ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMIC

MASTER OF BUSINESS ADMINISTRATION IN MANAGEMENT

THE MEDIATING ROLE OF ENTREPRENEURIAL ORIENTATION IN THE RELATIONSHIP BETWEEN DYNAMIC CAPABILITY AND PERFORMANCE OF ETHIOPIAN AIRLINES

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The mediating role of Entrepreneurial Orientation in the relationship between Dynamic Capability and Performance of Ethiopian airlines

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Declaration

I, Abiy Tsegaye, hereby declare that this thesis work "The mediating role of Entrepreneurial Orientation in the relationship between Dynamic capability and Performance of Ethiopian airlines" is my genuine work and has never been submitted or presented to any other institution.

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SCHOOL OF GRADUATE STUDIES

“THE MEDIATING ROLE OF ENTREPRENEURIAL ORIENTATIONIN THE RELATIONSHIP BETWEEN DYNAMIC CAPABILITYAND PERFORMANCES OF ETHIOPIAN AIRLINE:**”**

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Abstract

This study investigated the mediating role of Entrepreneurial Orientation (EO) in the relationship between dynamic capability (DC) and performance (P) of Ethiopian Airlines. The research followed cross-sectional explanatory research design, quantitative approach, survey method and questionnaire was used as data collection instrument. The study employed exploratory factor analysis (EFA) through principal component analysis (PCA) and structural equation modeling (SEM) to validate study results. Middle level managers (managers, team leaders and successors), of Ethiopian Airlines headquarter, Bole International airport Addis Ababa were the target population. To represent the target population stratified sampling was used and respondents of 222 were selected randomly. 167 responses were collected. The finding indicated Entrepreneurial Orientation has a complimentary mediation role. Moreover, second order variables maintained a significant association with dynamic capability. Finally, the independent analysis indicated dynamic capability dimensions have a positive and significant relationship with the firm performance. The research concludes the Ethiopian airlines should focus on and strengthen its dynamic capability for the better performance in the industry. As a recommendation the researcher recommends managers and other employees of the Ethiopian Airlines needs to exercise and increase its sensing, coordinating and learning capabilities to improve its performance and compete in the international market.

Key words: *Dynamic capability, Entrepreneurial orientation, Sensing Capabilities, Learning capabilities, Coordinating Capabilities, innovation, pro activeness, risk taking Autonomy, Competitive aggressiveness*

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LIST OF ABBREVIATIONS/ACRONYMS

AMOS - Analysis of Moment Structures

AVE - Average Variance Extracted

CSA - Central Statistics Agency

EFA - Exploratory Factor Analysis

EO - Entrepreneurial Orientation

P -Performance

DC- Dynamic capability

IC - Innovation Capability

LC -Learning capability

PCA-Principal component analysis

PCFI -Parsimony Fit Indices

SEM - Structural Equation Modeling

SPSS - Statistical Package for Social Science

VIF- Variance Inflation Factor Analysi

CHAPTER ONE

INTRODUCTION

The first chapter of this thesis deals with the introductory part of the study and the following parts: background about the study, statement of the problem, research question and objectives, definition of terms, scope of the study, limitation, significance and organization of the paper.

Background

Teece's (1997) seminal bring about the concepts of dynamic capability for the first time. At the beginning DC was known for a firm's ability to incorporate, build and reconfigure the internal and the external competences to deal with the quickly changing circumstances.(Teece, 1997).Firms in many industries face difficulties in managing adverse situations. The crisis like Covid 19 Pandemic leads a business chain to be broken. By this matter many firms in the world either reduce their production level or completely stop production because of lack of dynamism in the firms.

The study was conducted during covid 19. Pandemics are not new for the world. They impacted the livelihood of human beings in a serious manner. Pandemics in Asia and North America in recent years brought catastrophes on their economy as well as their health. Covid 19 is one of the recent pandemic that impacted the livelihood of humans throughout the world.

Much is not known about the impact of the pandemic Covid 19. Following the spread of the pandemic countries declares state of emergencies, lockdowns and gathering of individuals more than a certain number. These measures seriously hit the service sector, especially the aviation industry as a whole. The aviation industry is vulnerable to threats posed by unexpected catastrophes such as epidemics, natural disasters, and terrorist attacks. Covid 19 is the recent phenomena but it has been affecting the aviation industry significantly.

Many journals have been writing about the pandemic and the impact on the aviation industry. Domestic and international flights have been significantly getting lower. According to **ICAO** loss of approximately 60% of passenger traffic and 61% or over USD 104.5 billion airport revenues in 2020 compared to business as usual (by ACI) (*ICAO*, *Effects of Novel Coronavirus (COVID-19) on Civil Aviation: Economic Impact Analysis Montréal, Canada 3 December 2020 Air Transport Bureau*). Because of this revenue reduction firms have been laying off significant number of employees.

The revenue of the aviation reduced significantly because of the pandemic covid 19. Most airlines tried to compensate the difference of their revenue by laying-off their employees and asking stimulus bill from financial sectors and their government. As an example Scandinavian Airlines (SAS) will temporarily lay off 90% of its total workforce, a sum of around 10,000 employees (Jacobsen &Ahlander, 2020). Air Canada is set to lay off more than 5,100 members of its cabin crews because of a dramatic drop in flights related to the COVID-19 outbreak (CBC News, 2020).*(Mogaji, E., 2020. Financial Vulnerability during a Pandemic: Insights for Coronavirus Disease (COVID-19). Research Agenda Working Papers. Vol 2020 No 5 pp.57-*63).In the contrary because of different reasons there are some airlines in the industry that shoulder the impact of the pandemic and don't laying-off employees as well as asking stimulus bill from financial sectors or their government. The international finance announces that "Many governments had in fact announced numerous bailout packages to help the aviation sector deal with the crisis. However, Ethiopian Airlines received no funds in the form of a bailout package."

Ethiopian and many other airlines work as a global company. This international business involvement is an opportunity as well as a threat at the time of crisis for these firms. The aviation industry is dynamic in its nature. In addition to that the competition among the firms in the industry is a bit higher. So firms are expected to respond for situations like Covid 19 immediately. Also they need to respond differently to stay in the industry. **Teece et al. (1997)** definition of dynamic capability as "The firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments"

1.2 Statement of the Problem

There are many studies on the impacts of dynamic capability on firm performance. While dynamic capability research has uncovered the characteristics of resources and capabilities and the market conditions that allows sustainable competitive advantages like (Teece, Pisano and Shuen, 1997.), the researcher could not find any research paper which investigates the mediating role of Entrepreneurial Orientation relationship between dynamic capability and performance.

Some firms are stagnant and they don’t see the change or they don’t have the strategy to go out of the trouble as soon as possible. ***Teece (2007)*** believes that dynamic capability empower firms to increase its competitive advantage in quick (technological) varying markets They also allow firms to get used to external and internal changes ***(Zahra and George, 2002).***

During the pandemic covid 19, many businesses go out of their lane so that they will not be in a position where they have been again. Most of these problems happen by the lack of entrepreneurial dynamism in the firm. The dynamic capability increases the strength and resilience of the firm in any situation. ***(September 2015 International journal of productivity and performance Management 64(7)***

Firms develop capabilities to deal with change. Firms with less flexible environment for dynamic changes, costs a lot in the long run of their firm development.

During the covid 19 outbreaks has been giving a hard time for many firms which are directly or indirectly impacted regarding their future success in the industry they are in. some of these firms are trying to cope with the situation and minimize the damage comparing to firms in the same industry. These firms had cultures in developing quick response for issues happening now and then.

In addition to the capability of the firm, the culture of the firm by itself has a big impact on the performance. Firms which have the culture of entrepreneurship bring new business units and ideas how to change the current situation by the side of the firm. One of the problems that have to be seen in this study is how firms use their entrepreneurial ability as a competitive advantage. During the covid 19, firms were gone out of liquidity. Not only that there were no sufficient market to survive as a firm in the industry as well as most of them fell to compensate their employees. In the contrary there were firms which are resilient for the condition which has been happening at this time.

According to *Clara Olovsson Elin Lundström (2010)* dynamic capability has a role in superior firm outcome. This and other studies mentioned the role of dynamic capability taking different variables as mediation.

1.3 Research Questions

In order to achieve the main objectives of the study five research questions are developed. The study attempted to answer the following research questions.

1. What is the effect of dynamic capability and its dimensions on the performance of Ethiopian Airlines?

2. Does Entrepreneurial Orientation mediate the relationship between dynamic capability and performance?

1.4Objective of the study

The study has two objectives. The general objective and specific objectives

1.4.1 General objective

The main objective of the study was to examine the relationship between dynamic capability and performance of Ethiopian airlines: the mediating role of entrepreneurial orientation

1.4.2 Specific objectives

- To assess the effect of dynamic capability and it's dimensions on performance

- To investigate the mediating role of Entrepreneurial Orientation on the relationship between dynamic capability and performance

1.5 Significance of the study

Understanding the relationship of dynamic capability has with performance is crucial for the firms, policy makers, researchers aiming to contribute to firms' competitiveness, performance and in general decision making process of the country.

It is known that the pandemic covid 19 is the recent phenomena which changed the way of life completely. To begin with, through the study and after this study completed, the researcher has got satisfaction and experience for addressing the impact and possible remedies made by the different firms especially Ethiopian airlines to resist the situation happening during covid pandemic. Secondly the study may contribute something for the industry to establish a certain mechanism to alleviate the problems they have faced due to the pandemic covid 19 and any kind of situations firms will be getting in.

The situation is a new phenomenon so people that will site or read this study for research or any other purpose will help them as the firsthand material. In addition to these direct stakeholders, government will be able to use as an input to improve some of the policies concerning the aviation industry so that in advance preparation to be done and inform the stakeholders before any serious consequence happening. It can also help the aviation industry as a resource material to effectively manage any situations which hinders the strength of the firm in the future. Since sufficient studies are not available in the country related to the relationship between dynamic capability and performance of Ethiopian airlines: the mediating role of international entrepreneurial, other researchers can use this study as a spring board for further study.

1.6 Delimitation of the study

The study focused on the relationship between dynamic capability and performance of Ethiopian airlines: the mediating role of entrepreneurial orientation

The research has focused only on the financial performance of the airline. Due to the restriction and fear the pandemic, it was a little bit difficult to collect primary data from the needed stakeholders. Because of time and financial constraint, the sample of the study was limited only in the middle managers of the firm at bole airport, Addis Ababa.

1.7 Limitations of the Study

Getting information directly from the offices for they may think that many of the data are a business secret. In addition to this some employees of Ethiopian airlines were not willing to fill out the questionnaire because of reasons which they don't want to disclose. The political condition of the country the current pandemic (COVID 19) made the data collection process difficult, since the case in Addis Ababa is increasing in a quick rate and companies preferred closing their door for outsiders. In addition, availability of up to date literature in the context of leather and leather products industry and willingness to give information (the bureaucracy), as in the case of most industries, was another limitation. By defining the scope of the thesis properly, the researcher tried to reduce the effect of the limitations.

1.8 Organization of the paper

The main objective of the study was to examine the relationship between dynamic capability and performance of Ethiopian airlines: the mediating role of entrepreneurial orientation. This study shows how the pandemic as a whole impact the country and specifically the aviation industry and how some airlines like Ethiopian airlines through the situation by minimizing the damage that the pandemic conveyed. The organization of this thesis is as follows. Chapter 2 introduces literature review of the study. The last section in Chapter 2 is focusing on reviewing other related models, and show how this study is distinguished from other works. Chapter 3 provides a brief description about the methodology and the research design. The study applied a mixed research methodologies to analyze and interpret the findings. The descriptive analyses approach employed to explain the overall primary data that was collected from the respondents using the structured questionnaires. The research used a quantitative and qualitative research method approaches to analyze the findings based on the statistical data. The qualitative data method employed to collect the primary data from the sample respondents who are the stake holders of the sector. Data collected from employees working in different departments. In addition to this the quantitative data approach employed to gather the relevant information from various sources.

Chapter four presents results and discussions of the data analysis. The chapter summarized the major findings. Identifying the correlations, among the data, discussion whether the result met the expectation of the researcher, comparing the study with the previous research and theories, considering possible argument and explanation of the researcher presented in this chapter. The other part in this chapter is checking for missing data, removing outliers, transforming variables and SPSS and AMOS used for further analysis. Figures used to illustrate objects, scenarios theoretical models to report measurements. Tables used to provide a detailed summary of the result. (White, 2011, p.273), (shone McCombes, scribbr.com)

This chapter five covers the conclusion and recommendation of the study. In this chapter the conclusion is all the impacts and the measure taken by the firms so that they passed the situation with lesser harms. The study recommended the industry as well as the researchers who are going to study further the gap that they should fill. Overall based on the result and analysis of the data conclusion has given.

1.9 Definition of terms

Dynamic capability – The activity and changes by the firms to bring superior outcome among their competitors

Firm Performance _ Revenue of the firm

CHAPTER TWO

LITERATURE REVIEW

2.1 Dynamic capability

In the dynamic environment firms needs to be vigilant in predicting what to come. If firms fail to see the opportunities and threats which will come to them, they will be in a position to lose their base. For dynamic capability there are things that firms need to consider. The first one is their strategy of alleviating the situation has to be peculiar and must be applied differently.

Many authors define dynamic capability in different views. Zollo and winter's (2002) dynamic capability definition is "learned and firm pattern of collective doings through which the business systematically makes and modifies its operating procedures in pursuit of improved effectiveness" and (David J. Teece, Gary Pisano, and Amy Shuen) defined dynamic capability as "the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments." Here, if a firm is in a situation where it needs change to put the firm in its position, the firm needs to see inside out to cope with the ongoing circumstances. According to Zollo and winter's (2002) paper, dynamic capability arise from learning mechanisms; they see dynamic capability as doing the daily activities in different manner by maximizing the capacity of the employees, and applying techniques so that the firm will be more efficient.

Zahra et al.'s (2006) model also indicates that organizational knowledge and practical capabilities do have the influence in recognizing the situation the firm is in, determine which dynamic capability are necessary to adapt to the emerging state to influence organization's performance. Besides Zahra et al.'s (2006) model, Nielsen (2006) considers and connects the three key dynamic capability of "knowledge development, knowledge recombination and knowledge use" to a certain problem, there has to be knowledge that solves the specific one. After the situation is identified the firm needs to bring knowledge that can address the issues of the current situation in the firm. Knowledge which can be alternative for the possible solution should be developed. Then, the firm can address the problem. After the knowledge development, the firm needs to put the information and data together for best output. At last the application of the knowledge is fundamental.

