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Contents

AIM AND SCOPE

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Investigating the Impact of Service Quality Dimensions on Reputation and Brand Trust

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Investigating the Impact of Service Quality Dimensions on Reputation and Brand Trust

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ARTICLE INFO	ABSTRACT
	Purpose The objective of this study was to investigate the impact of service quality dimensions on brand reputation and brand trust in Iran's Saderat Bank. **Design/methodology/approach:** The present study is applied in terms of objective and results of study and correlational type of descriptive-survey in terms of nature and method of implementation. The Study Population included customers of Iran's Saderat Bank branches in Bushehr city. Since the population size was large, convenient sampling was used and 400 questionnaires were distributed among the customers of the bank. Structural equation modeling was used to analyze the data through Smart PLS software. **Findings:** The findings reveal that all dimensions of service quality (tangible factors, reliability, accountability, trustworthiness, and empathy) have a positive and significant impact on brand trust and brand reputation. **Research limitations/implications**: – The population of the research was limited to Bushehr city (Iran). Other limitations relates to the data collection tool; the questionnaire has some disadvantages that can influence results. Therefore, we should be cautious in generalizing the findings. **Originality/value**: This research examines the impact of service quality dimensions and the level of impact of each dimension on brand reputation and trust, in order to identify the dimensions of service quality affecting brand reputation and trust, and to use them in branding. Thus, implementing the suggested actions to enhance the quality of services will have a positive impact on enhancing the brand reputation and brand trust in the banking industry.

1. Introduction

Nowadays, the world of business has become more dynamic and competitive than ever. Moreover, globalization has led to an increase in the speed of changes in the environment and the intensity of competition in the business environment. Thus, we should look towards creating value and competitive advantage, based on the methods that have been used less (Nickols, 2016). Iranian banks have faced many challenges in recent years. The most important challenges in this regard include expanding the scope of competition among them, and increasing the level of knowledge and awareness of customers. This close competition among Iranian banks has increased because of an increasing number of private banks and privatization of some public banks (Dehdashti et al., 2010). In such conditions, banks should seek ways to differentiate themselves from competitors and attract more customers. In order to survive successfully in the banking industry, they require a strategy to maintain and attract more customers in the market (Kasiri et al., 2017).

One of the most important factors to achieve this goal in the service industries is paying attention to service

quality. Service quality management, due to its distinctive characteristics, is a big challenge for organizations providing the service, since large investments and a high volume of organizational activities, affected by low-quality service, can lose its effectiveness (Kotler & Armstrong, 2004).

Service organizations should develop their activities in order to satisfy their customers, so that they can achieve success in a competitive environment (Loke et al., 2011). All organizations are striving to provide quality services to customers to obtain a competitive advantage in their environment and survive. Service quality is one of the most important factors affecting customer decisions. Service quality affects the attitude and behavior of customers towards the organization. However, the question is, how can one differentiate one's self from competitors in terms of service quality? Branding is an applied strategy used to differentiate and acquire a market for products and services (Usakli & Baloglu, 2011).

By investing in brand, the motivation to maintain and enhance the quality of services and to prevent damage to brand reputation will increase and customer confidence will be enhanced (Alam & Yasin, 2010). The customer will show tendency to purchase the brand that they think has a good image (Wu et al., 2011). Brand is one of the most valuable intangible assets. Many researchers believe that branding in the service sector is important. They have stressed that service organizations should consider branding as a successful factor in their activities and they believe that this issue should be base of service marketing in the 21st century (Krystallis & Chrysochou, 2014).

Among various components of brand, brand reputation and trust are considered as an important factor in creating a differentiation for service organizations. When customers trust a brand, they believe that the organization's services have so high a quality that they decrease the unreliability caused by other cases (Han et al., 2015). Reputation and trust play an important role in forming lasting relationships with customers (Lee et al., 2014). It is also associated with reduced unreliability in the environment where consumers are feeling vulnerable. Brand trust plays a key role in improving customer behavioral desires. It means that increasing the customers' satisfaction makes it possible for them to advertise and recommend their banks to others and their tendency to move their business to another bank decreases (Dehdashti et al., 2010).

Much research has been conducted on the effectiveness of brand service and dimensions of brand equity (brand awareness, brand image, brand loyalty and perceived quality), and other components of brand. However, little attention has been paid to the impact of dimensions of service quality on brand reputation and trust (especially in the banking industry) (Herrero et al., 2016). Due to the intangible nature of services, customers' evaluation of brand reputation and trust of service organizations are different from physical products (Krystallis & Chrysochou, 2014). Hence, studies are necessary in this area. This study investigates how consumers perceive the brand, the benefits of brand reputation and trust in banks and which factors (service quality dimensions) are effective in improving the brand.

2. Literature review and background of research

In service companies, customer satisfaction and quality of services provided to them are vital issue. Since the 1990s, the quality of service has become a strategic tool for service companies. In fact, the quality of services is the most powerful competitive weapon used by many of the leading service organizations (Buil et al., 2016). The goal of service organizations is providing satisfying and cost-effective services in accordance with scientific standards in a good way and in the shortest time as possible. In order to understand the dimensions of service quality, the first step is to have a clear understanding of the concepts of service and quality.

2.1. What is service?
The word service has several meanings encompassing a wide range of personal services, to service as a product. Kotler and Armstrong (2016) defined it as an activity or benefit that one side supplies to the other side and it is essentially intangible as it does not involve the ownership of something. Seyed Javadin and Kimasy (2005) consider the service as a process that includes a series of more or less intangible activities occuring in the interactions between customers and employees and/or physical resources or goods and service provider systems to be a solution for customers' problems.

In general, service is an activity or set of activities that have more or less but not necessarily intangible nature, which occurs among customers and service providers to solve customers' problems (Roosta and Madani, 2011). Kotler and Armstrong (2016) have provided four features for service, including intangible and invisible, inseperable, variable, and can not be saved or perishable.

2.2. What is quality?
Quality is a concept of different meanings in the business literature that can be investigated from different viewpoints. From a manufacturer viewpoint, quality is product's ability in performing the tasks designed for it. However, from customer viewpoint, quality refers to characteristics of product or service affecting their satisfaction (Yarimoglu, 2014). From marketing management view, quality is all features that fulfill customer needs. Therefore, any product that has features providing customer needs is a high-quality product (Jalali et al, 2014).

Quality is achieved through understanding the difference between customer expectations and real performance of organization in providing services and reflects on how much the product or service meets the needs and expectations of the customer (Lee et al., 2014). From the customer viewpoint, if expectations are more than perceptions, the received quality is low, followed by customer dissatisfaction. However, if perceptions are more than expectations, the received quality is high, followed by customer satisfaction and loyalty (Kao & Lin, 2016).

2.3. What is service quality?
In the theoretical literature, there is no consensus on the definition of service quality, however, experts in management and marketing have provided various

definitions of service quality. The adaptation of service with the desired characteristics of customers, the degree that service can satisfy customers, a fair equality between price and service value, and finally, the suitability of service for use are four definitions provided for service quality (Roosta and Madani, 2011). Parasuraman et al. (1991) have defined service quality as sustainable adaptation with understanding customer's expectations of particular service.

Gefan (2002) defines service quality as a subjective comparison between the quality of the service that customer receives and what he receives in reality. Service quality is considered as an organizational asset and an important factor in financial and marketing performance of the corporation (Yarimoglu, 2014). Service quality is defined as adaptability to customer needs in providing the services (Wu et al., 2011).

2.4. Dimensions of service quality

To determine the dimensions of service quality, various studies have been conducted. Grönroos (1984) was the first person who developed a service quality model. He considered three dimensions for service quality, including technical quality, task quality, and corporate image. Then, Parasuraman et al. (1988) tried to compare and classify different methods for evaluation of quality. They introduced ten factors as dimensions of service quality, including reliability, sense of responsibility, competency, availability, humility, customer relationship, credibility, security, customer perception, and tangible aspects.

Parasuraman et al. (1991) later reduced ten dimensions of service quality to five dimensions of tangible, reliability, responsiveness, credibility, and empathy factors. Valarie et al. (2004) considers five dimensions as service quality dimensions, including tangible, reliability, responsiveness, competence, and empathy with the customer aspects. The most known scale to measure service quality is Servqual scale presented by Parasuraman et al. (1991). In this model, service quality has standardized components used to measure people's expectations and perceptions about the quality of public services (Esmaeilpour et al., 2016). The model is one of the most common and valid scales to measure service quality, assessing the provided service quality at five dimensions. These dimensions include:

Physical dimensions or tangibility: physical dimensions include the existence of facilities, equipment, personnel, and communicative goods. In other words, these factors include modern equipment, physical facilities, workers with clean and tidy appearance, and ordered documents (such as booklets, ledgers, billing, etc.).

Reliability: it is the ability to perform services in a safe and reliable manner, so that the customer's expectations are satisfied. Reliability factors include performing the task or service promised in a given time, showing an interest in solving customer problems, reforms in services in the first time, and providing and performing service at promised time.

Responsiveness: responsiveness means willing to cooperate and help the customer. This dimension of service quality has an emphasis on showing sensitivity and alertness against demands, questions, and complaints

of customers. These factors include the following cases: employees tell customers what they will do exactly, employees provide immediate services for customers (in the shortest time), employees are always willing to help customers, and employees are always ready to respond to customers' questions.

Assurance: includes competence and the ability of employees to induce the sense of reliability and credibility of organization to customers. Assurance factors include the following cases: the behavior of the employees gradually create trust in customers, customers feel security in their interactions with the organization, employees are always polite in dealing with customers, and employees have enough knowledge to respond customers' questions.

Empathy: means dealing with customers according to spirit of each of them, so that customers are convinced that the organization has understood them and they are important to the organization. The empathy factors include the following cases: personal attention to customers, the business hours appropriate for all of the customers, employees show personal attention to customers, employees are demanding the best interests for customers, and employees understand the unique customer needs (Jalali et al., 2014).

Parasuraman et al. (1991) believe that this tool can be used in a wide range of areas such as financial institutes, libraries, hotels, restaurants, medical centers, banks, tourism industry, hospitals, libraries, transport services, postal services, and the insurance industry. For this reason, Servqual model dimensions were used in this research to investigate the impact of service quality dimensions on brand identity and brand personality.

2.5. Brand

Management and marketing experts have presented different definitions of brand. Brand is name, term, sign, symbol, form, design, or a combination of these used to identify the goods and services of seller or group of sellers and to differentiate them from competitors (Kotler & Armstrong, 2016). Brand is an extract of identity, originality, feature, and difference that accumulates information in one word or sign (Suomi, 2014). Keller (1993) considers brand as a mixture of mental and psychological signs in the consumer that increases the perceived value of service or product (Wijaya, 2013).

Brand is at the forefront of the product and it is the initial vision that allows consumers to identify those products (Haigh & Knowles, 2004). Brand is one of the most valuable assets of any organization, and proper management of it can pave the way to achieve more market share and profitability in any industry (Aaker, 1997). As brand of physical products, with regard to services, it could be stated that the service brand is a base for creating reliable relationships. The strong point of a service brand is that it is determined by organizational features such as the quality of service provided by the corporate employee and the relationships between the corporate and customers (Alexandris et al., 2008).

2.6 Brand reputation

Another concept leads to maintaining a long-term relationship between the corporate and the customer is

brand reputation. Many researchers believe brand reputation has found increasing importance. Thus, the success and profitability of companies depends on positive reputation of brands (Veloutsou & Moutinho, 2009). Reputation highlights the general perception of characteristics of a corporate or brand.

Brand reputation refers to customer's satisfaction of corporate and evaluation of various audiences of the brand (Fombrun & Rindova, 2000). Companies and brands require positive good reputation to attract customers. Therefore, a brand with a negative reputation cannot achieve its pre-determined goals and marketing signals. Consumers consider the brand as a personality, while managers want to maintain a brand. On the other hand, consumers consider brand as celebrity or personality. Brand reputation refers to customer perceptions of services quality associated with brand name (Veloutsou & Moutinho, 2009).

Previous studies have revealed that brand reputation protects companies against economic crises (Sengupta et al., 2014). Koh et al. (2009) claim that brand reputation brings lasting success for companies during a business crisis. Lange et al. (2011) believe that well-known companies with high brand reputation accept less risk of releasing the negative news on their activities in society. Investors have pessimistic view of these companies when they report lower stock return rate, since they have been able to create sense of trust and loyalty in shareholders in light of their reputation.

This brand reputation is also effective in recruiting employees in the organization and in encouraging consumers to purchase goods. Kapfrer (2008) believes that companies use brand as a tool for creating and maintaining a reputation to support their social status and to achieve the desired goal in the labor markets, especially financial markets and enterprise. A well-known brand can contribute to identifying and validating, leading to the creation of desired business relationships. Brand reputation differentiates one corporate from its competitors. For this reason, reputation can be used as a strategic tool that other competitors cannot imitate, not only due its ability to create value, but also due to its intangible nature (Lin & Huang, 2012).

2.6 Brand trust

Trust is considered as one of the important components in the relationship between the seller and the purchaser, and the role of customer trust enhances as competition increases. Trust means positive belief on trustworthiness and reliability of a person or thing (Lassoued & Hobbs, 2015). Customer trust in the supplier contributes to reduced risk and leads to long-term relationships (Lien et al., 2015). Trust in a brand is the average willingness of the consumer to rely on the brand's ability to perform the specified tasks (Zehir et al., 2011). Yague-Guillen et al. (2003) define brand trust as a sense of security perceived by consumer in his interaction with a brand (Lassoued & Hobbs, 2015). Chaudhuri and Holbrooke (2001) define brand trust as average willingness of the consumer to rely on brand ability to perform its specified functions (Lee et al., 2014).

According to Yague-Guillen et al. (2003), brand

trust involves a degree of brand capacity to satisfy promises given. Customers are willing to understand the identity of brands that have more capability in meeting the promises and creating confidence in them. Brand trust is a multidimensional scale including the two dimensions of brand equity and brand intention.

Brand trust refers to the customer trust that the brand will fulfill its promises and satisfy customer needs. Brand intention dimension refers to the beliefs of the customer that states the considered brand has positive intensions and desires that are in the interests of the customer under any condition (Yague-Guillen et al., 2003). The trustworthiness of a brand is created over several years of activity and through a relationship with customers, meeting and satisfying what has been promised and by providing high quality services and products. Satisfaction and trust has been considered by various researchers as constructs of relation quality (Caceres & Paparoidamis, 2007). Trust is very important, especially in the case of products with high mental involvement, since consumers are subject to costs caused by false selection (Chiou & Droge, 2006).

2.6 Experimental literature of the research

Many studies have been conducted in Iran and other countries on variables of study; we refer here to some that are more recent and relevant with our study. Esmaeilpour and Hosseini (2017) performed a study on the effect of dimensions of service quality on brand identity and brand personality in the insurance industry. Their findings revealed that all five dimensions of the SERVQUAL service quality model have a positive impact on brand identity and brand personality. Esmaeilpour et al. (2016) examined the impact of service quality dimensions on brand equity in the food industry.

The findings of their study indicated that all dimensions of service quality in SERVQUAL have a positive impact on brand equity. Paul et al. (2016) examined the impact of service quality on consumer satisfaction in private and public. This study examined the impact of different variables of service quality on general customer satisfaction by comparing private and public banks in India. The findings suggested that in private banks, product knowledge, response to the need, problem solving, and quick service, fast communication with the client and an effort to decrease waiting time are considered as factors that have positive relationship with general satisfaction, while appearance and help to customer are negatively correlated with customer satisfaction.

