

**Open University of Cyprus**

**Faculty of Economics and Management**

**Postgraduate Programme of Study:**

***Master in Business Administration (MBA)***

**Master's Dissertation**



**"Human Capital and Firm Performance: A  
Systematic Review of the Literature"**

**Katerina Debbie Philippou**

**Supervisor  
Dr. Konstantinos Chatzimichail**

**December 2019**



## Abstract

Human capital refers to the stock of knowledge, habits, social and personality traits, skills and competencies enabling the individual to perform labor so as to produce economic value. Its definition alone explains why it has been increasingly viewed as a crucial factor affecting the productivity of individuals and subsequently the productivity of firms. However, improvements in human capital may have a different impact on firms depending on the type of the organization.

The objective of this dissertation is to identify the theoretical links between human capital and firm performance and document possible differences in empirical results between studies focusing on public listed and private non-listed companies. To do so, a systematic and comparative literature review of the studies focusing the effects of human capital on firm performance is conducted. In particular, 98 research works were examined, out of which 41 dealt with the effects of intellectual capital on the performance of public listed firms through mostly quantitative, empirical analysis, while the remaining 57 investigated the impact of human capital on the performance of non-listed or uncategorized companies through systematic/literature reviews and empirical studies.

51.3% of the studies on non-listed firms and 34.1% of the studies on listed firms were focused on a particular industry or sector. In total, out of 98 studies, 9 (9.2%) were published in the 20<sup>th</sup> century, 26 (26.5%) were published during the first decade of the 21<sup>st</sup> century and the remaining 63 (64.3%) were published during the second decade of the 21<sup>st</sup> century. These findings indicate an increasing interest of researchers in the contribution of human capital to the survival and prosperity of contemporary corporate entities, as well as the emerging academic and business need to narrow down research on the relationship between human capital and firm performance and specialize on more specific fields and sectors. Research demographics showed that among the 98 studies, the country that appeared more frequently was Nigeria, followed by Kenya and China, Thailand, Pakistan, Malaysia, Hong Kong, Sri Lanka and Jordan, which may suggest that researchers are more interested in developing countries rather than in developed countries.

Finally, practically all the empirical studies, systematic/literature reviews and theoretical analyses examined in the context of this dissertation acknowledged that human capital and its components have indeed a significant impact on one or more dimensions of firm performance, even if some of the studies could not successfully verify all their hypotheses. This outcome did not vary significantly between the cases of public listed companies and all other cases. On the contrary, differences were identified in the level of specialization and specific presentation of reviewed indicators, since the availability of public information in the first case allowed more extensive investigation, taking advantage of the existence of more financial and non-financial variables to test the hypotheses.

## Table of Contents

Abstract.....	2
Chapter 1: Introduction .....	6
Chapter 2: Human Capital.....	9
2.1 Human Capital Definition & Theory .....	9
2.2 Types & Characteristics of Human Capital .....	11
2.3 Sources & Components of Human Capital.....	13
2.4 Human Capital Measurement – Methods & Approaches.....	14
Chapter 3: Research Methodology .....	16
3.1 Methodology .....	17
3.2 Application of Qualitative Systematic Literature Review .....	19
Chapter 4: Impact of Human Capital on Firm Performance .....	21
4.1 Definition of Firm Performance .....	21
4.2 Dimensions & Determinants of Firm Performance.....	22
4.3 Drivers & Measurement of Firm Performance .....	23
4.4 Relationship Between Human Capital & Firm Performance.....	27
4.5 Review of Empirical Studies on the Impact of Human Capital on Firm Performance .....	29
Chapter 5: Impact of Human Capital on the Performance of Listed Companies .....	37
5.1 Characteristics of Listed Companies .....	37
5.2 Firm Performance in Listed Companies .....	38
5.3 Review of Empirical Studies on the Impact of Human Capital on the Performance of Listed Companies.....	39
Chapter 6: Human Capital Management& Development .....	46
6.1 Definition & Components of Human Capital Management.....	46
6.2 Definition & Components of Human Capital Development .....	48

6.3	Importance & Strategic Role of Human Capital Development .....	49
6.4	Human Capital Management & Development in Listed Firms .....	51
Chapter 7: Findings of Systematic Literature Review .....		52
7.1	Findings & Discussion .....	52
Chapter 8: Conclusions & Recommendations .....		61
8.1	Conclusions.....	61
8.2	Recommendations .....	62
References .....		63

## Chapter 1: Introduction

Human capital can be defined as “the stock of knowledge, habits, social and personality attributes, including creativity, embodied in the ability to perform labor so as to produce economic value” (Goldin, 2016). Its definition alone explains why it has long been viewed as a crucial factor influencing the productivity of individuals. However, the last three words of the definition sheds light to another important role of human capital, explaining why it has also been increasingly considered as an essential component of modern firms, significantly contributing to the improvement of business performance in multiple ways(Pettinger, 2017).

In fact, human capital is becoming more and more vital to the development of individuals, firms and societies. The quality of human capital affects the quality of employment and employee satisfaction, thus having an impact on economic growth and productivity, not only on an individual and firm-wide basis but also at a national and international level, especially in countries with limited natural resources, who require skilled, creative and innovative workforce to ensure sustainability(Pasban & Nojedeheh, 2016; Zakaria & Yusoff, 2011).

Extant literature has studied the impact of human capital on business performance from various different viewpoints, either on a more generic basis or focusing on particular business areas of interest. However, relevant literature is voluminous and often confusing in terms of explaining the notions and the types of human capital, thus hindering the generation of clear or quantifiable findings regarding the role and significance of human capital in firms and leading to the necessity of a systematic literature review. Such studies have been carried out in the past, but as human capital is becoming an indispensable resource in modern firms, it is important to revise previous work and review the latest research output, particularly in the field of public listed firms.

The aim of this dissertation is to fill the abovementioned gap, by assessing the relationship between human capital and firm performance and revealing the importance and impact that human capital may have on the performance of corporate

organizations, particularly of listed firms that present certain characteristics, such as their obligation for disclosure of financial and non-financial information, which would allow greater access to empirical data of higher quality and less bias. Furthermore, listed firms have the proper size and resources to make substantial investments in human capital development, which could also provide more insight to the possible impact of such investments on firm performance.

To this end, the present study needs to meet certain objectives, which are summarized as such: Along these lines, the aims of this study are to:

1. Provide a clear definition of the underlying notions of human capital and firm performance and an extensive description of their types, characteristics, determinants and drivers, as well as methods and approaches to their effective measurement.
2. Provide a thorough analysis of the related concepts of human capital development and investment, discuss their importance and potential policy issues and advantages.
3. Discuss the relationship between human capital and firm performance and perform a systematic review of the existing theoretical context and empirical studies.
4. Investigate the impact of human capital on the performance of listed firms and organizations, through the comparative study and compilation of findings of extant empirical research.

It must be noted that this dissertation is based on the systematic and critical examination of extent literature on both the theoretical background and the findings of empirical research that has been carried out regarding the effects of human capital on the performance of listed corporate organizations. Hence, it is a theoretical study, involving the compilation of relevant models and theories and the summary of findings of numerous empirical researches, with the purpose of highlighting the core elements and providing a useful and clear outline. Nevertheless, since no empirical research is conducted, there are no direct practical implications, although future studies could utilize the conclusions of the present dissertation as a guide and a basis for applied quantitative research.



To fulfill its purpose and objectives, this dissertation is organized and structured in seven chapters. Chapter 2 provides a detailed presentation of the core notion of Human Capital. The next chapter presents the methodology applied within the context of this dissertation, involving a systematic review of both theoretical and empirical studies and a comparative analysis between two groups of reviewed studies. Chapter 4 concentrates on the second fundamental notion of this study, firm performance and addresses the primary question regarding the relationship between human capital and firm performance, via a thorough review of relevant extant empirical studies, while Chapter 5 narrows down the study, focusing on public listed firms in particular. The sixth chapter defines and discusses the interrelated concepts of human capital management (HCM) and human capital development (HCD), attempting to identify their place in listed firms. Chapter 7 presents and discusses the findings of the aforementioned comparative analysis. The final chapter draws specific conclusions and makes recommendations for future research, especially regarding the role of human capital management in listed firms.

## Chapter 2: Human Capital

This chapter aims to present the basic theoretical context concerning human capital, its definition, types and characteristics, as well as its sources and components. Furthermore, the importance of human capital is discussed, while the chapter ends with the methods and approaches which are applied in the measurement of human capital.

### 2.1 Human Capital Definition & Theory

Although human capital has been considered a vital element influencing the productivity of individuals for many years, during the past years it has also been thought to affect the competitiveness of firms. Modern theories on human capital can be largely attributed to the works of Theodore Schultz and Gary Becker who were the first to make a clear distinction between “general” and “specific” human capital, thus allowing a deeper understanding of the different motivations for developing competences. Despite the fact that previous authors had studied human capital and many had acknowledged that the productivity of individuals could be increased through the growth of skills and competences, their contribution lacked the wide spectrum of analysis provided by the modern definition of “human capital”(Odhon'g & Omolo, 2015; Tessema, 2014; Kwon, 2009; Teixeira, 2002; Alnachef & Alhajjar, 2017; UNECE, 2016; Medina-Garrido, 2017; Tariq, et al., 2012).

Nowadays, human capital is a notion that is used rather frequently with numerous intricate definitions either adequately specific or vague. In fact, the term might only refer to acquired formal education, just as well as incorporate a broader group of investments which may affect the well-being and productivity of individuals, companies and organizations, such as investments in health and nutrition or professional training(Odhon'g & Omolo, 2015; Tessema, 2014; Kwon, 2009; Teixeira, 2002; Alnachef & Alhajjar, 2017; UNECE, 2016; Medina-Garrido, 2017; Tariq, et al., 2012).

The emergence of “human capital” can be traced back to the foundation of classical economics in 1776, when Adam Smith included human skills as a part of fixed capital (Smith, 1776). Ever since, it has evolved into a scientific theory. Schultz (1961) acknowledged human capital as one of the core elements of national economic growth in modern economies, based on macroeconomic development theory. On the other hand, Becker (1992) identified the existence of various types of human capital, from schooling, and computer training courses to expenditures on medical care (Becker, 1992; Schultz, 1961; Smith, 1776).

Human capital theory supports that formal education is a determinant of an individual’s earning power, since schooling enables the development of certain qualities in individuals, which in turn, help improve economic productivity and growth. Furthermore, Becker’s classic work focuses on the concept of human capital through the prism of neoclassical economics, by drawing a parallel between investment in human capital and investment in other means of production constituting the physical capital, such as factories. Theodore Schultz further analyzed Becker’s theory, by investigating the way rates of return from education could be assessed in countries with varying levels of income and stances towards the idea of relinquishing earnings for the development of human capital (Becker, 1962; Schultz, 1961; Teixeira, 2002).

Other research works, such as those of Griliches (1964 and 1970) or Coelli et al. (2005), did not study human capital explicitly, but investigated the role of education in production functions and in efficiency and productivity. As a result, human capital theory suggests that the competitive advantage of firms is significantly enhanced by their workforce’s range of competences, abilities skills and knowledge which is why particular care must be put on human resource development and reward practices (Becker, 1992; Odhon'g & Omolo, 2015; Schultz, 1961; Teixeira, 2002; Tessema, 2014; Kwon, 2009; Coelli, et al., 2005; Griliches, 1970; Griliches, 1964).

Omeje et al. (2015) define human capital as “the stock of knowledge, habits, social and personality attributes, including creativity, embodied in the ability to perform labor so as to produce economic value”. Human capital theory allows the evaluation of individuals’ impact on the firm’s business and facilitates the quantification of their contribution to shareholder value, by providing the human resource approaches that

generate value for money in practical, numerical terms, like return on investment. The foundation of this theory centers around the positive correlation between education and earning power, implying that more education can lead to higher earnings, and that skills, competences and knowledge acquired through education can be transfused into the business through productivity(Odhon'g & Omolo, 2015; Tessema, 2014; Preko, 2014; Marimuthu, et al., 2009; Omeje, et al., 2015).

Consequently, human capital can be defined as the set of competences, knowledge and experience acquired by an individual via education and training that can be put to productive use. As an afterthought, firms can increase their human capital both through the internal growth of their current employees' set of competences, knowledge and experience, and through hiring new personnel with highly-developed skills and knowledge. In other words, firms can both generate and purchase human capital, which in effect, increases through two different channels; via a more extensive utilization of people's knowledge, as well as through the increase in the number of employees with the desired set of skills and knowledge (Odhon'g & Omolo, 2015; Tessema, 2014; Preko, 2014; Marimuthu, et al., 2009; Omeje, et al., 2015).

## 2.2 Types & Characteristics of Human Capital

The most common distinction of human capital is between "general" and "specific". General human capital involves generic knowledge and competences, which are not particular to firms or tasks and are often acquired through education, training and experience. On the contrary, specific human capital is acquired through education, training and experience on a particular firm or task (firm-specific or task-specific respectively)(Kwon, 2009; Jerbashian, et al., 2016).

Therefore, general human capital is more easily transferable across jobs, firms and industries, while specific human capital is rarely transferable, thereby producing less income in the labor market. This division brings forward certain indigenous characteristics of human capital, which are expandable, self-generating, transportable and shareable. The first two traits imply that acquired knowledge extends the volume

of human capital, whereas the second two refer to the ability of the knowledge holder to distribute their knowledge to others, thus extending the range of human capital (Kwon, 2009; Jerbashian, et al., 2016).

On the other hand, based on the extent of its impact, human capital can have effects on individual, organization-wide and society-wide levels (Kwon, 2009).

There is also another basic distinction of human capital, between physical (or biological) and mind (or knowledge) capital. According to Groth & Hebb (2002), both types of human capital have several characteristics. Physical human capital characteristics vary in terms of significance and nature across individuals, groups of people or generations, across time and lifecycle stages and across geographic locations, and include physical and emotional characteristics and related skills. Moreover, physical skills have low input/output efficiency, limited concentration effects, low and constrained transferability, high transparency, increased maintenance costs, lack of exponential of quantum potential and expiration at death with limited residuals (Groth & Hebb, 2002).

On the contrary, mind capital involves inherent capacity and skills, such as sensory skills, recognition, analysis, interpretation, reaction and behavior, which are well developed at birth and benefit even further from the subsequent rapid brain development. Those characteristics have extremely high input/output efficiency and ratio of development to investment. Moreover, mind capital may offer both quantum effects and amplification effects and allows great focus potential. Mind capital and its output are also highly transferable, accessible and exportable. Similarly, to physical capital, mind capital varies across time and across people and ends with death (Groth & Hebb, 2002).

Lehtimäki & Lehtimäki (2016) distinguish human capital into “individual” and “organizational” capital. Individual capital refers to the knowledge, talent and experience of each employee, which can be exploited by the firm as soon as the employee is hired and only for the period of time that they work for this firm. A significant part of the individual capital is generated by the firm through on-the-job training, one-time or series of internal courses, formal or informal coaching, individual

or group-based online courses, mobile learning exercises and off-site learning programs. Organizational capital refers to the required knowledge capital for communication and coordination within a firm with high systematicity, including procedures and functions, hierarchy and division of labor models, corporate culture, motivation systems, research and development, as well as information, both internal and from external stakeholder networks (customer loyalty, strategic alliances and commercial advantages).

Finally, Bryl (2018) separates firms based on their human capital orientation, into low-road strategy and high-road strategy firms. In low-road strategy firms, competitive advantage stems from cost minimization, mostly related to employees, leading to relatively lower prices of products and services than the competition, whereas high-road strategy firms struggle to invest in human capital to increase employee satisfaction, commitment and competences, in order to increase efficiency and quality of products and services and reduce employee turnover rates, aiming for a quality-based competitive advantage.

### 2.3 Sources & Components of Human Capital

Gratton (2011) identifies three sources of human capital: intellectual, social and emotional. Intellectual capital is becoming more and more significant for the generation of valuable jobs and careers, as success requires differentiation from the competition in any market, including labor market, which can be attained through the creation of a robust set of knowledge, competences and experience in multiple areas. The second source, social capital refers to an individual's entire relationship network, which should consist of regenerative relationships that are knowingly fostered. Finally, emotional capital entails self-understanding and self-reflection which are vital for acquiring and optimally exploiting human capital. It also includes the ability to develop emotional flexibility and strength to make decisions and take actions.