Ferdinand et al. (2005) also discuss dynamic capability from an organizational learning perspective. Luo (2000) suggest that capability; "possession (distinctive resources), deployment (resource allocation) and upgrading (dynamic learning)" are components of dynamic capability to gain competitive position for international expansion of firms. Zahara et al. model and Luo (2000) thoughts about dynamic capability is more or less the same. Luo sees unique resource in competing in an industry is crucial. Firms should identify the unique resource that makes them competitive in the industry they are in. Having these unique resource alone doesn't make a firm competent and let remain in the industry. Allocation of these unique resources and combining with new knowledge is important to be successful. Now a day's competition among firms in the same industry is very high. According to

Dr. Gaye Açıkdilli and Prof. Dr. DoğanYaşarAyhan (2013) organizations should have several strategies to survive and to reach their objectives because environment and conditions change rapidly. Firms should do many things to survive in the industry for a longer period of time. Specially during crisis and difficult situations firms needs to exercise dynamic capability to bring new ideas, product, way out, strategies and so on to let the firm progress. When we come to aviation industry, it is susceptible for many situations, like pandemics.

2.1.1 Sensing capabilities (SC)

A firm's sensing capability is the organization's ability to gather knowledge from the market (i.e., clients, opponents, and technologies), interpret it, and collect it in the form of knowledge in an accessible structural memory

It is known that developing dynamic capability is the key for the company to compete in the industry as well as survive as a firm. During competition, if a firm cannot take the leading position in the market it will not have a chance to gain economical advantage.(Prahalad& Hamel, 1990; Vorhies, 1998).

Organization with best sensing activity would have a chance to gain competitive advantage and the intended performance. The ability of an organization to use the knowledge gathered from its environment properly is the key to the growth and as a whole performance of it.(Vorhies& Morgan, 2005).

2.1.2 Learning capabilities (LC)

As empirical studies shows learning capability has no direct relationship with financial performance but increases job satisfaction of people in the organization. (Goh, 2001) But a study by Yang et al. (2004) tried to indicate learning capability has a relationship to financial performance but the significance is not as a relationship of learning capability and job satisfaction. Many imperial studies on the relationship of learning capability and different kinds of performance showed the impact is not that significant on the financial performance.

These initial empirical studies did not establish conclusively that there is a positive relationship between learning capability and financial performance. A number of studies, with a marketing perspective have also surveyed the relationship between learning capability and performance (Baker and Sinkula , 1999; Calantone et al., 2002; Hanvanich et al., 2006, Hult et al., 2003; Jimenez-Jimenez et al., 2008; Keskin, 2006; Lin et al., 2008). They recommend that a both market orientation and learning capability together can make improvement in the overall performance of a firm such as financial performance and non-financial performance such as innovation, market share, or sales growth.

2.1.3Coordinating Capabilities(CC)

To understand the Coordination or organizing procedures is seen to be potentially significant by the executives on the management level of the organization. Coordination capabilities help the organization to assimilate all the unknown or not well defined knowledge as well as organized knowledge with the aim of producing and delivering the intended products that are relatively low cost and get more updates and information on the desires and demands of the clients (Helfat&Raubitschek, 2000).

2.2 Entrepreneurial Orientation (EO)

Firms like airlines need to be international oriented business since the industry itself push them towards that. Unless the firm working in the international market it is so difficult to survive as airlines. If the firm is competing among airlines in the industry of the world, the innovation, thinking ahead, working across discipline, developing transferrable skills, and so on should be considered. Defining Entrepreneurial Orientation as “the discovery, enactment, evaluation, and exploitation of opportunities—across national borders—to create future goods and services” *McDougall et al. 2003 and Oviatt and McDougall, 1994* In other words, Entrepreneurial Orientation plays a pivotal role in maintaining and improving a firm’s marketing competence, as a firm with an Entrepreneurial Orientation is willing to look for an opportunity to enter into a new market as well as reacting sensitively to customers' needs.

(Junghyun Yoon, Ki Keun Kim, and Alisher Tohirovich Dedahanov, the Role of Entrepreneurial Orientation in Successful Internationalization from the Network Capability Perspective, 2018). Firms don't see only the opportunities of international orientation entrepreneurial, since there are also plenty of threats that would even let the firm to collapse. In the international market, every country may have it's of regulations and protocols. These protocols may not be compatible with the firm at every piece.

According to Shane and Venkataraman (2000), entrepreneurship was taken to be the pursuit of opportunity and EO as the dimensions of entrepreneurial behavior along which opportunity is pursued. Miller (1983), who was the first to propose the idea of Entrepreneurial Orientation, included three dimensions. These were innovativeness, proactiveness and risk taking. Firms which participate in proactive product innovation, undertaking risky ventures ahead of competitors are entrepreneurial firms. According to Miller (1983), Entrepreneurial firms are well known for accepting risks proactively innovate and outsmart competitors. In addition to the three dimensions, competitive aggressiveness and Autonomy were also added by Lumpkin and Dess (1996). As said by Lumpkin and Dess (1996), Entrepreneurial orientation is the dimension of an entrepreneurial process or behavior in which opportunity is pursued, which leads to the fundamental practice of entrepreneurship. Beginning of entrepreneurship as a firm behavior is demonstrated by the formation of EO constructs.

EO is said to push firms towards pursuing entrepreneurial activities. It influences the decision making style of companies and also affect their performance. The concept of EO and entrepreneurial activities are two different concepts. EO is a predecessor of entrepreneurial activity. However, it does not directly measure entrepreneurial behavior and their engagement in such behavior; rather, it shows firms tendency towards entrepreneurial activities. It reflects how firms operate instead of how they operate (Lumpkin &Dess, 1996; Zahra, 1991; Covin& Wales, 2011).

2.2.1 Innovativeness

Innovativeness is willingness and capability of firms to innovate and rejuvenate their market offerings. It is the tendency of following novel ideas, creative processes, and experimentation. Innovation reflects willingness to depart from existing practices or technologies and undertake beyond the current state of the art. It can be building on existing skill to create incremental improvements or radical innovations which is built on new skills that make existing skills obsolete. In both ways, innovativeness is aimed at developing new products, services, and processes. Therefore, firms with successful innovation enjoy higher performance than those that do not (Baker &Sinkula, 2009).

For a wealth to be created an existing market structures has to be interrupted by the introduction of new goods and services, which caused new firms to emerge. In this process, Schumpeter (1934), saw entrepreneur as an innovator who drove the evolution of the economy, while Miller and Friesen (1982), distinguished that entrepreneurial firms were characterized by their willingness to boldly and regularly innovate and take a risk in their product market strategies.

Innovativeness may take different forms, according to Lumpkin and Dess (1996), ranging from a willingness to try a new product line or experiment with a new advertising medium, to a careful work to gain and master the technological advantages and new goods that time desires.

2.2.2 Pro activeness

Pro activeness is the ability of organizations to foresee and act on potential consumer demands in a competitive position and it anticipates and acts on future opportunities rather than depending exclusively on current goods and services or responding to events after they are announced. Such organization are often either the first to enter new market to have a first-mover advantage against competitors, Lumpkin and Dess (1996), or “fast followers” that improve on the initial efforts of first movers. Proactive firms adopt an opportunity-seeking perspective in advance of shifting market demand. Exploitation of the first mover advantage in the market place, help firms to enjoy a better position to capture high returns.

According to Yeoh and Jeong (1995), pro activeness is of particular importance to export oriented small and medium enterprises in the developing world. Firms that proactively pursue export market information and activities often gain first-mover advantages.

The first one which is aggressive tends to act proactively in their search for opportunities. However, the second group of exporters act after the problem happened. They are conservative in taking proactive measures. Rather they react in looking of overseas market. Rauch (2000), on the one hand, indicated that a lack of pro activeness reduced the chances of firms to be successful. Stevenson and Jarillo (1990), linked export performance success with the tendency of firms to see foreign market as an opportunity

2.2.3 Risk taking

Firms must deal with several risks associated with exporting their products and services. The tendency of firms to cautiously engage in bold actions shows firm’s willingness to take risks and those firms which performed better in their export mostly have risk taking tendency (Leko&Horvat, 2006)

Unlike different researches which showed that entrepreneurs reduce risks by planning and forecasting in order to reduce uncertainty, they are most of the time seen as chronic risk takers (Simon et al., 2000). Firm’s decision to internationalize from inception and entrepreneurial orientation dimensions, proactiveness and risk taking has a positive relationship (Kropp et al., 2008 and Ellis, 2000).

2.2.4 Autonomy

The freedom an individual or team of individuals get in an organization to develop their entrepreneurial ideas and put the idea in to practical result is said to be Autonomy. It is an independent action by an individual or a group of individuals who concentrated on developing a business concept or a vision and taking it through to completion. In an organization that offers high autonomy, workers are given the independence required to bring a new idea to completion, unencumbered by the restraints of corporate bureaucracy. Organizational traditions hinder employee’s effectiveness in creating and developing new ideas. Therefore, unless the status quo is changes, firms will not be effectively in their performance (Lumpkin &Dess 1996). The University of Minnesota libraries (2011), reviled that some large organizations encourage autonomy by empowering a division to make its own decisions, set its own objectives, and manage its own budgets.

2.2.5 Competitive aggressiveness

Highly performing firms do not try to avoid competitors rather they challenge their competitors directly with intensity. There intense moves may include budgeting a high spending to maximizing their production capacity, quality, and price-cutting. Even though, aggressive moves help firms achieve high performance, too much aggressiveness can undermine an organization’s success. Smaller firm which compete with larger rivals might lose the competition on the price war (Covin et al., 1990). In addition, firm’s chance of being invited to collaborative business efforts like, joint venturing and alliance, will be compromised when they establish a status for competitive aggressiveness. Collaboration is crucial in some sectors, as no one entity has the expertise and resources necessary to create and produce new products. Managers must remember competitive behavior that could kill prospects for potential cooperation (Lumpkin &Dess, 1996). Competitive aggressiveness has been considered as a company's efforts to outperform its competitors directly and energetically and is characterized by reactions or responses to competitors' action as well as exploiting things in which the firm is better when compared to its competitors. Continuously analyzing the state of its rivals must be a challenge for businesses to recognize their competitors' vulnerability and come with their own strength. Hopefully, this would lead to more prospects for commercial advantage (Lumpkin &Dess 1996, 2001).

2.2.6 Entrepreneurial orientation (EO)

Without innovation and dynamism a firm cannot survive and brings changes within the organization. A firm should be flexible in its strategies in many ways. As it is discussed in the above chapter in this dynamic environment a firm needs to address issues related to innovation, flexibility in its decision, exploit new opportunities as well resources in the firm. Without entrepreneurship, business and society would be neither dynamic nor adaptive, thereby resulting in stagnation. With entrepreneurship, however, firms tend to seek innovative and flexible means to exploit opportunities and achieve desired objectives (Khandwalla, 1977; Meyers, 1986).

2.2.7 International entrepreneurship (IE)

International entrepreneurship “is an entrepreneurship looking for the opportunities outside the home country to create and bring future market. Exploring opportunities in the overseas with creating new products and services for continuous market is entrepreneurship activity of an organization. (Oviatt& McDougall, 2005, p. 540). Before the definition of the previous one the authors defined International entrepreneurship as “a risk taking, combination of innovative, initiative, and risk seeking attitude that deals with the international market and planned to create values in the firm.” (McDougall &Oviatt, 2000) Firms do have their own short and long term goals, strategic plan and some other ambitions. In addition to the goals they may have vision to reach in unspecified period of time. These firms need expansion of markets and product development to meet their strategic plan. Sometimes there are firms like Ethiopian airlines and export sectors, that they just began being a global business. In the case of international entrepreneur firms need to see and analyze the opportunities and threats of the globe phenomena. Many times firms encounter difficulties since the laws and regulations of countries are different in many aspects. So for such and similar problems firms needs to be proactive in many ways.

2.3 Financial performance

In this chapter views of scholars on the relationship between dynamic capability and performance and to assess the impact the relationship between dynamic capability and performance of Ethiopian airlines: the mediating role of Entrepreneurial Orientation on the performance. The chapter includes the following sections: background about the study, statement of the problem, research question and objectives, definition of terms, scope of the study, limitation, significance and organization of the paper.

At the time of crises firms try to minimize the damage occurs on their revenue. During crisis only few firms in different industries survive. Most of the remaining's go out of the business. But there are firms who can maintain their revenues or reduce the loss on their progress.

In the aviation industry and some other similar industries, if the management take risk for a better output and believe in innovation, the firm will have the chance to be competent in the industry.

Worldwide, tourism and hospitality industry have been affecting very badly by pandemics, because, the nature of the businesses is always related to the travelling of people. History has shown that epidemics and pandemics have an immediate impact on the hotels and restaurants, airlines industries, travel agencies etc., due to the international travel restrictions, superfluous media coverage of the issue and government measures. (***www.traveldailynews .com /post/pandemic-2020)*** Currently the issue of the world is the pandemic Covid 19. It has been impacting many lives either directly or indirectly. The outbreak has been causing many damages on the economy of industries and individuals. Among these the aviation industry is the main one. Covid 19 and the recent pandemics impacted the economy of countries substantially. Following this industries like aviation, hotel and tourism suffered a lot. According to ACI, total airport revenues fell by 35 percent worldwide in quarter1 2020 (equivalent to $14 billion) and by 90 percent in quarter 2 2020 (equivalent to $39 billion). Projected estimates for 2020, as a whole, paint an even grimmer picture, with a 50 percent drop in total passenger traffic (to 4.6 billion) and a drop of nearly 57 percent in airport revenues (to $97.4 billion), compared to pre-COVID-19 forecasts.

The tabulation form of the impact of the pandemic on the aviation industry below shows how the pandemic hit the airlines industry badly. The table compares the revenue of airports forecasted in

2020, at the time of the pandemic covid 19 and what has been happening on the revenues during the pandemic.

QUARTERLY TOTAL AIRPORT REVENUES IN 2020 BY REGION:

FORECASTED (PRE-COVID-19) VS. ESTIMATED UNDER (COVID-19) (MILLION USD)

Forecasted	***(Pre-COVID-19)***	***Estimated under***	***(COVID-19) % Change***
Africa	4,300	2,100	-51.2%
Asia-Pacific	49,900	20,500	-58.9%
Europe	59,300	22,200	-62.6%
Latin America-Caribbean	10,500	5,200	-50.5%
Middle East	13,200	6,200	-53.0%
North America	34,700	18,300	-47.3%
World	171,900	74,500	-56.7%

Source: ACI

Many of the airlines have been declaring bankruptcy so that they can get benefits from the government and financial institutions. The pandemic affected the aviation industry substantially due to travel restrictions and a slump in demand among travellers. Significant reduction in passenger numbers have resulted in flights being cancelled or planes flying empty between airports which in turn massively reduced revenues for airlines to lay off employees or declare bankruptcy.