On the other hand, in public banks, product knowledge and quick services are factors of positive correlation with satisfaction, while appearance was negatively correlated with satisfaction. Han et al. (2015) referred to the positive impact of brand reputation on brand trust. The findings of their study revealed that brand reputation plays moderating role in the relationship between service quality, brand feelings, brand awareness, and brand trust. Loureiro et al. (2014) investigated the impact of service quality on brand identification and brand personality.

Their findings revealed that brand loyalty, brand identification, trust, brand personality and brand

awareness are the variables having the highest impact on brand equity. Ahmadi and Asghari (2015) examined the relationship between service quality, satisfaction, trust and loyalty among insurance company customers. Results suggest that service quality affects customer satisfaction and customer satisfaction affects brand trust. Alizadeh et al. (2014) examined the role of service quality dimensions in forming brand personality in Sharvand Chain Store.

Findings reveal that five dimensions of the service quality model affect the forming brand personality in the Sharvand Chain Store. Kim (2014) reported that improving service quality has positive relationship with improving brand trust. In another study conducted by Zehir et al. (2011), they investigated the impact of brand communication and service quality on brand loyalty through brand trust. Findings of the study reveal that customer perception of brand service and brand communication as effective factor in brand trust leave positive impact on loyalty.

Seyed Salehi (2013) evaluated the quality of services perceived by the customer in Iranian public banks. Findings revealed that service quality has an impact on brand loyalty through customer satisfaction. Kheng et al. (2010) performed a study on the impact of service quality on customer loyalty at Penang Bank in Malaysia. In this study, the SERVQUAL model was used to reveal that improving service quality might lead to increased customer loyalty to the brand. In this study, customer satisfaction plays the role of the moderating variable.

Caceres and Paparoidamis (2007) also performed a study to examine the relationship between quality of service, customer satisfaction, brand commitment, and brand trust in industrial markets. Findings there suggested that service quality can help in creating a more reliable image. They also stated that service quality and relative satisfaction are two variables predicting brand commitment and brand trust.

2.9 Hypotheses and the research conceptual model
Conducted studies show that each of the researchers used a particular approach to examine the impact of service quality on various components of brand. However, the research literature suggests that in the banking service sector there is a need to investigate the impact of service quality dimensions on brand reputation and brand trust, considering the importance of increasing quality and competition.

The hypotheses of this study were developed after studying the theoretical and empirical experimental literature, and considering the findings of studies conducted by Kasiri et al. (2017), Esmaeilpour and Hosseini (2017), Esmaeilpour et al. (2016), Doherty et al. (2015), Ahmadi and Asghari (2014), Sayed Salehi (2015), Sangupeta et al. (2014), Kim (2014), Loureiro et al. (2014), Yarmoglu (2014), Cheng et al. (2012), Loke et al. (2011), and Zehir et al. (2011).

The conceptual model and framework of this study was developed after determining the main variables of study and establishing the relationship between them through theoretical and empirical backgrounds. The conceptual model of this study was developed by integration the service quality measurement model of Parasuraman et al. (1991), the brand trust model of

Yague-Guillen et al. (2003) and brand reputation model of Han and et al (2015), Sengupta et al (2014) and Koh et al. (2009).

As the objective of this study was to examine the impact of service quality dimensions on brand reputation and trust, the service quality and its dimensions were considered as independent variables, and brand reputation and brand trust were considered as dependent variables. The conceptual framework of this research is illustrated in Figure (1)

Dimensions of Service Quality
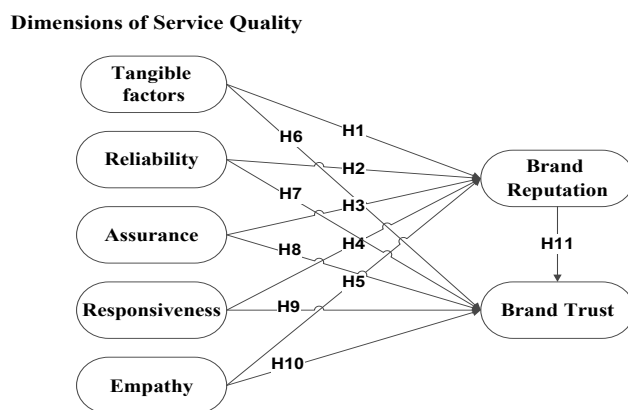
Figure1: Research conceptual model

3- Methodology

This study is applied in terms of objective, and correlational type of descriptive-survey in terms of nature and method of implementation, since the expected findings could be used to improve service quality in order to increase brand reputation and brand credibility in service organizations. It is an analytical-survey since it not only describes the current situation, but also tests hypotheses and uses inferential statistics and structural equations modeling to determine the impact of variables. The population of this study included customers of Saderat Bank branches in Bushehr city. Considering the large size of population and uncertainty in number of members of the population, the population of the study was considered unlimited. A convenient sampling method was used to collect the data. The sample size appropriate for this study was determined to be 385 people among unlimited population based on the Cochran sampling formula and at 95% confidence level, 50% agreement ratio, and 5% sampling error.

A questionnaire was used as tool for collecting data. The questionnaire of this study included three sections: the introduction section, the demographic questions section, and the section including the questions to measure the main variables of the study. In order to measure the main variables of the study, 44 questions were collected through the integration of SERVQUAL service quality assessment questionnaire, brand reputation questionnaire, and brand trust questionnaire.

The scale of variables in this study was based on the five-point Likert (ranging from strongly agree to strongly disagree). In this study, 400 questionnaires were distributed and collected among the customers who received banking services by attending in all branches of

Saderat Bank of Iran in Bushehr city during five days a week.

As this questionnaire was developed based on standard questionnaires whose validity has been measured and confirmed before, it could be stated that the developed questionnaire this has the required validity. However, to determine the validity of the questionnaire of this study, the content validity method was used. For this purpose, the developed questionnaire was given to a number of university professors in the area of marketing management and customers of Saderat Bank of Iran, and they were asked to state their views on the validity of the questionnaire.

After collecting their views, the final questionnaire was developed. Cronbach's alpha coefficient was also used to measure the reliability of the questionnaire. Cronbach's alpha coefficient was higher than 0.7 for all variables and 93% for whole questionnaire that is appropriate coefficient and it suggests that the reliability of this tool of study is at the suitable level.

Table (1) illustrates the required information on development of the questions and the findings of validity and reliability indices for the questionnaire.

Table (1): Variables of research and source of extraction of the items and the results of the reliability of the data collection tool (questionnaire)

Variables and their dimensions		Number of items (questions)	Source of extraction of the items	AVE	Composite reliability	Cronbach's alpha coefficient
Service quality dimensions	Tangible factor	5	(Parasuraman, Zeithaml, & Berry, 1988)	0.77	0.89	0.75
	Reliability	6		0.84	0.91	0.85
	Responsiveness	5		0.79	0.91	0.78
	Assurance	4		0.73	0.76	0.77
	Empathy	5		0.84	0.93	0.87
Brand reputation		10	(Han et al., 2015), (Sengupta et al., 2014), (Koh et al., 2009)	0.88	0.95	0.88
Brand trust		9	(Yague-Guillen et al., 2003)	0.90	0.96	0.80
Entire questionnaire		44				0.93

Source: Provided by authors.

Additionally, average variance extracted (AVE) was used to measure the validity of the questions and composite reliability (CR) was used to measure the reliability of the questionnaire. If the minimum AVE is equal to 0.5, it indicates that the variables have good convergent validity. This means that one latent variable can explain more than half of the variance of indices (observed variables) on average (Hair et al., 2011).

In this research, an average variance extracted is more than 0.5 for all variables, so convergent validity of the model variables is confirmed. Composite reliability and Cronbach's alpha coefficient assess the reliability of measurement tool. As table (2) shows, coefficient of the composite reliability and Cronbach' alpha coefficient for all variables were more than 0.7, so the reliability of the questions of variables included in the questionnaire is at an acceptable level (Hair et al., 2011).

To test the hypotheses and the conceptual model of the research, the structural equations modeling method (the method of partial least squares) through PLS Smart software was used. The reason for using the structural equation model is that this causal model accurately examines the relationships between variables. Thus, the effect of the independent variables can be accessed through this model. In addition, PLS Smart software was used because the collected data does not follow a normal distribution, and the alternative AMOS and LISREL software cannot be used to test the developed conceptual model.

4. Research findings

4.1. Descriptive results of research data

Descriptive statistics was used to analyze the demographic variables. Table (2) is related to the demographic variables, analyzed by collecting 400 questionnair

Table (3): Demographic characteristics of respondents

Demographic variables	Levels	Frequency	Frequency of percentage
Gender	Male	245	61.2
	Female	155	38.8
Education level	High school and lower	97	24.3
	Associate	145	36.3
	Bachelor	117	29.2
	Master and higher	41	10.2

Age	Lower than 25 years 26 and 35 years 36 and 45 years 46 and 55 years Over 55 years	23 101 56 34 31	5.8 25.3 14 8.5 7.8
The experience of using Iran Saderat Bank services	Lower than one year 1 to 2 years 3 to 5 years Over 5 years	42 44 110 204	10.5 11 27.5 51

Source: Provided by authors.

As Table (2) illustrates, the highest number of subjects are male (61.2%). Most of the subjects (25.3%) are young, and most subjects of study (36.3%) have associate level of education. In addition, most of subjects (51%) have more than five years of experience in using Iran Saderat Bank's services.

4.1 Test the research conceptual model
The conceptual model and research hypotheses were tested using structural equation modeling and smart PLS software. Structural equation modeling method is multivariate analysis, analyzing the causal relationship between a set of variables. Using structural equation modeling, the consistency of the theoretical model with experimental data can be examined. Structural equation modeling helps the researcher test and examine the theoretical model that consists of different components.

Figure (2) shows the results of the structural equation modeling test along with standardized coefficients (path coefficients) and significance coefficients (t-value). Structural equation model test shows that there is a positive and significant correlation between the elements of various layers of the conceptual model.
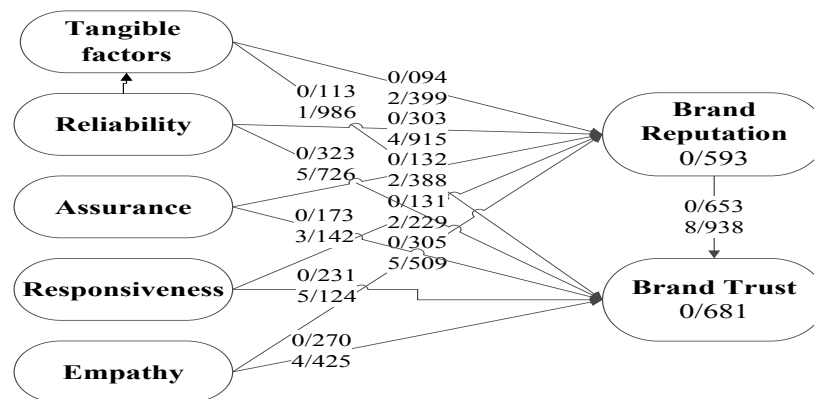
Figure (2): Implementation of structural equation model, along with standardized coefficients (path coefficients) and significance coefficients (t-value)

The relationships defined between variables are the same research hypotheses, and the values in the model relationships (relationships between service quality dimensions and brand reputation and brand trust) reflect standard path coefficients and t-value coefficients. Figure (2) shows different model of research with standardized coefficients (path coefficients) and the state of absolute value of significance coefficients (| t-value |). This model tests all measurement equations and structural equations (path coefficients) using the statistic t. Accordingly, if the value of statistic t is more than 1.96, the path coefficient and factorial load are significant at the 95% level of confidence, and if the value of statistic t for paths is less than 1.96, then the factorial load or path coefficient is not significant. In addition, if the value of statistic t is more than 2.58, the path coefficient and factorial load are significant at the 99% level of confidence.

The values of coefficient of determination (R^2) are given within the circles of brand reputation and brand credibility. R^2 examines in percent, the variance of a dependent variable with the independent variable (variables). Therefore, it is natural that this value be equal to zero for an independent variable and greater than zero for a dependent variable. If its value is higher, the impact coefficient of the independent variables on the dependent variable will be higher. Values higher than 0.3 suggest the fit of the model (Hair et al., 2011).

Determining the indices of model fit is one of the important stages in analyzing structural equation modeling. These indices are used to determine if the model represented by the data confirms the conceptual model. In order to examine the measurement model fit and internal consistency of measurement items, we should consider coefficients such as Cronbach's alpha, composite reliability, and average variance extracted, for which the related data are shown in the table (1).

The GOF index is another index used to assess the overall structural model. The GOF index calculated for

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this research model is 0.67, which suggest that the model fit is good. Both measurement and structural model fit indices show a good fit for the model. However, the general approval of the conceptual model of research does not mean that all relationships have been approved in the model. After an overall fit of the model, the relationships

Table (3): Results of the research hypotheses testing

hypot hesis	Independent variable	Dependent variable	Standardized path coefficient	Test statistic (t-value)	Test result
1	Tangible factors	Brand reputation	0.094	2.399	Accepted
2	Reliability	Brand reputation	0.303	4.915	Accepted
3	Assurance	Brand reputation	0.132	2.388	Accepted
4	Responsiveness	Brand reputation	0.131	2.229	Accepted
5	Empathy	Brand reputation	0.305	5.023	Accepted
6	Tangible factors	Brand trust	0.113	1.986	Accepted
7	Reliability	Brand trust	0.323	5.736	Accepted
8	Assurance	Brand trust	0.173	3.142	Accepted
9	Responsiveness	Brand trust	0.231	5.124	Accepted
10	Empathy	Brand trust	0.270	4.425	Accepted
11	Brand reputation	Brand trust	0.653	8.938	Accepted

Source: Provided by authors.

The structural equation model test indicates a positive and significant relationship between the elements of various layers of the conceptual model. Based on the findings obtained from the standard path coefficients and significance coefficients or statistic t (Figure 2), and according to what was presented in Table 3, it could be stated that the dimensions of service quality (Tangible factors, Reliability, Responsiveness, Assurance, and Empathy) have a positive and significant impact on brand reputation and brand trust, with 95% and 99% confidence level. In addition, the brand reputation variable has a positive and significant impact on brand trust, with 99% confidence level.

Moreover, five dimensions of service quality (Tangible factors, Reliability, Responsiveness, Assurance, and Empathy) on the whole (0.593) could explain the variance of the brand reputation variable. The residual percentage is related to other factors affecting this variable that were not considered. Additionally, five dimensions of service quality (Tangible factors,

of the model must also be tested to determine if the relationships defined in the model are approved or not. After extracting data from the structural equation model, we can test our research hypotheses. The results of the main research hypothesis are shown in Table (3).

Reliability, Responsiveness, Assurance, and Empathy) on the whole could explain (0.681) the variance of brand trust. The residual percentage is related to other factors affecting this variable that were not considered in this study. Thus, the values reported in Figure (2) and Table (3) indicate that the presented model has high ability to explain or predict the impact of service quality dimensions on brand reputation and brand trust.

5. Discussion

Intensified competition between private and public banks and an increased level of knowledge and awareness has raised the expectations of the services provided by banks. On the one hand, the level of service quality in banks is very important since it can differentiate a given bank from its competitors. On the other hand, brand reputation and brand trust play a key role in enhancing the brand preference, feeling toward brand, and brand loyalty.