On the other hand, there are five core elements of human capital(OrganizationalPshychologyDegrees, 2018):

1. Skills, qualification and education, closely related to the productivity of individuals
2. Work experience, which is positively linked to the value and revenue generated by employees.
3. Social and communication skills, which is crucial for individuals to be able to communicate and collaborate efficiently, both within the borders of the firm and with external stakeholders, such as clients, suppliers and so on.
4. Habits and personality traits. When employees have numerous positive qualities and a positive outlook, they tend to generate more value than those with more technical competences and less positive personal traits, like discipline, punctuality and team spirit.
5. Individual fame and brand image. Similarly to firms, individuals can be famous and generate revenue for their own personal brand image.

Pettinger (2017) also includes intelligence, emotional intelligence, judgment, creativity and geography to the above factors that define human capital.

## 2.4 Human Capital Measurement – Methods & Approaches

As Kwon (2009) explains, the conventional approach to measuring human capital stock is further categorized into three methods: output-based, cost-based and income-based. The output-based approach involves the use of schooling-related measures, such as school enrollment rates, educational attainment calculated via the accumulated years of schooling, ratio of skilled to total adults and average years of schooling, as a proxy for human capital. However, all of these metrics cannot provide efficient indications about an individual's human capital (Kwon, 2009; McCracken, et al., 2017).

The cost-based approach relies on the quantification of human capital stock through the sum of costs invested for an individual's human capital. Despite various enhancements, such as taking depreciation into consideration and calculating discounted income in the future, this approach measures human capital implicitly,

which hinders the clear distinction between investment and consumption costs(Kwon, 2009; McCracken, et al., 2017).

Finally, the income-based approach is based on the returns that an individual gains from a labor market through education investment. Nevertheless, there are factors that are not human-controlled and that can affect an individual's income, thereby making this approach incomplete(Kwon, 2009).

Currently, human capital is measured based on OECD metrics, which involve internationally comparable statistics regarding investment in human capital, quality adjustments and education results. However, most of these measures tend to focus on education, disregarding other essential aspects of human capital such as health, non-cognitive skills and abilities or experience. In detail, conventional measurements do not take adequately into account the qualitative advantages of human capital, like family health, child mortality and fertility, or the importance of social capital and its traits, such as transportability and shareability.(Kwon, 2009; Hansson, et al., 2004; Li, et al., 2016; UNECE, 2016; Healy & Istance, 1998; Oxley, et al., 2008; McCracken, et al., 2017; Stroombergen, et al., 2002; Wright & McMahan, 2011).

There are also other methods of human capital measurement which adopt the concept of Human Development and make use of metrics like Human Development Index (HDI), which is reported by the United Nations Development Program (UNDP) and takes into account factors like health, knowledge and standard of living that are influenced by life expectancy at birth, adult literacy rate, gross enrollment ratio and per capita GDP, and Key Indicators of the Labor Market (KILM), which is used by the International Labor Office (ILO). Both measures integrate quality aspects with economic dimensions and manage to satisfy the need for combined quantitative and qualitative development.(Kwon, 2009; Hansson, et al., 2004; Li, et al., 2016; UNECE, 2016; Healy & Istance, 1998; Oxley, et al., 2008; McCracken, et al., 2017; Stroombergen, et al., 2002; Wright & McMahan, 2011).

Consequently, human capital measurement, which often fails to quantify the output of innovation or the product of social and collective knowledge generation, is mostly based on related cash flows involving future earnings and/or past investments. The



first type of valuation, via future flows of benefits attained by the individual through the utilization of human capital, is characterized by increased uncertainty, risk and time-dependency, while most of the benefits are intangible, hence difficult to value. The second type of estimation, via past flows of human capital investments, cannot assess investments made by actors other than the individual (family, employers, government)(Stroombergen, et al., 2002).

There is a third type of valuation, relying on individual characteristics, related to the person's verbal, written, numerical and social skills and their knowledge about specific measurable disciplines. Nevertheless, even when these characteristics are quantifiable, they are not always measured in common units, thereby diminishing comparability. At the same time, broader life skills, irrelevant to market and business output and productivity, are fairly difficult to measure or assess, in the present, past or future (Stroombergen, et al., 2002).

On the other hand, human capital measures can also be categorized as subjective, proxies and direct assessment. Subjective measures are massively used in strategic human resource management (HRM), but being focused on the individual, they are highly biased and difficult to assess and compare and they lack consistency and reliability. Proxies resolve the problem of the abovementioned third type of valuation by using valid stand-ins for characteristics that cannot be directly estimated, however they lack accuracy. Finally, direct assessment measures involve individual-level characteristics, such as personality traits, which are aggregated based on job and organization and used in multi-level studies. These measures manage to directly incorporate more qualitative traits, focused on the specific job under study, thereby increasing variability and reducing error variance(Wright & McMahan, 2011).

## Chapter 3: Research Methodology

The present chapter aims to describe the research methodology applied and the data sources used for the purposes of this dissertation.

### 3.1 Methodology

The research carried out in the context of the present dissertation involves a systematic review, which is a particular type of literature review with additional qualities. It involves the investigation of a clearly stated question via systematic and explicit methods applied so as to locate, examine and critically assess relevant extant research and to gather and analyze data from found studies. The qualities of systematic review include methodical approach, comprehensiveness, transparency and replicability (Siddaway, et al., 2019; Cooper, et al., 2018; Torres-Carrion, et al., 2018).

A successful systematic review should be able to meet certain objectives, among which a few or all of the following (Siddaway, et al., 2019):

- Assess whether and how much extant research has advanced towards illuminating and/or resolving a specific problem
- Acknowledge the existence of specific interrelations, inconsistencies or incompleteness and shortcomings in extant literature, and investigate possible reasons
- Articulate universal statements or an all-encompassing conceptualization
- Make remarks, critical assessments and recommendations for the extension of existing theories or the development of new concepts and describe their practical implications
- Provide suggestions for future research

The principal stages of carrying out a systematic literature review include(Siddaway, et al., 2019; Torres-Carrion, et al., 2018):

- Scoping, which entails the formulation of one or more research questions, as well as the identification of previously completed similar systematic reviews
- Planning, which involves:
  - segregation of primary research question(s) into distinct notions constituting search and classification terms,
  - definition of initial inclusion and exclusion criteria which may be revised later, such as research question, conceptualization definition, measures and/or primary variables, research methodology, participants, timeframe and data,
  - design and maintenance of organized and well-structured recording systems
- Identification, involving:
  - utilization of previously defined search terms for search in two or more relevant electronic databases
  - thorough examination of search results to ensure quality and avoid outdated information
  - performing extra searches to guarantee the identification of all relevant published and unpublished material
- Screening, referring to the process of handling referencing via a citation manager to organize search results and reading the title and/or abstract of identified material to instantly exclude material that visibly does not satisfy the defined inclusion criteria
- Eligibility, which entails reading the full-text version of potentially appropriate work and extract relevant data

Based on the nature of available data, research questions and objectives and relevant theoretical and empirical issues, the research synthesis performed in the context of a systematic review can be either quantitative or qualitative. Quantitative systematic review is carried out via a meta-analysis relying on estimation and numerical synthesis of the available data for a specific question, thus it is suitable in cases dealing with central tendency research, pre-post contrasts, group contrasts and association

between variables. On the other hand, qualitative systematic review may be applied in the following cases(Siddaway, et al., 2019):

- Methodological diversity among the different relevant studies rendering meta-analysis impractical
- Changes in previously applied conceptual and methodological research approaches rendering a new all-inclusive review beneficial
- New theory development
- Critical assessment of extant theories
- Review of measurement approaches in a specific literature

### 3.2 Application of Qualitative Systematic Literature Review

Based on the abovementioned theoretical background on systematic review methodology, the present dissertation required the application of qualitative systematic literature review, which was indeed performed by implementing all the previously described stages of scoping, planning, identification, screening and eligibility.

In detail, after establishing the research questions set in Chapter 1, search terms were defined, such as “human capital”, “firm (or business) performance”, “importance (or significance or impact) of human capital”, “human capital management”, “human capital development”, “impact of human capital on firm performance” and “impact of human capital on performance of listed firms”.

Then, relevant published and unpublished material was searched in the following databases: Google Scholar, JSTOR, Research Gate, Emerald Insight, Springer Link, Academia, Semantic Scholar, Wiley and Science Direct.

For each resource found, a rapid preliminary examination was performed, by reading the title and abstract to exclude irrelevant work. Once a resource met the initial inclusion criteria, it was studied in detail to decide upon its definite inclusion in the list of reviewed studies.

Finally, all selected studies were documented in an Excel worksheet, where each record contained information about the authors, the year of publishing, the country of author's origin and the country where the study was performed, as well as the type of study and the type of involved firms (public listed, private non-listed or both) and their industry and/or sector. This data was later used to group and classify reviewed studies based on particular criteria and discuss findings concerning each data field.

## Chapter 4: Impact of Human Capital on Firm Performance

The present chapter is dedicated to one of the key questions of this dissertation, which refers to the impact of human capital on firm performance. The first part includes the definition of firm performance with its various dimensions and a brief reflection on its significance. The determinant factors and drivers of firm performance are also discussed, along with methods and approaches to its measurement. The relationship between human capital and firm performance is then discussed based on the existing theoretical context. Last but not least, the final section of this chapter focuses on the review of several empirical studies concerning the impact of human capital on firm performance.

### 4.1 Definition of Firm Performance

The success of firms is vital not only for their own survival and prosperity, but for the economic, social and political development of the national economy in which they operate. Surviving in a competitive business environment requires performance, which is why firm performance has become a key notion in strategic management research. Despite the frequency and commonality of its use, there has been no unanimous agreement among academics on its definition and measurement. The lack of any functional definition of firm performance has led to the existence of a broad variety of definitions and interpretations, from the most abstractor generic to the more clearly expressed. During the past years, firm performance definitions have focused on the aptitude of an organization to make effective use of the available resources to attain its predefined goals and objectives. Performance has also been considered as a specific outcome achieved in economics, management and marketing, which provides the firm and its structural components with competitiveness, effectiveness and efficiency. Various academics also encompass more concepts within the notion of performance, such as gain, profitability, growth and quality, while others concentrate on its quantifying dimension, defining performance as the set of financial and non-financial metrics that provide information on the degree of outcome and goal

achievement. Performance is considered dynamic and closely related to judgment and interpretation and may be perceived in various ways based on the person making the assessment. Finally, it can be depicted via a causal model showing how future outcomes are influenced by current actions. Despite of the selected definition, firm performance, or business performance, is a subset of organizational effectiveness covering operational and financial outcomes. (Selvam, et al., 2016; Santos & Brito, 2012; Adetunji & Owolabi, 2016; Teixeira, 2002; Samad, 2013; Taouab & Issor, 2019).

#### 4.2 Dimensions & Determinants of Firm Performance

Figure 1 below summarizes the multiple dimensions and determinants of firm performance. Profitability performance refers to the capability of the firm to gain profits. The principal goal of any firm is to maximize the generated wealth of stakeholders, which can be achieved through the interrelated concepts of profitability, growth and market value that compose financial performance. Profitability quantifies the firm's ability to create gain in the past. On the contrary, market value performance focuses on the price in the market, reflecting the external evaluation and expectation of firm performance in the future. Growth represents the firm's ability to increase its size in the past, therefore growth performance is related to a positive change in size over a period of time (Selvam, et al., 2016; Adetunji & Owolabi, 2016; Santos & Brito, 2012).

Employee satisfaction obviously refers to the staff's satisfaction about their roles, responsibilities, remuneration, work environment, internal communication and so on. As mentioned in previous chapters, employee satisfaction is directly related to human capital investment. On the other hand, customer satisfaction is a substantial indicator of firm performance, quantifying the degree to which the firm's products and services meet, exceed or fail to satisfy clients' expectations. Satisfied clients are more willing to buy more and pay more, thereby increasing the generated value of the firm (Selvam, et al., 2016; Santos & Brito, 2012).

The other two determinants, environmental and social performance are related to the external environment of the firm and indirect stakeholders, such as governments and communities. Environmental performance is a tool of comparative analysis between multiple plants in a firm, or multiple firms in an industry regarding particular environmental parameters. Finally, social performance involves the realization of the firm’s mission and its alignment with commonly accepted social values(Selvam, et al., 2016; Santos & Brito, 2012).

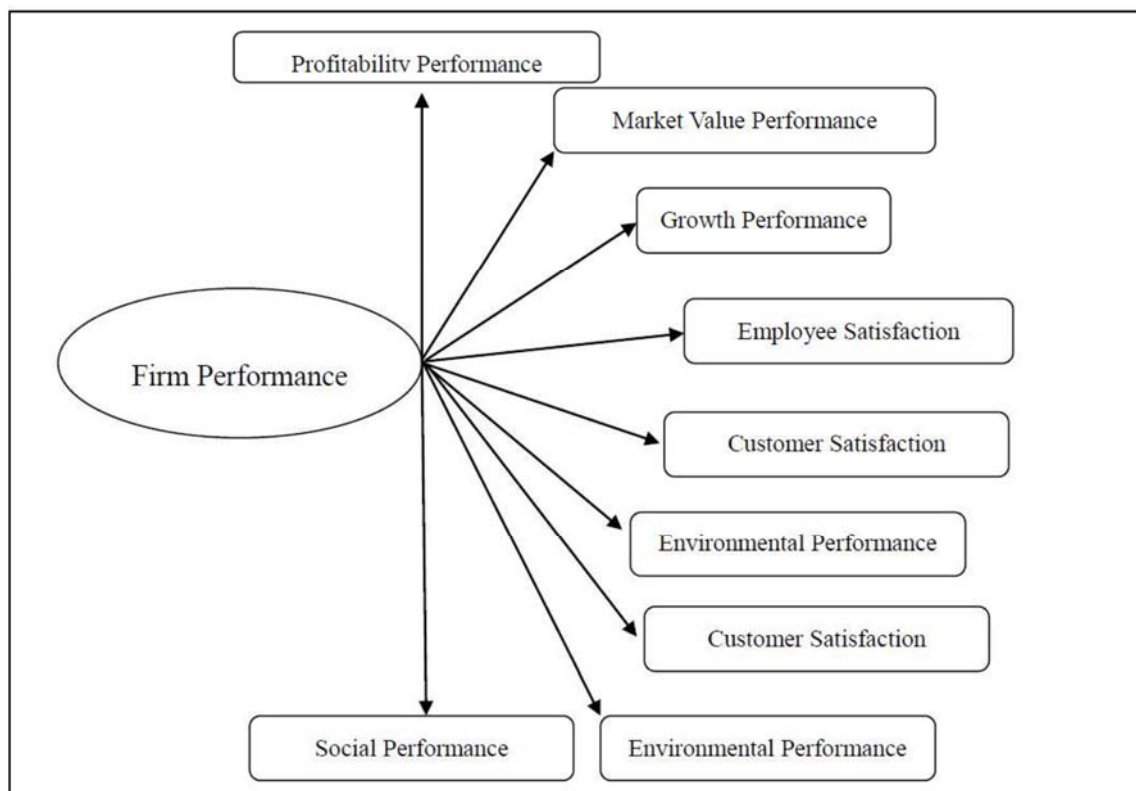


Figure 1: Determinants of Firm Performance (Selvam, et al., 2016)

### 4.3 Drivers& Measurement of Firm Performance

Performance measurement is vital for the effective management of any organization or firm. Process and performance improvement is virtually impossible without quantifying the results, while measurement of performance can provide substantial information that assists management in monitoring performance, reporting progress, identifying potential issues and enhancing internal communication and involvement of employees(Al-Matari, et al., 2014; Taouab & Issor, 2019).



On the other hand, the quantification of performance through the use of metrics, benchmarks and other indicators can provide a simplified view of a more intricate reality, thus facilitating the communication of related information across corporate structure levels and among various stakeholders of diverse educational, knowledge and experience backgrounds. Consequently, an efficient performance measurement system should help the firm evaluate the contribution of employees and suppliers and assess the degree of support received by each stakeholder group to attain its primary goals, as well as to design and implement processes that will assist in meeting the strategic objectives and to evaluate and monitor the compliance of strategic planning to the agreements made with the principal stakeholders (Al-Matari, et al., 2014; Taouab & Issor, 2019).