In today's dynamic and highly competitive context, organizations should be "active actors" and capable to adapt to environmental changes "at least to some extent, mainly within the limits of its resources and capabilities" (Makkonen et al., 2014)

An Ethiopian airline is one of the oldest African airlines in Africa. **Ethiopian Airlines**, formerly *Ethiopian Air Lines* (EAL) and often referred to as simply *Ethiopian,* is Ethiopia's flag carrier and is wholly owned by the country's government. EAL was founded on 21 December 1945 and commenced operations on 8 April 1946, expanding to international flights in 1951. The firm became a share company in 1965 and changed its name from *Ethiopian Air Lines* to *Ethiopian Airlines*. The airline has been a member of the International Air Transport

Association since 1959 and of the African Airlines Association (AFRAA) since 1968. Ethiopian is a Star Alliance member, having joined in December 2011. The company slogan is *The New Spirit of Africa.*

Its hub and headquarters are at Bole International Airport in Addis Ababa, from where it serves a network k of 125 passenger destinations 20 of them domestic and 44 freighter destinations. The airline has secondary hubs in Togo and Malawi. Ethiopian is Africa's largest airline in terms of passengers carried, destinations served, fleet size, and revenue. Ethiopian is also the world's 4th largest airline by the number of countries served. (https://en.wikipedia.org/wiki/Ethiopian_Airlines, 2021)

2.4 Entrepreneurial Resources and Dynamic capability

This day's entrepreneurs are facing uncertain environment which is changing swiftly. This great uncertainty let the entrepreneurs to see situations in different directions. The firm needs to know and appreciate the employees and all the stakeholders are the most important part. These people are entrepreneur. The best resource in the firm is the entrepreneur and the people in the organization. The rest are things which are manipulated by these resources. If these entrepreneurs are not available in once firm, it would not be able to go further and cannot manage the competition from rivals in the industry.

Entrepreneurial resources are vital tools for dynamic capability to develop new products and do the routines in different manner which benefits the firm's revenue. In literature entrepreneurial resources may play a role in the capacity to respond effectively to such dynamic environments, in several ways. Zahra et al. (2006) define dynamic capability as the abilities to reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision-makers. Zahra et al.'s (2006) model shows a firm's entrepreneurial activities are "the starting point for the conception, development, configuration and maintenance of dynamic capabilities". The ability of that the organization's in creating new ideas is the crucial part. The entrepreneur in the firm is expected to come up with new ideas, taught, sight to bring new products that can make the firm take the share of the market. If the firm fails in providing new ideas and concepts in the industry where dynamism is critical, the whole firm will fail. This days Customers are conscious about the product that they consume. If the firm doesn't go along with the interest of these alert consumers, it would be difficult to maintain them loyal for the product the firm provides. Let's take the mobile phone industry as an example. Some years ago Nokia and Motorola were famous in the market but their entrepreneur ability let them out of nth big market. Now the market is controlled by Samsung (30.25), Apple (26.53) and Huawei (10.44) (*mobile vendor market share worldwide stat Counter 2020*). Many articles, journals and theses have written about the familiarity of the known brands. These all have shown how entrepreneurs and entrepreneurial dynamism important in the firm for its development.

Zaha gives details on the construction of ideas. The idea, vision of a certain work has to come first in mind. But Lee et al. (2008) suggest that "the dynamic capability for innovation require managerial practices that include the deployment of entrepreneurial resources, and relational and decision support". Lee et al. (2008) propose that dynamic capability is changing day today without any gap; it is not routine, but the managerial follows the following steps. First, the selection of entrepreneurs who take on the main duty of assembling and integrating the resources needed to create innovations has to be done. In Wu's (2007) study initial stage of the firm's; "resource integration capability (e.g.,Teece et al., 1997; Eisenhardt et al., 2000), resource reconfiguration capability (e.g.,Teece et al. 1997;Eisenhardt et al. 2000), learning capability (e.g., Luo, 2000) and ability to respond to changes" are variables of dynamic capabilities. Wu (2007) found that the more abundant the entrepreneur's resources the greater the start-up's dynamic capabilities.

Regarding dynamic capability Ethiopian Airlines CEO Tewolde Gebremariam told AFP in an interview, "We were very quick, very fast, flexible and agile to move our forces, resources and everything to cargo." Here we can see the terms (**very fast, flexible and agile to move our forces, resources**) are the basic and key terms in dynamic capability. As the CEO of Ethiopian Airlines entrepreneur and dynamic capability is the culture of the firm.

"I would say that those actions have saved the airline. "So far Ethiopian airlines has avoided seeking a bailout, laying off any full-time employees or requesting deferrals on debt payments", Tewolde said.

2.5 Dynamic Capability and New Product Development

Dynamic capability is "the ability to reconfigure functional competencies to address turbulent, changing or dynamic environments" (Teece et al., 1997). In this dynamic environment firms should come up with new ideas and products supported by technologies. In addition to this resource allocation should be done to make real changes in the in a changing organizational structure. The firm will not have a chance to survive if it does not bring change in many dimensions and maximize flexibility. "Dynamic capability related to product innovation is central to continued corporate survival" (Yalcinkaya et al., 2007). In aviation industry there were business units which didn't get much attention before the pandemic. Ethiopian airlines Specialties are Passenger Services, Aircraft Maintenance, Aviation Academy, Charter Ground Handling Flight, Catering Personnel, Secondment (Aviation Professionals) Holiday Packages to a wide range of Tourist Destinations & Sights Globally (Air + Hotel) Ethiopian Skylight Hotel Cargo and Logistic Services. Every of the business unit had its own part in maximizing the revenue of the firm. During difficult situations the entrepreneurs of the firm have been bringing new destination for cargo and do some other acrobats to perform optimally.

2.6 Covid 19 Pandemic

Covid 19 is the new type of corona virus which is discovered for the first time in china Wuhan province. Before this type of corona virus, our world experienced similar viruses in different times. Coronaviruses are named for the crown-like spikes on their surface. There are four main sub-groupings of coronaviruses, known as alpha, beta, gamma, and delta. Human coronaviruses were first identified in the mid-1960s. The seven coronaviruses that can infect people are:

229E (alpha coronavirus), NL63 (alpha coronavirus), OC43 (beta coronavirus), HKU1 (beta coronavirus), MERS-CoV (the beta coronavirus that causes Middle East Respiratory Syndrome, or MERS), SARS-CoV (the beta coronavirus that causes severe acute respiratory syndrome, or SARS), SARS-CoV-2 (the novel coronavirus that causes coronavirus disease 2019, or COVID-19) People around the world commonly get infected with human coronaviruses 229E, NL63, OC43, and HKU1. Sometimes coronaviruses that infect animals can evolve and make people sick and become a new human coronavirus. Three recent examples are 2019-nCoV, SARS-CoV, and MERS-CoV.*(National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases, February 15, 2020).* These viruses affected the world in many terms. The recent coronavirus 2009 H1N1 Pandemic damaged the economy of the world, even if its range is not as a covid 19 pandemic. A novel influenza A (H1N1) virus emerged. It was detected first in the United States and spread quickly across the United States and the world.

Coronavirus disease (covid 19) is an infectious disease caused by newly discovered coronavirus. (WHO)

2.6.1 The impact of covid 19

Since Covid 19 is a communicable disease, it limits the gathering of people in a certain place. In addition to this travelling is also limited. In these and many other reasons, revenues of firms, economy of countries getting lower. COVID-19 is spreading human suffering worldwide; that is what we should all be focused on. Covid 19 pandemic is not only a health problem of human beings and it is beyond the health crisis. (***Socio-economic impact, UNDP***) The outbreak of the novel coronavirus (COVID-19) seriously damaged the economy of the world as a whole. As it is mentioned the virus seriously affected the health care, the transportation, and other fields in different industries and regions**.** The movement of people dramatically dropped as a result of government travel restriction. And it leads spending and any kind of economic activity to go down substantially. These and some other reasons made the economy of the world to be stagnant. Consequently some countries like USA are funding basic needs of its millions citizens.

2.6.2 COVID-19 and Firm Performance

COVID-19 is a major health emergency worldwide. Hundreds million people have been diagnosed worldwide, since January 2020, and several countries and regions are affected by the pandemic. Countries are forced to adopt quarantine measures because of the highly infectiousness nature of COVID-19. These measures have a great negative impact on combined demand, especially on consumption and exports. On the one hand, people were asked to go out less, and crowded places such as shopping malls. Many firms affected seriously. Because of the character of the virus, the restriction from the government and personal decisions of individuals firms productivity decrease substantially. Many firms are asking for external financial funds and bailouts. These decisions were not enough for the survival of the firms. Firms in many corner of the world are laying-off their employees to compensate the profit they have been losing and fearing the future is uncertain.

2.6.3 The impact of Covid 19 on aviation industry

The diseases transmit from one person to the others easily. Even if many don't know the whole about covid 19, many experts dealing with the disease say, it is airborne diseases. Having these and some other facts about this kind of corona virus, people limit their movement. For instance, Ethiopian airlines disclosed $550 million revenue loss. (World, Africa, latest on corona virus outbreak, Anadolu, 2020). Ethiopian airlines destine 110 destinations. But during the covid outbreaks it is limited to 19 destinations.

2.6.4 Covid 19 and Ethiopian Airlines

The different lockdown periods adopted around the world have geared the global economy to an unprecedented decline. The border closures, the economic slowdown and the fear to travel due to the epidemiological situation—slightly relieved by the measures taken—have resulted in enormous financial woes and in worst-case scenarios in bankruptcies accompanied by mass furloughs becoming the new normal in the aviation and tourism sectors.

With thousands of aircraft grounded, airports nearly empty and travel companies struggling to survive due to the situation; the 2020 figures for air transport and tourism are devastating.

According to African development bank Ethiopian airlines comeback from the damage because of covid 19 is immediately. According to the African development, comparing Ethiopian Airlines with others in the same industry in Africa said recovers fast and well. The African airports faced seating-offer losses ranging from 56% to 96% at the beginning of the outburst; most of them show slight signs of recovery as of October. But Ethiopian airlines made the loss down to 38 % from 88% in May 2020. As it is seen on the graph Ethiopian airlines is far better in regional, inter regional, domestic and inter-continental seating offer loss.

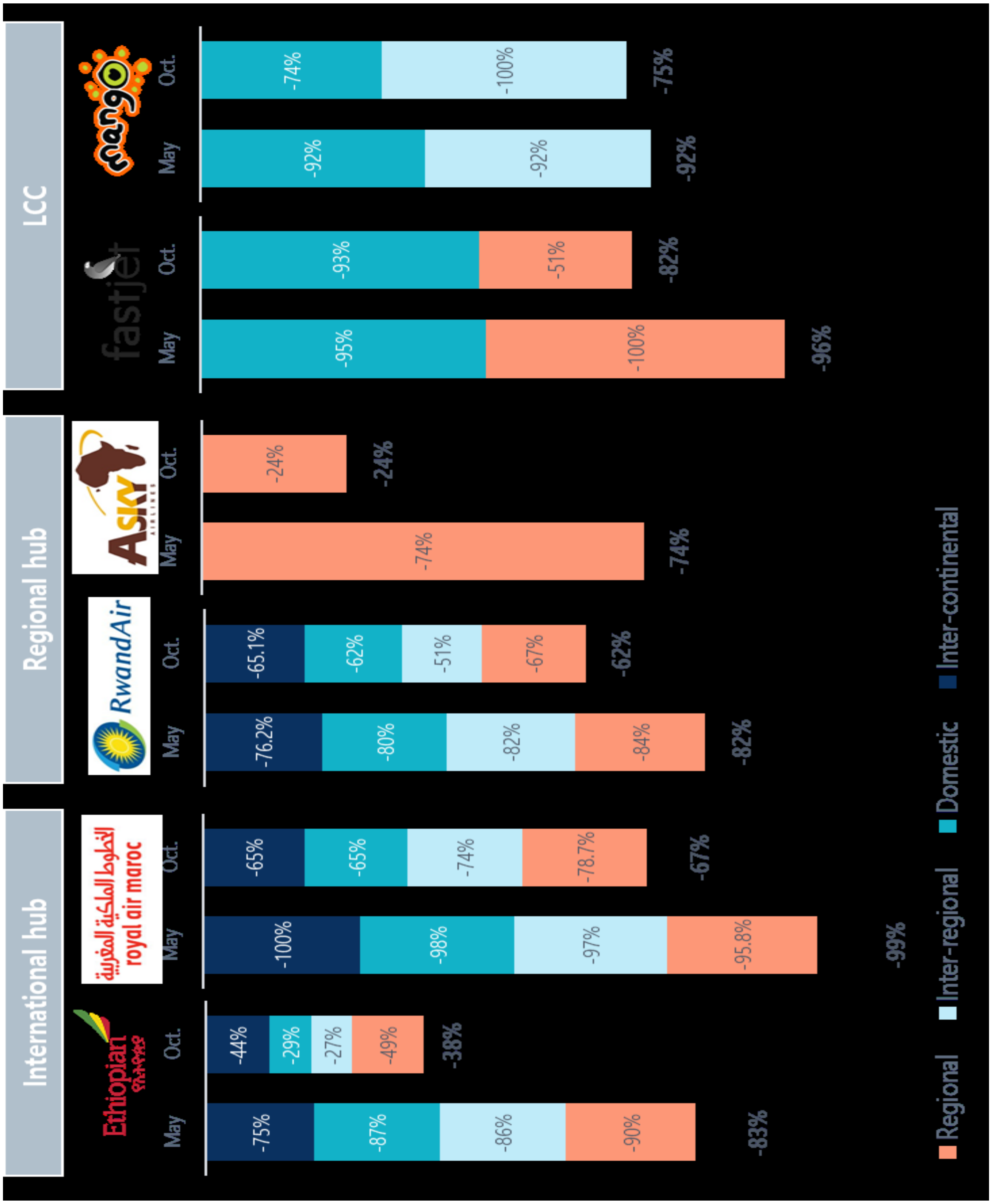

Fig 2.8 performance of airlines during and before covid 19

2.7Empirical review

The dynamic capability was examined by numerous analysts. Jorge Ferreira, Arnaldo Coelho, LuizMoutinho assessed the interaction of dynamic capability and firm execution with the relationship entrepreneurial orientation as a directing variable. The research concluded that energetic capability has a backhanded impact on execution and competitiveness, by means of inventiveness and Imaginative capability. These latter capabilities act like an instrument of dynamic capability (Lam, 2004; Cassiman and Veugelers, 2006) to help companies to be more competitive and perform superior. Imaginative capability applies a significant impact both on competitiveness and on execution, whereas imagination may fortify the impacts of energetic capabilities on Innovative capabilities (Gaspersz, 2005; Wood, 2003; Woodman et al., 1993;

Concurring to the article on the effect of energetic capabilities on firms seen promoting the execution of little and medium-sized undertakings (Article in Transnational Showcasing Diary · October 2017) enterprises' seen promoting execution depends on energetic capabilities. In the modern world of work, the reaction to alter depends on managing the instability and chance circumstances enough (Dove, 2001). These elements can offer unused openings to businesses and cause unused dangers. Thus, endeavors got to closely screen this financial flow, whether they are openings or dangers, and coordinated them into their operations, and assessing them. The analysts analyze the measurements of dynamic capability (sensing, seizing, and coordinating) as independent variables which influence performance of the firm.

2.8 Conceptual framework

A conceptual framework illustrates what you believe to find through your investigation. It defines the important variables for your study and maps out how they might communicate to each other.