Thus, it seems to be necessary to conduct a study to investigate the impact of quality services dimensions (Tangible factors, Reliability, Responsiveness, Assurance, and Empathy) on brand reputation and brand trust. Accordingly, this study was conducted to investigate the impact of service quality dimensions and the level of impact of each of them on brand reputation and brand trust in order to determine the influential dimensions of service quality on the brand reputation and brand trust of the banks and use them in branding. After reviewing the theoretical literature of study, hypotheses and the conceptual model of the study were developed. Then, data were collected via a questionnaire. The conceptual model and hypotheses of study were also tested using structural equation modeling via Smart Plus software.

The findings of the study revealed that five dimensions of service quality (Tangible factors, Reliability, Responsiveness, Assurance, and Empathy) have a positive and significant impact on the brand reputation and brand trust in Saderat Bank of Iran. As Table (3) illustrates, results show a positive and significant relationship between the tangible factors of service on brand reputation and brand trust. Findings of the studies conducted by Lewireiro et al. (2014) and Yarmoglu (2014) also confirm this hypothesis. Thus, given the positive impact of tangible factors on brand reputation and brand trust, it is recommended that Saderat Bank managers use modern equipment and physical facilities in their branches. It is also recommended that employees have a professional appearance and a neat working environment.

According to the findings extracted from Table (3), it can be stated that reliability has a positive and significant impact on brand reputation and brand trust. Results of studies conducted by Kasiri et al. (2017), Sangupetta et al. (2014) and Loureiro et al. (2014) are in line with findings of this hypothesis. Thus, it is recommended that the employees of Saderat Bank maintain the credibility and

reliability of their bank and branch by performing the tasks within the specified time. Employees should always solve the customer problems honestly and satisfy their expectations to increase credibility and reliability.

Based on the findings extracted from Table (3), this study revealed that Assurance has a positive and significant impact on brand reputation and brand trust. Findings of the studies conducted by Kim (2014), Cheng et al. (2012) and Loke et al. (2011) also confirm the findings of this hypothesis. Thus, it is recommended that Saderat Bank managers provide safe services thought to increase the sense of security in the interactions with the bank. It is also recommended that they select employees with the necessary knowledge to fully inform customers.

Another result of this study also shows that responsiveness of the bank's employees to their customers has a positive and significant impact on brand reputation and brand trust. Studies carried out by Loureiro et al. (2014), Seyed Salehi (2015) and Zehir et al. (2011) also confirm finding of this hypothesis. Thus, it is recommended that managers and employees of the Saderat Bank enhance the willingness for cooperation and to help their customers, since customers expect faster and better responsiveness from managers and employees of the bank in exchange for the costs they pay. Employees and managers at Saderat Bank should show more sensitivity to the demands and complaints of their customers. In other words, customers expect a proper understanding of their expectations and effective communication between managers and employees when they communicate with the bank. Since past customer experiences of banking services also affect the quality of the services, managers and employees should have adequate patience to meet customers' expectations and needs. Considering the findings of this study, it is recommended that managers at Saderat Bank pay more attention to the recruitment of personnel with a higher sense of responsiveness in providing banking services.

The findings of this study showed that manager and employee empathy with their customers has a positive and significant impact on brand reputation and brand trust. Studies conducted by Doherty et al. (2015), Loureiro et al. (2014), and Ahmadi and Asghari (2015) also confirm findings of this hypothesis. In order to enhance the brand reputation and brand trust in Saderat Bank through empathy with provided services, it is recommended that managers and employees of Saderat Bank be humble in providing services, allocate enough time for customers, and respond to their demands, and guide them in choosing the type of banking services providing the best interests for customers.

Also, the findings of this study revealed that Saderat Bank's brand reputation has a positive and significant impact on brand trust. Studies conducted by Han et al.

(2015) also confirm findings of this hypothesis. They also reported the positive impact of brand reputation on brand trust in their studies. Findings of their studies revealed that brand reputation plays a moderating role in the impact of service quality, brand feelings, and brand awareness on brand trust. Based on the results of this study, it is recommended that managers and employees of Saderat Bank enhance reputation of the bank by improving the dimensions of their service quality in order to enhance the customers' trust in brand .

6. Conclusions

Implementing research activities always faces some limitations that can influence findings of the research and decrease its generalizability, and this study is not an exception in this regard. This study suffers from limitation in collecting primary data. The population of this study was limited to branches of the Saderat Bank in Bushehr City, Iran. Another limitation of this study is related to the tool used to collect data. The use of a questionnaire as a tool for collecting data has some disadvantages that can affect the findings. The important disadvantage of using it is an unreal view by respondents. Some respondents usually refuse to state real views, which can result in reduced accuracy of the findings and decreased their generalizability.

Additionally, unwillingness of some respondents to respond to questions constitutes another limitation. The data required for this study were collected in branches of Saderat Bank by completing the questionnaire. Thus, respondents may be affected by the bank environment when completing the questionnaire. Thus, we should generalize the findings of the study with caution. Results of this study revealed that five dimensions of service quality (Tangible factors, Reliability, Responsiveness, Assurance, and Empathy) in total could explain 0.593 of variance in the brand reputation variable and 0.681 of variance in the brand trust variable. In addition, residual percentage was related to other factors affecting these variables, which were not considered in this study. Given the importance of the subject of study, it is recommended for researchers to investigate the impact of other dimensions of service quality on these two variables, based on service quality models provided by other researchers. It is also recommended that the impact of dimensions of service quality on other dimensions of the brand, such as brand image, brand awareness, brand credibility, brand identity, brand satisfaction, and brand loyalty, be explored.

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David against Goliath - How creative communication helps small advertising agencies survive in a market led by giant agencies

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David against Goliath - How creative communication helps small advertising agencies survive in a market led by giant agencies

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ABSTRACT

Purpose
The purpose of the study is to research how national advertising agencies use creativity to compete with larger, global agencies in the advertising market of Sweden, Spain and Portugal.

Design/methodology/approach:
To conduct the study, the authors keep a qualitative approach: we first carry out an analysis of previous studies about creativity, communication and entrepreneurial orientation, followed by interviews with one small and one large advertising agency for each country.

Findings:
The findings of the study show that smaller agencies have higher levels of competitive aggressiveness and risk-taking, because of the wish to expand and vulnerability to their larger clients. The levels of opportunity recognition are higher in the large agencies because of their resource assets. All agencies are creative and innovative and equally as proactive, but because the speed of the decision-making process can be faster and communication skills better in a small agency, they can reach higher levels of proactiveness

Research limitations/implications:
The implications of the study show that the entrepreneurial orientation to some extent can be used by small agencies to gain competitive advantages on the advertising market.

Originality/value:
To the best of our knowledge there is no similar study available. This study showed that entrepreneurial orientation, to some extent, can be used by small agencies to gain competitive advantages in the advertising market.

1. Introduction

Creativity is the key to business success. Drucker (1985) reasons that creativity has a huge impact on businesses because entrepreneurship strongly depends on innovation and that requires creativity. Baumol (2002) argues that innovation is one of the main weapons used to compete in a market. The value of innovation and creativity to firms may vary between industries. Due to the nature of the produced outputs, some need it more than others, thus leading to the focus of this study: the advertising industry.

The agencies in the advertising industry must take this into consideration, while managing the inputs that take part in their processes of value creation, to reach the levels of creativity required to succeed on the market. A study conducted by Forrester Consulting (2014) on creativity amongst creative professionals and business decision-makers at large international enterprises found that 82 percent of companies believe there is a strong and positive correlation between creativity and business results.

Gottsman (2016) mentions that creative environments are created by giving employees enough time to focus on their tasks and by structuring meetings where the staff can mingle and welcome collaboration, while Eadicicco (2014) uses the hiring process of Google as an example, when explaining how to boost creativity.

The selection of employees is peer-based, where general cognitive ability and leadership skills are taken into consideration by the co-workers to further increase creativity and performance. Additionally, Montuori (2011) states that creativity is produced through collaboration in people's everyday lives in contrast to decades ago when creativity was assumed to be accomplished by only some chosen individuals. Creativity is a way of helping an organization expand, improve and stay competitive in the market, which is why also Baryniene and Dauknyte (2015) express the importance of allowing employees to share their thoughts and ideas. Amabile (1988) states that creativity in organizations

produces innovation. To have a competitive advantage, innovation is needed. At the same time, competition increases the need for innovation (Baumol, 2002). Vossen (1998) has studied the relative advantage that smaller agencies have regarding innovation, which includes faster decision making and internal communication, higher risk taking, faster reaction to market changes, a better position to approach market niches and larger capacity for customization, among others. Based on Sponseller's (2015) study, the advantages include factors such as speed of execution, fast access to business resources and team environment.

The characteristics of advertising agencies management may reveal how they boost their level of creativity. In addition to this, inside the advertising market, small and large firms coexist, leading to the question of how they differ in reaching high levels of creativity, as their resources for doing so are different in size and shape. Previous literature has shown factors that give advantages to firms when it comes to producing creative and competitive outputs. Those factors are part of the Entrepreneurial Orientation (EO) that guides the businesses (Mintzberg, 1973; Rauch & Frese, 2009).

EO describes strategic postures in a firm that shapes the firm's behaviour and is used to gain competitive advantages in the given market (Ibid.). According to Lumpkin and Dess (1996), these strategic postures can be divided into five dimensions: opportunity recognition, proactiveness, competitive aggressiveness, innovativeness and risk-taking. These dimensions can be helpful tools for smaller advertising agencies to gain competitive advantages in a highly competitive advertising market, and boost the firm's creativity. The EO dimensions can be linked to the creative problem-solving process, and the result of this process is creativity (Bedford & McIntosh, 1991). The basic steps of the model are; noticing a problem (opportunity recognition), find a gap and search for solutions (proactiveness), formulate hypotheses (innovativeness), test (and possibly re-test) hypotheses (risk-taking) and then communicate the results (competitive aggressiveness) (Ibid.). With this knowledge, advertising agencies should be able to use the dimensions of the EO to boost creativity and gain competitive advantages in the advertising market.

Huggins and Thompson (2015) argue that a large network capital and great capacity to accumulate and access knowledge will lead to higher rates of innovation. Firms should be aware about their competition, possible outcomes and macro factors, which is why it is argued that opportunity recognition, proactiveness, competitive aggressiveness and risk-taking is sprung out of knowledge and networking. These knowledge based factors would, in agreement with Huggins and Thompson (2015), naturally lead to innovation and creativity, and could therefore be a competitive advantage in a firm.

A review of the literature shows that there is a need to look further into this topic in advertising agencies, to understand if smaller agencies can, as in the David and Goliath parable, overcome the giants. In this case, that would be through benefitting from entrepreneurial orientation to boost creativity and thereby gain competitive advantage in the advertising market.

The purpose of this study is to research how national advertising agencies use creativity to compete with larger, global agencies in the advertising market of Sweden, Spain and Portugal. We intend to break down the mechanisms of Entrepreneurial Orientation to see how they can be turned into competitive advantages, and analyse if and how they can benefit the smaller advertising agencies. Therefore, our research question is: how do small advertising agencies in Portugal, Spain and Sweden use creativity to gain competitive advantages on the advertising market?

2.Theoretical Framework: Entrepreneurial Orientation

Entrepreneurial orientation is the group of strategic postures that shape a firm's behavior (Khandwalla, 1977; Mintzberg, 1973) and reflects a firm's level of opportunity recognition, proactiveness, competitive aggressiveness, innovativeness and risk-taking (Lumpkin & Dess, 1996). Rauch and Frese (2009) describe EO as the group of firm-level strategic processes used by companies to obtain competitive advantage. As stated in Parkman, Holloway & Sebastiao (2012), EO is positively associated with the Innovative Capabilities of the organization and therefore with the firm-level of creativity. In addition, both EO and Innovative Capabilities are positively associated with competitive advantage in the creative industries (Ibid.).

Furthermore, Huggins and Thompson (2015) state that a large network capital and great capacity to accumulate and access knowledge leads to higher rates of innovation. As mentioned, opportunity recognition, proactiveness, competitive aggressiveness and risk-taking (all of them keystones of EO) are sprung out of knowledge and networking, and due to this, these knowledge based factors would, in agreement with Huggins and Thompson (2015), naturally lead to innovation and creativity and could therefore create competitive advantages in a firm.

2.1 Opportunity Recognition

Opportunity recognition has been shown to help improve and influence small firm performance (Gundry & Kickul, 2002). According to Christensen, Madsen and Peterson (1989), opportunity recognition seeks to improve or change an already existing business or perceive the possibilities of creating new businesses. It is argued that most entrepreneurs recognize opportunities, as opposed to seeking them (Gundry & Kickul, 2002). A good entrepreneur must be a visionary of possible successes and invest in them to start a real one. The first step of a business is always to get an idea and try to implement it. Matthews (2007) states that when starting a business, discovery is linked to idea generation and opportunity development, and exploitation is related to implementing ideas, which both are fundamental steps of the process. If a company wants to act in a smart way, it cannot forget about exploring opportunities to boost its creativity. In tune with that, Mazzei, Flynn and Haynie (2015) suggest that this can be done by giving greater autonomy to employees, which is one of the nine specific High-Performance Work Practices they study.

Hansen, Lumpkin and Hills (2011) describe opportunity recognition as a creative process consisting of five stages – preparation, incubation, insight, evaluation and elaboration. The preparation stage is based on the

skills and knowledge acquired to develop the creative process, such as problem-/gap-finding, identifying market needs, results of experience, among others. Incubation is a subconscious part of the process where knowledge converges to make new associations and combinations. This is where the new possibilities and creative insights emerge. Insight occurs when the incubation process leads to a solution, meaning the actual idea, with or without input from others. In the evaluation stage, the idea is investigated further to evaluate if the idea is worth pursuing, and in the final stage of elaboration, the idea is refined. It is argued that 99 per cent of the elaboration stage is based on creativity, and the remaining 1 per cent derives from inspiration (Ibid.).

2.2 Proactiveness

Proactiveness refers to an opportunity-seeking, forward-looking perspective that involves introducing new products or services ahead of the competition and in anticipation of the future demand, while shaping the environment (Lumpkin & Dess, 1996). To do so, a good entrepreneur must be active and fast at taking decisions, always aware of novelties and with no fear. As Lechner and Gudmundsson (2014) state, proactiveness anticipates competitive moves and maintains first-mover advantage. It is thus a factor for differentiation. Freeman and Engel (2007) suggest that small agencies that differentiate and focus on innovation have strong interests in anticipating the competition to achieve sustained performance.

Entrepreneurs with a proactive personality act, scan for business opportunities and show initiative. They have a strategic orientation and exhibit behaviors including problem-finding and idea development, which will affect how they operate their business and form their competitive strategies (Gundry & Kickul, 2002). It has also been found that proactive entrepreneurs are often linked to transformational leadership[1] (ibid.), which according to Gumusluoglu and Ilsev (2007) shows significant effects on creativity in individuals as well as on organizational levels.

Vossen (1998) has listed key advantages of small agencies related to the level of innovation, thus directly linked to the level of proactivity. The advantages are faster decision making, internal communication, higher risk-taking, faster reaction to market changes, a better position to approach market niches, bigger capacity for customization and the appropriation of rewards from innovation through tacit knowledge. Additionally, Sponseller (2015) displays five ways through which small agencies can innovate better than larger organizations and therefore increase their proactivity; speed of execution, fast access to business resources, team environment, the company-wide innovation support and measure innovation.