As explained earlier, firm performance comprises of both financial and non-financial aspects. Herciu (2017) refers to three standard performance drivers: accounting profitability, shareholder value and value added. Regarding accounting profitability, there are seven main financial indicators identifying the return on invested capital (ROIC), which expresses more than the return on equity, thereby interesting most stakeholders and not just shareholders. These indicators are grouped into two main categories, those related to return on revenue (ROR) and those related to working capital turnover, as depicted in Figure 2. Shareholder value maximization requires stakeholder synergy, while value added indicators include the economic value added (EVA) which is important to shareholders and the value added intellectual coefficient (VAIC) which interests stakeholders (Herciu, 2017; Samad, 2013).

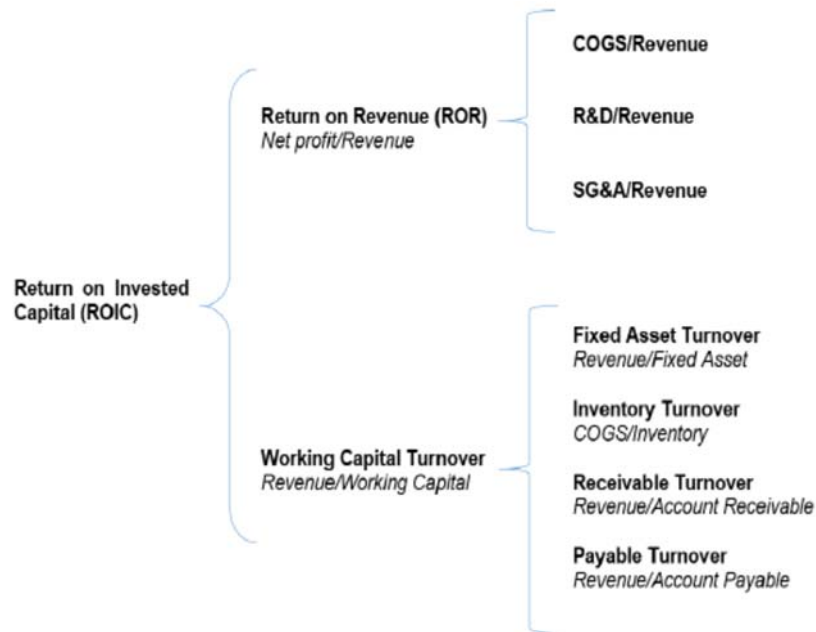


Figure 2: Measurement of Firm Performance(Herciu, 2017)

In Figure 3, Selvam et al. (2016) and Santos & Brito (2012) summarize the most common performance indicators, categorized per dimension / determinant of firm performance.

Dimensions	Selected Indicators
Profitability	Return on Assets, EBTIDA margin, Return on investment, Net income/Revenues, Return on equity, Economic value added
Market Value	Earnings per share, Stock price improvement, Dividend yield, Stock price volatility, Market value added (market value / equity), Tobin's q (market value / replacement value of assets)
Growth	Market-share growth, Asset growth, Net revenue growth, Net income growth, Number of employees growth
Employee Satisfaction	Turn-over, Investments in employees development and training, Wages and rewards policies, Career plans, Organizational climate, General employees' satisfaction
Customer Satisfaction	Mix of products and services, Number of complaints, Repurchase rate, New customer retention, General customers' satisfaction, Number of new products/services launched
Environmental Performance	Number of projects to improve / recover the environment, Level of pollutants emission, Use of recyclable materials, Recycling level and reuse of residuals, Number of environmental lawsuits
Social Performance	Employment of minorities, Number of social and cultural projects, Number of lawsuits filed by employees, customers and regulatory agencies

Figure 3: Firm Performance Indicators per Dimension – Determinant (Santos & Brito, 2012; Selvam, et al., 2016)

Finally, there are numerous models of firm performance measurement, with the most common being the balanced scorecard (BSC), the performance prism (PP), the performance pyramid and the Malcolm Baldrige Model. The Balanced Scorecard is a tool developed by Kaplan & Norton in early 90s' to design and implement the firm's vision and strategy through tangible goals and clear financial and non-financial performance indicators. BSC requires that the goals, indicators and strategic actions are assigned to four tangible perspectives: financial, customer, internal processes and innovation/learning(Taouab & Issor, 2019).

The Performance Prism involves an integrated measurement system addressing the core business issues of most profit and non-profit organizations and consisting of five interrelated perspectives: stakeholder satisfaction, capabilities, processes, strategies and stakeholder contribution(Taouab & Issor, 2019).

The Performance Pyramid was created by Cross and Lynch in 1992 to link the firm's strategy with its operations through the top-down translation of objectives and bottom-up measurement of results. It includes four levels of objectives: overall corporate vision translated into separate business unit objectives, short-term goals of cash flow and profitability and long-term goals of growth and market position, day-to-day operational measures of customer satisfaction, flexibility and productivity and key performance measures of quality, delivery, cycle time and waste(Taouab & Issor, 2019).

Finally, the Malcolm Bridge Model includes a set of interrelated principal values and notions found in high performing organizations and distinguished into seven linked categories: leadership, strategic planning, measurement analysis and knowledge management, workforce focus, operations focus and results(Taouab & Issor, 2019).

#### 4.4 Relationship Between Human Capital & Firm Performance

So far, this dissertation has highlighted the importance of human capital from various viewpoints, including the value of human capital development through the prism of business organizations. When a firm's workforce is highly skilled and receives proper training, employee satisfaction and engagement increases and constitutes the driving force towards the enhancement of customer satisfaction, which ultimately leads to client engagement, increased sales, revenue and profits (Selvam, et al., 2016; Santos-Rodrigues, et al., 2013).

Furthermore, the firm's active support and contribution to the improvement of its employees' technical and social competences and knowledge leads to higher levels of employee self-confidence, morale and team spirit, thus promoting the entire corporate culture, and, at the same time, raises the minimum qualification requirements for future employees. Moreover, according to Samad (2013) and Santos-Rodrigues et al. (2013), all studied aspects of human capital – either quantifiable, like training and education, knowledge and skills, or qualitative, like competency, creativity and attitude – have a significant impact on business performance. This explains why VAIC (value added intellectual coefficient) is often one of the firm performance drivers, while most models of firm performance measurement encompass the notions of learning and knowledge management, which are directly related to human capital development (Taouab & Issor, 2019; Selvam, et al., 2016; Samad, 2013; Santos-Rodrigues, et al., 2013).

Another significant dimension of human capital development involves the provision of the necessary resources and conditions that ensure and promote employees' well-being, physical and mental health and work-life balance. Without a doubt, employees who receive such benefits within the scope of human capital development are usually more dedicated to their employers, who in turn become less prone to high employee turnover (Selvam, et al., 2016).

Nevertheless, it is clear that when human capital development is part of the firm's strategy and not just a temporary act, it requires significant investment. Human capital investment can produce substantial returns for firms, leading to higher ROI levels,

while also fortifying and supplying its workforce with the necessary qualities to effectively face the challenges of an even-changing business, technological and social environment. It is no luck that human capital investment metrics, such as human capital ROI, training investment value and turnover rates are included among the firm performance indicators (Selvam, et al., 2016).

Consequently, employee satisfaction, achieved through human capital development and investment, is one of the key factors affecting firm performance. In detail, higher job satisfaction can increase employees' job performance, limit employee turnover rate and, at the same time, reduce direct and indirect labor costs, as less personnel has the qualification, skills, work ethic and spirit to produce the same amounts of output in less time and with the same or higher results in terms of quality, thereby favoring the improvement of overall firm performance through the increase of the company's productivity, profitability and competitive advantage (Taouab & Issor, 2019; Selvam, et al., 2016; Samad, 2013; Santos-Rodrigues, et al., 2013).

On the other hand, Pasban & Nojehdeh (2016) enumerate the elements of human capital which are vital to the survival and prosperity of firms and organizations. Although these features have more or less been mentioned earlier, it would be useful to present all of them in the following list:

- Creativity & Innovation. Two substantial features which are necessary for firms to be able to adapt to the fast-paced and dynamic modern business environment, as well as embrace change and utilize it in a productive manner, particularly when change is related to technological progress which is a constant supplier of resources and offers contemporary firms the means to achieve broader exposure and customer reach.
- Knowledge & Skill. Perhaps the two most commonly discussed and studied features of human capital. As previously explained, providing employees with opportunities to expand their knowledge and skills increases motivation and diminishes resistance to change. Simultaneously, knowledge management affects various aspects of a firm's operations and functions, such as organizational development, human resources, change management, financial management, performance improvement and information technology.

- Value Added. Human capital is the primary means of value added creation, through the design and implementation of comprehensive strategic plans, quality assurance and employee training and motivation.
- Competitive Advantage. Human capital provides the firm with the necessary resources that will set it apart from its competition. Those resources include qualitative treats, such as talent, competencies, high performance, creativity, flexibility and ability to offer quality service. Intellectual capital has become a valuable part of companies' intangible assets with a quantifiable and comparable impact on the market.
- Customer Satisfaction. Human capital and especially customer servicing employees are the firm's public face, which can increase customer satisfaction, build customer loyalty and enhance the company's brand.

#### 4.5 Review of Empirical Studies on the Impact of Human Capital on Firm Performance

This section presents the findings of numerous empirical studies that have been carried out to investigate the effects of human capital on firm performance. Out of the 57 studies that dealt with the impact of intellectual capital on the performance of non-listed firms, 37 involved the conduct of empirical analysis. Chapter 7 provides more information about the statistics of the studies that were examined in the context of this dissertation's systematic review. The present section describes a few indicative cases among those 37 empirical studies.

Black & Lynch (1996) carried out an empirical study on the relationship between human capital investments and productivity. Based on data from the National Center on the Educational Quality of the Workforce (EQW) National Employers' Survey in the US, they extracted a sample of 2,941 employers of non-listed firms in manufacturing and nonmanufacturing sectors, which they utilized in an effort to estimate the impact of HCI on productivity via a standard Cobb-Douglas production function. Their results showed that human capital is an important factor of firm productivity, while the

average educational level within the firm has a significant positive effect in both the manufacturing and nonmanufacturing sectors, indicating that the impact of education on firm productivity is significant. On the other hand, their limited data on employer-supplied training showed a more intricate effect on firm productivity, which raises questions regarding the individual impact of off-the-job and on-the-job training. The study also presented results regarding recruitment strategies, which seem to affect productivity, as well as about the use of TQM or benchmarking, which do not appear to have a substantial on firm productivity.

Teixeira (2002) performed a literature review on the relationship between human capital and performance at firm level, through three interconnected dimensions of performance: economic, technological and survival. Her work revealed that, at least up to the time the paper was published, certain significant issues related to human capital were inadequately studied. Those issues involved the relationship between skills and human capital, the factors influencing the demand of human capital and the way that demand may change, the impact of social and institutional environment on human capital growth, as well as the relationship between human capital and firms' ability to survive.

Stiles & Kulvisaechana (2003) also carried out a literature review on the relationship between human capital and organizational performance, based on which they concluded that best-practice and contingency models are complementary when it comes to the creation of the necessary conditions for efficient human capital management, while the effective use of such practices requires alignment with the firm's business strategy. The authors also pointed out that most studies focus on the improvement of employees' competences through selective hiring, all-inclusive training and a wide range of developmental activities, and on the encouragement of employees through motivation, participative problem solving and teamwork. On the other hand, they explained that human capital measurement is an area of little convergence, except for the consideration of the use of financial measures as a source of biased and incomplete human capital assessment, which is why they suggest the use of stakeholder view or balanced scorecard approaches. Finally, the authors stressed that organizations in the US were still hesitant in reporting on their human

capital activities, regardless of the fact that those may be contributing substantially to the creation of added value. Therefore, to really acknowledge human capital as a significant source of competitive advantage, more disclosure will be demanded from investors.

Another review of literature and extant survey results regarding the effect of human capital and HCI on company performance, was presented by Hansson et al. (2004). Their work focused mainly on European cases and results demonstrated that employer-supplied training is a source of competitive advantage and that firms are financing both general and specific training. According to evidence from European countries and the US, investments in training produce significant gains, irrespective of the possible exploitation of this training by employees in other firms, while the relationship between training and performance exists and is positive only in that particular direction and not otherwise. Moreover, the effects of education and skills (including prior education) on productivity and innovation are generally significantly positive, however their relationship with profitability might be less expected. Innovative and inclusive HRM practices favor firm performance, while innovation and information technology increase investment in training and depend on education and skills to become profitable. Last, the authors highlighted the absence of studies focusing on the link between small and medium enterprises (SMEs), labor market and social partners with training-related firm policies and performance indicators, such as profitability and productivity.

In 2004, Young et al. also published their study on the impact of various types of human capital stock in US growth, based on a vast sample of country-level educational attainment data, including 3,000 cross-sectional observations and 39 demographic control variables, and using a two stage least squares estimation procedure. They found that the percentage of a county's population with less than a high-school education is negatively correlated with economic growth, the percentage obtaining a high-school diploma is positively correlated with growth, the percentage obtaining some college education has no clear relationship with economic growth and the percent of a county's population obtaining a bachelor degree or higher level of college education has a positive relationship with economic growth. There is significant



qualitative heterogeneity in estimated coefficients across states for the 9 to 11 years and high school diploma categories, while there is no qualitative heterogeneity for the college level categories. Finally, the percentage of a county's population employed in educational services is (surprisingly) negatively correlated with economic growth. This study is not directly related to the subject of the present dissertation as it does not focus on the effect of human capital on firm performance, yet it is interesting to capture the effect of different education levels of human capital stock in national economic growth.

Coleman (2005) studied the impact of human capital measures on firm performance, through a comparative analysis per gender, race and ethnicity. The author was motivated by previous research suggesting different performance outputs among firms with diverse ownership in terms of gender, race and ethnicity. Her findings showed that firms owned by white and black women and firms owned by black men were still significantly smaller, regardless of industry sector and human capital measures. However, firms owned by women and minorities (with the exception of Asian men) were neither less profitable nor less growth-oriented.

Marimunthu, Arokiasamy & Ismail (2009) carried out another theoretical study on the impact of human capital development on firm performance, based on evidence from developmental economics. They noted that the introduction of human capital development in firms promotes innovation and higher firm performance, including financial performance, and suggested that human capital should not be regarded only as a means of increasing profits, but as a bearer of workforce's transformation into the firm's most valuable asset.

Ukenna et al. (2010) investigated the effect of investment in HCD on organizational performance, through an empirical study on a sample of 25 small-business owners in Awka metropolis of Nigeria. They found that training and skills were the stronger predictors of human capital effectiveness in the context of small enterprises, i.e. firms with less than 6 employees and a capital base lower than 100,000 naira, although there was high intercorrelation among the four variable measures (training, education, knowledge and skills). The study also showed a strong relationship

between human capital effectiveness and performance of small firms, both financial and non-financial.

Fraiha (2011) examined the impact of human capital and organizational characteristics on the business value of information technology (IT), building a research model that was tested using Partial Least Squares, with the relevant data originating from a large database of Canadian firms collected by Statistics Canada in 2005 using the Workplace and Employee Survey. The findings revealed that both human capital and organizational characteristics have a significant impact on the business value of IT.

Mansour (2011) performed an empirical study on the impact of HRM practices, such as employee involvement, training, empowerment, compensation and rewards and so on, on firm performance, based on a sample of 70 companies in Saudi Arabia. It was found that HRM practices in the studied companies have a direct causal relationship with performance, according to firms' top management perception of 9 specific firm performance measures.

Awan & Sarfraz (2013) studied the effect of human capital on firm performance with the mediating effect of employee's job satisfaction, by carrying out an empirical survey on a sample of 200 firms in the telecom sector of Pakistan. Results showed that human capital investments have a strong relationship with firm performance, while employee satisfaction has indeed a mediating role between both variables.

Samad (2013) performed an empirical study on the contribution of human capital on business performance, using a sample of 390 managerial staff from non-listed Malaysian logistics firms. Findings indicated that human capital aspects are related to business performance and, more specifically, employees' competences and creativity were the main factors positively affecting business performance.

Santos-Rodrigues, Pereira-Rodrigues and Cranfield (2013) developed a case study to examine the relationship between human capital and financial results. They collected data through observation and interviews with a director and an operation employee within the context of a small logistics company in Portugal. The human capital elements of employee education and training, skills, teamwork, knowledge sharing

and internal relations were found to have a positive effect in the financial performance of the company.

Tessema (2014) focused on the footwear sector in Ethiopia, using a sample of 143 small non-listed firms in Addis Ababa and a regression model to investigate the impact of human capital on company performance. Results showed that human capital investments improve firm performance.