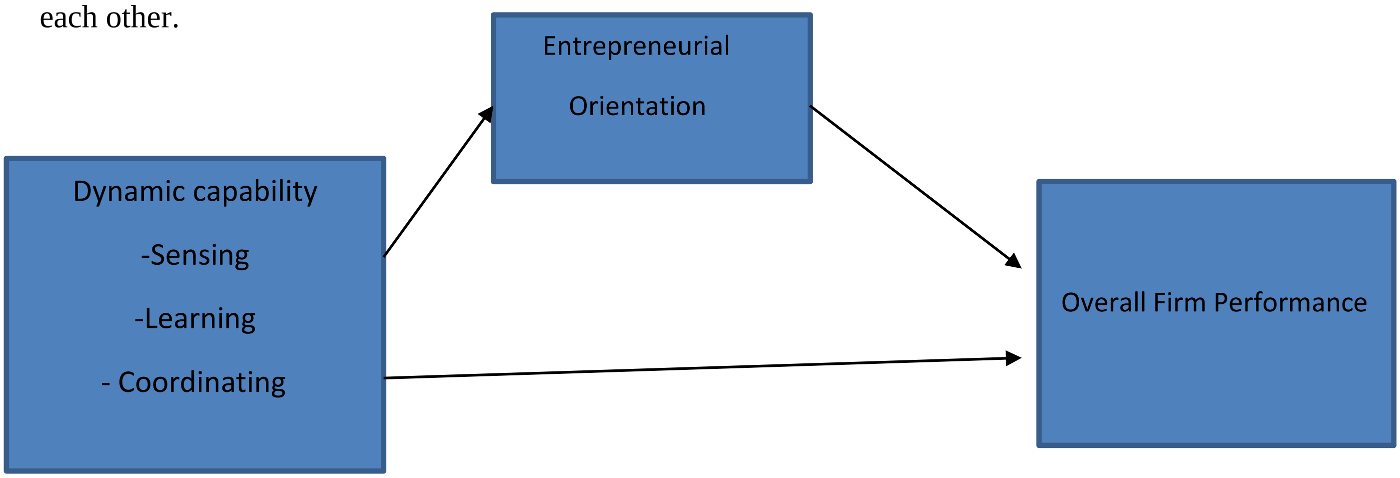

Fig 2.10

2.9 Research hypothesis

The following main and sub hypothesis were tested in this research

Ha1: Dynamic capability has positive and significant effect on Performance

Ha.1.1: sensing capability has positive and significant effect on performance

Ha.1.2: Learning capability has positive and significant effect on performance

Ha.1.4: Coordinating capability has positive and significant effect on performance

Ha2: ***Entrepreneurial Orientation mediates the relationship between dynamic capability and performance***

CHAPTER THREE

METHODOLOGY

Methodology is a technique used to identify, select, process, and analyze information about a topic. In this research paper the study used quantitative research method.

3.1 Research methodology

Research methodology is the specific procedures or, the methodology section allows the reader to critically evaluate a study's overall validity and reliability. The methodology section answers two main questions: How was the data collected or generated? How was it analyzed?

3.1.1 Research approach

In this study, mixed approach used to provide a wide-ranging analysis of the research problem. However, more emphasis was given to quantitative analysis. This research mainly focused on quantitative method of analysis.

3.1.2 Research design

The primary purpose of this study is to examine the mediating role of EO in the relationship between DC and P of Ethiopian airlines during covid 19. The entrepreneurial activities and dynamic capability of a firm in bringing change and being resilience for situations at different course of times and accepting changes and bringing new products case study of Ethiopian airlines. In light of the theoretical framework and hence it can be said that it has a nature of cause-and-effect relationships. Thus, the research used explanatory research design. The nature of this study leads towards correlational research, investigating the relationship between applying dynamism and entrepreneurship will change the performance of a firm during hard times.

Since data collected once in a particular period of time the study is said to be cross sectional by time horizon.

3.2 Population, Sample Size and Sampling Techniques

3.2.1Target Population and sample design

The target population is employees of Ethiopian airlines in the middle and lower management positions. They are managers, team leaders and successors. Since they are likely related to the topic of the study, and to access the directors and board members was nearly impossible, the study included only people who are working as a manager, team leader or successor.

3.2.2 Sampling Techniques

To conduct the research stratified sampling technique has used. First the scope of the research is limited to employees in Addis Ababa due to time and resource limitation. In addition to that the questionnaires have sent to the respondents through their email and most of them were not willing to fill out the questionnaire by many reasons that they don't want to mention.

3.2.3 Sample size

As cited in Glenn, 2012, there are several approaches to determine the sample size, this includes using a census for small populations, imitating a sample size of similar studies using published tables and applying formula to calculate a sample size. Among all these alternatives, this study prefers the formula derived by Yamane, (1967) cited in Glenn, 2012, rule of thumb, based on the information from the data, for the population of 500 at 5% margin of error and 95% confidence level the sample size is 222.

$$n = \frac{N}{(1 + Ne^2)}$$

$$n = \frac{500}{(1 + 500(0.05)^2)}$$

$$n = 222$$

3.3 Types and Source of Data

Data sources could be grouped in two parts. They are primary and secondary data. Information collected and administered directly by the investigator are among the primary data sources. This includes observations, surveys, interviews, and focus groups. On the other hand, secondary data sources comprise data retrieved from previous sources. These include Internet, various research articles, journals, or library searches. The researcher used primary data source, which the researcher himself collected, for the analysis and discussion of the aimed objective (Hox&Boeije, 2005). The researcher used primary data as an input. Primary data collected using self-administered questionnaires.

3.4 Data collection Methods

For this study questionnaires have used as instrument for data collection. This is because questionnaire is convenient to conduct survey and to acquire necessary information from large number of study subject with short period of time. The questionnaire prepared in English language, because it is assumed that all of the sample employees have the necessary skills to read and understand the concepts that were incorporated in the questionnaire. The research questionnaire is developed using both theoretical and empirical framework summarized at the literature section of the research.

3.5 Questionnaire Development and Administration

A list of questions prepared to assess the relationship between dynamic capability and performance of Ethiopian airlines: the mediating role of entrepreneurial orientation. The questionnaire is prepared in three parts. The first part of the questionnaire is regarding demographic characteristics of the respondents. It includes the age, gender, and educational background, the department they are working in and for how long they serve the firm. The second part concerns about entrepreneurial dynamic capability. It consists of 20 questions designed and customized in a way that could fit to the context of this research. The third part concerns about firm performance in general and divided in to two as firm overall performance and international performance. It includes about 10 questions. The fourth part concerns about the entrepreneurial orientation. It encompasses eleven questions. The last part of the questionnaire is three open ended questions. The Likert scale method (Likert, Rensis (1932)) is used to insure maximum response rate so that respondents were asked to reflect their perception with each of the items on which they rate it from “Strongly Disagree” to “Strongly Agree”.

3.6 Methods of Data Analysis

The first stage was making it ready for the analysis so that the nominal data can be converted into something meaningful. After that, conclusion has done based on the measure of frequency, central tendency, dispersion or variation, of position. Inferential statistics used to make predictions about large population after research and data analysis of the collected sample of the representing population. (Https://www.questionpro.com/blog/data-analysis-in-research/amp/)

The researcher has conducted using explanatory data analysis method to analyze the data. The data collected through questionnaires is analyzed using SPSS and AMOS software. The gathered data have been visibly presented by using tables which are articulated in the form of frequency, percentage, mean and standard deviation. International orientation entrepreneurial dynamic capability and are independent variables, which may affect the performance of the airlines dependent variable

3.7Measurement scale

No	Item	No of item	source
1	EO	11	MILLER(1983),
2	DC	21	Jantunen, Ari.(2005) Dynamic capabilityand firm performance
3	P	11	Razael, J., &Ortt, R.(2018)

Table 3.7 Measurement scale

3.8 Reliability and Validity

Reliability and validity are ideas, concepts used to evaluate the quality of research.

3.8.1 Reliability

Reliability generally refers to the extent to which a variable or set of variables is consistent in what it is intended to measure. It is the consistency of a measure. When multiple measurements are taken, the reliable measures will all be consistent in their values. (Hair et al., 2006, 3).The coefficient of reliability falls between 0 and 1, with perfect reliability equaling 1, and no reliability equaling 0. The test-retest and alternate forms are usually calculated reliability by using statistical tests of correlation [Traub& Rowley, 1991]. The cronbach's alpha for every part of the questionnaire is more than 0.7.

3.8.2 Test-retest reliability

The reliability coefficient is gotten by repetition of the similar measure on a second time, is called the test-retest reliability [GrazianoandRaulin, 2006]. It assesses the external consistency of a test [Allen & Yen, 1979]. If the reliability coefficient is high, example, r = 0.98, it can be suggested that both instruments are relatively free of measurement errors. If the coefficients yield above 0.7, are considered acceptable, and coefficients yield above 0.8, are considered very good [Sim& Wright, 2005; Madan&Kensinger, 2017].

3.9 Validity

Validity is often defined as the extent to which an instrument measures what it asserts to measure [Blumberg et al., 2005]. It is the about the accuracy of the measure. Validity of a research instrument assesses the extent to which the instrument measures what it is designed to measure (Robson, 2011).

3.10 Ethical considerations

The sample was taken randomly without any bias. If there is any confidential information like business secret of the firm or the respondents will be kept safe. And any of the data which has given by the individuals will not harm them.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

The objective of this thesis is to look at the relationship between energetic capabilities and execution of Ethiopian aircraft amid the covid 19 widespread: the intervening part of universal entrepreneurial introduction and In this chapter, the information collected from respondents, utilizing surveys, is displayed, analyzed & translated to address the investigate questions and destinations; which are expressed in chapter one. SPSS 26 and AMOS 23 program were utilized for investigation purposes. Nitty gritty dialog on inquiring about speculation and closeness and contrasts differences contrasts of the discoveries with past considers is additionally displayed. Nonresponse predisposition, pilot testing of the survey, respondents profile, information quality, and figure examination, intervention impact of universal entrepreneurial introduction,
and discoveries of observational come about, individually are included in this chapter.

4.1 Non response bias and response rate of respondents

The investigate blame, when evaluating the populace property based on a test of study information, in which, certain sorts of respondents are under-represented, due to non-response, is said to be non-response predisposition. When either of the two non-responses, to be specific Thing non-response or unit non-response happens it is said that predisposition happened. Thing non-responders might take off a thing on a survey clear, or reacting, saying they don't know, to a few questions whereas giving a substantial reaction to other questions. Though, Unit non-response may be a total non-participation on the portion in which the study proposed to incorporate. Diverse procedures are accessible for utilizing the somewhat completed reactions returned from item non-responders to control for contrasts. On the off chance that the whole units are lost from a test no test or rectification for predisposition is accessible without obtaining extra information Berg (2005). In spite of the fact that there was no nonresponse within the collected information, unit non-response was watched due to different reasons.
For this research a total of 222 questionnaires were prepared and distributed for Ethiopian airlines middle managers at headquarter bole airport. From these 167 was returned and they were

used for quantitative analysis and discussion; which indicates that the response rate was 75.2%, which is an acceptable percent.

4.2Individual Demographic data

Variable	Category	Frequency	Percentage
Gender	Female	110	65.87%
	Male	57	34.13%
	Total	167	100%
Age	<25	4	2.4%
	25-35	40	24.0%
	36-45	95	56.9%
	>46	28	16.8%
	Total	167	100.0%
Experience	<3	4	2.4%
	3-5	14	8.4%
	6-10	71	42.5%
	>10	78	46.7%
	Total	167	100.0%
Educational status	Diploma	1	.6%
	First Degree	82	49.1%
	Second Degree	84	50.3%
	Total	167	100.0%
Job Position	Manager	10	6.0%
	Team Leader	104	62.3%
	Successor	53	31.7%
	Total	167	100.0%

Table 4.2 Demographic characteristics of respondents
Source: analysis of survey data using SPSS 26

The number of male respondents is considerably higher than that of females. Most of the respondents, nearly 57 % of them are between the age of 36 and 45; followed by those who are between 25 and 35 (24 %). respondents who are below age 25 and above 46 are only are only 19.2% of them. 99.4 % of the respondents are first degree or masters holders and have 4 years and above experience in the firm Ethiopian airlines. Among 222 samples about 167 responses gathered. Only about 75 percent of the samples were responded. Most of the middle managers are male and seniors. These experienced and literate employees do have sufficient information about the airline and they filled out the questionnaire properly so the researcher took the response as a reliable data.

4.3 Data Analysis

4.3.1 Assessing the Sample Size

Deciding on test measures is a vital subject in the investigation. On the off chance that the test estimate is as well enormous, takes much time, asset and the like. A little number of tests too does not appear the genuine picture of the planning think about. Knile (2005), Analysts must get coordinating parameters that are as near to the populace as conceivable; since quantitative investigate discoveries are extrapolated from tests to the whole populace. Concurring to Loehlin (2004), the test estimate For SEM ought to be at the slightest 100 to 200. The test measure utilized for this think about was 167. This test is adequate for performing the figure examination and auxiliary demonstration.

4.3.2 Assessing Common Method Bias

As described by Podsakoff et al. (2012), the systematic variance shared by the variables is referred to as common method bias; and it assumes that a single factor explains the majority of variance. Unless dealt with, since it is considered to be the main source of measurement error, it could be a problem. The presence of common method bias in any measure produces hypothetically ambiguous results by inflating the correlation (Carlson, Kacmar, and Williams, 2000). To be free of common method bias, the first factor of un-rotated factor analysis should be less than 50% (Podsakoff et al., 2003). The unrotated factor analysis of this thesis showed that the first factor accounted for 29.49% of the total variance; therefore, the results suggested that there were no common variable. (SeeappendixB)

4.3.3 Assessing Missing Data

As said by Coleman (2011), when using likert scale rated items it is quite possible to have missing data concerns. This might bring bias estimate and reduced model fit. It will also weaken make a sweeping statement of findings; but a missed data of less than 10% is not considered as a vital problem. Since there were no missing data, the researcher continued with the 167functioning questionnaires for further analysis of Exploratory Factor Analysis, Confirmatory Factor Analysis, and path analysis.

4.3.4 Assessing outliers

As specified by Tinsley and Brown (2000), Outliers are extreme values which are either on one or a set of variables. This could be happen because of an incorrect value being entered, an error in recoding or transforming variables, or the presence of an exceptional but valid data point. As said by Kline (2005), the presence of outliers will impact the study and possibly the understanding of empirical findings.

There are two categories of Outlier findings. The first, outliers that have cases with unusual values for only one variable, called univariate (a statistics describes data consists of observation on only one characteristics) outliers and the second, outliers that have cases with an unusual mix of values for more than one variable, called multivariate outliers (Field, 2009; Pallant, 2010). The researcher used the frequency distributions of z scores In order to find univariate outliers. According to Tinsley and Brown (2000), Z score of absolute value above 3.29 with p value less than .001, shows the presence of a univariate outlier. However, based on the above value, no univariate outlier was observed in this thesis. The multivariate outliers analysis was done by using the criterion that the D2 (Mahalanobis distance) value should be $p < 0.005$ as recommended by Kline (2010). In the output of SPSS, since there were no values which were less than 0.005, all the data were used.