2.3 Competitive Aggressiveness

According to Lumpkin and Dess (1996) competitive aggressiveness refers to how firms act, considering the competitors, challenging companies to get outstanding performances by competing for demand with

responsiveness action. Despite being traditional, it pursuits the willingness of new behavior. Porter (1985) recommends reconfiguration, redefining the product and market and outspending the industry leader. It is characterized by a strong offensive posture towards overcoming competitors and may also be quite reactive as when a firm defends its market position (Lumpkin & Dess, 2001).

Ajamieh, Benitez, Braojos and Gelhard (2016) states that firms operating in a highly competitive industry face continual and more serious pressure to adapt their course of action by exploiting new business opportunities than do firms that experience low competitive aggressiveness. Lechner and Gudmundsson (2014) argue that small firms are more vulnerable to changes in the market competition and, as a result, they must be more aggressive to beat the market competition to create a safety net for their survival.

2.4 Innovativeness and Creativity

Innovativeness refers to a willingness to support creativity and experimentation when introducing new products, becoming technological leaders, and developing new processes (Lumpkin & Dess, 1996). Innovativeness is required for market development in these environments to deal with the continuous change and uncertainty (Miller, 1983). Holloway, Parkman and Sebastiao (2012) state that creativity and innovation are significantly correlated and are often operationalized interchangeably, which is why it is argued that creativity also holds a significant part of a company's EO.

According to Welsch and Kuratko (2001), innovation represents a marriage of the vision to create good ideas and the perseverance and dedication to stick with the concept through the implementation. They define successful entrepreneurs as being able to blend imaginative, creative thinking with systematic, logical processing abilities. Furthermore, an entrepreneur must know that innovation relies on motivation, confidence and intelligence, but most important on creativity. The greater the environmental dynamism and hostility, the greater the innovation required (Miller, 1983). Creative and innovative firms will outperform other firm types in more dynamic environments (McKee et al., 1989).

Mazzei, Flynn and Haynie's (2015) mention two of the nine High Performance Work Practices to promote innovation, including selective hiring and job security, as fundamental aspects to look for. Recognized as one of the most innovative persons in the history, Steve Jobs once said "Innovation has nothing to do with how many R&D dollars you have. It is not about the money. It is about the people, how you are led, and how much you get it". A good entrepreneur must know their resources and objectives to innovate by means like valuing employees, ongoing success or better environment (Kirkpatrick, 1998).

2.5 Risk-taking

"When you prepare against catastrophic downsides (avoid 'betting it all' or 'mortgaging everything'), it allows you to create a culture where you can take lots of small to mid-

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[1] Transformational leadership is a "style of leadership in which the leader identifies the needed change, creates a vision to guide the change through inspiration, and

executes the change with the commitment of the members of the group." (Business Dictionary, 2017).

size risks, learn, and build". That is what Richard Branson advised to Chase Jarvis (2016). Risk-taking typically involves bold decisions, such as venturing into new markets or putting resources into projects with uncertain outcomes (Lumpkin & Dess, 1996). Because of the uncertainty of the outcome, failure from risk-taking can lead to large losses in resources, but the rewards can be significantly greater than if no risks were to be taken (Dai, Fernhaber, Gilbert & Maksimov, 2013). High risk-taking is associated with optimistic mindsets where the opportunities are prominent and the threats generally are overlooked. This could potentially lead to a firm over-committing, and therefore not lead to the profitability as desired. Low risk-takers, on the other hand, generally forgo valuable opportunities because they like to be on the safe side, which is why a moderate level of risk-taking usually lead to higher rates of success (Ibid.).

The outcomes produced in a creative industry strongly rely on creativity (Okpara, 2007) and, as it is explained below, there is a positive link between risk and creativity (El-Murad, 2012), it is feasible that in the advertising industry, the position of an agency towards risk-taking is important. El-Murad (2012) carried out an investigation about the relationship between risk and firm-level creativity. It proved (beyond the bias arisen in the possible subjectivity in the quantification and grading of creativity) that there is a positive relationship between them: agencies that encourage higher levels of risk tend to develop more creative outcomes. The implications of that conclusion to the advertising market are huge, since it means that, for instance, displayed together with Kahneman's "Prospect theory" (1979), larger clients may be more risk-averse and therefore indirectly restricting the level of risk of the firm producing the ads, leading to systematically less creative outcomes. In contrast, smaller clients may be less restrictive towards risk taking, which leads to more creativity. If the weight (above the overall of the company) of small clients is higher in the smaller advertising agencies than in the larger ones, that will be an advantage regarding the level of creativity for the small ad agencies (Ibid.).

3. Methodology

In this chapter, we present the methodology of how the research question is answered, including the research design and how the data was gathered.

3.1 Carrying out a Qualitative Study
The purpose of this study is to research how national advertising agencies use creativity to compete with larger, global agencies in the advertising market of Sweden, Spain and Portugal. It was conducted by a qualitative research method, consisting of semi-structured interviews with an employee from every chosen advertising agency. The semi-structured interviews enabled the informant to speak freely about topics that had been based on the theories chosen by the researchers (Bryman & Bell, 2015). From every country, one large and one small company was examined. The criteria to choose the studied agencies was based on their operational scope: if they operated internationally they were considered large, and if they operated nationally they were small. The criteria for the international agencies were that they should be part of an international group, although a limitation appeared concerning the Swedish agency, since they are not part of any global company, but they were still considered since they work with clients operating internationally. However, for Spain and Portugal, the large agencies are parts of the 'international companies' group.

The advertising agencies were first contacted by e-mail or by phone, and while the aim was to conduct the interviews in similar ways, they ended up being conducted via phone call, video call, e-mail or by having a physical meeting with the agency, according to the preferences of the advertising agencies. The time of the interviews varied, depending on how much time the informants had set aside for the interview. The interviews were conducted between February 29th, 2017 and April 11th, 2017, and most of the interviews were recorded and transcribed afterwards, providing a basis for making an accurate analysis of the results (Bryman & Bell, 2015). All interviews were translated from the native tongue (Swedish, Portuguese or Spanish), but the interview with the large Swedish agency was transcribed directly and not recorded, which could add a limitation to the analysis. The questions were based on the five dimensions of the Entrepreneurial Orientation, which include Opportunity Recognition, Proactiveness, Competitive Aggressiveness & Communication, Innovativeness & Creativity and Risk-taking. For every dimension, questions were created to receive as much information as possible from the advertising agency.

3.2 Operationalization
The presented table shows how each question asked is linked to the theory and dimension connected to the subject. See Appendix 1 for questions.

Table 1. Operationalization

Question	Aim to examine	EO-dimension
Question 1	What the agencies do to perceive the opportunity to create new business	Opportunity recognition
Question 2	If the five stages of opportunity recognition (preparation, incubation insight, evaluation and elaboration) affects the company culture	Opportunity recognition
Question 3-4, 6-7	What the agency does to improve or change the business	Opportunity recognition

Question 5	If the five stages of opportunity recognition are implemented with the employees	Opportunity recognition
Question 8	If and how they implement a first-mover advantage	Proactiveness
Question 9	If the agency is forward-looking and opportunity seeking	Proactiveness
Question 10	If the agency scans the market competition	Proactiveness
Question 11-12	How much involvement the employees and the clients have in proactive work	Proactiveness
Question 13	How the speed of the decision-making process can affect the proactiveness of the agency	Proactiveness
Question 14	If the proactive entrepreneurs are linked to transformational leadership	Proactiveness
Question 15-17	If the agency scans the market for competition	Proactiveness
Question 18	If there is higher pressure on acting and exploiting new business opportunities	Competitive aggressiveness
Question 19	If the agency aims to win or expand their market position	Competitive aggressiveness
Question 20-21, 24	How the agency acts to beat competition in the market	Competitive aggressiveness
Question 22	The level of creativity aggressiveness in their self-promotion	Competitive aggressiveness
Question 23	If they outspend their competition	Competitive aggressiveness
Question 25	The significance of innovativeness on the market	Innovativeness and creativity
Question 26	If the agency blends imaginative, creative thinking with systematic, logical processing abilities	Innovativeness and creativity
Question 27-28	The willingness to support innovation and creativity in the agency	Innovativeness and creativity
Question 29	If the agency finds blending imaginative, creative thinking with systematic, logical processing abilities important for an entrepreneur	Innovativeness and creativity
Question 30-31	The role innovativeness and creativity have on market success	Innovativeness and creativity
Question 32, 36	If larger risks equal larger rewards for the agency	Risk-taking
Question 33, 35	The relation between risk and creativity	Risk-taking
Question 34	Entrepreneurial decision making regarding boundaries	Risk-taking
Question 37	If the employees are involved in the risk-taking process	Risk-taking
Question 38-39	If larger or smaller clients equals larger risk for the agency	Risk-taking

Source: Own construction

3.3 Gathering the Foundations and Designing a Picture

Our theoretical research was based upon papers that featured creativity and the forms it assumes in the most varied positions. Adding to that, we gathered studies about entrepreneurship and the characteristics that are necessary for the success of a good entrepreneur.

The EO was divided into five dimensions, and each dimension of the EO was analysed from the perspectives of the large as well as the small agencies. Every dimension contains factors through which small agencies could possibly gain a competitive advantage when it comes to being creative. The information and key words gathered from the analysis were then compiled in one result for each dimension, to see if any dimension is of more significant use to the smaller agencies in comparison to the larger agencies. The result from each dimension was finally compiled into a conclusion for this study, where the significant findings are presented.

3.4 Analysis Model

To help understand the purpose and the implementation of the EO in our investigation, a visual analysis model was

We established a map of how small agencies could get a competitive advantage over the "giants" of advertising. After carrying out the interviews, results were compiled and correlated with the map to ensure an accurate description of reality. Even though results could not imply a direct generalization due to a qualitative study (Bryman & Bell, 2015), they served as hints about the proper shape of the map we intended to establish and verify.

made up of the five dimensions of an EO from Lumpkin and Dess (1996).

Figure 1 – Based on the five dimensions of an Entrepreneurial Orientation according to Lumpkin & Dess
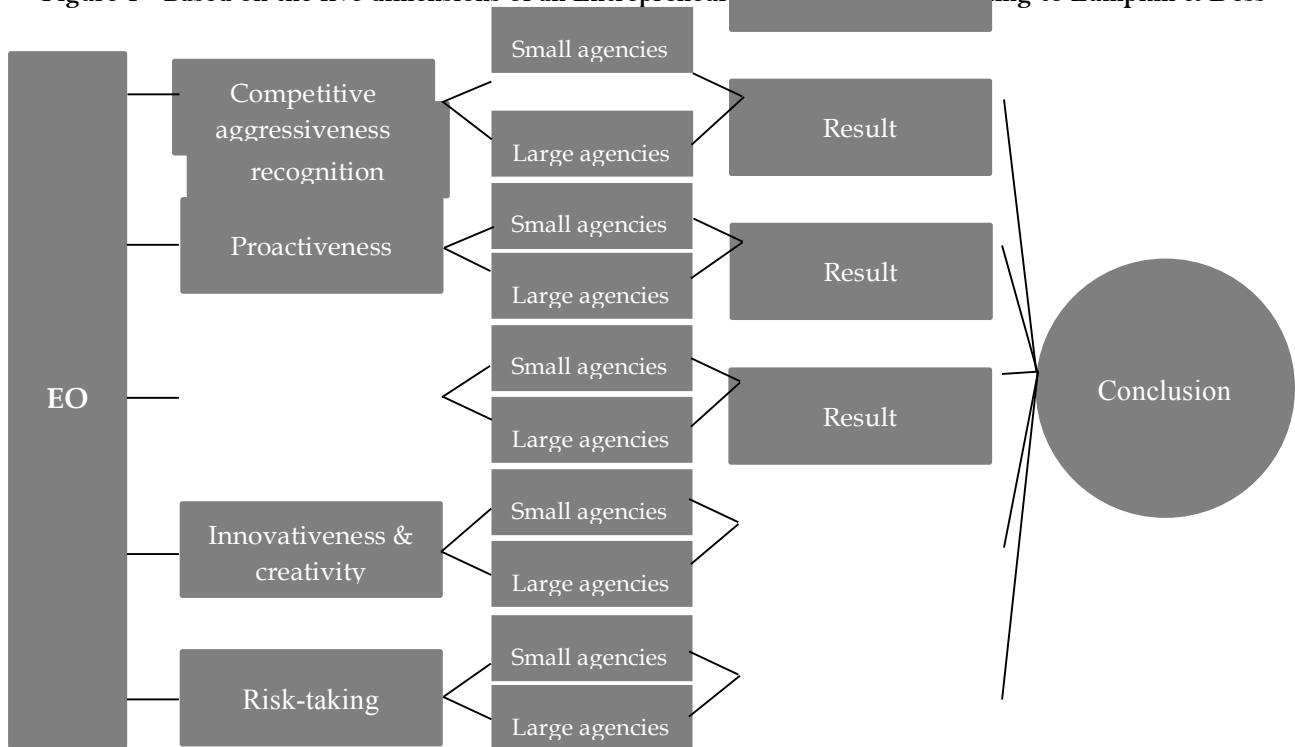
Source: Own construction

4. A brief outlook on the advertising industry

The advertising industries within Portugal, Spain and Sweden are presented below, along with a short description of the large and small agencies that have been interviewed in each country.

4.1 Portuguese Advertising Industry

In the last few years, due to the depressive economic cycle, Portugal's industry not only lost about 40% of its volume as it crushed margins and destroyed value that can hardly ever be recovered. Still, and in this scenario, the advertising market in Portugal had the capacity to adapt to technological changes and changes in organizational, human, technological and business models (in Imagens de Marca, 2016).

According to Alberto Rui Pereira, CEO IPG Mediabrands, Portugal has been able to adapt, reconvert

and create new structures, invest in technology and new tools, innovate and develop new services and skills, form resources and create new functions, change organizational and business models. All this, with very limited resources and in a market without size and scale at a global level, which is the biggest limitation and handicap (in 2015 the Portuguese advertising market was worth around 520 million euros being the smallest market in all of Western Europe). Despite being the smallest advertising market in Western Europe, according to a study from Magna Global, Portugal presents a scenario of recovery and growth: In 2016, investment in the advertising market has increased by 4,7% (in Jornal Económico, 2016).

Television remains the media with the most weight, with a growth of 4.6%. Digital investment outstrips press coverage in Portugal, in 2016, digital recorded a growth of 20%, affirming itself as the second media, since in 2015

the press closed the year with 618.1 million euros, ahead of digital, with 541.8 million. The traditional media, including cinema, had a growth by 5.8% (in Meios e Publicidade, 2016).

Alberto Rui Pereira considers that the size of the Portuguese market does not prevent a competitive growth compared to the rest of Europe, and in spite of the forecasts for 2017 indicate a limited growth, investment has been growing steadily from year to year (in Marketeer, 2016).

4.1.1 BBDO Portugal

Batten, Barton, Durstine & Osborn (BBDO) is a worldwide advertising agency network with headquarters in New York City. The agency was born in 1891 as George Batten's Batten Company, but converted to BBDO via a merger in 1928. It is one of the largest three global networks (BBDO, DDB, TBWA) with more than 15,000 employees in 289 offices around 80 countries. BBDO has been rewarded several times the "Global Agency of the Year", the "Network of the Year" or the "Most Awarded Agency Network in the World". In Portugal, the company employees one hundred people. Some of their clients are Mercedes Benz, Jumbo, Gallo and Sogrape.

