be aware about disclosing of intellectual capital.
References:


78