4.3.5 Assessing Linearity Assumption

Here the dependent variables are defined as a linear function of the independent variable, the predictor. The relationship between independent and dependent variable can only be accurately estimated by Standard multiple regression, if their relationships is linear in nature. However, if not, the regression analysis results will underestimate the true relationship and produce inaccurate statistical results (Jensen and Ramirez, 2013). For all the relationship in the model, curve estimation was conducted and found to be sufficiently linear to be tested using a covariance based structural equation modeling (SEM) algorism.

4.3.6 Assessing Multicollinearity Assumption

Refers to a situation in which more than two explanatory variables in a multiple regression model are highly linearly related.

Multicollinearity, in multiple regressions is the degree to which independent variables are correlated. It reduces the ability to assess the individual importance of each independent variable.

A problem in multicollinearity results in high correlations among independent variables. (Kline, 1998; Mansfield & Helms, 1982; Ramadan et al., 2017)

Tolerance denotes how much of the variability of the specified predictor variable is not explained by the other predictor variables in the model and the variance inflation factor (VIF is the influence of correlations among independent variables on the precision of regression estimates. Dormann et al. (2013), suggested that a tolerance value less than 0.1 almost certainly indicates a serious Collinearity problem and Liu (2010), also suggests that a VIF value greater than 10 means more severe Multicollinearity. To check if there is a multi-collinearity problem in this thesis, the researchers depend on a common cut off value of 0.10 for tolerance, and a value of 10 for VIF as recommended by Sekaran&Bougie (2013); and it was found to be in the acceptable range, as shown below.

Collinearity Statistics

	Tolerance	VIF
INTEO	.498	2.007
DCS	.644	1.553
DCC	.411	2.435
DCL	.753	1.328

Dependent variable: PERFORMANCE

Table 4.3 collinearity statistics
Source: analysis of survey data using SPSS 26

4.3.7 Assessing Normality Assumption

Normality test is used to determine whether the sample data has been drawn from the data normally distributed. It also shows if the data set is well modeled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed (Brown, 2016).

Since multiple regression require independent variables in the analysis to be normally distributed normality was checked by using Kurtosis, which measures if the data is heavily tailed or lightly tailed to the normal distribution and skewness, which is a measure of symmetry, before running the regression. If the data is normally distributed, as a rule of thumb, the skewness and kurtosis should be fall within the range of -2 and 2. Therefore, the analysis for all the variables, as can be seen below, is normally distributed (Hair et al, 2006).

	Skewness		Kurtosis	
	Statistic	**Std. Error**	**Statistic**	**Std. Error**
INTEO	-.660	.189	.903	.376
PER	-1.609	.189	4.221	.376
DCS	-1.437	.189	2.817	.376
DCC	-1.481	.189	4.470	.376
DCL	-1.250	.189	1.645	.376

Table 4.4 Normality Test Skewness and Kurtosis
Source: analysis of survey data using SPSS 26

4.4 Factor analysis

Factor analysis explains the relationship between a set of construct and observed variables; It can be used to assess the validity of measurements, as well as to develop or confirm a theory by investigating the observed variables and also to generate a smaller set of latent variables from a larger set of observed variables (Tinsley and Brown, 2000; Thompson, 2004). Factor analysis removes redundancy from set of correlated variables and it reduces number of correlated variables by representing them with derived variables. Factor analysis assumes that the fundamental dimensions of factors, rather than the entire factors, can be used to explain complex phenomena. (Stevens, 2002). Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) are the two factor analysis techniques.

4.4.1 Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis assists researchers in condensing data into a smaller set of summary variables in order to investigate the fundamental theoretical structure of the phenomenon. It aids in determining the structure of the variable's relationship with the respondents.

EFA is a multivariate statistical technique to model the covariance structure of the observed variables by using factor loadings associated with latent variables; residual variances and factor correlations. It is considered as one of the data reduction techniques since it aims at explaining the relationship of many observed variables by a relatively small number of factors. As said by

DeCoster (1998) when we want to discover different factors influencing variables and to analyze which variables go together for the purpose of producing an appropriate structural model, we use EFA (McDonald, 1985).

4.4.1.1 Factor Extraction

According to Pallant (2003), Factor extraction is concerned with identifying the fewest number of factors that can be used to best represent the interrelationships among a set of variables. It pursues to discover common factors. Different factor extraction methods includes maximum likelihood; generalized least squares; unweighted least squares; principal axis factoring; alpha factoring; image factoring; principal components and the alternative methods including correlation or covariance matrix (George and Mallery, 2003).

This thesis used principal component method to extract factors from the results of univariate analysis and it used Variamax rotation to carry out factor interpretation. By using SPSS 26 Kaiser-Meyer-Olkin (KMO), which tests weather the partial correlations among variables are small and Bartlett's test of Sphericity were also done to measure sample adequacy and appropriateness.

The basic guidance for KMO is less than 0.05 is considered poor, 0.5 - 0.6 is average, 0.6 - 0.7 is acceptable 0.7 - 0.8 is good and above 0.8 is considered excellent (Kaiser, 1974).

In addition to KMO, Bartlett's test of sphericity, which measures weather the correlation matrix is an identical (the diagonal value is 1 and the off-diagonal values are 0).This condition means that the variables are completely independent of each other and thus the factor model is inappropriate. Identify matrix of p-value test of less than 0.005 results in ruling out (Tobias & Carlson, 1969).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.572
Bartlett's Test of Sphericity	Approx. Chi-Square	3413.045
	Df	630
	Sig.	.000

Table 4.5 KMO and Bartlett's Test
Source: analysis of survey data using SPSS 26

The KMO value of 0.572 is considered average, insuring that factor analysis is useful with our data. In addition to this, small values of Bartlett's Test of Sphericity (< 0.05) suggest that factor analysis could be useful with the given data. As shown above in the table we have a value of 0. (Kaiser, 1974; Tobias & Carlson, 1969).

4.4.1.2 Communality

Communality is the measure of the percentage of variables variation which is explained by the factors. It is the variance amount, the prior variable share with all the other variables which are included in the analysis. The presence of variance is explained by all the factors jointly and measured by Communality. It estimates a part of the variance in a variable and might be interpreted as reliability of indicators. A communality value of below 0.5 will face omission (Thompson, 2004).

Certain variables and common factors are used to begin principal component analysis. At first, it assumes that all variances are the same. As a result, before extraction, the communalities equal one (1).This means that after extraction, there are common factors representing the common variance in the data structure. After extraction, the communalities represented the amount of variance in each variable that could be explained by the retained factors. All the variables of in the data indicated high communality, >0.5 (see Appendix C).

4.4.1.3 Total Variance Explained

Total variance which is set out by using Eigen values aims in determining the number of factors which explain most variances in the data (Kim and Mueller, 1978). It is used to determine the variance in all variables that are explained by a single factor. The Eigen value ratio is the ratio of explanatory importance of the factors in relation to the variables. The percentage of explanatory importance of a given factor with respect to the variables is expressed by the ratio of Eigen values. A factor with low Eigen value is considered as a redundant when compared to the more important factors and contribute small in explanation of the variance in the variables (Kaiser, 1958). Various extraction methods are used, but the most common extraction method is root greater than one criterion, which was first proposed by (Kaiser, 1958). This criterion keeps components with Eigen values greater than one. The reasoning behind this criterion is that any component should account for more variance in the standardized test score space than any single variable.

4.4.1.4 Factor Rotation

Factor rotation is a technique for testing and improving the interpretability of factors. Rotation is used to maximize each variable's loading on one of the extracted factors while minimizing the loading on all other factors. The three techniques for orthogonal rotation are Varimax, quartimax and equamax. The varimax method is the most popular among these techniques and is often used to make factor analysis FA. According to Hair et al. (2006), the higher the loading is the better the item's representation on the factor. Factor loadings which are greater than 0.30 & 0.20 are required for explanatory and exploratory researches, respectively. Varimax rotation is used in accordance with this guideline, and items with factor loadings of less than 0.3 are discarded in order to obtain more representatives for their respective factor. The out puts of EFA were used as inputs for CFA.

The research used absolute value of 0.50, as suggested by Field (2005), so that values above 0.5 to be observed. This increases the significance of items to their respective factor. The rotated component matrix divided the factors into six.EOP3 was reduced since it was grouped in to dynamic capability variable in which the researcher believed it to be unrelated. The analysis was carried out iteratively until the factor extraction rules were met.

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
DCS2	.770					
DCS5	.747					
DCS1	.712					
DCS4	.564					
DCS6	.558					
DCS3	.555					
DCC4	.462					
DCC3		.701				
EOP3		.678				

DCC1		.594					
DCC2		.581	.441				
DCL1			.790				
DCL2			.746				
DCL5			.660				
DCL4			.578				
DCL3			.507				
DCI1				.870			
DCI3				.818			
DCI4				.798			
DCI2				.787			
IP3					.685		
IP4					.678		
IP5					.589		
IP1					.567		
OP3						.748	
OP2						.655	
OP4						.519	
OP1						.491	
INTEO							.773

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 9 iterations.

Table 4.6 rotated component matrix
Source: researchers SPSS output

4.4.2 Confirmatory Factor Analysis (CFA)

After determining the underlying structure with exploratory factor analysis and a principal component analysis method, confirmatory factor analysis (CFA), that bridges factor analysis with Structural Equation Modeling (SEM), was used to assess construct validity through model fit indices (Tabachnick and Fidell, 2007).

CFA is used to determine whether or not a defined factor model fits a set of observed data. It is also used to determine the validity of a single factor model and compares the validation capability of two different models for the same set of data; it investigates the significance and the relationship between two or more factor loadings; it determines whether a set of factors is correlated or uncorrelated, and it evaluates the convergent and discriminant validity of a set of measures (Brown, 2015). CFA is closely related to Structural Equation Modeling.

The statistical method called Structural equation modeling (SEM) tests the relationships between latent and observed variables. Observed variables are variables that are measured during the data collection process, whereas latent variables are variables that are measured by connecting to the observed variables because they cannot be measured directly. SEM is a statistical framework that is multivariate in nature. It simulates complex relationships between variables that are directly and indirectly observed (latent). It is a multi-step process that involves the solution of systems of linear equations as well as the incorporation of systems and techniques. Path and factor analysis, simultaneous econometric equations, latent growth curve modeling, and regression analysis are some of the techniques used. (Barrett, 2007).

The estimation of parameters for a system of simultaneous equations is the goal of structural equation modeling (SEM). It aids researchers in the specification of confirmatory Factor Analysis (CFA), regression analysis, and complex models (Kaplan and Miller, 2000). After fundamental structure was found using EFA with PCA, then model fit indices are employed to assess the construct validity by using CFA (Tabachnick, Fidell, andUllman, 2007).

Basic process of SEM

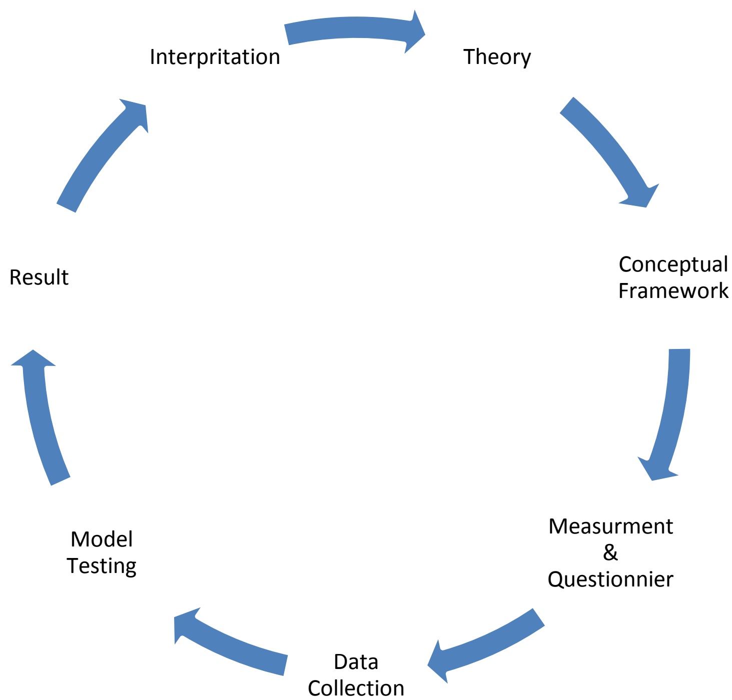

Fig 4.4 process of SEM result

SEM is a powerful multivariate analysis technique similar to factor analysis. According to Holmes Smith (2007), SEM primarily provides a parsimonious summary of the interrelationships among variables. Expanding on the potential of EFA, SEM can include CFA that can test specific hypotheses about the structure of the factor loadings and inter-correlations. Secondly, similar to path analysis, SEM can test hypothesized relationships among constructs with a linear equation system (Weston and Gore, 2006).Byrne (2001), separated SEM method into two models: the measurement model, which is concerned with the variables that are supposed to measure the concept (represent CFA model). It shows how the latent variables are represented by their respective indicators and structural model describes the relationships between the latent variables, or constructs. Both models together are called the composite, or full, structural model (Weston and Gore, 2006). AMOS (Analysis of Moment Structures) software was used to conduct SEM.

4.4.2.1 Measurement model

Paschke, (2009), the measurement model produces the most parsimonious, well-fitting, and valid model. It is used to assess construct validity based on convergent and discriminant validity. If the measurement model is based on theory and well-defined constructs, the full structural model will be valid and reliable, resulting in a solid theoretical foundation for the subsequent structural model.

4.4.2.1.1 Construct validity

Two construct validity assessments, convergent and discriminant validities were tested. The tests were carried out for the entire measurement model (Sounders et al, 2009). This section provides an overview of convergent and discriminant validity as well as results of measurement model constructs validity.

As said by Hair et al. (2010), construct validity, which focuses on the measurement of individual constructs, is the extent to which a test measures what it was designed to measure. It determines how well a set of measured items reflects the underlying factor model in which those items are designed to measure**.** It is the appropriateness of the inferences made on the basis of observations or measurements which measure the intended design of the test.

4.4.2.1.2 Convergent Validity

Convergent validity is defined as the degree to which individual items reflecting a construct converge when compared to items measuring different constructs. It determines whether items of the same variable or construct measure the same thing and, as a result, reveal correlations. (Hair et al., 2006). The relationship between the observed and latent variable is measured using convergent validity.

Convergent validity is achieved when the critical ratios are outside the -1.96 to +1.96 z-value range and the p-values ($p<0.05$), according to Holmes-Smith (2007), which indicates that factor loadings are significantly different from zero is fulfilled. This test of significant factor loading is the most important criterion in determining factor validity. Convergent validity is assessed with a standard regression loading >0.5, significant p value at 95% confidence interval and critical rations outside -1.96 to +1.96 z-range. Hair et al. (2006), Squared multiple correlation value above 0.5 is accepted and below 0.4 are considered not to hold convergent validity.

4.4.2.1.3 Discriminant validity

Discriminant Validity assesses how much latent variables differ from one another. It is a measure between variables and in this study it is compares AVE and squared correlation. The model does not violate the discriminant validity assumption, as shown below; the AVEs are greater than the values of the Squared Correlation. (Zaiţ&Bertea, 2011; Holmes-Smith 2007).