4.1.2 NYLON

Nylon, is a small-medium-sized publicity agency, it was founded 5 years ago and its main services are: Marketing, digital marketing and brand management, but they embrace any type of project because they are a very ambitious agency. It has been awarded nine times including "Agency of the Year", with only 16 employees. Some of their clients are Super Bock, Água das Pedras, Lx Boutique Hotel and international companies such as Absolut, Sony, Hugo Boss and Global Malibu.

4.2 Spanish Advertising Industry

The Spanish advertising industry is in expansion since 2014 and currently has more than 15,000 competing firms (in ReasonWhy, 2015). Dividing the market into sizes we find that large agencies offer the full set of advertising services, and as the size of the agency decreases, the agencies tend to specialize. The main ad works offered are "advertising/marketing plans", "graphic design, copywriting and painting", "media purchasing", "web marketing" and "tracking results" (in El Publicista, 2017).

According to "ElPublicista.es" (2017) the firms that ranked the highest in the Spanish market in 2016 based on its results in national and international advertising festivals, contests and awards were DDB Spain, Llorente & Cuenca, McCann Spain, Proximity Spain and Lola MullenLowe.

When it comes to the evolution of the industry, since 2014, the yearly growth of the spending in advertising has been of around 1.4% and 2.2%, and is expected to increase at a yearly rate of 2% in the next two years. The main channels through which the advertising campaigns are carried out can be grouped into media advertising. In 2015 and 2016 the total media ad spending in Spain expanded, growing at 5.8% and 5% respectively. The main channels of spending were TV (with a 6.1% growth in 2016), newspapers, digital display (with the highest

growth of 2016 with a 9.9%), radio, outdoor and magazines (in Statista & eMarketeer, 2016).

It is believed that digital media is the future of marketing. A January 2016 report by ZenithOptimedia, in which executives in Spain were surveyed and asked to speculate that year's spending growth, found that it expected digital media to be the sector with the highest growth, mainly due to mobile advertising and digital signage (in Performics, 2016).

4.2.1 Saatchi & Saatchi BCN

Saatchi & Saatchi is an international network of global communications and advertising agencies, with more than 6,500 employees (31 in their agency in Barcelona) distributed in 140 offices spread across 76 countries (Saatchi&Saatchi.com). The agency is part of its parent group, Publicis Groupe (one of the largest marketing and communications companies in the world). Their set of services include, between others, "brand strategy/content/design", "digital/direct/mobile marketing" and "Social Media". Between their clients we can find notable international firms such as Caixabank, Nestlé, GSK, Nissan and Kellogg's.

4.2.2 GrupoAnton Alicante

GrupoAnton is a medium/small mostly national agency with around 60 employees. Their set of services include the whole development of marketing campaigns and media, public relations and online communication management. Their most notable clients are Burger King and El Corte Inglés.

4.3 Swedish Advertising Industry

The first Swedish advertising agency started in 1877, and the first advertising association was formed in 1919. Up until 1965, the agencies were paid in commission by the companies that provided the advertising space in magazines and newspapers. The system was heavily criticized and lead to the change where the client started paying for the ads (Komm, 2017).

The total investments in marketing communication in Sweden during 2016 was 34,9 billion SEK (approx. €3,5 billion). Digital advertising is the quickest growing category within the Swedish advertising market, with a 21% growth compared to 2015 (Thor, 2017).

Swedish enterprises generally spend 3.3% of their turnover on advertising. Smaller agencies spend a greater part of their turnover on advertising than middle size and large size agencies do (IRM, 2016). According to 18 criteria, which are evaluated by the clients of ad agencies; Forsman & Bodenfors was the "Agency of the Year" in Sweden for the fifth year in a row, last year. They have developed successful commercials for companies such as Volvo and recieved "high scores" from the clients regarding successful market analysis, communication and the best value for money (Dunér, 2016). Overall, the Swedish ad agencies are also successful in International competitions such as the "Grand London International Advertising Awards 2016". Apart from Forsman & Bodenfors, other Swedish winners were Ingo Stockholm, Acne, Åkestam Holst, CP+B, Edelman Deportivo, Nine, Prime and River (Ek, 2016).

4.3.1 Valentin&Byhr

Valentin&Byhr is one of the major advertising agencies in Sweden with 60 employees, and are situated in Gothenburg. It is an independent agency founded in 1988 by Magnus Valentin & Christer Byhr. They are known for their long relations, and they work with both Swedish and international clients. They offer a variety of solutions for communication, such as PR, movies and digital solutions. Some of their clients are Volvo, Dr. Oetker and Santa Maria (Valentin&Byhr, nd.).

4.3.2 Care of Haus
In 2006, the communication agencies Care of and Haus merged together and created Care of Haus. Now, it is a full-service agency that offers solutions in digital, marketing and communications. Public, Digital, Loyalty and College are the cornerstones in their business model, and they describe themselves as simple, engaged and with a big heart. They are a national company with 35 employees located in Västerås and Stockholm, Sweden, and have recieved both national and international awards. Their clients include Ladbrokes, Wayne's Coffee and Bauhaus. (Care of Haus, nd.).

5. Analysis

To answer the research question 'How do small advertising agencies in Portugal, Spain and Sweden use creativity to gain competitive advantages on the advertising market?', the findings of the interviews were analysed based on the theoretical framework. Every dimension of EO is analysed separately, comparing the findings among the large and small agencies.

5.1 Opportunity Recognition
Both the small and large agencies were asked about the main origin of their clients, if they work with international or home clients. We were answered positively; nowadays all work with either international or home clients. While small agencies usually use official procurements to get a client and work project after project, large agencies tend to work with more factors and steps, and specialize in anticipating their moves, providing new ideas and with the aim to solve future problems. Those answers align with the theory of Gundry and Kickul (2002), who stated that most entrepreneurs recognize opportunities as opposed to seeking them.

Regarding how opportunity recognition affects the company and its culture, small agencies tend to seek and try to advance clients' needs, while large agencies tend to possess opportunity recognition in their veins and DNA. Moreover, the affection in the company culture for small agencies is not seen as relevant, while the way of working is most relevant. In large agencies, the company culture is more affected by the size and recruitment process, also by the development of knowledge and innovation. For instance, Nylon, when asked about the affection of opportunity recognition to the company culture responded that they do not think that happens, as it affects more how an agency works (Pedro Garcia, personal communication, February 29, 2017).

All agencies interviewed in this project asserted that they enhance the culture of their agency by improving the team spirit with, for example, after work initiatives or celebrations. Similarly,, it is noticeable that the large

agencies tend to have a higher correlation of their company culture with their results. If results are good, the environment of the company will be better. If they are not, a rare climate can cloud over the company. As an example, BBDO Portugal stated that when they do not achieve their intended results, they are not gentle with themselves (Rui Silva, personal communication, April 11, 2017).

In terms of recruitment, small and large agencies do not differ significantly. They both look for people with commitment, organization, creativity, adaptation, talent and who can manage the work. Another important feature is team spirit and trust. The theory from Mazzei, Flynn and Haynie (2015) is therefore reinforced; they stated that giving greater autonomy to employees is another way of opportunity recognition. Furthermore, our interviewees said that they do not rely solely on studies but also on experience and cognitive abilities. Asked about this, Saatchi&Saatchi Barcelona replied:

"There is a lot of people that probably show their best once they interact and find their favourable environment to make their talent come up" (Alba Guzmán, personal communication, March 16, 2017).

When it comes to the promotion of new ideas, both the small and large agencies tend to promote conversations, either privately or in group, with an open climate. The difference lies in how they reward; the small agencies use more simple rewards and no money, the large agencies have more tools, also monetary rewards. Large agencies tend to reward with better payments and scholarships, but also with career plans, training and mobility programmes to attract, grow and maintain talent. GrupoAnton said they do not reward their employees in a special way, only with the gratitude of the group (Alicia Baró, personal communication, April 3, 2017), whereas BBDO mentioned it obvious that the people who have consistently better results are better paid (Rui Silva, personal communication, April 11, 2017).

5.2 Proactiveness
All agencies are working proactively. As Freeman and Engel (2007) states, small firms focusing on innovation have strong interests in anticipating the competition, to achieve sustained performance. The small agencies in this study consider interest in new trends and conducting continuous research as a way of creating innovative ideas. According to Lumpkin and Dess (1996), proactiveness refers to an opportunity-seeking and forward-looking perspective. The large agencies continuously follow trends and market changes, focusing on curiosity of the outside world. Proactivity is promoted by enhancing and supporting the interest of the employees and by creating a comfortable working environment.

The agencies continually undertake market research, as well as keeping up to date with the competition's work on websites and social media. They involve their clients in proactive work by suggesting new ideas and by caring and nurturing their relationship. One of large agencies measure their client's satisfaction level, which shows that the proactive activities that Vossen (1998) states are true for small agencies, also apply to the large agencies taking part in this study.

Gundry and Kickul (2002) state that proactive personalities have strategic orientations when scanning

for business opportunities. For all the agencies, continual meetings and planning are important to work proactively. It is therefore assumed that the team environment is of importance to them, in accordance with Sponseller (2015). Robert Brodén from Care of Haus says that:

"We always challenge ourselves on how we drive the company forward. It does not matter if we are doing really well and everything's going according to plan, we always question what we do and try to form ourselves towards something we think will happen or be." (R. Brodén, personal communication, March 14, 2017).

The leadership is somewhat differing among the agencies. The most common is a democratic way of leading, which includes the employees in the decision-making process. Among large agencies, the style of leadership is supportive, collaborative and informal. Gumusluoglu and Ilsev (2007) state that transformational leadership affects creativity, which seem to be true in this study as well.

5.3 Competitive Aggressiveness

All agencies consider the advertising market as very competitive because many people jump from one agency to another, taking their client portfolio and methods of working to their new agency. According to Ajamieh et al. (2016) firms operating in a highly competitive industry face continual and more serious pressure to adapt their course of action by exploiting new business opportunities than do firms that experience low competitive aggressiveness.

Lechner and Gudmundsson (2014) argue that small agencies are more vulnerable to changes in the market competition and, as a result, they must be more aggressive to beat the market competition to create a safety net for their survival, so there is no surprise that all small agencies plan to expand. Care of Haus expects to be twice as large in a couple years if their five plan follows through (Robert Brodén, personal communication, March 14, 2017). Lechner and Gudmundsson (2014) found that small agencies are more vulnerable to changes in the market competition and, as a result, they must be more aggressive to beat the competition to create a safety net for their survival. On the other hand, the large agencies do not plan to expand because they are already a well-known brand.

Channels used to communicate, such as Facebook, LinkedIn and Twitter, seem to be the common keystone of self-promotion between the small and large agencies. Also, for the small agencies, creativity and the prizes that come from it are considered of the keystones of their self-promotion. For the large agencies, the keystones go from strategic planning to a good customer relation. According to Lumpkin and Dess (1996), competitive aggressiveness refers to how firms act, considering the competitors, challenging companies to get outstanding performances by competing for demand with responsiveness action. Despite being traditional, it pursuits the willingness of new behaviour. When it comes to the communication strategy, large agencies seem to have a more defined way of thinking which consists of many platforms for communication and making always a new and well-produced work; BBDO Portugal argues:

"As you can see, we take care of our channels, we take care of our opportunities and, of our 'speaking opportunities' while

we collaborate with organizations and associations too. That is why we have quite clear what target we want to pursue." (Rui Silva, personal communication, April 11, 2017).

Both the small and large agencies think that all agencies are creative, so no agency is more creative than the other. According to Nylon, all agencies are creative and they all have their own DNA in terms of working (Pedro Garcia, personal communication, February 29, 2017). Neither the small nor large agencies rely on self-promotion to overcome their rivals; they also define their self-promotion as non-aggressive. BBDO Portugal stated that their self-promotion is not very aggressive, and the merit of their work does not rely on the success of their client (Rui Silva, personal communication, April 11, 2017). Nylon, one of the small firms, even argued that aggressiveness and advertising are two things that do not match (Pedro Garcia, personal communication, February 29, 2017).

5.4 Creativity & Innovation

Welsch and Kuratko (2001) stated that innovation represents a marriage of the vision to create good ideas and the perseverance and dedication to stick with the concepts through its implementation. When it came to how the agencies worked with the clients, both large and small agencies answered that they adapt the creation of the ad to the strategy and desire of the clients, and keep the main idea (strategy) as the centre of the whole process when creating the ad. The small agencies also gave more details about that process, displaying the steps of it: first, they make a strategy or follow the one already planned by the client, then they make a briefing about the ad in which they explain the meaning of it, and afterwards they create the ad and measure/monitor its effects.

In terms of the formality of the inside-the-company framework, there were no patterns for smaller or larger agencies, as quite as many agencies follow an informal framework for its internal processes and pursue family relationships with their clients as the ones that follow a more formal communication structure with both their employees and their clients. We also discovered that agencies following an informal or formal structure did it for both their employees and clients. GrupoAnton stated that their working processes are normal, keeping a formal framework with their clients (Alicia Baró, personal communication, April 3, 2017), whereas Nylon expressed their internal processes as very informal and seek family relationships in their clients (Pedro Garcia, personal communication, February 29, 2017).

Regarding the promotion of creativity, as Lumpkin & Dess (1996) stated, innovativeness refers to a willingness to support creativity and experimentation when introducing new products; both larger and smaller agencies encourage this. However, a difference was found in the way they do it, as the larger agencies just try to raise creativity from values such as curiosity and an attitude to do things differently implied in its workers, but the smaller ones are more proactive. Nylon motivate and inspire their employees with videos and by challenging them (Pedro Garcia, personal communication, February 29, 2017), and Care of Haus arrange creative gatherings for inspiration, and carry out individual conversations

with their employees (Robert Brodén, personal communication, March 14, 2017).

Regarding the role of creativity and innovativeness in success in the advertising market, both smaller and larger agencies agreed that they consider it a very important factor. As for the concrete role, each company had its own view that did not differ significantly between smaller and larger agencies. When queried about the qualities a good entrepreneur must have, all agencies answered differently, which may be due to the broadness of the question. There was no pattern for small or large agencies, however, there was an answer matching the theory, concretely from GrupoAnton:

"An entrepreneur must have to ability of knowing where and how one begins, and of which resources he disposes" (Alicia Baró, personal communication, April 3, 2017).

This is very close to Kirkpatrick's (1998) definition of a good entrepreneur as someone who knows his resources and objectives to innovate by a set of different means.

5.5 Risk-taking

From the perspective of a small agency, the smaller clients require more administrative work in relation to the revenue they hold for the client, because they usually acquire smaller projects. From the larger agencies perspective, this is not as obvious. Robert Brodén from Care of Haus states that smaller agencies usually have lower budgets, and that most of their budget go to single projects, which leads to one focal point at a time instead of creating a flow (personal communication, March 14, 2017). GrupoAnton adds another significant difference by saying that

"Small clients, because they have less resources, they require bigger creativity doses to obtain good results with the minimal investing." (Alicia Baró, personal communication, April 3, 2017)

All advertising agencies in this study adapt themselves to their clients and their demands. Every client holds a unique case that the agencies nurture with communication and relations. Whether the clients are involved in the creative process or not, they do not affect the creativity level of the employees, but when it comes to managing their employees, the smaller agencies tend to adjust their leadership according to the demands of their clients. This implies that the smaller agencies exercise transformational leadership; according to Gumusluoglu and Ilsev (2007), this type of leadership has shown significant effects on creativity in individuals as well as in the organization. For the larger agencies, the clients' demands do not seem to affect the way of managing the employees.