Alnachef & Alhajjar (2017) performed a literature review on the effect of human capital on organizational performance and their findings were in complete alignment with Marimunthu, Arokiasamy & Ismail (2009).

Che & Zhang (2015) investigated the impact of human capital growth on firm productivity “taking advantage of an exogenous surge in college-educated workforce in China in the early 2000s resulting from a centrally-devised, nationwide drastic higher education expansion in the late 1990s”. The authors found that firms in skilled-labor-intensive industries experienced a higher increase in productivity after the expansion of higher education, while firms in more human-capital-intensive industries also experience a higher increase in “adoption of advanced technologies and innovative activities, employment of more skilled workers and in more skilled occupations, and overall production scale”.

Odion'o & Omolo (2015) assessed the effect of human capital investment on the organizational performance of pharmaceutical companies in Kenya, based on a sample of 200 observations. The findings revealed a positive significant relationship between human capital investment and organizational performance. The authors recommended the provision of quality education, and the adoption of industry-specific training to simplify and reinforce the connection between the education sector and the industry. On the other hand, the promotion of knowledge management through teamwork, social networks and knowledge management systems and training on employability and transferability skill improve human capital development.

Tangthong et al. (2015) investigated the effects of human resource practices on firm performance in Thailand's manufacturing industry, particularly Zone 2 that had experienced an inflow of foreign investment, using a sample of 224 top managers,

business leaders and line managers. Results showed that HRM practices have a significant impact on firm performance, indicating the increasing contribution of such methods to long-term growth.

Urban & Kongo (2015) focused on the retail industry in Kinshasa, in the Democratic Republic of Congo to assess the effect of human capital components of education and work experience on firm performance, using a sample of 126 small-scale retailers. Results were surprising as owner-managers tended to have little work experience even where their firm was performing well.

Backman, Gabe & Mellander (2016) studied the effects of human capital on the growth and survival of a large sample of Swedish businesses. Human capital components involved both conventional measures, like educational attainment and employee experience, and skill-based measures. Controlling for firm size and age, industry and region of location, results depicted that the human capital embodied in a firm's workforce influences its performance. Nevertheless, the specific effects depend on the approach of human capital measurement and the focus of performed analysis, either on growth or on survival.

Van Esch, Wei & Flora (2016) examined the mediating role of employees' competencies and the moderating role of climate for creativity between high-performance human resource practices and firm performance. Using a sample of 189 firms in mainland China, it was found that a positive relationship between high-performance HR practices and firm performance was partially mediated by employees' competencies, while the organizational climate for creativity strengthens such relationship.

Al-Sharafat (2017) focused on the Impact of Human Capital Development on the financial performance of agricultural enterprises, using a sample of 119 broiler farms with similar capacity. Human capital development related characteristics of farms operators included the level of training, education, level of exposure to agricultural extension activities, experience, education area and level of entrepreneurial skills, while financial performance indicators of the investigated broiler farms included return on assets, current ratio, debt to asset ratio and profit margin. The results of the

study showed that training, education, exposure to agricultural extension activities, experience, education area and entrepreneurial skills of farm operators have significant positive impact on the financial performance of the investigated broiler farms. The author suggested that operators of agricultural enterprises should benefit from training, gaining experience, specialized education, participating in agricultural extension activities and developing their own entrepreneurial skills in order to positively impact the financial performance of any agricultural enterprise.

Irshad, Ibrahim & Mehdi (2018) concentrated on the impact of human capital and social capital on the performance of SMEs in Pakistan and examined the mediating role of innovation, using a sample of 307 SMEs. The results showed that human capital has a positive effect on SMEs' performance. Furthermore, innovation has partial mediating effect between human capital and firm performance, which is why the authors proposed that SMEs in Pakistan should utilize innovation to improve their performance.

Finally, Nhon, Thong & Phuong (2018) studied the impact of intellectual capital dimensions on Vietnamese ICT firm performance, as well as the mediating role of human and social capital, using a sample of 319 responses from 450 distributed questionnaires. Findings indicated that intellectual capital dimensions have direct impact on firm performance and affirmed the mediating role of the human and social capital on the relationship between firm performance and intellectual capital.

## Chapter 5: Impact of Human Capital on the Performance of Listed Companies

The fifth chapter focuses on another key question addressed in this dissertation, regarding the impact of human capital on firm performance of listed companies. Before performing a thorough review of extant empirical studies to investigate whether the effects of human capital on listed firms are in any way different to those of non-listed firms, the first sections include a brief presentation of the characteristics of listed companies and the significance of firm performance assessment for this type of companies.

### 5.1 Characteristics of Listed Companies

Listed (or public) companies are companies whose shares are traded on an official stock exchange and which must comply with the regulation and requirements of that exchange, including the number of listed shares or the minimum level of earnings. Alternatively, public companies, also called publicly traded or publicly held companies, are limited liability business firms offering stock, bonds or loans to the public, in the form of securities available on a stock exchange or through brokers (Financial Times, 2019; Bradley, 2018).

The main characteristics of public listed companies are that (Bradley, 2018; Johnson, 2017):

1. They are “limited by shares”, meaning that company shares featured in the stock exchange can be bought and sold freely.
2. They have “limited liability”, which implies that in case of company failure, such as bankruptcy, the financial responsibility of individual shareholders is restricted to the face value of their shares and their personal assets cannot be claimed. On the contrary, the company itself is a fictive personality fully responsible for its actions and must pay its obligations out of its own resources.

3. Their name is followed by the distinctive Limited or Ltd, which differentiates them from private companies, which are not listed in any stock exchange and do not raise capital by selling shares to impersonal investors.
4. They are legal entities, meaning that the company is legally distinct from its owners' personality, thus independent of the lifespan of the founders, current or future shareholders, and acts in its own name based on the decisions made by the board of directors.
5. The main capital contributors have greater decision-making power in matters of establishing the firm's general strategy, goals and rules during the meetings of shareholders.
6. Their distinctive purpose is to share their profits among the investors who have bought shares in the public stock exchanges where the firms are listed.
7. They separate management from ownership. The major shareholders meet regularly and among their other decisions, appoint the company's management. Consequently, shareholders do not usually run the company at a managerial level, but have an indirect oversight of the firm, whose day-to-day operations are ran by the executive management. Shareholders typically invest money and collect dividends.

## 5.2 Firm Performance in Listed Companies

Research has shown that ownership structure in terms of ownership concentration and ownership identity significantly influence firm performance in listed firms, whereas respective studies in non-listed firms have been fairly inconclusive. Therefore, it can be deduced that firm performance may vary between listed and non-listed companies, since the nature and characteristics of public listed companies are often different from those of private companies, including the parameters of ownership concentration and identity (Ongore, 2011; Shukeri, et al., 2012; Boerkamp, 2016; Yu, 2013; Arosa, et al., 2010).

The concrete and potential differences between listed and non-listed companies has motivated the author of this dissertation to carry out a more specific examination of

extant theoretical and empirical research studies concerning the relationship between human capital and firm performance in listed companies, as opposed to the literature that was reviewed in the previous chapter, which did not distinguish firms according to their means of raising capital. The results of this review are presented and discussed in the following sections.

### 5.3 Review of Empirical Studies on the Impact of Human Capital on the Performance of Listed Companies

Empirical analysis was carried out in all 41 studies dedicated on the impact of intellectual capital on the performance of public listed firms. Chapter 7 provides details on related statistics, while this section focuses on the presentation of an indicative sample of several of those 41 empirical studies.

Bassi et al. (2004) studied the impact of human capital investments (HCI) on stock prices of US listed firms. Using firm-level data on 388 US-based companies within the period 1996-1998, they analyzed the effect of HCI measured in terms of formal employee education and training costs on their subsequent stock prices. They identified a relationship between a firm's training investments and its stock performance in the following year, in the form of "super-normal" return to investments in human capital. Furthermore, they found that the returns on technical training and basic skill training exceeded the returns on other major forms of training, implying that investments in human capital are vital for firms that are making an above-average effort to leverage technological advances and/or upgrade the skills of their workforce.

Maditinos et al. (2011) examined the impact of intellectual capital, which is increasingly acknowledged as an important strategic asset for sustainable competitive advantage, on firms' market value and financial performance, based on empirical data from a panel of 96 Greek companies listed in the Athens Stock Exchange, from various sectors, during the period 2006-2008. Results failed to support most hypotheses but



managed to verify the existence of a statistically significant relationship between human capital efficiency and financial performance.

Perera & Thrikawala (2012) performed an empirical study on companies from Sri Lanka to assess the impact of human capital investment on firm financial performance, based on financial information in financial statements of 40 listed companies under Colombo Stock Exchange for the period 2009-2010. Findings confirmed the existence of a significant relationship between investment in human capital and firm financial performances.

Nicol-Keita (2013) evaluated the impact of human capital management on operational performance at the Gambia National Water and Electricity Company (NAWEC). In detail, the author explored the relationship between a selected bundle of Human Resource practices in a particular public firm, the National Water and Electricity Company (NAWEC) that make up Human Capital and its usefulness on the operational performance of the Company. Results of the exploratory study showed that HR practices such as employment security, selective hiring, self-managed teams and high compensation contingent on performance, training and information sharing would generate the desired results in terms of operational performance when correctly managed. Thus, there is a connection between HCM and job performance.

Okpako, Atube & Olufawoye (2014) investigated the relationship between human resource accounting and firm performance, through a survey of 7 companies listed on the Nigeria Stock Exchange, involving 246 responses from 260 questionnaires distributed among the selected firms' staff in human resource, accounting, and audit/internal control departments and using ROE as a firm performance indicator over the period 2006-2010. The study results showed that human resource accounting variables had a positive impact on the level of firm performance.

Ranani & Bijani (2014) studied the impact of intellectual capital on the financial performance of listed companies in Tehran Stock Exchange. More specifically, the effect of intellectual capital indices (efficiency of human, structural and physical capitals) on financial performance (measured via earnings per share and efficiency of assets) for 70 companies during the years 2004-2007 was examined using panel data

regression. Results of regression models demonstrated that intellectual capital has positive and significant impact on earnings per share and efficiency of assets. Structural capital like other components of intellectual capital also has a significant and positive effect on the efficiency of assets. The panel data results of indicative of the significant influence of physical capital on earnings per share and the efficiency of assets, hence increase in physical capital results in improving the financial performance of the studies companies.

Trisnowati & Fadah (2014) assessed the impact of intellectual capital and its components (Value Added of Capital Employee - VACA, Value Added of Human Capital - VAHU and Structural Capital Value Added - STVA) on the market value (measured by Market to Book Value – MBV) and financial performance (measured by Return on Assets - ROA, Return on Equity - ROE and Growth of Revenue - GR) of 21 public banks in Indonesia Stock Exchange in the period 2009-2011, applying linear regression analysis. The results showed that VAIC had no significant effect on firm's market value and Growth of Revenue, VACA had only significant impact on Return on Equity, VAHU had no significant effect on bank's market value and finance performance, while STVA had a significant effect on all finance performance metrics.

Munjuri & K'Obonyo (2015) study the impact of human capital and employee empowerment on the performance of 43 commercial banks and 45 insurance firms in Kenya, out of which 54 responded in the census survey. Findings showed that employee empowerment has a mediating effect and does not moderate the influence of human capital on firm performance. Therefore, increasing the level of employee empowerment and engagement has a significant impact on firm productivity, revenue and overall effectiveness. On the other hand, empowerment highly depends on employees' knowledge and skills as it affects the quality of their decisions, so highly-skilled employees should be encouraged to make decisions they can support.

Isanzu (2015) evaluated the impact of intellectual capital on financial performance of banks in Tanzania, based on a sample of 31 banks selected on the basis of availability of necessary information, including Annual Reports for the financial years 2010-2013. Despite the fact that intellectual capital is increasingly recognized as an important strategic asset for sustainable competitive advantage, the results failed to support

such a claim and only verified the relationship between Human capital efficiency and capital employed efficiency, revealing the prioritization of physical assets over intellectual capital. The author suggested that banks can benefit from higher investments in intellectual capital to increase firm profitability. Investing in human capital is essential for banks to achieve their objectives. Capital employed was considered as the most important variable, showing the need for effective and efficient use of physical and financial assets. Banks should put greater effort in investing in Structural capital by being more innovative with high-technology and auxiliary infrastructure.

Darwish, Singh & Wood (2016) performed a study of the impact of the specific sets of HRM practice on organizational performance within the context of a Middle-Eastern emerging market, such as the financial sector of Jordan. The sample consisted of 104 firms listed on Amman Stock Exchange and working in banking, insurance, real estate, brokerage and other financial services. Results showed that the only HR practice that consistently affects both objective and subjective performance was the relative emphasis placed on training: the latter is an ambiguous measure, and, inter alia, can reflect a long-term commitment by a firm to its people, or considerable attention being dedicated to the induction and orientation of new staff in response to high staff turnover rates. Although disproven by objective firm performance data, many respondents believed that the extensive usage of extrinsic incentives (pay and promotion) was bound to translate into superior results. This highlights both the limitations of relying on managerial reported performance data in exploring the consequences of specific HR practices, and the limited transferability of perceived best practice models within emerging market settings.

Lehtimäki & Lehtimäki (2016) studied the impact of knowledge capital on firm performance in the case of the 500 largest firms in Finland during the years 2005-2008. The results of the study indicated a statistically significant relationship between the change in individual capital and economic performance as well as between organizational capital and economic performance. The immediate effect of individual capital on economic performance as well as the change in organizational capital was found to be statistically insignificant. The results imply that a firm looking for short-

term growth should invest in organizational capital, whereas a firm looking for long-term growth should invest in individual capital.

Li et al. (2016) explored whether companies that have received the “Most Admired Knowledge Enterprise” (MAKE) Award have better business performance than those non-MAKE winner companies, through a quantitative analysis of business performance based on data from 59 previous MAKE winners and 59 comparable non-MAKE winner companies according to their market capitalization to identify similarities and differences. Capital efficiency (CEE) shows significantly higher explanatory power in the regression among MAKE award winners than their counterparts, while human capital efficiency (HCE) and value added intellectual capital (VAIC) are negatively correlated with productivity in non-MAKE winner companies, although such correlation is not found in MAKE-award winners.

Anifowose, Annuar & Rashid (2017) examined the possible determinants of human capital disclosure among listed firms in Nigeria, using longitudinal panel data based on 442 observations of firms listed on the main board of Nigeria Stock Market for the period 2012–2014. The study focused on the Nigerian economic and business environment, due to recent adoption of international financial reporting standards. Results indicated significant positive influence on firm’s age, size and industry classification on human capital disclosure whereas the auditor type, profitability, inherent risk and joint audit have a significant negative influence on human capital disclosure.

Fedyk & Hodson (2017) studied the relationship between human capital components of turnover and skills and firm performance through the direct observation of employment and education trajectories of a large number of U.S. public company employees from 1990 to the time of the study. Findings showed that firms with higher employee turnover experience significantly worse future returns. A long-short strategy based on employee turnover with a three-month lag generates an excess compounded annual return of 14.3%. Furthermore, firms with greater focus on sales-oriented skills show better subsequent performance, while firms focusing on administrative skills underperform. The effects of skills are heterogeneous across industries, with a larger premium on web development in Information, a higher

premium on insurance in Manufacturing, and no benefit from sales-oriented skills in Finance.

Onyinyechi & Ihendinihu (2017) investigated human resource accounting and financial performance of firms listed in Nigerian Stock Exchange. The results demonstrated that Personnel Benefit Cost (PBC) has significant and positive impact on the Profit after Tax (PAT), while there is a negative impact on the Net Asset. Consequently, human resources' contribution to the financial growth of firms cannot be overstated. Firms should have the culture of training, developing and motivating the employees to perform to the maximum of their abilities for the financial growth of their organizations. Providing them with infrastructure and an encouraging working environment could reduce the rate of job turnover.

Rahim, Atan & Kamaluddin (2017) examined the relationship between human capital efficiency and firm's performance in the Malaysian technology industry, using accounting data from annual reports of all technology companies listed under Main Market and Ace Market of Bursa Malaysia in year 2009. The study applied Value Added Intellectual Coefficient (VAICTM) methodology measure human capital efficiency. The findings revealed that there was no significant difference in terms of human capital efficiency between the Main Market and Ace Market. On the contrary, human capital efficiency has a significant and positive relationship with firm performance.