4.4.2.1.4 Nomological validity

Nomological (not logical) validity is a form of construct validity. It assesses the overall model validity. A nomological validity checks relationship between structures (latent variables), and features to the variables (indicators). It is useful for factor analysis. The degree to which the summated scale accurately predicts other concepts in a theoretically based model is referred to as nomological validity. According to Cronbach&Meehl (1955), it is an association with measures of other constructs that, according to theory, should be related to it. The relationships between constructs should be reflected in the relationships between measures or observations. The researcher assumes that the model does not contradict theoretically findings and principles from prior research.

4.4.2.1.5 Goodness of fit

Validity of measurement model depends on goodness of fit indices (GOF) The validity of a measurement model is determined by goodness of fit (GOF) indices, which indicate how well the model reflects the data (Hair et al., 2006). Despite the fact that there are numerous GOF indicators, only a few of them are usually reported. Absolute measures, incremental measures, and parsimonious fit measures are the three types of GOF indicators. Multiple GOF indices are used to ensure consistency in the empirical assessment (Kline, 2005).

4.4.2.1.5.1 Absolute fit indices

McDonald and Ho (2002) stated that absolute fit indices determine how well the model fits the sample data, without being compared to other models and how well the proposed theory fits the data (Jöreskog and Sörbom, 1993). Absolute fit indices includes Chi-Squared test, RMSEA, GFI, AGFI, the RMR and the SRMR.

a) Chi square

According to Schreiber et al. (2006) the ratio of degrees of freedom to chi square for a model needs to be less than 5 to be acceptable. The Chi-Square value is the traditional measure for evaluating overall model fit and, 'assesses the magnitude of discrepancy between the sample and fitted covariance matrices (Hu and Bentler, 1999). One of the limitations of the Chi-Square statistic is it is sensitive to sample size, which means that the Chi-Square statistic nearly always rejects the model when large samples are used (Bentler and Bonnet, 1980; Jöreskog and Sörbom, 1993). On the other hand, where small samples are used, the Chi-Square statistic lacks power and because of this may not discriminate between good fitting models and poor fitting models (Kenny and McCoach, 2003).

b) Root mean square error of approximation (RMSEA)

The RMSEA tells how well the model, with unknown but optimally chosen parameter estimates would fit the population covariance matrix (Byrne, 1998). Recommendations for RMSEA cut-off points include a well-fitting model to have a lower value of and the upper limit to be less than 0.08. RMSEA gives an advantage to calculate confidence interval around it because of the known distribution values of the statistic (MacCallum et al, 1996).

c) Goodness-of-fit statistic (GFI) and the adjusted goodness-of-fit statistic (AGFI)

The Goodness-of-Fit statistic (GFI) was created by Jöreskog and Sorbom as an alternative to the Chi-Square test and calculates the proportion of variance that is accounted for by the estimated population covariance. AGFI modifies the GFI based on degrees of freedom, with more saturated models having a lower fit (Tabachnick and Fidell, 2007). GFI values range from 0 to 1, and it is generally accepted that values of 0.90 or higher indicate well-fitting models. According to Miles and Shevlin (1998), a cut-off of 0.95 is more appropriate.

d) Root mean square residual (RMR) and standardized root mean square residual (SRMR)

The RMR and the SRMR are the square root of the difference between the sample covariance matrix residuals and the hypothesized covariance model. Values for the SRMR range from zero to 1.0 with well-fitting models obtaining values less than .05.(Byrne, 1998; Diamantopoulos and Siguaw, 2000). However, values as high as 0.08 are deemed acceptable (Hu and Bentler, 1999).

4.4.2.1.5.2 Incremental fit indices

Incremental fit indices are a class of indices that compare the chi-square value to a baseline model rather than using the chi-square in its raw form. The null hypothesis for these models is that all variables are uncorrelated. (McDonald and Ho, 2002).

a) Normed-fit index (NFI)

This statistic assesses the model by comparing the $\chi 2$ value of the model to the $\chi 2$ of the null model. The null or independence model is the worst case situation as it specifies that all measured variables are uncorrelated. Values for this statistic range between 0 and 1 with Bentler and Bonnet (1980) recommending values greater than 0.90 indicating a good fit. More recent suggestions state that the cut-off criteria should be NFI ≥ .95 (Hu and Bentler, 1999). A major drawback to this index is that it is sensitive to sample size,

b) CFI (Comparative fit index)

This statistic compares the sample covariance matrix to the null model, which assumes that all latent variables are uncorrelated (null/independence model). This statistic has values ranging from 0.0 to 1.0, with values closer to 1.0 indicating a good fit. Initially, a cut-off criterion of CFI 0.90 was proposed; however, a value of CFI 0.95 is now recognized as indicative of good fit. (Hu and Bentler, 1999).

4.4.2.1.5.3 Parsimony fit indices

The two parsimony fits indices as developed by Mulaik et al (1989) are the Parsimony Goodness-of-Fit Index (PGFI) and the Parsimonious Normed Fit Index (PNFI). The PGFI is based upon the GFI by adjusting for loss of degrees of freedom. The PNFI also adjusts for degrees of freedom however it is based on the NFI. Mulaik et al (1989) suggested that parsimony fit indices within the range of .50 if other goodness of fit indices achieves values over .90 is acceptable (Mulaik et al., 1989).

The CFA measurement model is built from the EFA output, which includes both latent and observed variables (indicators). The SPSS rotated component matrix was used as an input for the AMOS (Analysis of Moment Structure) software to perform CFA. This software is used by the researcher to analyze CFA and SEM.

As suggested by Hair et al (2010), a model is said to be correctly specified when it reproduces the sample covariance matrix well. When instances of specification error are noticed, the critical ratios (t-values), the squared multiple correlations (SMC) values, the standardized residuals and the modification indices (MI) were examined to re-specify the model. Taking this in to consideration necessary model re-specification was made, including dropping an item and re-running the measurement model.

NO	LATENT VRIABLE	OBSERVED VAR
1	SENSING	DCS1,DCS2,DCS3,DCS4,DCS5,DCS6
2	COORDINATING	DCC1,DCC2,DCC3,DCC4
3	LEARNING	DCL1,DCL2,DCL3,DCL4,DCL5
4	EO	IOE
5	PERF	IP1,IP3,IP4,IP5,OP1,OP2,OP3,OP4

A list of the variables that will be used in CFA

Table 4.7 Proposed latent variables and indicators

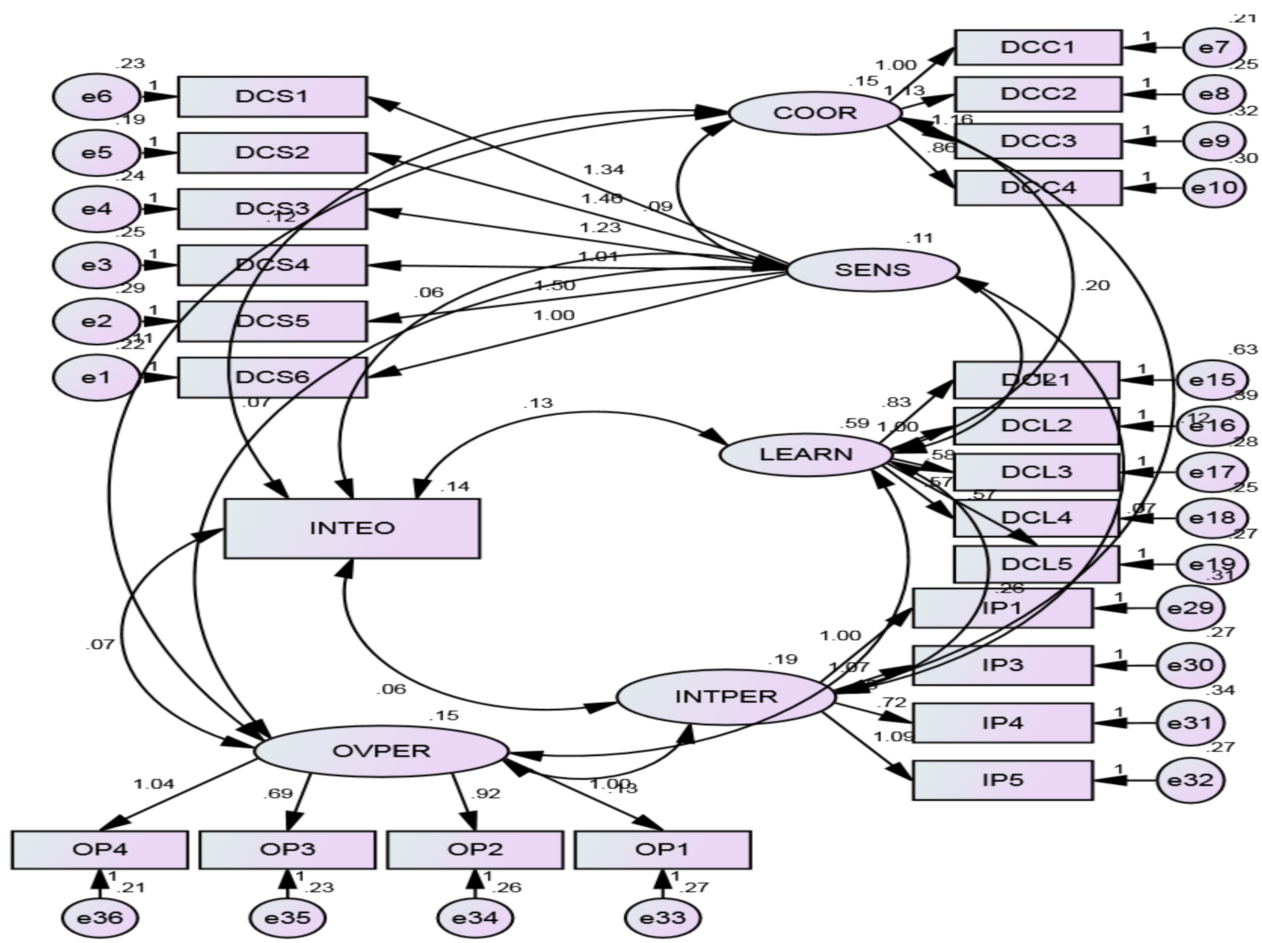

Fig 4.5 the complete CFA model (model 2)
Source: researcher's AMOS output

Result of CFA measurement model for convergent validity

Chi square		***Absolut Fit Indices***		***Incremental Fit Indices***		***Parsimony fit test***	
X^2 **(P value)**	363.1 P VALUE (0.000)	RMSEA	0.057	CFI	0.90	PCFI	0.78
Df	238	RMR	0.035	IFI	0.89	PNFI	O.68
X^2/df	1.526	CMIN/DF	1.526	TLI	0.91	GFI	0.86
Factor Loadings ***=p<0.001, **=p<0.01, *=p<0.05							

Table 4.8goodness of fit for model 2

Source: Researcher's AMOS output

CFA model 1 was modified for some model fit issues (see Appendix D). Model re-specification was done as suggested by modification indices and yielded a better model as can be observed in table 4.4. The CMIN/DF value is within the acceptable value of between 1 and 5 (1.526). In addition to this the RMSEA and RMR values are also in the acceptable range of <0.08. There values are 0.035 for both.

The incremental fitness indices had a value of approximately 0.9 for CFI, IFI and TLI, these are also in the acceptable range of >= 0.9. The parsimony fit indices had values of 0.78, 0.68 and 0.86 for PCFI, PNFI and GFI respectively. The acceptable range for these indices is >0.5. At P value of less than 0.001, all standardized regression weights (estimates) are significant. Squared multiple correlations (SMC) are not expected to be less than 0.4 in order for convergent validity to be satisfied and the result of the model showed that the SMC values are all in the acceptable cut value of above 0.4. This shows that there is no problem of item reliability and convergent validity (see Appendix E).

The researcher uses the correlations of each latent variable to test the discriminant validity of each item. As can be seen from Appendix I, all of the latent variables' correlations are less than the acceptable value of 0.8, indicating the presence of discriminant validity within the latent variables.

Finally structural model was produced to assess the relationship between latent and observed variables.

4.5 Final reliability

After validating all of the measurement factors underlying the research construct, the instrument was tested for reliability before proceeding with the structural model. The coefficient of internal consistency, Cronbach's Alpha, which is a common statistic for evaluating reliability, was used. All of the instruments passed the minimum recommended acceptable value of 0.7 (Hair et al., 2010). Thus, the measurement instrument is reliable. Table 4.14 shows the reliability estimates for each variable.

Instrument Reliability

Construct	Number of items	.79
EO	1	.70
DCS	6	.81
DCC	4	.79
DCL	5	.79
DCI	4	.84
P	4	.79
DCB	3	.734

Table4.9. Chronbach alpha value of each variable

Source: researchers SPSS output

4.6 Structural model

4.6.1 Proposed model with mediating variable

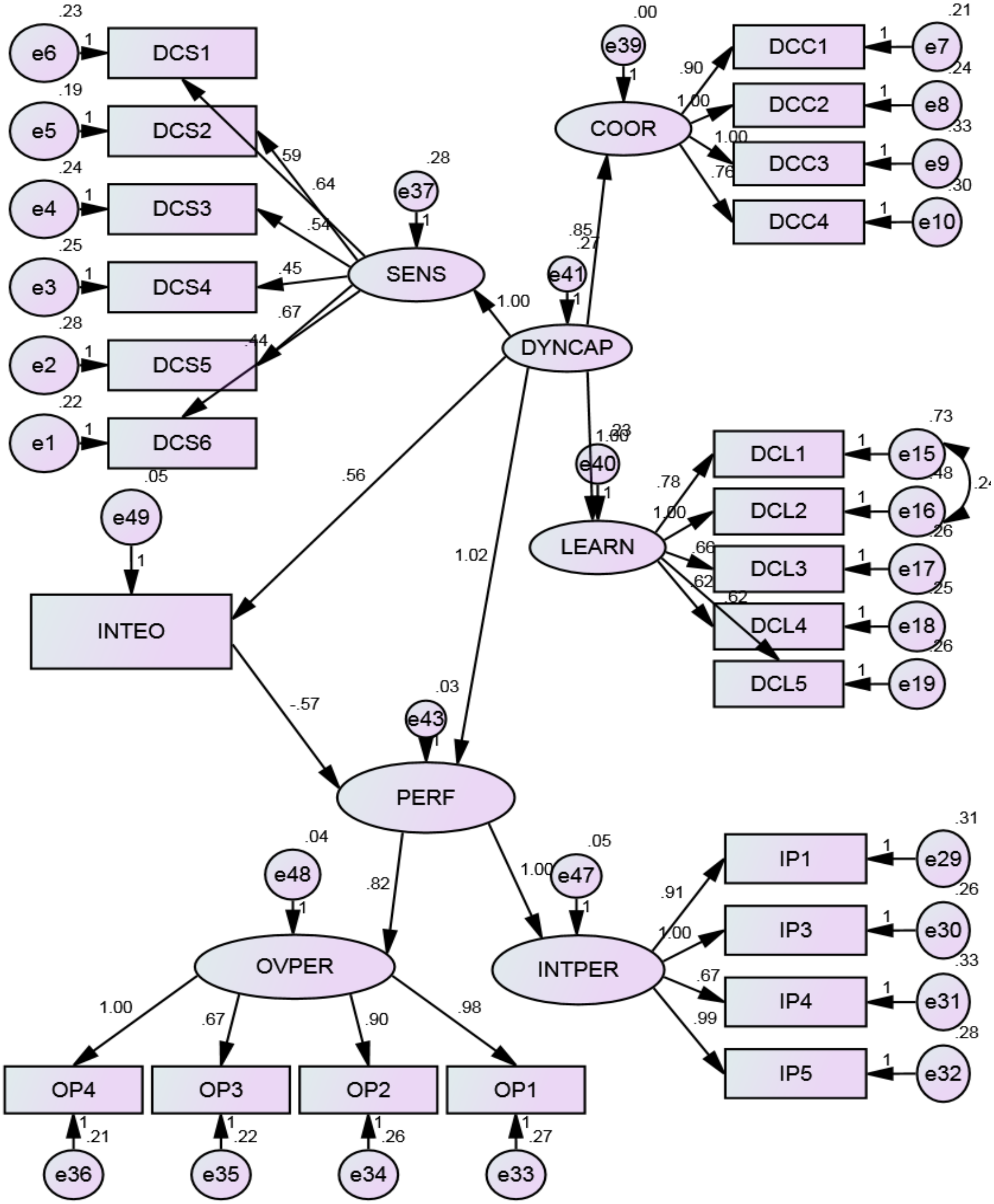

Fig4.6 proposed model with mediating variables (model 3)
Source: researcher's AMOS output