Employee risk-taking is encouraged in most agencies and is not related to agency size. New ideas seem to be synonymous with risk-taking in most of the agencies, and even though many agencies encourage risk-taking and new ideas, they also have a safety net that keep the risks "safe". The general company culture tends to be taking small- to medium-sized risks to learn and build the company (Chase Jarvis, 2016). Larger agencies seem to have a more open climate towards internal risk-taking, where Nylon explains that their employees will not be punished for failing (Pedro Garcia, personal

communication, February 29, 2017) and Saatchi&Saatchi means that taking risks is being proactive (Alba Guzmán, personal communication, March 16, 2017). The small agencies experience larger clients as more knowledgeable and less flexible than smaller clients, which implies that the smaller agencies are more vulnerable to their larger clients compared to their smaller ones. This provides a larger risk to take on a large client, but the small agencies prioritize the larger clients because the reward outweighs the risk. According to El-Murad (2012), there are positive correlations between risk and firm-level creativity, which could imply that the risk of taking on a large client generates higher levels of creativity in the smaller agencies, simply because they are required to exceed the expectations of the demanding, large clients.

When it comes to the large agencies, they do not find any correlation between size and flexibility in their clients, but do value the recognition and revenue they generate from their larger clients. This could be explained by company size, and that the agency is not as vulnerable to losing a large client as the smaller agency is. Because the smaller agencies are more vulnerable to losing their large clients, their risk-taking level is higher than the larger agencies' levels, which according to Dai, Fernhaber, Gilbert and Maksimov (2013) could lead to higher rates of success, if done on a moderate level.

6. Conclusion

The purpose of this study was to research how national advertising agencies use creativity to compete with larger, global agencies in the advertising market of Sweden, Spain and Portugal. To do so, we considered the Entrepreneurial Orientation of the agencies as it included a substantial number of factors that potentially would explain that phenomenon using creativity.

So, how can the Davids beat the Goliaths in the advertising markets of these countries?

The findings of the study show that smaller agencies have higher levels of competitive aggressiveness and risk-taking, because of the wish to expand, and vulnerability to their larger clients. The levels of opportunity recognition are higher in the large agencies because of their resource assets. All agencies are creative and innovative and equally as proactive, but because the speed of the decision-making process can be faster and communication skills better in a small agency, they can reach higher levels of proactiveness.
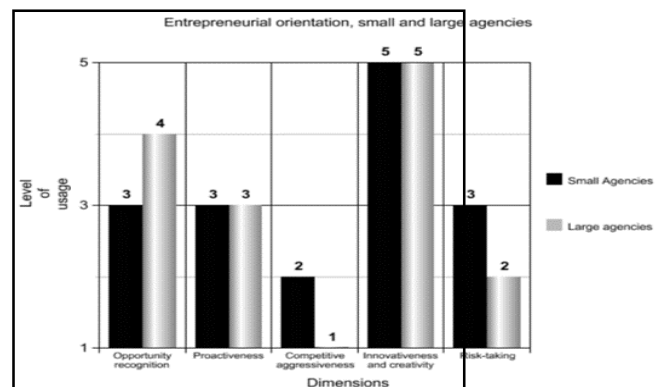

Figure 2. Entrepreneurial orientation, small and large agencies.
Source: Own construction

Regarding opportunity recognition, we found that all agencies work with international and home clients and look for the same type of employees, including qualities searched such as creativity, commitment, team spirit, adaptation and talent. The company culture is seen differently for them. Large agencies have a more structured company culture than small agencies, who are more oriented to the way they work. Moreover, large agencies rather than small are more used to be advanced to clients' needs and solve their problems, which makes it more difficult for the smaller ones to find opportunities. While promotion of ideas in the company is done mostly by promoting a better communication both in Davids and Goliaths, small agencies do not have as many mechanisms to reward employees as the large ones. Goliaths can take advantage of that, as they can use more instruments and monetary support to pay better or offer career plans or training programs to their workers. This forces the Davids to use creativity and communication to compete with the giants.

Both large and small agencies work proactively, by continually looking for market changes and adapting to them. The clients of all the agencies are involved in proactive work by listening to their ideas as well as nurturing the relationship between the agencies and clients. The leadership in all the agencies is transformational, thus supporting the creativity of the employees. There is no significant difference to be found in how the large and small agencies work with the factors of proactivity. This means that all agencies in this study already have a functioning proactive mindset; however, this also leaves an opening for the smaller agencies to take proactivity to another level in order to gain competitive advantage in the advertising market. By having the tools of good communication and faster decision making, the small agencies can reach higher levels of proactivity than the larger agencies.

Both small and large agencies consider the advertising market as very competitive and use channels like Facebook, LinkedIn and Twitter to communicate. Neither small nor large agencies rely on self-promotion to overcome their rivals; in addition, all agree that no agency is more creative than the other and that their self-promotion is not aggressive. When it comes to their self-promoting strategies, the creativity and the prizes that come from it are the keystone for small agencies, and for large agencies the keystones are a good relationship with the client and good strategic planning. The explanation to this may be that the smaller agencies are aiming for expansion, while the larger agencies want to maintain their position in the market.

When it comes to innovativeness and creativity, the small agencies can gain a competitive advantage in having a more supportive company culture, arranging periodical meetings and inspirational events to boost creativity, to overcome the fact that the larger agencies can offer higher monetary rewards.

Advertising agencies in Sweden, Spain and Portugal, disregarding of size, encourage internal risk-taking amongst their employees, which is correlated to innovation and proactiveness. At the same time, smaller advertising agencies are more vulnerable to their large clients than the large advertising agencies. It is also noticeable that larger clients generate higher risk-taking and less flexibility than their smaller clients, but the rewards can be good sustainability and large revenue. On the other hand, smaller clients require higher creative levels and administrative work in relation to their size, but they are more flexible and less of a risk for the agency. Small advertising agencies can therefore find competitive advantages in being more vulnerable to larger clients, because that forces them to exceed their expectations of clients and therefore be more creative.

The implications of this study show that the entrepreneurial orientation, to some extent, can be used by small agencies to gain competitive advantage in the advertising market. When approaching the factors included in entrepreneurial orientation, it is shown that small advertising agencies take a more creative and supportive management, due to their lack of resources in comparison to the larger agencies. The study also shows that because of larger vulnerability and higher risk-taking, the smaller agencies may feel the need to over-deliver and thereby foster their creativity. Regarding competitive aggressiveness, smaller agencies rely on creativity and relations, to gain acknowledgements and prizes, to be able to expand their business.

The findings can be useful for future research concerning the general management of advertising agencies, the management of creativity and/or the differences of management in large and small agencies (whether if it is in the advertising industry, in creative industries or in any industry). This study contributes with several behavioural patterns and relations with those; the results can be a starting point for new investigations and/or complementary studies that at some point require qualitative explanation of differences in small or large agency behaviour. Our findings are also of use to those managing employees at any level inside of the advertising industry, as they can dispose of information for improving their management strategies.

The size of the sample may limit the strength of our findings, we thus encourage further investigations in the topic of study, including the inclusion of more firms and countries, which would give a broader view of the different markets and agencies. We also remark that a deeper analysis of the differences between the markets of the countries could complement the comparison. That can also be applied to the models of the interviews; despie our decision to make them homogeneous between the countries, they could be designed differently.

Moreover, we believe these limitations do not hinder the value of the findings of this research in three counties. The fact that the answers were derived from three different markets can be seen as a strong validation of the results. Other future researches could explore the differences between the specific advertising markets, and it would be interesting to overlap those findings with ours. Nevertheless, the conclusions drawn from this study are robust and fitting to the initial proposition.

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Appendix I

Operationalization of research question

Questions for the semi-structured interviews with the ad agencies were created based on the theoretical framework of Entrepreneurial Orientation, consisting of the 5 dimensions: Opportunity Recognition, Proactiveness, Competitive Aggressiveness & Creative Communication, Innovativeness & Creativity and Risk-taking.
Below, the questions are presented, with connections to the theory.

Question	Aim to examine	EO-dimension
1. Describe what kind of clients you have. How do you get new clients/lose clients?	What the agencies do to perceive the opportunity to create new business	Opportunity recognition
2. How does opportunity recognition affect the success of your company? How does it affect the company culture?	If the five stages of opportunity recognition (preparation, incubation insight, evaluation and elaboration) affects the company culture	Opportunity recognition
3. What characteristic does your company consider in the hiring process and why?	What the agency does to improve or change the business	Opportunity recognition
4. What kind of competences do you think your employees have? (What do you consider the best qualities a worker can have to work in an advertising agency?)	What the agency does to improve or change the business	Opportunity recognition
5. How do you promote new ideas and initiatives from your employees?	If the five stages of opportunity recognition are implemented with the employees	Opportunity recognition
6. How do you work with improving the culture of the company (and the final results)?	What the agency does to improve or change the business	Opportunity recognition
7. How do you reward new ideas and initiatives? (success vs failure)	What the agency does to improve or change the business	Opportunity recognition
8. Describe the goal of your company. How do you plan your business?	If and how they implement a first-mover	Proactiveness
9. Would you consider your company to be proactive or reactive? Meaning, do you act beforehand, or do you react to market changes/client requests?	If the agency is forward-looking and opportunity seeking	Proactiveness
10. How do you handle changes in the market competition?	If the agency scans the market competition	Proactiveness
11. How does you company promote/boost proactivity?	How much involvement the employees and the clients have in proactive work	Proactiveness
12. Do you involve your clients in this process?	How much involvement the employees and the clients have in proactive work	Proactiveness
13. How can the speed of the decision-making process affect the level of proactiveness? In which way?	How the speed of the decision-making process can affect the proactiveness of the agency	Proactiveness

14.	Describe your leadership? How do you work with leadership?	If the proactive entrepreneurs are linked to transformational leadership	Proactiveness
15.	How do you keep company updated on changes in the market?	If the agency scans the market for competition	Proactiveness
16.	How do you conduct market research? With what aim?	If the agency scans the market for competition	Proactiveness
17.	How much do you know about your competitors? Do you follow their progress?	If the agency scans the market for competition	Proactiveness
18.	How competitive is the advertising market?	If there is higher pressure on acting and exploiting new business opportunities	Competitive aggressiveness
19.	Are you going to expand your business? If yes, how?	If the agency aims to win or expand their market position	Competitive aggressiveness
20.	What are the keystones of your self-promotion?	How the agency acts to beat competition in the market	Competitive aggressiveness
21.	How does your communication strategy differ from other companies?	How the agency acts to beat competition in the market	Competitive aggressiveness
22.	Is it more creative than the other companies?	The level of creativity aggressiveness in their self-promotion	Competitive aggressiveness
23.	Define how aggressive your self-promotion is?	If they outspend their competition	Competitive aggressiveness
24.	How much do you rely on communication (self-promoting) to overcome competitors?	How the agency acts to beat competition in the market	Competitive aggressiveness
25.	How would you describe your firm's environment?	The significance of innovativeness on the market	Innovativeness and creativity
26.	How does the process look like when working with the clients?	If the agency blends imaginative, creative thinking with systematic, logical processing abilities	Innovativeness and creativity
27.	Are your internal processes formal or informal?	The willingness to support innovation and creativity in the agency	Innovativeness and creativity
28.	How do you promote innovation within the organization? How do you promote creativity?	The willingness to support innovation and creativity in the agency	Innovativeness and creativity
29.	Which qualities do you think are the most important for successful entrepreneurs? Why?	If the agency finds blending imaginative, creative thinking with systematic, logical processing abilities important for an entrepreneur	Innovativeness and creativity
30.	What roles do innovation and creativity play in the advertising market?	The role innovativeness and creativity have on market success	Innovativeness and creativity
31.	How important are innovation and creativity to succeed?	The role innovativeness and creativity have on market success	Innovativeness and creativity
32.	What differences are there between "big" and "small" clients when it comes to the help they wish for?	If larger risks equal larger rewards for the agency	Risk-taking
33.	How do your clients affect the creativity level of the ads/campaigns you produce?	The relation between risk and creativity	Risk-taking

34. Does it affect your way of managing the employees? In which way?	Entrepreneurial decision making regarding boundaries	Risk-taking
35. If yes, do you think that it affects the creative capabilities of your employees?	The relation between risk and creativity	Risk-taking
36. Do you think that working with big clients ends up shifting the company to suit them better at the expense of suiting the smaller ones worse?	If larger risks equal larger rewards for the agency	Risk-taking
37. How do you encourage your employees to take risks? How do you reward employees who take risks?	If the employees are involved in the risk-taking process	Risk-taking
38. How do you think the degree of flexibility of your clients is related to their size?	If larger or smaller clients equals larger risk for the agency	Risk-taking
39. How does the size of the client influence the decision of taking them into your portfolio?	If larger or smaller clients equals larger risk for the agency	Risk-taking

Appendix II

Themes and findings, small and large agencies
For each interview question, every answer was analysed to find the keywords and themes for each agency. The themes were then concluded into findings, one for the small agencies and one for the large agencies in every question.
Advertising agencies:
S1: Care of Haus, Sweden
S2: GrupoAnton, Spain
S3: Nylon, Portugal
L1: Valentin&Byhr, Sweden
L2: Saatchi&Saatchi BCN, Spain
L3: BBDO Portugal

Question	Aim to examine	Theme small agencies	Finding small agencies	Theme large agencies	Findings large agencies
Opportunity recognition					
1. Describe what kind of clients you have. How do you get new clients/lose clients?	What the agencies do to perceive the opportunity to create new business	S1: Around 129 clients, big and small, foreign and home. Official procurements of 4 years (2+1+1). Collaboration can end for dissatisfaction and natural causes. S2: International and local clients. S3: Project by project. Varied portfolio, manly Portuguese now.	Small clients have both international and home clients. Official procurements.	L1: Pitching ideas for new clients. Offer new ideas to existing clients. Projects might be finished because of time/financial issues. L2: We work by projects and not just clients, trying to reach 360 and to solve problems, we are not just advertising agencies anymore. Everything is changing and we have clients from all around Barcelona, surroundings and even world. L3: All kinds of clients. Anticipating the moves of the competition. Very anticipated strategic planning and try to capture as many clients as possible.	Big agencies tend to have all types of clients, international and home. They work by anticipating their moves, solving problems and with new ideas for both new and existing clients.
2. How does opportunity recognition affect the success of your company? How does it affect the company culture?	If the five stages of opportunity recognition (preparation, incubation insight, evaluation and elaboration) affects the company culture	S1: Costumers' and market perspective. Strategy meetings to see our offer vs the rest of the market decide on novelties. We try to advance the costumers and satisfy them. S3: No, it is how an agency works.	Small agencies tend to advance and satisfy client's needs. It affects but it is not as relevant as how the agency works.	L1: Creative ideas to the missions of clients. Development of knowledge/innovation within the agency. L2: DNA, crucial. Innovation part of us, we motivate and we're proactive with our clients or with the one's we still don't have. L3: If we win a big client it forces us to restructure and recruit people to equip that client. It	Big agencies tend to have opportunity recognition on their DNA and putting creative ideas to the missions of their clients. Affects the size and recruitment of the agency and also on the development of knowledge/ innovation.