Bryl (2018) performed a comparative analysis of US corporations to evaluate the relationship between human capital orientation and financial performance. Research was conducted on a sample of 7,204 unique publicly listed companies from the American stock market within a ten year period (72,040 firm-year observations). Empirical studies were carried out with the help of one hypothesis. Two groups of companies were created and their results on financial performance were compared. The first group consisted of human capital orientated firms that were identified with the help of the well-known "100 Best Companies to Work For" listing. The second group composed of US-based publicly listed entities from 11 industries. Analysis was conducted for the 2007-2017 years. As a result, strategy based on human capital orientation was found to provide high profitability and lead to above-average financial performance, mainly in the field of equity growth and stock market valuation.

Finally, Masuluke & Ngwakwe (2018) investigated the relationship between human capital investments and firm's net profit. Data on companies' profit, human capital investment (HCI) (main independent variable) and sales turnover (STO) (control variable) were gathered from the integrated reports of 28 companies for years 2010-2015. Panel data and regression statistics were used in the analysis, which presented two important findings. On the one hand, the relationship between HCI, STO and net profit was found statistically significant at a significance level of 1%. On the other hand, the HCI alone shows a statistically insignificant negative relationship with net profit, but only in the short-run.

## Chapter 6: Human Capital Management & Development

This chapter discusses the close but different terms of human capital management (HCM), human capital development (HCD) and human capital investment (HCI), providing the required theoretical background for a more rounded and well-established view of the related processes and the way those affect the organization and its workforce, as well as the entire economy.

### 6.1 Definition & Components of Human Capital Management

Human capital management (HCM) can be defined as a strategic approach to human resources management that concentrates on matters vital to an organization's success that are related with knowledge acquisition, applied experience, organizational technology, customer relationships and professional skills constituting the organization's competitive advantage in the market. Alternatively, HCM is defined as the sum of methods and procedures within an organization ensuring that the management and development of its staff is in line with its business goals and results. Other definitions concentrate on the use of metrics and tools in people management so as to effectively align human resources and business strategy within the organization (Dahou & Hacini, 2018; Nicol-Keita, 2014).

There are two basic approaches to human capital management, performing a study from different viewpoints. The Resource-based theory considers the competitiveness and profit of an organization as a function of its resources, i.e. the sum of assets, competencies, skills, organizational processes, information and knowledge controlled by the organization. That is why resource variety and differentiation, resource scarcity and resource immobility are viewed as ways to maximize its competitive advantage. On the other hand, the Institutional theory considers the inclusion of social factors, like values and norms, into organizational strategy design as equally important, since incentives affecting human behavior go far more than the obvious economic benefits and social responsibility (Dahou & Hacini, 2018; Nicol-Keita, 2014).

Nicol-Keita (2014) has gathered the main components of Human Capital Management, which can be summarized as such:

1. Turnover intention. The success of any efficient HCM is to minimize human capital turnover through continuous support, acknowledgement of employees' contribution and well-developed reward systems, which would make staff more committed and willing to remain in the organization.
2. Selective hiring. The required competences do not include only technical expertise or social, intrapersonal and team-working skills, but also trainability, flexibility, commitment, ambition, motivation, creativity and determination. Basically, the current trend in HR hiring procedures is to prioritize social skills, behaviors and personal traits over technical skills, for which the organization can easily provide further training.
3. Extensive training, learning and development. Modern HCM involves the continuous development of the organization's workforce through high-quality training in terms of both technical and social, intrapersonal and team-working competences.
4. Employee involvement and information sharing. It becomes increasingly crucial for firms to maintain an open and honest communication with their staff about matters of strategy, operational and financial performance, as it makes employees feel trusted, involved and a valuable part of the organization, thus increasing their motivation and active participation.
5. Self-managed teams and team working. Employees who work in teams tend to be more satisfied and hard-working than those working under more traditional bureaucratic structures.
6. High compensation contingent on performance. Rewards that are proportional to the employee's performance and contribution have been criticized but have also proved to be more effective in motivating the staff to become more involved and work harder.
7. Reduction of status differences and harmonization. A single status encourages team working and flexibility, which in turn increase performance on an individual, team or organization-wide basis.



## 6.2 Definition & Components of Human Capital Development

Human capital development (HCD) refers to the process of work enhancement which is inherently built to stimulate and encourage an employee to accept and perform inspiring, complex organizational tasks. At the same time, the term also encompasses activities which can help the employee to perform such tasks with more ease and efficiency(Preko, 2014).

HCD usually involves self-directed learning, coaching and mentoring approaches. Self-directed and self-paced learning allows individuals to define their learning needs, plan their learning activities and review the learning outcomes at their own pace. Self-directed learning can obviously be applied within the borders of the organization, utilizing the workplace for learning purposes in three alternative ways. When learning and working are spatially separated, with the organization providing a training location off or near the job, then the workplace is used as “a site for learning”. On the contrary, the workplace is “a learning environment” itself, when on-the-job training activities occur. Finally, there is also the form of informal learning, where learning and working are indistinguishably mixed and employees acquire knowledge and competences through the everyday challenges they face at work(Preko, 2014; Ellinger, 2004).

Coaching refers to the process of enabling the rapid development, learning and increased performance of other employees, through personal on-the-job provision of structured assistance, guidance and feedback to facilitate the development of skills and competences. Coaching can be either informal or part of the managerial role of performance evaluation. Its effectiveness can be increased when both the coach and the coached employee understand their roles and actively participate in the learning process(Preko, 2014; Veale, 1996).

Mentoring can be described as the process of utilizing appropriately trained staff to provide assistance, advice and constant support to other employees in order for them to acquire knowledge and expertise more efficiently. Alternatively, it can be defined as the provision of help from one individual to another through the sharing of knowledge, ideas and work. Although mentoring and coaching seem to be similar, the

first aims at enhancing an individual's skill levels, while the second aims at assisting the individual in their learning process(Preko, 2014; Veale, 1996; Hezlett & Gibson, 2005; Hopkins-Thompson, 2000).

Finally, there is also another complementary term, which relates to the above components of HCD, that of training. Training involves the utilization of systematic and planned instruction activities and formal processes to convey knowledge and assist individuals in learning and obtaining the required competences and skills to increase their job performance. Training can be mutually beneficial for both the firm and its staff, as it solidifies the relationship between each employee and their work, develops competences and averts obsolescence, promotes healthy attitudes and team spirit and increases flexibility and adaptability to the ever-changing technological environment. Furthermore, training contributes to the increase of productivity by better preparing employees for current and future tasks, promoting cost-effective approaches to job delivery and minimizing operational errors, redundant repetition, wastage and spoilage of materials. On the other hand, training also improves the self-confidence, morale, pride and sense of inclusion of employees, as well as their job satisfaction levels and their relationship with their supervisors(Preko, 2014; Hezlett & Gibson, 2005; Hopkins-Thompson, 2000).

### 6.3 Importance & Strategic Role of Human Capital Development

Human capital development is increasingly recognized as a substantial process within each firm or organization, with a wide range of benefits that spreads on many different levels: individual-wise, firm-wise or organization-wise, market-wise or industry-wise, country-wise and globally(Healy & Istance, 1998).

From the viewpoint of the individual, it has already been stressed that human capital development, through education, training and other related processes, as well as safeguarding and promotion of well-being, physical and mental health and work-life balance, makes the employees feel more valued, involved and proud of working for the particular employer, thus increasing their satisfaction and reducing staff turnover.

Additionally, employees become more efficient and productive, as their focus and engagement increases with the enhancement of their knowledge, technical and social competences and experience and the improvement of their self-confidence and attitude(Healy & Istance, 1998; Jeanetta, 2017; Nicol-Keita, 2014; Tariq, et al., 2012; Medina-Garrido, 2017).

As the face of the firm, highly-skilled employees with positive attitude attract and maintain a broader clientele that is also satisfied and engaged. The improved organizational communication leads to better working teams among and within which information of higher quality and quantity flows smoothly. These effects ultimately improve the overall company culture, while the design of robust HCM processes not only helps retain skilled employees but also improves recruitment procedures for new employees. On the other hand, since HCD requires investment, the increased productivity of both the employees and the entire firm leads to improved returns on investment (ROI)(Healy & Istance, 1998; Jeanetta, 2017; Nicol-Keita, 2014; Hansson, et al., 2004).

Moreover, research has shown that investments in human capital development generate significant returns for firms regardless of whether the involved training is useful to other firms in the market/industry. However, such investments also enable the development of a resilient and adaptable labor force, capable of rapidly and flexibly addressing challenges related to change caused by globalization and digitalization(Kucharčíková, 2014; EUROPEAN COMMISSION, 2017; Healy & Istance, 1998; Blundell, et al., 1999).

At this point, it should be mentioned that human capital development does not only concern firms and individuals, but is also a vital factor to the prosperity and progress of entire countries. In fact, various studies have demonstrated the positive relationship between macroeconomic growth and the average stock of human capital. That is why, governments (should) also invest in human capital development, not only on the basis of general education but also through adult training and lifelong learning programs, which have already become a top priority for governments worldwide, in order to promote economic growth, maintain social cohesion and effectively address

the issue of unemployment, particularly its structural form(Kucharčíková, 2014; EUROPEAN COMMISSION, 2017; Healy & Istance, 1998; Blundell, et al., 1999).

Therefore, human capital investment is highly expected to meet a wide range of economic and social goals, concerning countries, firms and individuals determined to maintain a competitive advantage for which knowledge and competences are essential. However, since the present dissertation is primarily focused on the micro-level analysis of the role of human capital, i.e. within the context of companies and particularly listed firms, the final section of this chapter narrows down the study to the significance of HCM and HCD in listed firms.

#### 6.4 Human Capital Management & Development in Listed Firms

In general, all the lessons learned about the impact of human capital on firm performance are expected to apply to listed companies as well. However, human capital management and development is even more essential in public listed firms, which are usually characterized by their larger size, in terms of income, revenue and profits, number of employees, investments, tangible and intangible assets and so on, as opposed to private non-listed firms.

The significance of HCM and HCD in listed firms can obviously be attributed to the higher complexity of their operations, which increases the necessity of retaining certain standards and ensuring continuous qualitative and quantitative improvement of their intellectual capital, but this is not the sole crucial factor. For such companies to survive and prosper, the qualitative traits of human capital described in Section 4.4 (creativity and innovation, knowledge and skill, value added, competitive advantage and customer satisfaction) are crucial, if not irreplaceable.

The following chapter presents the quantitative findings of the systematic literature review regarding the impact of human capital on the performance of firms, both listed and unclassified and attempts to identify potential similarities and differences in the importance of HCM and HCD between the two groups.

## Chapter 7: Findings of Systematic Literature Review

This chapter presents the findings of the systematic literature review regarding the impact of human capital on the performance of firms, both listed and non-listed or unclassified, and attempts to identify potential similarities and differences in the importance of HCM and HCD between the two groups.

### 7.1 Findings & Discussion

A comparative analysis of the two groups of empirical studies presented in Sections 4.5 and 5.3 is performed, with the intent of making some additional observations about both the subject under examination and the characteristics of each group. To this end, Table 1 was constructed and is presented in the following pages. It summarizes information concerning the year of publishing, the country of authors' origin, the country of sample's origin, the type of performed study, as well as the type (public listed, non-listed, multiple, undefined or N/A) and industry/sector of firms involved for each study. The studies numbered 4.1 – 4.57 were presented in Chapter 4, whereas the studies numbered 5.1 – 5.41 were presented in Chapter 5.

Out of the 57 studies presented in Chapter 4, 19 used systematic/literature review as their research approach, 2 provided a theoretical analysis and 37 performed empirical research, usually based on a sample of firms. 11 out those 37 studies (29.7%) involved explicitly some kind of non-listed firms (referred to as “small”, “SME”, “private”, etc.), while 1 (2.7%) included multiple types of firms and 25 (67.6%) did not specifically define the type of firms used in the sample, nor could it be deduced. Obviously, all 41 studies (100%) presented in Chapter 5 included empirical research with samples of public listed companies.

Another interesting observation concerned the industry/sector to which the firms under study belonged. Out of the 37 empirical studies in Chapter 4, 19 (51.3%) referred to a particular industry/sector (agricultural, telecom, ICT, manufacturing,

pharmaceutical, logistics, retail, transport services), 5 (13.5%) used samples of firms from multiple industries/sectors, and 13 (35.1%) did not provide related information.

Similarly, out of the 41 empirical studies in Chapter 5, 14 (34.1%) involved firms from a specific industry/sector and, in fact, 5 of them (35.7% or 12.2% in total) belonged to the financial services industry (banking, insurance etc.). 13 (31.7%) included firms from multiple industries/sectors and another 13 of them (31.7%) did not provide any clarification regarding the related industry/sector.

On the other hand, regardless of the type of sampled firms, the number of studies on the relationship between human capital and firm performance that involved carrying out a systematic/literature review or theoretical analysis was 21 versus 77 empirical studies.

In total, out of 98 studies, 9 (9.2%) were published in the 20<sup>th</sup> century, 26 (26.5%) were published during the first decade of the 21<sup>st</sup> century and the remaining 63 (64.3%) were published during the second decade of the 21<sup>st</sup> century.

Out of the 21 theoretical studies, 3 (14.4%) were published in the previous century, 7 (33.3%) were published during the first decade of the 21<sup>st</sup> century and the remaining 11 (52.3%) were published after 2010. Similarly, out of the 77 empirical studies, 6 (7.8%) were published in the 20<sup>th</sup> century, 19 (24.7%) were published during the first decade of the 21<sup>st</sup> century and 52 (67.5%) were published after 2010.

The abovementioned statistics may be indicative of the increasing intent of researchers to narrow down their work on more specific fields and sectors regarding the relationship between human capital and firm performance, stemming from both academic and business needs.

It is also noteworthy that out of the 77 total empirical studies, there were 8 (4 in each chapter) which examined a sample of firms based in a country different from the authors' country of origin.

The most remarkable observation referred to the country or region of interest in the case of empirical research. Interestingly, 13 (16.7%) studies out of a total of 77 empirical studies that investigated the relationship between human capital (and/or its

components) and business performance focused on European countries (Portugal, Sweden, Greece, Finland, Spain, Netherlands, Italy, United Kingdom, Czech Republic, Slovak Republic) and Turkey, 12 (15.6%) referred to US, 1 (1.3%) to Brazilian and 1 (1.3%) to Canadian firms. The remaining 50 studies involved countries from Asia, Africa and Oceania. In fact, 3 (3.9%) studies studied firms from Australia and New Zealand, while 29 (37.7%) studies focused on Asian countries (1 on Saudi Arabia, 3 on Pakistan, 3 on Malaysia, 3 on Thailand, 4 on China, 2 on Jordan, 2 on Sri Lanka, 2 on Hong Kong, 2 on India, 1 on Iran, 1 on Indonesia, 1 on Vietnam, 1 on Taiwan, 1 on Bangladesh, 1 on Japan and 1 on South Korea) and 18 focused on African countries (7 on Nigeria, 4 on Kenya, 1 on the Democratic Republic of Kongo, 1 on Gambia, 1 on Ghana, 1 on Ethiopia, 2 on South Africa and 1 on Tanzania). Therefore, the country that is more frequently studied in terms of human capital and business performance is Nigeria, followed by Kenya and China, Thailand, Pakistan, Malaysia, Hong Kong, Sri Lanka and Jordan, which may lead to the deduction that researchers are more interested in developing countries rather than in developed countries.

Finally, regarding the findings of the empirical studies, systematic/literature reviews and theoretical analyses performed in the context of examining the possible connection between human capital-related variables and firm performance, practically all of them identified that human capital and its components have indeed a significant impact on one or more dimensions of firm performance, even if a small number of the studies could not successfully verify all their hypotheses. This outcome did not vary significantly between the cases of public listed companies presented in Chapter 5 and all other cases presented in Chapter 4. What was indeed different was the level of specialization and specific presentation in matters of indicators under investigation, since the availability of public information in the first case allowed more extensive examination, using more financial and non-financial variables to test the hypotheses.