Assessing the model fit for the model with mediating variable

Chi square		*Absolut Fit Indices*		*Incremental Fit Indices*		*Parsimony fit test*	
X^2 (P value)	363.1 P VALUE (0.000)	RMSEA	0.057	CFI	0.90	PCFI	0.78
Df	238	RMR	0.035	IFI	0.89	PNFI	O.68
X^2/df	1.526	CMIN/DF	1.526	TLI	0.91	GFI	0.86

Factor Loadings ***=p<0.001, **=p<0.01, *=p<0.05

Table 4.10

			Estimate	S.E.	C.R.	P	Label
INTEO	<---	DYNCAP	.557	.082	6.824	***	Significant
PERF	<---	DYNCAP	1.022	.224	4.568	***	Significant
PERF	<---	INTEO	-.570	.210	-2.720	.007	Significant
SENS	<---	DYNCAP	1.000				Not estimated
LEARN	<---	DYNCAP	1.000				Not estimated
COOR	<---	DYNCAP	.849	.142	5.979	***	Significant
INTPER	<---	PERF	1.000				Not estimated
OVPER	<---	PERF	.823	.145	5.672	***	Significant
DCS6	<---	SENS	.440	.088	5.018	***	Significant

DCS5	<---	SENS	.666	.122	5.472	***	Significant
DCS4	<---	SENS	.447	.091	4.924	***	Significant
DCS3	<---	SENS	.541	.102	5.295	***	Significant
DCS2	<---	SENS	.640	.113	5.665	***	Significant
DCS1	<---	SENS	.591	.108	5.455	***	Significant
DCC1	<---	COOR	.900	.131	6.891	***	Significant
DCC2	<---	COOR	1.001	.144	6.968	***	Significant
DCC4	<---	COOR	.756	.131	5.750	***	Significant
DCL1	<---	LEARN	.777	.102	7.596	***	Significant
DCL3	<---	LEARN	.662	.090	7.351	***	Significant
DCL4	<---	LEARN	.617	.086	7.195	***	Significant
DCL5	<---	LEARN	.624	.087	7.134	***	Significant
IP1	<---	INTPER	.912	.141	6.492	***	Significant
IP4	<---	INTPER	.673	.127	5.304	***	Significant
IP5	<---	INTPER	.991	.143	6.948	***	Significant
OP1	<---	OVPER	.982	.162	6.061	***	Significant
OP2	<---	OVPER	.902	.154	5.866	***	Significant
OP3	<---	OVPER	.674	.130	5.185	***	Significant

Table 4.11

Source: SPSS

According to the above results, the value of CMIN/DF is 1.526, which is within the acceptable range, and the values of RMSEA and RMR are both acceptable.

CFI, IFI, and TLI values are all within acceptable cut point of greater than or equal to 0.9 when approximated. In addition to this, all the parsimony fit indices fall above the acceptable value of 0.5. Therefore, the full structural model as indicated in model 3, in terms of the selected fit indices in SEM literature, is supported and accepted. Therefore, the full structural model of dynamic capability dimensions in terms of the selected fit indices in SEM literature, it is supported and accepted.

4.7 Hypothesis Testing

4.7.1 Hypothesis testing and discussion

Ha1.1 sensing capability has positive and significant effect on performance.

Ha1.2 learning capability has positive and significant effect on performance.

Ha1.3 coordinating capability has positive and significant effect on performance.

				Estimate	S.E.	C.R.	P	Label
Ha1	PERF	<---	DYNCAP	1.022	.224	4.568	***	Significant
				Estimate	S.E.	C.R.	P	Label
Ha 1.1	PERF	<---	SENS	1.000				
Ha 1.2	PERF	<---	LEARN	.371	.072	5.158	***	Significant
Ha1.3	PERF	<---	COOR	.266	.095	2.787	.005	significant

Table 4.12

Source: SPSS

Dynamic capability and its two dimensions (Learning and coordinating capability)had positive and significant effect on performance of eth airline in the time of covid pandemic. Sensing is already labeled as 1 in the model.

4.7.1.1 Mediating effect of EO

Ha2 EO has mediating role in the relationship between dynamic capability and performance.

			Estimate	S.E.	C.R.	P	status
INTEO	<---	DYNCAP	.557	.082	6.824	***	significant
PERF	<---	DYNCAP	1.022	.224	4.568	***	Significant
PERF	<---	INTEO	-.570	.210	-2.720	.007	Significant

Table 4.13

There are two types of mediations. Segmentation and transmittal approach. According to baron and Kenny (2000) there are 4 kinds of mediation Complimentary mediation, Competitive mediation, Full mediation and non-mediation. This thesis had competitive partial mediation because the coefficient of EO to performance is -.570

4.7.1 Discussion of empirical findings

In this section the outcome and effect of Dynamic capability and the mediation effect of EO and performance was discussed, analyzed and contrasted with the previous findings.

4.7.1.1 Dynamic capability

Ha1: Dynamic capability has positive and significant effect on Performance

Ha.1.1: Sensing has positive and significant effect on performance

Ha.1.2: Learning has positive and significant effect on performance

Ha.1.3: Coordinating has positive and significant effect on performance

4.7.1.2 Mediating role of Entrepreneurial Orientation

Ha2: Entrepreneurial Orientation mediates the relationship between dynamic capability and performance

The mediating role of EO was studied. The analysis investigated the effect of the mediator on the relationship between DC and P. According to Rungtusanatham et al. (2014), there are two approaches of hypothesis for mediation, segmentation and transmittal approaches. For *segmentation approach*, three hypotheses should be developed. Independent variable's effect on mediator, mediator's effect on outcome variable and the mediation effect are the three hypotheses. The*transmittal approach* requires a single hypothesis stating that mediator mediates the relationship between independent and dependent variable.

As stated by Baron and Kenny's (1986), to confirm a mediation effect four steps need to be fulfilled.

1. In the absence of mediator, indirect variable significantly affects direct variable.
2. Mediator is significantly affected by indirect variable.
3. The mediator has significant and unique effect on the direct variable, and
4. The effect of indirect variable on direct variable has to shrinks when mediator is added to the model.

One of the limitations of using the Baron and Kenny's method is that all four steps must be significant before mediation can be accepted. If one become insignificant it will be concluded no mediation. Such multiple steps are criticized for creating type 1 error (Rungtusanatham et al., 2014).

This causal procedure of Baron and Kenny was criticized by Hayes (2009), suggesting that what matters in mediation analysis is the indirect effect (Hayes & Rockwood, 2016). Preacher and Hayes (2008), suggested a mediation method called "bootstrapping the indirect effect". For testing the mediating effect, a nonparametric resampling procedure, called bootstrapping, has been recognized as powerful and one of the more demanding methods. Hair et al., (2013) also suggested this method for mediation effect. In Bootstrapping, measures of accuracy, including bias, variance, confidence intervals, etc. are assigned to sample estimates.

To see the mediation effect of EO on the relationship between DC and P, as suggested by Hayes and Scharkow (2013), bias-corrected bootstrap confidence interval is used.

According to Baron and Kenny (1986), three step mediation analyses, complete /full mediation holds if the independent variable has no effect on the dependent variable, when the mediator is controlled. However, Partial mediation is given if the independent variable exerts some of its influence on the dependent variable through the mediating variable. Competitive mediation, no non mediation and direct only non-mediation fall under a mediation category in Baron and Kenny's approach which may result in rejection. Mediation or non-mediation could occur in the cases listed below.

1. **Complementary mediation –** is one of the partial mediations in Baron and Kenny's approach and it occurs when both direct and indirect effects are significant and on the same direction.

2**. Competitive mediation -** it is one of the partial mediations that occur when both the direct and indirect effects are significant but has opposite directions.

3. **Indirect only mediation-** it is full mediation that occurs when only the indirect is significant.

4**. Direct only non-mediation –** this occurs only when direct impact is significant.

5. **No non mediation -** If both the indirect and direct effects are insignificant, it is said no-non mediation. This shows a failure for testing mediation.

The study used Preacher and Hayes (2008), suggested mediation method called "bootstrapping the indirect effect." and Baron and Kenny (1986) three step mediation analysis as an additional.

According to Preacher and Hayes's (2008) bootstrapping approach, a statistically significant indirect effect (t-value > 1.96, two-tailed, $p < 0.05$) should be taken as an evidence for mediation (Preacher & Hayes, 2004; Zhao et al., 2010).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

The main objective of the study was to examine the relationship between dynamic capability and performance of Ethiopian airlines: the mediating role of entrepreneurial orientation.

Based on the analysis and interpretation done in chapter four, the following summary, conclusion and recommendation are made.

5.1. Summary of findings

Two research questions were raised in order to achieve the objective of this thesis. A total of 223 questionnaires were distributed for employees (Managers, Team Leaders and Successors) in Bole international Ethiopian airlines head quarter above 75% of usable responses were returned. The analysis was done using Structural Equation Modeling (SEM). SPSS 26 and AMOS 23 software were used. Internal consistency measures such as Cronbach alpha, reliability; discriminant and convergent validity, composite reliability and model fit issues were adequately evaluated. Most composite reliability values and AVE calculated in this study met the suggested threshold values. Then Hypothesis testing was done.

The models indicated that dynamic capability has significant impact on performance. The direct effect of Dynamic capability on performance is greater than the indirect effect. In addition to this, except sensing, which could not be estimated since it was given a fixed weight of 1.000 in AMOS, 3 observed dimensions of DC are found to make up the latent variable DC.

5.2 Conclusion

Based on the analysis of the data and research findings summarized above, the following conclusions and recommendations are given, to provide insight in to the effect of Dynamic capability on Performance and the mediating role of Entrepreneurial Orientation on the performance of Ethiopian airlines. In order to answer the first five research questions which ask the relationship dynamic capability and its dimensions (namely sensing, learning and coordinating) has with performance of Ethiopian airlines; the study evaluated direct and indirect effects.

The first and main hypothesis states that dynamic capability has a positive and significant impact on performance of Ethiopian airlines was found to be acceptable by the researcher. This finding is consistent with other researches. Significant proof for positive performance implication of firms with dynamic capability is also shared by previous study of RauchFerreira, J., Coelho, A., &Moutinho, L. (2020). In addition to this Makkonen, H., Pohjola, M., Olkkonen, R., &Koponen, A. (2014).also has found direct and indirect impact of dynamic capability on performance.

Dynamic capability and international orientation entrepreneurship is one of the most important factors that helps a firm either to be resilient or go forward in the industry where it is in. s many firms throughout the world have been facing difficulties to continue the usual routines. Firms like Ethiopian Airlines which is running in almost all over the corner of the world have been facing difficulties to move as usual since the business involves the movement of people from one corner of the world to the other corner of the world. Countries throughout the world closed their boarders and declare state of emergency. These restrictions led the movements of people limited.

The findings of the research showed dynamic capability and international orientation entrepreneurship brought big impact on the Ethiopian airlines to be cash positive and resilient to the pandemic covid 19. As the study revealed at the crisis times like covid 19, there should be hand and glove work among the firms' unit functions and employees as a whole to get rid of or minimize the negative output. The firm converts many of its passenger's airliners in to cargo so that they can carry appliances related to corona virus from and to different corners of the world. These and other changes let the firm to be resilient.

The employees in the management positions are more or less seniors. This let the employees to consider and work as the firm is their own. In addition to this, employees in the middle management structure are well-educated and trained personnel. As a reservation the study points out that the number of females (34.1%) in the middle and upper positions of the firm is limited. Many of the respondents mentioned the strength of the management as a source of the success of the firm.

The mean of respondents of almost all questions is above four points. That means most of the employees have at least agreed on the points and questions on the questionnaire. The employees of Ethiopian airlines have been working with great commitment and attitude to address the problems of the firm.

The mean of the dynamic capability responses for each question ranges from 4.07 - 4.51. An entrepreneurial dynamic capability of a firm is a key for today's competitive world. In the dynamic market of today, competitive advantage rests on the ability to constantly develop organizational capabilities that form the basis for products and services offered by the firm. (Açıkdilli, Doğan, and Ayhan 2013) So, the dynamic capability of a firm and entrepreneurship is an important set for the performance of a firm in competitive industry.

The international and general firm performance of Ethiopian airlines was substantially declining at the beginning time of covid 19 pandemic. The sales volume and revenue of the firm was increasing in an alarming rate until the world faces a difficult time because of corona virus. After sometimes the firm's performance corrected by the dynamic capability and crucial decisions. The mean of the respondents for the questions under this category ranges from 4.29 to 4.62.

The Entrepreneurial Orientation has been the key role for the firm performance since it runs in the global market and has a significant and positive effect on the performance of the firm.

5.2 Recommendation

The major objective was to examine the relationship between dynamic capability and performance of Ethiopian airlines: the mediating role of entrepreneurial orientation. There are some recommendations the firm and some other business should take to be resilient at the time catastrophes.

To compete in the international level the Ethiopian airlines has to work on different kinds of dynamic capability so as to be competent in the industry. As the SEM indicated all dimensions of DC needs to be exercised. The firm needs to learn innovative way, taking lessons from the previous challenges and investigation and doing repetition would solve problems. In addition to this the firm has to identify and assess opportunities outside the company and mobilize resources to capture value from those opportunities.