		Monthly covenants.		always affects the size of the agency.	
3. What characteristic does your company consider in the hiring process and why?	What the agency does to improve or change the business	S1: Abilities: sell themselves, competences, curiosity, engagement and interest. No need to just high studies but to handle and to be precise. better with experience. S2: Adaptation. Not only education, also experience. S3: focused, objective, creative and good team spirit.	Small agencies tend to rely in cognitive acknowledges, experience and adaptation; not only in studies. Abilities include sell oneself, curiosity, engagement, interest, adaptation, creativity and team spirit.	L1: Curiosity and commitment/interest of the world/society L2: We look for people that can make their talent come up. Not definitive process. Day to day work. L3: It depends on the place, the position or function. Looking for people with a commitment to themselves.	big agencies tend to look in general for people with commitment, curiosity and talented. Of course, depending on the position.
4. What kind of competences do you think your employees have? (What do you consider the best qualities a worker can have to work in an advertising agency?)	What the agency does to improve or change the business	S1: Depends. Sell themselves, competence, take place, curiosity, engagement, interest. Humbleness and big hearts, understanding of business. S2: creativity in all the phases and teamwork. S3: Different skills. Making creative pairs (creator + detailed). Team player, trust, analytical side.	Small agencies tend to have creative and trustful teams, with humbleness and big-hearted people but also with an analytical side.	L1: Curiosity and commitment/interest of the world/society L2: Multidiscipline, organization and adaptation. L3: Organization, focus, creativity and intelligence	Big agencies tend to have organization, creativity, commitment and multidisciplinary people that can also adapt.
5. How do you promote new ideas and initiatives from your employees?	If the five stages of opportunity recognition are implemented	S1: Open climate. Group sessions and separate conversations. Connect	Small agencies tend to promote conversations (private and group) in an open climate.	L1: Encouraging them to describe the challenge and solution. L2: We have departments of creativity,	Big agencies tens to promote by encouraging employees, by having a great connection

	with the employees	progress company-employee, creative gatherings. More difficult than Big Agencies. S2: Working in team with internal and external sessions. S3: Encourage to participate in prizes and give freedom to grow.		accountancy, health affairs, public relations and digital. We are super connected, hierarchical architecture. L3: The promotion is given by the creative context in which we are inserted and in the creative culture of the agency. Our business model is based on creative originality and strategic intelligence. The creative culture comes from recruiting.	and specialized departments and giving them constant briefings.
6. How do you work with improving the culture of the company (and the final results)?	What the agency does to improve or change the business	S1: S2: Unified group. Celebrations, but not much promotion of company culture. S3: Team spirit, best climate. After Work Initiatives.	Small agencies tend to promote the team spirit with after-work initiatives and celebrations.	L1: Focus on interests/commitment and curiosity. Caring about each other. Comfort important. L3: maintain a criterion of maximum demand. When we do not achieve the intended results, we are not gentle with ourselves.	Big agencies tend to focus on interests and commitments, caring for comfort and looking for maximum demand.
7. How do you reward new ideas and initiatives? (success vs failure)	What the agency does to improve or change the business	S1: No monetary rewards. Promote ideas and suggestions and then evaluate. Solving the problem with creativity, not just being creative. S2: Gratitude, no specific way. S3: Encourage and challenge, no idea thrown away.	Small agencies promote ideas and uncourageous people, but there's no monetary reward. More simple rewards like gratitude.	L1: By giving attention/scholarship to interesting ideas. L2: We focus on talent, that's what we only have, so we have a department to attract it, make it grow and retain it. Training programmes, mobility programmes. Our most important tool is to offer a career plan to the person. L3: People with better results are better paid. If you do a great job, that same	Big agencies tend to reward ideas and initiatives by offering future with training and mobility programmes, even career plans! The difference relies on monetary rewarding, which happens either with scholarships and better payment.

				job will call another equal or greater. Being competent has other advantages without being the financial part!	
Proactiveness					
8. Describe the goal of your company. How do you plan your business?	If and how they implement a first-mover	S1: Growth and improving competence. 5-year plan, revised twice every year. S2: Goal is to strengthen leadership in Levante and expand to the rest of Spain. Annual study and annual marketing plan. S3: Make brands the next great leaders in modern time. Monthly meetings, analysing bills, talking about how to make the agency grow.	Small agencies aim to grow and expand by having continual meetings where plans are revised.	L1: Happy employees/clients most important. Satisfaction of clients measured yearly. L2:? L3: It depends on the client. Anticipate the steps we are going to take. Know what the competition is doing.	The goal depends on the client, happy clients and most important, employees. One of the agencies measure the clients' satisfaction yearly.
9. Would you consider your company to be proactive or reactive? Meaning, do you act beforehand, or do you react to market changes/client requests?	If the agency is forward-looking and opportunity seeking	S1: Proactive as a company. Question what they do and are curious. S2: Try to be proactive. S3: Proactive by reaching clients in new ways.	Small agencies are proactive.	L1: Only proactive, basis for ad agencies. L2: Up-to-date, proactive L3: Pretty proactive. we try to be one step ahead	All of the big agencies are proactive.
10. How do you handle changes in the market competition?	If the agency scans the market competition	S1: Fast on adapting to changes S2: Try to predict the changes,	Small agencies adapt to changes.	L1: Check trends, changes in society. Help clients develop their organisation as well (inhouse	Changes in the market are handled by following trends and be competitive.

		otherwise be reactive S3: Adapt to the changes		communication) L2:? L3: Try to be more competitive than the others, so that part of the changes will stop here.	
11. How does you company promote/ boost proactivity?	How much involvement the employees and the clients have in proactive work	S1: S2: They carry out anticipatory proposals to the needs of the clients. S3: Be best friends with clients. Having lunch, talking openly, sharing news and opinions.	Small agencies suggest new ideas to clients and take care of relationship with clients.	L1: Commitment/interest important. L2:? L3: The type of work you do and the environment you live in the agency gives you that.	Proactivity is promoted by enhancing interest of the employees and having by working in a suitable environment.
12. Do you involve your clients in this process?	How much involvement the employees and the clients have in proactive work	S1: Yes S2: Yes. S3: Yes.	Clients of small agencies are involved in the proactive work.	L1: Clients want proactivity L2: ? L3: Try to make the clients happy and involved, since they are part of the culture	Clients are being a part of the proactivity by making them satisfied and involved in the project.
13. How can the speed of the decision-making process affect the level of proactiveness? In which way?	How the speed of the decision-making process can affect the proactiveness of the agency	S1: Owner group meet every month and management team meet every week. Agency divided into three business segments where decision making is done separately. S2: Decision-process as short as possible in order to be anticipatory. S3: Planning is most important.	For small agencies, continuous meetings and planning are important.	L1: Faster decision making enhances proactivity and creative ideas. L2: ? L3: Speed in decision can affect productivity. Depends on the decision-making process	Faster decision making enhances proactivity, productivity and creative ideas.
14. Describe your leadership? How do you work with leadership?	If the proactive entrepreneurs are linked to transformational leadership	S1: Listening and rational. Good at catching people. Does	Among small agencies leadership was differing. They had a democratic view in common.	L1: Show direction and create positive conditions. Support interest and curiosity. L2: Collaborative,	Among big agencies, the style of leadership is supportive,

		not interfere with creativity. S2: We do not work on it. S3: Democratic but decisive in the end.		shared decisions. L3: It's not such formal, there is no need for this formality when there is respect.	collaborative and informal.
15. How do you keep company updated on changes in the market?	If the agency scans the market for competition	S1: The commitment and interest of every individual is important. Cannot be controlled by the management. S2: Training processes. S3: A Skype group where national & international news are shared.	Among small agencies, both the individual commitment and group meetings are important.	L1: Curiosity. Reading news, social media, being a part of juris. L2:? L3: Research a lot of things. Everybody is extremely motivated and informed	By being overall curious and by doing a lot of research, big companies kept themselves updated on the changes in the market.
16. How do you conduct market research? With what aim?	If the agency scans the market for competition	S1: Only on the behalf of the client, one or twice a year. S2: Once a year objectives and strategic guidelines are established for the next year. Qualitative research grading the satisfaction of clients and the market trends. S3: Everybody do market research constantly. The director writes articles, checks LinkedIn, researches, contacts clients.	The small agencies do market research, but in different ways.	L1: Every client/project get a market research. Can be focus groups / interviews /surveys. L2:? L3: It depends on what we need. Constant research in the market of the best professionals. Lots of attention to the competition and who's penetrating the market.	Market research is done continuously depending on the client's needs.
17. How much do you know about	If the agency scans the	S1: Nothing, they are not "part of the	It differs among small agencies. The majority do	L1: A bit. See the offers of other agencies, mingle with	Among large agencies, competition is

	market for competition	game". S2: As much as possible; websites and social media. S3: Follow competitors work.	check the work/website/social media of competitors.	people within the industry. L2: A lot of competition, a lot of time is put on the competition. L3: They are all big multinationals.	followed by being in contact with people within the industry, as well as following the offers done by the competitors.
your competitors? Do you follow their progress?					
Competitive Aggressiveness					
18. How competitive is the advertising market?	If there is higher pressure on acting and exploiting new business opportunities	S1: Top 10 is in a league of its own. S2: Every time. S3: Quite a lot.	All small agencies consider the advertising market as competitive.	L1: Very competitive. Easy for clients to change agency. L2: ? L3: Very competitive. Even more because the market contracted a lot with the economic crisis.	All large agencies consider the advertising market as competitive.
19. Are you going to expand your business? If yes, how?	If the agency aims to win or expand their market position	S1: If our five-year plan follows through, we will be twice as big in a couple years. S2: We have planned to expand it in our area of external advertising with the acquisition of new supports and concessions. S3: I always plan to expand with more new customers and reach new markets. But to expand an agency it takes more clients in different areas. This is also part of the recruiting process done at LinkedIn	All small agencies plan to expand, but in different ways.	L1: No expansion. L2: Well-known brand, we don't need to remake that.	None of the large agencies are planning to expand.
20. What are the keystones of your self-promotion?	How the agency acts to beat competition in the market	S1: Channels, good relations and good job S2: Creativity	The common keystones to all small agencies in their self-promotion are: channels and	L1: Website, blog, visiting clients, having lectures, existing ads for clients. L2: We take	Channels, existing ads, good relationship with clients, strategic

		S3: Channels and prizes	creativity (prizes).	care of our channels, we take care of our "speaking opportunities" while we collaborate with organizations and associations too. L3: In a large group this thinking is well thought out and analysed by many people.	planning. It differs from one agency to another.
21. How does your communication strategy differ from other companies?	How the agency acts to beat competition in the market			L1: Use many platforms for communication; PR, movie, events. L2: ? L3: Good work, well-produced, new things and payable by our budget.	The strategies differ from one agency to another. Different channels to communicate; good, new and well-produced work.
22. Is it more creative than the other companies?	The level of creativity aggressiveness in their self-promotion	S2: Values to communicate that is in what lies the difference between one company and another. S3: I don't think it differs much, all agencies are creative.	Different opinions, one considers the values to communicate as the major difference, but the other says there's not much differences.	L1: ? L2:? L3: I don't consider more creative, but we consider ourselves creative.	Not more creative than the other. Just creative.
23. Define how aggressive your self-promotion is?	If they outspend their competition	S1: No. S2: It is not the aggressiveness that define us. S3: It isn't very aggressive. intrusive advertising doesn't work nowadays.	Small agencies have a non-aggressive style.	L1: Humble. No Google Ads. Focus on satisfaction of existing clients. L2:? L3: It is not very aggressive, but they make sure the market knows that they were the ones that "that campaign"	The opinion of the large agencies is that their self-promotion it's not aggressive.
24. How much do you rely on communication (self-promoting) to overcome competitors?	How the agency acts to beat competition in the market	S1: We don't do much marketing. S2: is another tool inside the actions that are carried out to capture clients. S3: We do not depend on	The opinions amongst the small firms differ when we talk about self-promotion, but none of them depends only on self-promoting.	L1: Humble. No Google Ads. Focus on satisfaction of existing clients. L2:? L3: I don't depend on self-promotion.	Do not depend on self-promotion.

		self-promotion			
Innovativeness & Creativity					
25. How would you describe your firm's environment?	The significance of innovativeness on the market	S2: Fellowship.	Not enough information.	L1: Changing. Communication must be more meaningful today. L2: Adapting. Everyone helps everyone with hierarchical structure. L3: Great, informal, but also a lot of commitment.	The opinion of large firms over their external environment is that this is constantly changing. When it comes to the internal environment that is quite informal and of fellowship.
26. How does the process look like when working with the clients?	If the agency blends imaginative, creative thinking with systematic, logical processing abilities	S1: Defined process: make a strategy or follow the one brought by the client, make a briefing about the ad, create it and then monitor and measure. S2: professional and trust. Standard creative process. S3: great relationships (like family). Same process as S1.	They all have a structured creative process.	L1: Focus on the people and the feeling of the project. L2: Professional and adapting to the client. L3: Depends on customer to customer, but our process is always the same.	The process is adapted to the client and focuses on the people.
27. Are your internal processes formal or informal?	The willingness to support innovation and creativity in the agency	S2: Normal working processes. Formal framework with clients. Standard creative process. S3: internal processes very informal. Family relationships with clients.	The formality of the framework inside the company and with employees differs some of them have normal framework with clients and others have more informal internal processes and family relationships with clients.	L1:? L2: No answer. L3: Quite informal	Only one large firm (the Portuguese) answered that question, and they said that their internal processes were quite informal.
28. How do you promote innovation	The willingness to support	S1: creative gatherings for	Small companies have the will of promoting	L1: Encourage curiosity and the will	Large firms encourage curiosity and

within the organizatio n? How do you promote creativity?	innovation and creativity in the agency	inspiration, constant group sessions and individual meetings with employees. S3: motivating and inspiring the employees with videos and challenging them.	creativity, and they carry out activities or individual meetings with employees to make them think and give them proper stimulus to be more creative.	to change! L2: They didn't get the right answer. L3: We must always do something new and different.	underlying attitude of doing thing in a different way.
29. Which qualities do you think are the most important for successful entrepren eurs? Why?	If the agency finds blending imaginative, creative thinking with systematic, logical processing abilities important for an entrepreneur	S1: curiosity, energy to carry out projects, fearless to challenge your safety and security. You need to challenge your traditional thoughts. S2: having the ability of seeing where one begins and what resources one has. S3: fearless of failing, having the ability of researching and focusing on your goals.	The opinions differ in terms of the adjectives used to describe how a successful entrepreneur must be. In general, they must be full of energy, challenge their own beliefs and skilful to carry out projects (having the abilities of doing research, of seeing where they are and how can they get where they want to be.	L1: Having insights about the challenge. Independent. Meet expectations. L2: No answer. L3: Believe in your knowledge and idea.	Large firms' opinions differ, but in general they agree that a successful entrepreneur must believe in his skills and ideas.
30. What roles do innovation and creativity play in the advertising market?	The role innovativenes s and creativity have on market success	S1: the business is the most important part and so creativity is just a tool to achieve the business goals. Creativity is also problem solving. S2: there's a need to be creative every time you	The small companies give a different role to creativity. That role can be just a tool of problem solving for achieving business goals, or of the factor that gives differentiation to the agencies' outcomes, or also, being aware of what happens in the market (costumers and	L1: They are important, but also emotional value! Creating feelings! L2: No answer. L3: There is no greater added value than creativity.	Both companies agree that it is very important, but the Swedish one adds to the key factors to succeed in the ad market the ability of linking emotions to the ads.

		approach something, as it turns into differentiation and that is an attraction factor regarding clients. S3: ensuring the message is in tunes is almost as important as the business part, knowing what the customers think/want and knowing what your competitors are doing.	competitors) and take advantage of it.		
31. How important are innovation and creativity to succeed?	The role innovativeness and creativity have on market success	S1: very important role. S2: fundamental. S3: very important.	All small companies consider that creativity is a key to success.	L1: They are important, but also emotional value! Creating feelings! L2: No answer. L3: There is no greater added value than creativity.	Both companies agree that it is very important, but the Swedish one adds to the key factors to succeed in the ad market the ability of linking emotions to the ads.
Risk-Taking					
32. What differences are there between "big" and "small" clients when it comes to the help they wish for?	If larger risks equal larger rewards for the agency	S1: Lower budgets and single projects for small clients. More continuity for larger clients. S2: Lower budget requires more creativity to succeed. S3: Adaption to the size. More pressure with larger clients	Smaller clients require more administration in relation to their budget.	L1: No, depends on the brand. L2: The budget decides. L3: Not many differences.	No significant difference in demand from small or large companies.