#	Authors	Title	Year	Country of Origin	Country of Study	Type of Study	Type of Firms	Industry/Sector of Firms
4.1	Griliches	Research Expenditures, Education, and the Aggregate Agricultural Production	1964	USA	USA	EmpiricalStudy	[Undefined]	Agricultural
4.2	Griliches	Notes on the Role of Education in Production Functions and Growth Accounting	1970	USA	USA	EmpiricalStudy	[Undefined]	Agricultural
4.3	Becker	Investment in Human Capital: Effects on Earnings	1975	USA	USA	TheoreticalAnalysis	[N/A]	[N/A]
4.4	Becker	Human Capital and the Economy	1992	USA	USA	TheoreticalAnalysis EmpiricalStudy	[N/A]	[N/A]
4.5	Black, Lynch	Human-Capital Investments and Productivity	1996	USA	USA	EmpiricalStudy	Non-Listed	[Multiple]
4.6	Huselid, Jackson, Schuler	Technical and Strategic Human Resource Management Effectiveness as Determinants of Firm Performance	1997	USA	USA	EmpiricalStudy	[Undefined]	[Undefined]
4.7	Healy, Istance	Human Capital Investment. An International Comparison	1998	[N/A]	[Multiple]	Systematic/Literature Review	[N/A]	[N/A]
4.8	Blundell, Dearden, Meghir, Sianesi	Human Capital Investment: The Returns from Education and Training to the Individual, the Firm and the Economy	1999	United Kingdom	United Kingdom	EmpiricalStudy	[Undefined]	[Undefined]
4.9	Teixeira	On the Link between Human Capital and Firm Performance	2002	Portugal	[N/A]	Systematic/Literature Review	[N/A]	[N/A]
4.10	Gospel, Pendleton	Finance, Corporate Governance and the Management of Labour: A Conceptual and Comparative Analysis	2003	United Kingdom	[Multiple]	Systematic/Literature Review	[Multiple]	[Multiple]
4.11	Bailey, Helfat	Effects of Human Capital on the Growth and Survival of Swedish Businesses	2003	USA	[N/A]	EmpiricalStudy	[Undefined]	[Undefined]
4.12	Stiles, Kulvisaechana	Human capital and performance: A literature review	2003	United Kingdom	[N/A]	Systematic/Literature Review	[N/A]	[N/A]
4.13	Singh	Strategic HR orientation and firm performance in India	2003	India	India	EmpiricalStudy	[Undefined]	[Undefined]
4.14	Hansson, Johanson, Leitner	The impact of human capital and human capital investments on company performance. Evidence from literature and European survey results	2004	Europe	Europe	Systematic/Literature Review	[N/A]	[N/A]
4.15	Young, Levy, Higgins	Many Types of Human Capital and Many Roles in U.S. Growth: Evidence from County-Level Educational Attainment Data	2004	USA	USA	EmpiricalStudy	[Undefined]	[Undefined]
4.16	Wang, Chang	Intellectual capital and performance in causal models	2005	Taiwan	Taiwan	EmpiricalStudy	[Undefined]	Information Technology
4.17	Coleman	The Impact of Human Capital Measures on Firm Performance: A Comparison by Gender, Race and Ethnicity	2005	USA	USA	EmpiricalStudy	Non-Listed	[Undefined]



4.18	Kor, Leblebici	How do interdependencies among human-capital deployment, development, and diversification strategies affect firms' financial performance?	2005	USA	USA	EmpiricalStudy	[Undefined]	Law
4.19	Arregle, Hiit, Sirmon, Very	The Development of Organizational Social Capital: Attributes of Family Firms	2007	USA	USA	Systematic/Literature Review	Non-Listed Family	[Undefined]
4.20	Marimuthu, Arokiasamy	Human Capital Development and Its Impact on Firm Performance: Evidence from Developmental Economics	2009	Malaysia	[N/A]	Systematic/Literature Review	[N/A]	[N/A]
4.21	Arosa, Iturralde, Maseda	Ownership structure and firm performance in non-listed firms: Evidence from Spain	2010	Spain	Spain	EmpiricalStudy	Non-Listed	[Undefined]
4.22	Ukenna, Ijeoma, Anionwu, Olise	Effect of Investment in Human Capital Development on Organisational Performance: Empirical Examination of the Perception of Small Business Owners in Nigeria	2010	Nigeria	Nigeria	EmpiricalStudy	Non-Listed	[Multiple]
4.23	Kim, Wright, Su	Human Resource Management and Firm Performance in China: A Critical Review	2010	[Multiple]	China	Systematic/Literature Review	[N/A]	[N/A]
4.24	Fraiha	The Impact of Human Capital and Organizational Characteristics on the Business Value of Information Technology	2011	Canada	Canada	EmpiricalStudy	[Multiple]	[Multiple]
4.25	Mansour	HR Practices Impact on Firm Performance: An Empirical Study	2011	SaudiArabia	SaudiArabia	EmpiricalStudy	[Undefined]	[Undefined]
4.26	Zakaria, Yusoff	Transforming Human Resources into Human Capital	2011	Malaysia	[N/A]	Systematic/Literature Review	[N/A]	[N/A]
4.27	Wright, McMahan	Exploring Human Capital: Putting 'Human' Back Into Strategic Human Resource Management	2011	USA	[N/A]	Systematic/Literature Review	[N/A]	[N/A]
4.28	Crook, Todd, Combs, Woehr, Ketchen	Does Human Capital Matter? A Meta-Analysis of the Relationship Between Human Capital and Firm Performance	2011	USA	[N/A]	Systematic/Literature Review	[N/A]	[N/A]
4.29	Tariq, Aslam, Tanveer	Work-Life Balance as a Best Practice Model of Human Resource Management: A Win-Win Situational Tool for the Employees and Organizations	2012	Pakistan	[N/A]	Systematic/LiteratureReview	[N/A]	[N/A]
4.30	Guthrie, Ricceri, Dumay	Reflections and projections: A decade of Intellectual Capital Accounting Research	2012	[Multiple]	[N/A]	Systematic/Literature Review	[N/A]	[N/A]
4.31	Santos, Brito	Toward a Subjective Measurement Model for Firm Performance	2012	Brazil	Brazil	EmpiricalStudy	[Undefined]	[Undefined]
4.32	Loshali, Krishnan	Strategic human resource management and firm performance: Mediating role of transformational leadership	2013	India	India	EmpiricalStudy	[Undefined]	[Undefined]

4.33	Awan, Sarfraz	The Impact of human capital on Company performance and the mediating effect of employee's satisfaction	2013	Pakistan	Pakistan	EmpiricalStudy	[Undefined]	Telecom
4.34	Samad	Assessing the Contribution of Human Capital on Business Performance	2013	Malaysia	Malaysia	EmpiricalStudy	Non-Listed	Logistics
4.35	Santos-Rodrigues, Pereira-Rodrigues, Cranfield	Human Capital and Financial Results: A Case Study	2013	Portugal	Portugal	EmpiricalStudy	Non-Listed	Transport Services
4.36	Preko	ASSESSING THE IMPACT OF HUMAN CAPITAL DEVELOPMENT ON EFFECTIVE WORK PERFORMANCE AT SELECTED DEPARTMENTS IN THE COLLEGE OF ARTS AND SOCIAL SCIENCES (KNUST)	2014	Ghana	Ghana	EmpiricalStudy	Non-Listed	Education
4.37	Vourvachaki, Jerbashian, Slobodyan	Specific and General Human Capital in an Endogenous Growth Model	2014	[Multiple]	CzechRepublic	EmpiricalStudy	[Undefined]	[Multiple]
4.38	Tessema	The Impact of Human Capital on company performance. Case of the footwear Sector in Ethiopia	2014	Ethiopia	Ethiopia	EmpiricalStudy	Non-Listed	Footware
4.39	Alnachef, Alhajjar		2015	Malaysia	[N/A]	Systematic/Literature Review	[N/A]	[N/A]
4.40	Kucharčíková	Investment in the Human Capital as the Source of Economic Growth	2014	SlovakRepublic	[N/A]	Systematic/Literature Review	[N/A]	[N/A]
4.41	Che, Zhang	Human Capital, Technology Adoption and Firm Performance: Impacts of China's Higher Education Expansion in the Late 1990s.	2015	China	China	EmpiricalStudy	[Undefined]	Manufacturing
4.42	Odhon'g, Omolo	EFFECT OF HUMAN CAPITAL INVESTMENT ON ORGANIZATIONAL PERFORMANCE OF PHARMACEUTICAL COMPANIES IN KENYA	2015	Kenya	Kenya	EmpiricalStudy	[Undefined]	Pharmaceutical
4.43	Tangthong, Trimetsoontorn, Rojniruttikul	The effects of human resource practices on firm performance in Thailand's manufacturing industry	2015	Thailand	Thailand	EmpiricalStudy	[Undefined]	Manufacturing
4.16	Urban, Kongo	The relevance of human capital to firm performance: A focus on the retail industry in Kinshasa	2015	South Africa	Dem. Rep. of Kongo	EmpiricalStudy	[Undefined]	Retail Industry
4.44	Omeje, Okwor, Omeje	Human Capital Development in Technical and Vocational Education and Training (TVET) for National Development	2015	Nigeria	Nigeria	Systematic/Literature Review	[N/A]	[N/A]
4.45	Bernstein, Beeferman	The Materiality of Human Capital to Corporate Financial Performance	2015	USA	[N/A]	Systematic/Literature Review	[N/A]	[N/A]
4.46	Backman, Gabe, Mellander	Effects of Human Capital on the Growth and Survival of Swedish Businesses	2016	Sweden / USA	Sweden	EmpiricalStudy	[Undefined]	[Undefined]
4.47	Pasban, Nojedeh	A Review of the Role of Human Capital in the Organization	2016	Iran	[N/A]	Systematic/Literature Review	[N/A]	[N/A]

4.48	VanEsch, Wei, Chiang	High-performance human resource practices and firm performance: the mediating role of employees' competencies and the moderating role of climate for creativity	2016	China	China	EmpiricalStudy	Non-Listed	[Multiple]
4.49	Cech, Yao, Samolejova	Human Resource Management in Chinese manufacturing companies	2016	CzechRepublic China	China	EmpiricalStudy	[Undefined]	Manufacturing
4.50	Al-Sharafat	The Impact of Human Capital Development on the Financial Performance of Agricultural Enterprises: Application on Broiler Industry	2017	Jordan	Jordan	EmpiricalStudy	[Undefined]	Agricultural (BroilerFarms)
4.51	Drabek, Lorincova, Javorcikova	Investing in Human Capital as a Key Factor for the Development of Enterprises	2017	SlovakRepublic	SlovakRepublic	EmpiricalStudy	Non-Listed	Woodworking
4.52	McCracken, Mclvor, Treavor, Wall	Human Capital Theory: Assessing the Evidence for the Value and Importance of People to Organisational Success	2017	United Kingdom	[N/A]	Systematic/Literature Review	[N/A]	[N/A]
4.53	Khan, Quaddus	Dimensions of human capital and firm performance: Micro-firm context	2018	Bangladesh	Bangladesh	EmpiricalStudy	[Undefined]	[Undefined]
4.54	Dahou, Hacini	Effect of Human Capital Management on Firm Performance via Balanced Scorecard	2018	Jordan	Jordan	EmpiricalStudy	[Undefined]	Telecom
4.55	Muhammad, Muhammad, Muntazir	Impact of Human Capital Practices on the Performance of Small and Medium Enterprise's in Pakistan: Examining the Mediating Role of Innovation	2018	Pakistan	Pakistan	EmpiricalStudy	Non-Listed	[Undefined]
4.56	Nhon, Thong, Phuong	The Impact of Intellectual Capital Dimensions on Vietnamese Information Communication Technology Firm Performance: A Mediation Analysis of Human and Social Capital	2018	Vietnam	Vietnam	EmpiricalStudy	[Undefined]	ICT
4.57	Xu, Wang	Intellectual Capital Performance of the Textile Industry in Emerging Markets: A Comparison with China and South Korea	2019	China NewZealand	China SouthKorea	EmpiricalStudy	[Undefined]	Manufacturing
5.1	Veale	Mentoring and coaching as part of a human resource development strategy: an example at Coca-Cola Foods	1996	USA	USA	EmpiricalStudy	PublicListed	F&B
5.2	Firer, Williams	Intellectual capital and traditional measures of corporate performance	2003	South Africa	South Africa	EmpiricalStudy	PublicListed	[Multiple]
5.3	Bassi, Harisson, Ludwig, McMurrer	The Impact of U.S. Firms' Investments in Human Capital on Stock Prices	2004	USA	USA	EmpiricalStudy	PublicListed	[Multiple]
5.4	Mavridis	The intellectual capital performance of the Japanese banking sector	2004	Greece	Japan	EmpiricalStudy	PublicListed	Banks
5.5	Chen, Cheng, Hwang	An empirical investigation of the relationship between intellectual capital and firms' market value and financial performance	2005	Thailand	Thailand	EmpiricalStudy	PublicListed	[Undefined]
5.6	Appuhami	The Impact of Intellectual Capital on Investors' Capital Gains on Shares: An Empirical Investigation of Thai Banking, Finance & Insurance Sector	2007	SriLanka	Thailand	EmpiricalStudy	PublicListed	Banking, Finance& Insurance

5.7	White, Lee, Tower	Drivers of voluntary intellectual capital disclosure in listed biotechnology companies	2007	Australia	Australia	EmpiricalStudy	PublicListed	Biotechnology
5.8	Whiting, Miller	Voluntary disclosure of intellectual capital in New Zealand annual reports and the "hidden value"	2008	NewZealand	NewZealand	EmpiricalStudy	PublicListed	[Undefined]
5.9	Li, Pike, Haniffa	Intellectual capital disclosure and corporate governance structure in UK firms	2008	United Kingdom	United Kingdom	EmpiricalStudy	PublicListed	[Undefined]
5.10	Yau, Chun, Balaraman	Intellectual Capital Reporting and Corporate Characteristics of Public-Listed Companies in Malaysia	2009	Malaysia	Malaysia	EmpiricalStudy	PublicListed	[Multiple]
5.11	Chan	Impact of intellectual capital on organizational performance	2009	HongKong	HongKong	EmpiricalStudy	PublicListed	
5.12	Abeysekera, Guthrie	An empirical investigation of annual reporting trends of intellectual capital in Sri Lanka	2005	SriLanka	SriLanka	EmpiricalStudy	PublicListed	[Multiple]
5.14	Clarke	Intellectual capital and firm performance in Australia	2011	Australia	Australia	EmpiricalStudy	PublicListed	[Undefined]
5.15	Maditinos, Chatzoudes, Tsairidis, Theriou	The impact of intellectual capital on firms' market value and financial performance	2011	Greece	Greece	EmpiricalStudy	PublicListed	[Multiple]
5.16	Ferraro, Veltri	The value relevance of Intellectual Capital on the firm's market value: an empirical survey on the Italian listed firms	2011	Italy	Italy	EmpiricalStudy	PublicListed	[Undefined]
5.17	Ongore	The relationship between ownership structure and firm performance: An empirical analysis of listed companies in Kenya	2011	Kenya	Kenya	EmpiricalStudy	PublicListed	[Undefined]
5.18	Perera, Thrikawala	Impact of Human Capital Investment on Firm Financial Performances: An Empirical Study of Companies in Sri Lanka	2012	NewZealand	SriLanka	EmpiricalStudy	PublicListed	[Multiple]
5.19	Nicol-Keita	THE IMPACT OF HUMAN CAPITAL MANAGEMENT ON OPERATIONAL PERFORMANCE AT THE GAMBIA NATIONAL WATER AND ELECTRICITY COMPANY (NAWEC)	2013	Gambia	Gambia	EmpiricalStudy	PublicListed	Energy (Water&Electricity)
5.20	Okpako, Atube, Olufawoye	Human Resource Accounting and Firm Performance	2014	Nigeria	Nigeria	EmpiricalStudy	PublicListed	[Multiple]
5.21	Ranani, Bijani	The Impact of Intellectual Capital on the Financial Performance of Listed Companies in Tehran Stock Exchange	2014	Iran	Iran	EmpiricalStudy	PublicListed	[Undefined]
5.22	Trisnowati, Fadah	The Impact of Intellectual Capital on Bank's Market Value and Financial Performance in Indonesia Stock Exchange	2014	Indonesia	Indonesia	EmpiricalStudy	PublicListed	Banks
5.23	Munjuri, K'Obonyo	Human capital, employee empowerment and performance of commercial banks and insurance firms in Kenya	2015	Kenya	Kenya	EmpiricalStudy	PublicListed	Commercial Banks Insurance
5.24	Isanzu	Impact of Intellectual Capital on Financial Performance of Banks in Tanzania	2015	China	Tanzania	EmpiricalStudy	PublicListed	Banks
5.25	Adetunji, Owolabi	Firm Performance and Its Drivers: How Important Are the Industry and Firm-Level Factors.	2016	Nigeria	Nigeria	EmpiricalStudy	PublicListed	[Multiple]
5.26	Darwish, Singh, Wood	The Impact of Human Resource Practices on Actual and Perceived Organizational Performance in a Middle-Eastern Emerging Market	2016	[Undefined]	Jordan	EmpiricalStudy	PublicListed	FinancialSector