Indeed on the off chance that Ethiopian airlines is cash positive amid the widespread but the income was hit exceedingly. To bend such sorts of cases within the future the firm ought to be more watchful and prompt in each choice sometime recently as well late and it must work on the capability of the firm to be strong for any sorts of situations. Firms ought to increment imaginative items and administrations which might offer assistance to the firm to require forceful moves against their competitors, indeed in spite of the fact that they are risky, and offer assistance the firm reach its target. Ethiopian carriers have to keep up its status quo but it must investigate the assets and openings to urge a great appearance that will offer assistance it considers contributing in unsafe ventures which encompass a chance of big return. It moreover must investigate expected changes in future showcase conditions ahead of its rivals to utilize each opportunity it might get.

In addition to this benefit of the employees in every functional unit should be revised since sufficient number of respondents said the result of lesser salary of the firm made the airlines cash positive. Employees need to be listened when they ask for their personal benefits. These people shouldn't be considered as they are working to challenge the firm strength. The other most important thing that the firm needs to work on is information release for the employees in the firm as well as for the outsiders who want the data for different purpose should be open. The firm has sufficient fund and about six different business units. For such kinds of big firm this number should be increased so that when situations comes this diversification could help the firm more to be cash positive. So the firm needs to select and develop new products for better alternatives.

5.3 Suggestion for future researches

This thesis as stated in the limitation part has geographical limitations and reaching the top personnel of Ethiopian Airlines. Therefore, future researches are suggested to fill this gap. In addition to this the thesis used the sample from the head quarter of Bole international Ethiopian airlines during the covid crisis. Other researchers are encouraged to do similar thesis b expanding the scope and in different industries. In addition to this other researchers are advised to see the impact of DC in different industries as well as the mediating variable. Moreover the researcher dropped one of the observed variables of DC "integrating capability" for the good fit of SEM. So researchers are expected to consider the impact of IC with the other observed variables.

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Appendices

A. Questionnaire

The mediating role of Entrepreneurial Orientation in the relationship between dynamic capabilityand performance of Ethiopian airlines

This questionnaire is prepared to measure and evaluate the mediating role of Entrepreneurial Orientation in the relationship between dynamic capabilityand performance of Ethiopian airlines:

The questionnaire is for the purpose of academic study that will be presented to the department of management faculty of business and economics, Addis Ababa University in partial fulfillment of the requirements for the master of business administration (MBA). Your honest opinion will be kept strictly confidential. Thank you for your time.

Name: Abiy Tsegaye

Email: abiy.tsegaye@aau.edu.et

Phone No. 0911764743

Please select one of the choices that you suit with.

Part I: Individual demographic and related data

1. Gender: Male Female

2. Age A, between <25 year B, 25-30 year C, 36-45 D, Above 46

3. Educational background A, High school B, Diploma C, First Degree D, Second Degree E, Third degree

4. What department are you working in? A, Manager B, Team Leader C. Successor

7. For how long you have been working in this firm?

A, <3 B,3-5 C,6-10 D, > 10

Part II: Research Questions

To which extent do you agree or disagree with the following five-point scale statement?

(1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree)

(1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree)

No	Entrepreneurial Dynamic Capability	1	2	3	4	5
1	The firm believes in the role of technology to be competent in the market.					
2	Our firm is fast in detecting a major change in our industry (e.g., competition, technology, regulation).					
3	We often review the possible influence of changes in our operating environment (e.g., government regulation, pandemic (COVID-19)) on our performance.					
4	We quickly understand new opportunities to serve our clients.					
5	We are very good at observing and anticipating technological trends.					
6	We regularly check the quality of our functional capabilities in comparison with the competition.					
7	We regularly check the quality of our functional capabilities in comparison with companies in different industries.					
8	We pay great attention to monitoring the change of functional capabilities.					
9	After changing existing capabilities or integrating new capabilities, we pay great attention to monitoring the efficiency of new processes.					
10	We frequently acquire knowledge about technologies and market trends from external sources.					

11	We strategically identify and acquire external knowledge (e.g., market, technology) very quickly.					
12	Employees of our unit regularly visit other branches to learn about new technologies, trends, or business models.					
13	Existing knowledge (e.g., market or technology) is readily available to each department within our business unit.					
14	Our business unit periodically circulates codified knowledge in the form of documents (e.g., reports, newsletters) to update other units.					
15	During major changes (e.g., market or technological development), every department is made to know quickly.					
16	Our employees have the capability to produce many novel and useful ideas.					
17	Within this business unit, we have the capabilities successfully to learn new things.					
18	When solving problems, we can rely on good cross-departmental support.					
19	Our employees bring about changes that are outside the available capabilities					
20	We can effectively recombine existing capabilities into ‘novel’ combinations					
21	We can effectively integrate new externally sourced capabilities and combine them with existing capabilities into ‘novel’ combinations					
No	**Firm Performance (subjective)**					

	International performance					
1	Our sales volume from international business operations has increased over time					
2	Our market share from international business operations has increased over time					
3	Our profitability from international business operations has increased over time					
4	Our market access from international business operations has increased over time					
5	We have developed a better brand image in our international business operation					
6	We have developed a better know-how in relation to our international business operation					
	Firm overall performance					
7	We consistently meet our organizational performance targets.					
8	Our business consistently achieves its stated goals.					
9	More often than not, we attain our annual objectives.					
10	We consistently meet our sales performance.					
11	We consistently meet our productivity targets.					
No	**Entrepreneurial orientation**					
1	The firm monitor the trend of export markets					
2	The firm explores business opportunities abroad					
3	The firm contacts with clients in international markets					

4	The firm seek opportunities to improve business performance					
5	The firm is open to exploit international market opportunities ahead of competitors.					
6	The firm allows managers to implement rational suggestions.					
7	The firm encourages employees to take international operation challenges.					
8	Innovativeness for value creative new solutions.					
9	The firm adopt new ways of doing things					
10	The firm is willing to invest in new ways of doing business.					
11	The firm adopts the best practices.					

B. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.568	29.496	29.496	13.568	29.496	29.496	6.124	13.313	13.313
2	3.324	7.227	36.723	3.324	7.227	36.723	4.835	10.510	23.823
3	3.064	6.660	43.383	3.064	6.660	43.383	3.722	8.092	31.916
4	2.402	5.221	48.604	2.402	5.221	48.604	3.190	6.935	38.851
5	2.060	4.478	53.082	2.060	4.478	53.082	2.795	6.076	44.927
6	1.850	4.022	57.104	1.850	4.022	57.104	2.741	5.959	50.886
7	1.716	3.730	60.835	1.716	3.730	60.835	2.332	5.068	55.954
8	1.477	3.210	64.045	1.477	3.210	64.045	2.084	4.531	60.485
9	1.263	2.745	66.790	1.263	2.745	66.790	2.057	4.472	64.957
10	1.050	2.283	69.073	1.050	2.283	69.073	1.893	4.116	69.073
11	.950	2.065	71.138						
12	.899	1.954	73.092						
13	.823	1.789	74.881						

14	.786	1.709	76.590						
15	.767	1.667	78.257						
16	.715	1.554	79.811						
17	.690	1.501	81.312						
18	.673	1.462	82.774						
19	.613	1.332	84.106						
20	.600	1.304	85.410						
21	.548	1.192	86.602						
22	.528	1.148	87.750						
23	.520	1.130	88.880						
24	.471	1.023	89.903						
25	.461	1.001	90.905						
26	.435	.946	91.850						
27	.407	.886	92.736						
28	.367	.798	93.535						
29	.350	.761	94.295						
30	.341	.742	95.037						
31	.328	.712	95.749						
32	.274	.595	96.344						
33	.267	.580	96.924						
34	.244	.531	97.456						
35	.238	.517	97.972						
36	.209	.454	98.427						
37	.191	.416	98.842						
38	.170	.370	99.213						
39	.142	.308	99.521						
40	.140	.303	99.824						
41	.081	.176	100.000						
42	7.084E-016	1.540E-015	100.000						
43	-3.432E-016	-7.460E-016	100.000						
44	-1.040E-015	-2.262E-015	100.000						
45	-1.595E-015	-3.468E-015	100.000						
46	-2.452E-015	-5.331E-015	100.000						
Extraction Method: Principal Component Analysis.									

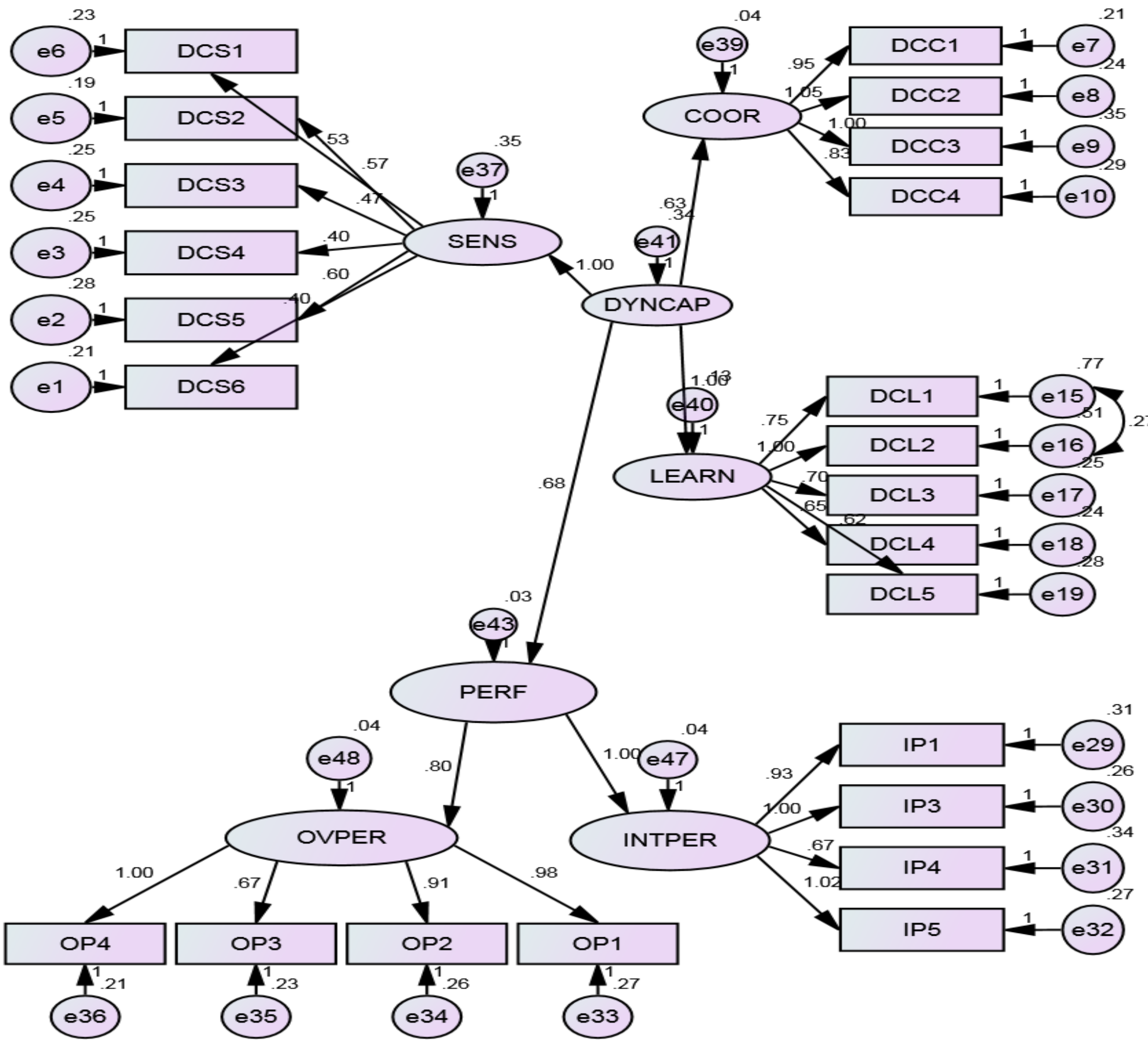
C Communalities

	Initial	Extraction
DCS1	1.000	.553
DCS2	1.000	.635
DCS3	1.000	.607
DCS4	1.000	.609
DCS5	1.000	.661
DCS6	1.000	.503
DCL1	1.000	.595
DCL2	1.000	.651
DCL3	1.000	.624
DCL4	1.000	.583
DCL5	1.000	.640
DCC1	1.000	.623
DCC2	1.000	.616
DCC3	1.000	.726
DCC4	1.000	.518
IP1	1.000	.470
IP3	1.000	.649
IP4	1.000	.629
IP5	1.000	.610
OP1	1.000	.527
OP2	1.000	.589
OP3	1.000	.655
OP4	1.000	.566
DCI1	1.000	.772
DCI2	1.000	.694
DCI3	1.000	.720
DCI4	1.000	.677
DCB2	1.000	.600
DCB4	1.000	.682
DCB8	1.000	.672
DCC6	1.000	.659
EOA2	1.000	.920
EOA3	1.000	.927
EOC2	1.000	.830
EOC3	1.000	.876
EOP2	1.000	.664
EOP3	1.000	.714

EOR1	1.000	.651
EOR2	1.000	.764
EOR4	1.000	.797
EOI1	1.000	.528

Extraction Method: Principal Component Analysis.

D Structural model without mediating variable



E Convergent validity

			Estimate	S.E.	C.R.	P	Label
PERF	<---	DYNCAP	.676	.116	5.810	***	significant
SENS	<---	DYNCAP	1.000				significant
LEARN	<---	DYNCAP	1.000				significant
COOR	<---	DYNCAP	.635	.117	5.439	***	significant
INTPER	<---	PERF	1.000				significant
OVPER	<---	PERF	.804	.140	5.743	***	significant
DCS6	<---	SENS	.395	.078	5.068	***	significant
DCS5	<---	SENS	.598	.108	5.529	***	significant
DCS4	<---	SENS	.398	.080	4.946	***	significant
DCS3	<---	SENS	.466	.089	5.236	***	significant
DCS2	<---	SENS	.575	.100	5.726	***	significant
DCS1	<---	SENS	.530	.096	5.510	***	significant
DCC1	<---	COOR	.948	.156	6.092	***	significant
DCC2	<---	COOR	1.055	.171	6.149	***	significant
DCC3	<---	COOR	1.000				significant
DCC4	<---	COOR	.826	.154	5.363	***	significant
DCL1	<---	LEARN	.752	.103	7.283	***	significant
DCL2	<---	LEARN	1.000				significant
DCL3	<---	LEARN	.703	.094	7.510	***	significant
DCL4	<---	LEARN	.654	.089	7.342	***	significant
DCL5	<---	LEARN	.623	.090	6.923	***	significant
IP1	<---	INTPER	.929	.142	6.526	***	significant
IP3	<---	INTPER	1.000				significant
IP4	<---	INTPER	.672	.128	5.238	***	significant
IP5	<---	INTPER	1.022	.145	7.054	***	significant

OP1	<---	OVPER	.984	.163	6.043	***	significant
OP2	<---	OVPER	.914	.155	5.900	***	significant
OP3	<---	OVPER	.674	.131	5.159	***	significant
OP4	<---	OVPER	1.000				significant