5.27	Lehtimaki, Lehtimaki	Impact of Knowledge Capital on Performance of Firms: A Case of Firms in Finland	2016	Finland	Finland	EmpiricalStudy	PublicListed	[Multiple]
5.28	Li, Chen, Lui, Chu	The Impact of Intellectual Capital on Companies' Performances: A Study Based on MAKE Award Winners and Non-MAKE Award Winner Companies	2016	HongKong	HongKong	EmpiricalStudy	PublicListed	[Multiple]
5.29	Boerkamp	Ownership concentration, ownership identity and firm performance: An empirical analysis of Dutch listed firms	2016	Netherlands	Netherlands	EmpiricalStudy	PublicListed	[Undefined]
5.30	Medina-Garrido	Relationship between work-family balance, employee well-being and job performance	2017	Spain	Spain	EmpiricalStudy	PublicListed	Banks
5.31	Anifowose, Annuar, Rashid	DETERMINANT OF HUMAN CAPITAL DISCLOSURE IN THE POST IFRS REGIME: AN EXAMINATION OF LISTED FIRMS IN NIGERIA	2017	Malaysia	Nigeria	EmpiricalStudy	PublicListed	[Undefined]
5.32	Fedyk, Hodson	Trading on Talent: Human Capital and Firm Performance	2017	USA	USA	EmpiricalStudy	PublicListed	[Multiple]
5.33	Onyinyechi, Ihendinihu	HUMAN RESOURCE ACCOUNTING AND FINANCIAL PERFORMANCE OF FIRMS IN NIGERIA: EVIDENCE FROM SELECTED LISTED FIRMS ON THE NIGERIAN STOCK EXCHANGE	2017	Nigeria	Nigeria	EmpiricalStudy	PublicListed	[Undefined]
5.34	Rahim, Atan, Kamaluddin	Human Capital Efficiency and Firm Performance: An Empirical Study on Malaysian Technology Industry	2017	Malaysia	Malaysia	EmpiricalStudy	PublicListed	Technology
5.35	Kariuki, Kiambati	Intellectual Capital, Corporate Culture and Performance of Firms Listed on Nairobi Securities Exchange	2017	Kenya	Kenya	EmpiricalStudy	PublicListed	[Undefined]
5.36	Bryl	Human Capital Orientation and Financial Performance. A Comparative Analysis of US Corporations	2018	Poland	USA	EmpiricalStudy	PublicListed	[Multiple]
5.37	Oyedojun, Saidu	Impact of Intellectual Capital on Financial Performance of Listed Nigerian Oil Marketing Companies	2018	Nigeria	Nigeria	EmpiricalStudy	PublicListed	Oil Marketing
5.38	Farrukha, Joiyaa	Impact of Intellectual Capital on Firm Performance	2018	Pakistan	Pakistan	EmpiricalStudy	PublicListed	Manufacturing
5.39	Oladele, Aribaba, Ahmodu, Omobola	An Empirical Study of Human Resource Accounting Disclosure on Financial Performance of Selected Listed Firms in Nigeria	2018	Nigeria	Nigeria	EmpiricalStudy	PublicListed	[Multiple]
5.40	Yilmaz, Acar	The Effects of Intellectual Capital on Financial Performance and Market Value: Evidence from Turkey	2018	Turkey	Turkey	EmpiricalStudy	PublicListed	Production
5.41	Masuluke, Ngwakwe	RELATIONSHIP BETWEEN HUMAN CAPITAL INVESTMENTS AND FIRM'S NET PROFIT	2018	South Africa	South Africa	EmpiricalStudy	PublicListed	[Undefined]

Table 1: List of Studies on the Relationship Between Human Capital and Firm Performance, Sorted by Type of Firm

## Chapter 8: Conclusions & Recommendations

This chapter summarizes the conclusions reached while carrying out this research and provides recommendations for future research, particularly within the context of human capital management in listed firms.

### 8.1 Conclusions

This dissertation performed an extensive literature review regarding an increasingly important component of modern businesses such as the human capital. After thoroughly analyzing its definition and underlying theory, as well as its types, characteristics, sources, components and methods of measurement, it was possible to capture and comprehend its true significance for the progress of individuals, firms and societies.

It was shown that when an individual's human capital is inadequate and unsuitable for employers in active search for workforce, that individual may strive to become employed. The generalization of this phenomenon leads to what is called frictional unemployment, where the available candidates do not match the requirements of open job positions due to lack of skills, education, qualifications and other human capital elements. The quality of employment also depends on the quality of human capital as low-skilled workers have less opportunities for highly-paid jobs with positive prospects.

This dissertation also repeatedly stressed how economic growth and productivity are positively related to the quality of human capital, especially in countries with limited natural resources, who need skilled, creative and innovative workforce to add value to the existing resources and promote sustainability, while globalization and increased workforce mobility leads to the movement of high-skilled individuals from low-income to high-income countries, revealing the real value of human capital.

Furthermore, the interrelated notions of Human Capital Management, Human Capital Development and Human Capital Investment were clarified and analyzed, so that the reader is better equipped to apprehend the remaining chapters.

The other vital variable of the present study was firm performance, which is an intricate, multifaceted concept. Therefore, it was essential to provide a clear definition and a detailed description of its dimensions, determinants, drivers and measurement models and methods, before attempting to study its relationship with human capital.

Then, the key question of this dissertation, concerning the impact of human capital on firm performance, was addressed through two different prisms. The first involve a broad review of extant empirical studies, on various samples of firms, particularly private non-listed small-scale or SMEs. The second narrowed down the research within the context of public listed companies. In both cases, however, the main findings were the same, practically verifying the hypothesis that human capital has a significant impact on firm performance.

## 8.2 Recommendations

The present dissertation performed an exploratory research on published empirical studies regarding the impact of human capital and its various components on one or more dimension of firm performance, in listed and non-listed companies from various countries, industries-sectors and other feature categories.

Future studies could extend this work, by performing empirical research on a particular sample, such as the public listed firms in one or multiple industries/sectors of Cyprus. Another possible area of further research could entail a cross-industry or cross-sector comparative analysis of public or private firms on the presented subject.

Research findings have showed that the study of relationships between human capital components and firm performance has still a wide variety of subjects that have not yet been (adequately) investigated. Consequently, there are virtually unlimited directions towards which future research could point and focus.

## References

- Abeysekera, I. & Guthrie, J., 2005. An empirical investigation of annual reporting trends of intellectual capital in Sri Lanka. *Critical Perspectives on Accounting*, 16(3), pp. 151-163.
- Adetunji, O. M. & Owolabi, A. A., 2016. Firm Performance and Its Drivers: How Important Are the Industry and Firm-Level Factors. *International Journal of Economics and Finance*, 8(11), pp. 60-77.
- Al-Matari, E. M., Al-Swidi, A. K. & Fadtzil, F. H. B., 2014. The Measurements of Firm Performance's Dimensions. *Asian Journal of Finance & Accounting*, 6(1), pp. 24-49.
- Alnachef, T. H. & Alhajjar, A. A., 2017. Effect of Human Capital on Organizational Performance: A Literature Review. *International Journal of Science and Research*, 6(8), pp. 1154-1158.
- Al-Sharafat, A., 2017. The Impact of Human Capital Development on the Financial Performance of Agricultural Enterprises: Application on Broiler Industry. *International Journal of Business and Social Science*, 8(3), pp. 179-186.
- Anifowose, M., Annuar, H. A. & Rashid, H. M. A., 2017. DETERMINANT OF HUMAN CAPITAL DISCLOSURE IN THE POST IFRS REGIME: AN EXAMINATION OF LISTED FIRMS IN NIGERIA. *MALAYSIAN ACCOUNTING REVIEW*, 16(2).
- Appuhami, R., 2007. The Impact of Intellectual Capital on Investors' Capital Gains on Shares: An Empirical Investigation of Thai Banking, Finance & Insurance Sector. *International Management Review*, 3(2), pp. 14-26.
- Arosa, B., Iturralde, T. & Maseda, A., 2010. Ownership structure and firm performance in non-listed firms: Evidence from Spain. *Journal of Family Business Strategy*, 1(2), pp. 88-96.
- Arregle, J.-L., Hitt, M. A., Sirmon, D. G. & Very, P., 2007. The Development of Organizational Social Capital: Attributes of Family Firms. *Journal of Management Studies*, 44(1), pp. 73-95.



- Awan, M. A. S. & Sarfraz, N., 2013. The Impact of human capital on Company performance and the mediating effect of employee's satisfaction. *IOSR Journal of Business and Management*, 8(2), pp. 76-82.
- Backman, M., Gabe, T. & Mellander, C., 2016. Effects of Human Capital on the Growth and Survival of Swedish Businesses. *Journal of Regional Analysis & Policy*, 46(1), pp. 22-38.
- Bailey, E. E. & Helfat, C. E., 2003. External management succession, human capital, and firm performance: an integrative analysis. *Managerial and Decision Economics*, 24(4), pp. 347-369.
- Bassi, L., Harrison, P., Ludwig, J. & McMurrer, D., 2004. The Impact of U.S. Firms' Investments in Human Capital on Stock Prices. Issue June.
- Becker, B. & Gerhart, B., 1998. The Impact of Human Resource Management on Organizational Performance: Progress and Prospects. *The Academy of Management Journal*, 39(4), pp. 779-801.
- Becker, G. S., 1962. Investment in Human Capital: A Theoretical Analysis. *Journal of Political Economy*, 70(5), pp. 9-49.
- Becker, G. S., 1975. Investment in Human Capital: Effects on Earnings. In: *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. 2nd ed. s.l.:NBER, pp. 13-44.
- Becker, G. S., 1992. Human Capital and the Economy. *Proceedings of the American Philosophical Society*, 136(1), pp. 85-92.
- Bernstein, A. & Beeferman, L., 2015. *The Materiality of Human Capital to Corporate Financial Performance*, s.l.: IRRC Institute.
- Black, S. E. & Lynch, L. M., 1996. Human-Capital Investments and Productivity. *The American Economic Review*, 86(2), pp. 263-267.
- Blundell, R., Dearden, L., Meghir, C. & Sianesi, B., 1999. Human Capital Investment: The Returns from Education and Training to the Individual, the Firm and the Economy. *Fiscal Studies*, 20(1), pp. 1-23.

Boerkamp, E., 2016. *Ownership concentration, ownership identity and firm performance: An empirical analysis of Dutch listed firms*. Enschede, The Netherlands, University of Twente, The Faculty of Behavioural, Management and Social sciences.

Bradley, J., 2018. *Characteristics of a Public Company*. [Online] Available at: <https://smallbusiness.chron.com/characteristics-public-company-61388.html>

Bryl, L., 2018. Human Capital Orientation and Financial Performance. A Comparative Analysis of US Corporations. *Journal of Entrepreneurship, Management and Innovation*, 14(3), pp. 61-86.

Cech, M., Yao, W., Samolejova, A. & Li, J., 2016. Human Resource Management in Chinese manufacturing companies. *Perspectives in Science*, Volume 7, pp. 6-9.

Chan, K. H., 2009. Impact of intellectual capital on organisational performance. *The Learning Organization*, 16(1), pp. 4-21.

Chen, M.-C., Cheng, S.-J. & Hwang, Y., 2005. An empirical investigation of the relationship between intellectual capital and firms' market value and financial performance. *Journal of Intellectual Capital*, 6(2), pp. 159-176.

Che, Y. & Zhang, L., 2018. Human Capital, Technology Adoption and Firm Performance: Impacts of China's Higher Education Expansion in the Late 1990s. *The Economic Journal*, 128(614), pp. 2282-2320.

Clarke, M., Seng, D. & Whiting, R. H., 2011. Intellectual capital and firm performance in Australia. *Journal of Intellectual Capital*, 12(4), pp. 505-530.

Coelli, T. J., Rao, D. P., O'Donnell, C. J. & Battese, G. E., 2005. *An Introduction to Efficiency and Productivity Analysis*. 2nd ed. New York: Springer.

Coleman, S., 2005. The Impact of Human Capital Measures on Firm Performance: A Comparison by Gender, Race and Ethnicity. *Journal of Entrepreneurial Finance*, 10(2), pp. 38-56.

Cooper, C. et al., 2018. Defining the process to literature searching in systematic reviews: a literature review of guidance and supporting studies. *BMC Medical Research Methodology*, 18(85).

- Crook, R. T. et al., 2011. Does Human Capital Matter? A Meta-Analysis of the Relationship Between Human Capital and Firm Performance. *Journal of Applied Psychology*, 96(3), pp. 443-456.
- Dahou, K. & Hacini, I., 2018. Effect of Human Capital Management on Firm Performance via Balanced Scorecard. *Management and Economics Review*, 3(1).
- Darwish, T. K., Singh, S. & Wood, G., 2016. The Impact of Human Resource Practices on Actual and Perceived Organizational Performance in a Middle-Eastern Emerging Market. *Human Resource Management*, 55(2), pp. 261-281.
- Drabek, J., Lorincova, S. & Javorcikova, J., 2017. Investing in Human Capital as a Key Factor for the Development of Enterprises. In: *Issues of Human Resource Management*. Rijeka: IntechOpen.
- Ellinger, A. D., 2004. The Concept of Self-Directed Learning and Its Implications for Human Resource Development. *Advances in Developing Human Resources*, 6(2), pp. 158-177.
- EUROPEAN COMMISSION, 2017. *INVESTMENT IN HUMAN CAPITAL - Assessing the Efficiency of Public Spending on Education*, Brussels: EUROPEAN COMMISSION.
- Farrukha, W. & Joiyaa, J. Q., 2018. Impact of Intellectual Capital on Firm Performance. *Global journal of Economics and Business Administration*, 3(14), pp. 1-14.
- Fedyk, A. & Hodson, J., 2017. Trading on Talent: Human Capital and Firm Performance. *Working Paper*.
- Ferraro, O. & Veltri, S., 2011. The value relevance of Intellectual Capital on the firm's market value: an empirical survey on the Italian listed firms. *International Journal of Knowledge-Based Development*, 2(1), pp. 66-84.
- Financial Times, 2019. *Definition of listed company*. [Online] Available at: <http://lexicon.ft.com/Term?term=listed-company>
- Firer, S. & Williams, M. S., 2003. Intellectual capital and traditional measures of corporate performance. *Journal of Intellectual Capital*, 4(3), pp. 348-360.

- Fraiha, S., 2011. *The Impact of Human Capital and Organizational Characteristics on the Business Value of Information Technology*, Ontario: University of Western Ontario.
- Goldin, C., 2016. Human Capital. In: *Handbook of Cliometrics*. Heidelberg: Springer Verlag, pp. 55-86.
- Gospel, H. & Pendleton, A., 2003. Finance, Corporate Governance and the Management of Labour: A Conceptual and Comparative Analysis. *International Journal of Employment Relations*, 41(3), pp. 557-582.
- Gratton, L., 2011. *The Shift - The Future of Work is Already Here*. London, Harper Collins.
- Griliches, Z., 1964. Research Expenditures, Education, and the Aggregate Agricultural Production. *The American Economic Review*, 54(6), pp. 961-974.
- Griliches, Z., 1970. Notes on the Role of Education in Production Functions and Growth Accounting. In: *Education, Income, and Human Capital*. s.l.:National Bureau of Economic Research, pp. 71-128.
- Groth, J. C. & Hebb, G. M., 2002. Characteristics of Human Capital: International Implications. In: *Management in einer Welt der Globalisierung und Diversität: europäische und nordamerikanische Sichtweisen*. Stuttgart: s.n., pp. 49-70.
- Guthrie, J., Ricceri, F. & Dumay, J., 2012. Reflections and projections: A decade of Intellectual Capital Accounting Research. *The British Accounting Review*, 44(2), pp. 68-82.
- Hansson, B., Johanson, U. & Leitner, K.-H., 2004. The impact of human capital and human capital investments on company performance. Evidence from literature and European survey results. *Impact of education and training*, pp. 261-319.
- Healy, T. & Istance, D., 1998. *Human Capital Investment. An International Comparison*, Paris: OECD.
- Herciu, M., 2017. DRIVERS OF FIRM PERFORMANCE: EXPLORING QUANTITATIVE AND QUALITATIVE APPROACHES. *Studies in Business and Economics*, 12(1), pp. 79-84.

Hezlett, S. A. & Gibson, S. K., 2005. Mentoring and Human Resource Development: Where We Are and Where We Need to Go. *Advances in Developing Human Resources*, 7(4), pp. 446-469.

Hopkins-Thompson, P. A., 2000. Colleagues Helping Colleagues: Mentoring and Coaching. *NASSP Bulletin*, 84(617), pp. 29-36.

Huselid, M. A., Jackson, S. E. & Schuler, R. S., 1997. Technical and Strategic Human Resource Management Effectiveness as Determinants of Firm Performance. *Academy of Management Journal*, 1(171-188), p. 40.

Isanzu, J. N., 2015. Impact of Intellectual Capital on Financial Performance of Banks in Tanzania. *Journal of International Business Research and Marketing*16*Journal of International Business Research and Marketing*, 1(1), pp. 16-23.

Jeanetta, T., 2017. *8 Benefits of Investing in Your Human Capital Development*. [Online]

Available at: <https://theolsongroup.com/5-benefits-investing-human-capital/>

Jerbashian, V., Slobodyan, S. & Vourvachaki, E., 2016. *Specific and General Types of Human Capital*. San Francisco, CA, American Economic Association.

Johnson, W., 2017. *Characteristics of a Public Company*. [Online]

Available at: <https://bizfluent.com/about-7275073-characteristics-public-company.html>

Kariuki, A. & Kiambati, K., 2017. Intellectual Capital, Corporate Culture and Performance of Firms Listed on Nairobi Securities Exchange. *Management Studies*, 5(6), pp. 508-524.

Khan, E. A. & Quaddus, M., 2018. Dimensions of human capital and firm performance: Micro-firm context. *IIMB Management Review*, Volume 30, pp. 229-241.

Kim, S., Wright, P. M. & Su, Z., 2010. Human Resource Management and Firm Performance in China: A Critical Review. *Asia Pacific Journal of Human Resources*, 48(1).

Kor, Y. Y. & Leblebici, H., 2005. How do interdependencies among human-capital deployment, development, and diversification strategies affect firms' financial performance?. *Strategic Management Journal*, 26(10), pp. 967-985.

Kucharčíková, A., 2014. Investment in the Human Capital as the Source of Economic Growth. *Periodica Polytechnica Social and Management Sciences*, 22(1), pp. 29-35.

Kwon, D.-B., 2009. *Human capital and its measurement*. Busan, OECD.

Lehtimäki, J. & Lehtimäki, J., 2016. Impact of Knowledge Capital on Performance of Firms: A Case of Firms in Finland. *Eurasian Journal of Business and Economics*, 9(18), pp. 41-59.

Li, J., Pike, R. & Haniffa, R., 2008. Intellectual capital disclosure and corporate governance structure in UK firms. *Accounting and Business Research*, 38(2), pp. 137-159.

Li, Z., Chen, Z., Lui, T. T. S. & Chu, S. K. W., 2016. *The Impact of Intellectual Capital on Companies' Performances: A Study Based on MAKE Award Winners and Non-MAKE Award Winner Companies*. Vienna, Austria, Procedia Computer Science.

Maditinos, D., Chatzoudes, D., Tsairidis, C. & Theriou, G., 2011. The impact of intellectual capital on firms' market value and financial performance. *Journal of Intellectual Capital*, 12(1), pp. 132-151.

Mansour, M., 2011. HR Practices Impact on Firm Performance: An Empirical Study. *King Fahd University of Petroleum and Minerals, management and Marketing Department*.

Marimuthu, M., Arokiasamy, L. & Ismail, M., 2009. Human Capital Development and Its Impact on Firm Performance: Evidence from Developmental Economics. *The Journal of International Social Research*, 2(8), pp. 60-67.

Masuluke, M. F. & Ngwakwe, C. C., 2018. RELATIONSHIP BETWEEN HUMAN CAPITAL INVESTMENTS AND FIRM'S NET PROFIT. *Journal of Accounting and Management*, 8(1), pp. 37-46.

Mavridis, D. G., 2004. The intellectual capital performance of the Japanese banking sector. *Journal of Intellectual Capital*, 5(1), pp. 92-115.

McCracken, M., Mclvor, R., Treacy, R. & Wall, T., 2017. *Human Capital Theory: Assessing the Evidence for the Value and Importance of People to Organisational Success*, London: CIPD.

Medina-Garrido, J. A., 2017. Relationship between work-family balance, employee well-being and job performance. *Academia Revista Latinoamericana de Administración*, 30(1), pp. 40-58.

Muhammad, I., Muhammad, I. & Muntazir, M., 2018. Impact of Human Capital Practices on the Performance of Small and Medium Enterprise's in Pakistan: Examining the Mediating Role of Innovation. *European Journal of Business and Management*, 10(1), pp. 41-49.

Munjuri, M. G. & K'Obonoyo, P., 2015. Human capital, employee empowerment and performance of commercial banks and insurance firms in Kenya. *International Journal of Arts and Commerce*, 4(6), pp. 163-181.

Nhon, H. T., Thong, B. Q. & Phuong, N. V., 2018. The Impact of Intellectual Capital Dimensions on Vietnamese Information Communication Technology Firm Performance: A Mediation Analysis of Human and Social Capital. *Academy of Strategic Management Journal*, 17(1), pp. 1-15.

Nicol-Keita, R. G., 2014. *THE IMPACT OF HUMAN CAPITAL MANAGEMENT ON OPERATIONAL PERFORMANCE AT THE GAMBIA NATIONAL WATER AND ELECTRICITY COMPANY (NAWEC)*, Kumasi: Kwame Nkrumah University of Science and Technology.

Odhon'g, E. A. & Omolo, J., 2015. EFFECT OF HUMAN CAPITAL INVESTMENT ON ORGANIZATIONAL PERFORMANCE OF PHARMACEUTICAL COMPANIES IN KENYA. *Global Journal of Human Resource Management*, 3(6), pp. 1-29.

Okpako, P. O., Atube, E. N. & Olufawoye, O. H., 2014. Human Resource Accounting and Firm Performance. *Global Journal of Commerce & Management Perspective*, 3(4), pp. 232-237.

Oladele, P. O., Aribaba, F. O., Ahmodu, O. L. & Omobola, M. A., 2018. An Empirical Study of Human Resource Accounting Disclosure on Financial Performance of Selected Listed Firms in Nigeria. *Journal of Accounting and Management*, 8(2), pp. 70-82.

Omeje, H. O., Okwor, J. U. & Omeje, B. A., 2015. *Human Capital Development in Technical and Vocational Education and Training (TVET) for National Development*. Umunze Anambra State, School of Industrial Technical Education, Federal College of Education.

Ongore, V. O., 2011. The relationship between ownership structure and firm performance: An empirical analysis of listed companies in Kenya. *African Journal of Business Management*, 5(6), pp. 2120-2128.

Onyinyechi, O. C. & Ihendinihu, J. U., 2017. HUMAN RESOURCE ACCOUNTING AND FINANCIAL PERFORMANCE OF FIRMS IN NIGERIA: EVIDENCE FROM SELECTED LISTED FIRMS ON THE NIGERIAN STOCK EXCHANGE. *International Journal of Interdisciplinary Research Methods*, 4(2), pp. 25-33.

Organizational Psychology Degrees, 2018. *Five Elements of Human Capital*. [Online] Available at: <https://www.organizationalpsychologydegrees.com/lists/5-characteristics-human-capital/>

Oxley, L., Gibson, J. & Van Thi Le, T., 2008. Measuring human capital: Alternative methods and international evidence. *Korean Economic Review*, 24(2), pp. 283-344.

Oyedokun, G. E. & Saidu, B., 2018. Impact of Intellectual Capital on Financial Performance of Listed Nigerian Oil Marketing Companies. *Information and Knowledge Management*, 8(9), pp. 13-27.

Pasban, M. & Nojdedeh, S. H., 2016. A Review of the Role of Human Capital in the Organization. *Procedia - Social and Behavioral Sciences*, Volume 230, pp. 249-253.

Perera, A. & Thrikawala, S., 2012. Impact of Human Capital Investment on Firm Financial Performances: An Empirical Study of Companies in Sri Lanka. *International Proceedings of Economics Development and Research*, 54(3), pp. 11-16.

Pettinger, T., 2017. *Human Capital definition and importance*. [Online] Available at: <https://www.economicshelp.org/blog/26076/economics/human-capital-definition-and-importance/>

Preko, A., 2014. *ASSESSING THE IMPACT OF HUMAN CAPITAL DEVELOPMENT ON EFFECTIVE WORK PERFORMANCE AT SELECTED DEPARTMENTS IN THE COLLEGE OF*



*ARTS AND SOCIAL SCIENCES (KNUST)*, Kumasi: Kwame Nkrumah University of Science and Technology.

Rahim, A., Atan, R. & Kamaluddin, A., 2017. Human Capital Efficiency and Firm Performance: An Empirical Study on Malaysian Technology Industry. *SHS Web of Conferences*, Volume 36, pp. 1-11.

Ranani, H. S. & Bijani, Z., 2014. The Impact of Intellectual Capital on the Financial Performance of Listed Companies in Tehran Stock Exchange. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 4(1), pp. 119-127.

Richard, P. J., Devinney, T. M., Yip, G. S. & Johnson, G., 2009. Measuring Organizational Performance: Towards Methodological Best Practice. *Journal of Management*, 35(3), pp. 718-804.

Samad, S., 2013. Assessing the Contribution of Human Capital on Business Performance. *International Journal of Trade, Economics and Finance*, 4(6), pp. 393-397.

Santos, J. B. & Brito, L. A. L., 2012. Toward a Subjective Measurement Model for Firm Performance. *Brazilian Administration Review*, 9(6), pp. 95-117.

Santos-Rodrigues, H., Pereira-Rodrigues, G. & Cranfield, D., 2013. Human Capital and Financial Results: A Case Study. *Electronic Journal of Knowledge Management*, 11(4), pp. 387-392.

Schultz, T. W., 1961. Investment in Human Capital. *The American Economic Review*, 51(1), pp. 1-17.

Selvam, M. et al., 2016. Determinants of Firm Performance: A Subjective Model. *International Journal of Social Science Studies*, 4(7), pp. 90-100.

Shukeri, S. N., Shin, O. W. & Shaari, M. S., 2012. Does Board of Director's Characteristics Affect Firm Performance? Evidence from Malaysian Public Listed Companies. *International Business Research*, 5(9), pp. 120-127.

Siddaway, A. P., Wood, A. M. & Hedges, L. V., 2019. How to do a systematic review: A best practice guide to conducting and reporting narrative reviews, meta-analyses, and meta. *Annual Review of Psychology*, Volume 70.

Singh, K., 2003. Strategic HR orientation and firm performance in India. *The International Journal of Human Resource Management*, 14(4), pp. 530-541.

Smith, A., 1776. *The Wealth of Nations*. New York: Modern Library.

Stiles, P. & Kulvisaechana, S., 2003. Human capital and performance: A literature review. *DTI*.

Stroombergen, A., Rose, D. & Nana, G., 2002. *Review of the Statistical Measurement of Human Capital*, Wellington: Statistics New Zealand.

Surabhi, L. & Venkat, K. R., 2013. Strategic human resource management and firm performance: Mediating role of transformational leadership. *Journal of Strategic Human Resource Management*, 2(1), pp. 9-19.

Tangthong, S., Trimetsoontorn, J. & Rojniruttikul, N., 2015. The effects of human resource practices on firm performance in Thailand's manufacturing industry. *J. Global Business Advancement*, 8(1), pp. 84-117.

Taouab, O. & Issor, Z., 2019. Firm Performance: Definition and Measurement Models. *European Scientific Journal*, 15(1), pp. 93-106.

Tariq, A., Aslam, H. D. & Tanveer, M. A., 2012. Work-Life Balance as a Best Practice Model of Human Resource Management: A Win-Win Situational Tool for the Employees and Organizations. *Mediterranean Journal of Social Sciences*, 3(1), pp. 577-585.

Teixeira, A., 2002. ON THE LINK BETWEEN HUMAN CAPITAL AND FIRM PERFORMANCE. A Theoretical and Empirical Survey. *FEP Working Paper*, Volume 121.

Tessema, A. D., 2014. The Impact of Human Capital on company performance. Case of the footwear Sector in Ethiopia. *JBAS*, 6(2), pp. 76-102.

- Torres-Carrion, P. V., Gonzalez-Gonzalez, C. S., Aciar, S. & Rodrigues-Morales, G., 2018. *Methodology for Systematic Literature Review applied to Engineering and Education*. Canary Islands, IEEE.
- Trisnowati, Y. & Fadah, I., 2014. The Impact of Intellectual Capital on Bank's Market Value and Financial Performance in Indonesia Stock Exchange. *SSRN Electronic Journal*.
- Ukenna, S., Ijeoma, N., Anionwu, C. & Olise, M. C., 2010. Effect of Investment in Human Capital Development on Organisational Performance: Empirical Examination of the Perception of Small Business Owners in Nigeria. *European Journal of Economics, Finance and Administrative Sciences*, Issue 26, pp. 93-107.
- UNECE, 2016. *Guide on Measuring Human Capital*, New York & Geneva: UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE.
- Urban, B. & Kongo, M., 2015. The relevance of human capital to firm performance: A focus on the retail industry in Kinshasa, Democratic Republic of Congo. *Acta Commercii*, 15(1), pp. 261-270.
- Van Esch, E., Wei, L. Q. & Chiang, F. F., 2016. High-performance human resource practices and firm performance: the mediating role of employees' competencies and the moderating role of climate for creativity. *The International Journal of Human Resource*, pp. 1-26.
- Veale, D. J., 1996. Mentoring and coaching as part of a human resource development strategy: an example at Coca-Cola Foods. *Leadership & Organization Development Journal*, 17(3), pp. 16-20.
- Vourvachaki, E., Jerbashian, V. & Slobodyan, S., 2014. *Specific and General Human Capital in an Endogenous Growth Model*, Prague: CERGE-EI.
- Wang, W.-Y. & Chang, C., 2005. Intellectual capital and performance in causal models. *Journal of Intellectual Capital*, 6(2), pp. 222-236.
- Welch, F., 1970. Education in Production. *Journal of Political Economy*, 78(1), pp. 35-59.

- White, G., Lee, A. & Tower, G., 2007. Drivers of voluntary intellectual capital disclosure in listed biotechnology companies. *Journal of Intellectual Capital*, 8(3), pp. 517-537.
- Whiting, R. H. & Miller, J. C., 2008. Voluntary disclosure of intellectual capital in New Zealand annual reports and the “hidden value”. *Journal of Human Resource Costing & Accounting*, 12(1), pp. 26-50.
- Wright, P. M. & McMahan, G. C., 2011. Exploring Hhuman Capital: Putting 'Human' Back Into Strategic Human Resource Management. *Human Resource Management Journal*, 21(2), pp. 93-104.
- Xu, J. & Wang, B., 2019. Intellectual Capital Performance of the Textile Industry in Emerging Markets: A Comparison with China and South Korea. *Sustainability*, Volume 11, pp. 1-16.
- Yau, F. S., Chun, L. S. & Balaraman, R., 2009. Intellectual Capital Reporting and Corporate Characteristics of Public-Listed Companies in Malaysia. *Journal of Financial Reporting and Accounting*, 7(1), pp. 17-35.
- Yilmaz, I. & Acar, G., 2018. The Effects of Intellectual Capital on Financial Performance and Market Value: Evidence from Turkey. *Eurasian Journal of Business and Economics*, 11(21), pp. 117-133.
- Young, A. T., Levy, D. & Higgins, M., 2004. *Many Types of Human Capital and Many Roles in U.S. Growth: Evidence from County-Level Educational Attainment Data*. Munich, CESifo/Harvard University-PEPG Conference.
- Yu, M., 2013. State ownership and firm performance: Empirical evidence from Chinese listed companies. *China Journal of Accounting Research*, Volume 6, pp. 75-87.
- Zakaria, S. & Yusoff, W. F. W., 2011. Transforming Human Resources into Human Capital. *Information Management and Business Review*, 2(2), pp. 48-54.