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33. How do your clients affect the creativity level of the ads/campaigns you produce?	The relation between risk and creativity	S1: Nothing, there is a fixed process. Clients rely on our knowledge. S2: The more creative a campaign, the larger the impact. S3: It differs, but the client always has the last word.	Clients demands and involvements are different (no relation between risk and creativity).	L1: Clients expect proactivity. L2: Large vs smaller budget is affecting the work. L3: They affect a lot because we work for them.	Clients have high expectations and involvement.
34. Does it affect your way of managing the employees? In which way?	Entrepreneurial decision making regarding boundaries	S1: No, there is a fixed process for them to work from. S2: Liberal clients allows more creativity. S3: Again, it differs because of the client.	Differs from the clients demands (transformational).	L1. Curiosity and commitment is supported (as always) L2: No, we always try to motivate people. L3:?	Clients demand doesn't affect entrepreneurial decision making.
35. If yes, do you think that it affects the creative capabilities of your employees?	The relation between risk and creativity	S1: No. S2: No. S3: No	Clients involvement doesn't affect the creativity levels of the employees.	L1:? L2: - L3: Do not affect the creativity but the output of the work.	Clients involvement doesn't affect the creativity levels of the employees.
36. Do you think that working with big clients ends up shifting the company to suit them better at the expense of suiting the smaller ones worse?	If larger risks equal larger rewards for the agency	S1: We try to treat them equally. S2: We are adaptive. S3: We treat everyone equally	Adapting to the client is the key (no risk-taking)	L1:? L2: - L3: No because all costumers have their own profile.	No.
37. How do you encourage your employees to take risks? How do you reward employees	If the employees are involved in the risk-taking process	S1: We encourage new ideas, but filters reduce the risks. S2: We don't. S3: We want them outside of the box.	Often, employees are allowed to take risks	L1: We enhance security and encourage curiosity. L2: Provoke them to new ideas. Taking risk=being proactive. L3:	Safe risks are encouraged.

who take risks?		No punishments for failing		The risk has to be always taken	
38. How do you think the degree of flexibility of your clients is related to their size?	If larger or smaller clients equals larger risk for the agency	S1: Not much, but larger clients usually have more knowledge and demands. S2: Larger client, less flexibility. S3: Larger client, less flexibility.	Larger clients have more knowledge and are less flexible (larger risk).	L1: No, same challenges for big and small. L2: They require more flexibility from us L3: It's not connected to its size.	Not connected to size.
39. How does the size of the client influence the decision of taking them into your portfolio?	If larger or smaller clients equals larger risk for the agency	S1: Large clients are prioritized and wanted, but we want the mix. S2: Larger clients are preferred, but smaller are safer. S3: Pleasurable to work with larger clients, as well as more visibility for us.	Prioritizing larger agencies thus larger risk. Reward of larger client weighs over.	L1: The revenue affects the decision. L3: Work with big firms gives tremendous respect and recognition.	Revenue and recognition affects the decision.

Smart work: The transformation of the labour market due to the fourth industrial revolution (I4.0)

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ABSTRACT

Purpose
This article explores how the fourth industrial revolution is transforming the labour market by demanding new professional skills and by digitalizing jobs done by the human resources of companies. A further aim is to postulate on new professions which will, in the future, be in high demand and the skills that will be required to fulfill those job non-robotized profiles.

Design/methodology/approach:
The proposed methodology is, firstly, an analysis of the impact of digitalization on the labor market in those economies experiencing the digital revolution. Secondly, an expert survey of university professors is conducted and curricula of universities are evaluated in order to analyze if higher education institutions are aware of future digital trends and what measures and teaching methods professors use to prepare their students to encounter these trends. .

Findings:
Based on the results, future jobs of highly demand will be described, as will the skill sets needed to fulfill those jobs. Furthermore, a call of action to the higher education sector will be made to encourage universities to prepare future graduates for a new labor market reality.

Research limitations/implications:
The results of the research are expected to serve as a reflection on how the digital revolution is transforming the labor market and how universities can support students in order to enhance their employability. Conversely, an analysis of jobs that are expected to be in demand in the near future – new occupations will appear and some will slowly disappear as they become automated – will encourage students to better prepare themselves for their professional careers and give them a clearer perspective about the labor market they will work in, upon completion of their education.

Originality/value:
The skills portfolio, introduced by the authors of the present article, shall support universities and professors with future adaptions..

1. Introduction

Technological innovations in the fields of digitalization, nanotechnology, 3D printing, genetics and robotics, just to mention a few, are radically altering the labor market landscape. The study "The future of employment: how susceptible are jobs to computerization?" has concluded that by the year 2033, 47% of the jobs in advanced economies are at "high risk" of being automated (Frey and Osborne, 2013). In 2014, 88% of the companies participating in a study conducted by Altimeter Group

(Digital Transformation Survey) claimed to be undertaking a digital transformation effort (Solis and Szymanski, 2014). Big data analysis, digitalization and robotization are enforcing the automation and substitution of human workforce in areas such as logistics, paralegal contract law, patent law tasks, accountancy, transport, manufacturing work, housekeeping, healthcare, as well as some highly skilled medical tasks; just to name a few (Pérez Alonso and Frutos Rodríguez, 2017). In contrast, tasks with a high demand in creativity (e.g. industrial design), social intelligence (e.g. negotiations), perception and manipulation (e.g. surgery) will low-risk of being automated. However, many jobs as we know them today will disappear or change dramatically.

Educational institutions must react to these trends and adapt their formation in order to provide their students with the adequate skills for future jobs. Upcoming job profiles and the required skills have also to be identified. Hence, the impact of technological innovations on the employment market has to be analyzed.

The present article explores the role of the fourth industrial revolution in transforming the labor market, leading to demand in new professional skills and the digitalizing of jobs done traditionally by the workforce. A further aim is to analyze professions that will be in the future in high demand, and which skills will be required to fulfill those roles that are not automated. Additionally, the article attempts to offer a thought-provoking impulse to reflect on how universities can prepare students for employment in companies, including for possible functions that do not exist yet, using technology that has not been yet been invented and to solve problems which, up to now, we did not face.

The proposed methodology is firstly an analysis of literature on the impact of digitalization on the labor market of a handful of selected industries experiencing the digital revolution. Secondly, a survey of university professors is conducted and curricula of universities is evaluated in order to analyze how the universities are facing the digital trends and how professors are reacting in order to prepare their students for these trends. Based on the results, a skill portfolio to fulfill the requirements of the labor market in 2020 was created. Furthermore, a call of action to the higher education sector was made, to encourage universities to prepare future graduates for the new labor market reality.

The article consists of three parts; the first part the literature review on mega trends and technological changes and their impact on work in different industries, the second part describes the methodology of the research, the analysis of interviews and the content of curricula of universities. The article ends with a discussion and conclusions.

1 Literature review
2.1. Mega Trends and Technological Changes
Megatrends are defined to be transformative and global forces that shape our future world with their impact on business operations, societies, economies, cultures and personal lives (Frost & Sullivan Consulting, 2015). According to McKinsey, our world today is undergoing a dramatic transition due to the influence of four fundamental disruptive forces: urbanization, accelerating technological changes, challenges of an aging world and greater global connections.

The first trend is that the main economic activities have shifted to emerging markets like China and their economic centers. McKinsey forecasts that by 2025, more companies will set up subsidiaries in China than have headquarters in the US or Europe. The second force involves the increasing technological impact on using information and communication technology.

The third disruptive force highlights that the human population is getting older and the fertility rate especially in developed countries is decreasing. According to the European Commission, Germany's population, for instance, will decrease by one-fifth in 2060 and the number of inhabitants that at a working age will fall from 54 million in 2010, to 36 million in 2060. The fourth disruptive force indicates that the world is much more connected through trade and movements in capital, people and information due to the development of ICTs (Dobbs et al., 2015).

In general, social and demographical trends have a significant impact on the labor market. The nature of work will change as people demand more flexible work times. The middle class in emerging markets will increase, providing more and more well-educated young people (World Economic Forum, 2016). However, developed countries are facing an increasingly aging society (Dunne, 2016). In developed countries five generations on the labor market can be identified: Traditionalist (born mid 1920 - 1945), Baby Boomers (born 1946 - early 1960s), generation X (born early 1960s – early 1980s), generation Y (born early 1980s – mid 1990s) and generation Z (born mid 1990x – present) (Lulu, 2015). By 2020 however, 50% of the workforce will be generation Y (also referred as millennials) and generation Z that already grew up with new technologies (Morgan, 2014). According to surveys conducted by respected organizations, such as Cisco, Pew Research, Time, Bentley University and Deloitte, millennials are assumed to have different attitudes and expectations on their future work.

The majority believes that office attendance is unnecessary on a regular basis, only 20% think that they can trust their leaders and 40% say that they should be promoted at least every second year. Furthermore, 84% of millennials say that making a difference in the world is very important for them and 92% think that businesses should be measured by more than profits (Apfelthaler, 2016). Besides, millennials will more likely change their employers several times and engage in a lifelong learning in order to fulfill future job requirements. Most millennials are presumed to embrace an intrapreneurial style of work. Intrapreneurs prefer a workplace supporting creativity and autonomy. Additionally, intrapreneurs are usually highly self-motivated, proactive and action-oriented people who are comfortable with taking the initiative, even within the boundaries of an organization. Intrapreneurs are presumed to play a major role in the future success of companies` (Investopia, 2016). Hence, in the future there will be also an increasing war of talented people that supply entrepreneurial thinking as well as other skills that contribute highly to the success of future business

operations (McKinsey, 2011).

McKinsey has said that we are facing an accelerating technological impact on our social life using information and communication technology (Dobbs et al., 2015). Besides, Frost & Sullivan think that this impact results in a connected living containing a connected home, a connected work and a connected city. A world in which ICT services provide access and ubiquitous connectivity anytime and anywhere (Frost & Sullivan Consulting, 2015). Consequently, digital transformation effects almost every area of our lives. We are nearly permanently connected with new technologies through our smartphone, tablets, computers and other mobile devices.

On the one hand, these new technologies allow us to have access to a broad range of services like chats, online shopping, online banking, flight and holiday bookings and e-tickets that make our private shopping more comfortable. On the other hand, new technological opportunities and innovations provide new possibilities for companies to support their business operations in human-to-human, machine-to-machine and machine-to-human communication and interaction (Roth and Armin, 2016). The digitalization offers opportunities for new business operations, however it also brings along many challenges for current businesses to ensure their future competitive ability. Consequently, companies must adapt their strategic orientation to this trend and to prepare their processes and employees for upcoming technologies.
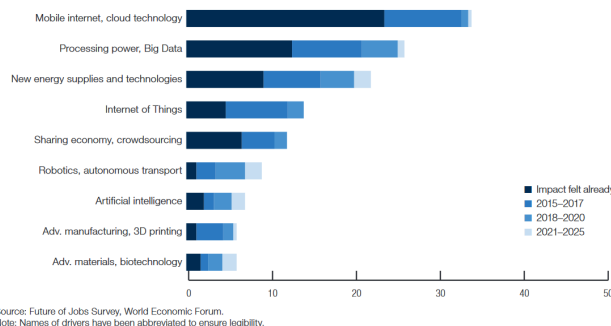

Figure1: Technological impacts on the labor market
Source: World Economic Forum, 2016

Among demographic and socio-economic trends, technological innovations transform industries and business models, change required skills and shorten the shelf-life of employees' existing skill sets. Figure 1 shows technological innovations which will be drivers for the transformation of the labor over the next decade. Mobile internet and cloud technologies already have a significant impact on the labor market. In 2015 Internet of Things, for example, had a minor impact in comparison to the other trends, however, it is assumed that soon the Internet of Things will greatly affect the labor market, especially in industrial countries (World Economic Forum, 2016).

Out of twelve trends that will shape our near future Frost & Sullivan, among others, highlight "Connectivity and "Convergence" that, will also have a significant impact on the European economy. The study especially claims that future markets, as well as factories, become

more connected due to the technological development and improvement in the internet-related communication speed. Following this trend several initiatives have been established in Germany as the fourth industrial revolution takes place, to create an approach on specifically how German companies can prepare themselves for a connected world. Therefore, we are convinced that also educational institutions have to react to this trend and prepare their students for the new industrial revolution (I4.0) in order to ensure Europeans' competitiveness on global markets (Frost & Sullivan Consulting, 2015).

After the invention of steam power units (first revolution), introduction of mass production using electrical energy (second revolution) and employment of electronics and information technology for automation (third revolution), today the world is facing the fourth industrial revolution - the digitalization of the world. The fourth industrial revolution involves the connectivity of all human and mechanical actors over the complete value chain as well as the digitalization and real-time analysis of all relevant information for this purpose. The idea is to create processes that are more efficient and transparent and to optimize the customer value by using intelligent products and services (Roth, Armin, 2016).

The term "Industrie 4.0 (I4.0)" was established in 2013 by the German government as an initiative to ensure Germany's future competitiveness as a production location for high-tech products. China as well as India has registered many patents in basic technologies for industry 4.0. The Chinese are aiming to become the global technological leader. Additionally, the US invests a huge amount of money in its re-industrialization project "advanced manufacturing". Consequently, the Forschungsunion stated in 2013 that production facilities in Europe especially in Germany can only be protected by developing intelligent production systems using cyber physical products (Kagermann et al., 2013).

The usage and analysis of large amounts of data, the employment of sensors, robots and new technologies like the 3D-printing offer new opportunities to increase the overall productivity of a production system. Therefore, new working approaches are required over three central components of production systems: techniques and methods (processes and resources), management (organizations and performance measurement) and human beings (skills, mindset and behavior) (Behrendt and Andreas, 2017).

Furthermore, industry 4.0 intends to improve the productivity and efficiency over the overall value chain. The intention of the initiative is to create more demographical and socially sensible work places. I4.0 is not projected to only reduce manual workplaces, but to create new jobs that are more flexible and less physically-exhausting. The tasks and competence profiles of employees that will work in so called "smart factories" will change strongly (Kagermann et al., 2013). During previous industrial revolutions, changes in the education methods have often taken decades in order to provide workers and students with new major skillsets.

However, the fourth industrial revolution involves disruptive changes and require a fast adaption. It is

expected that by 2020, on average a third of the currently desired core skills sets of most occupations will be comprised of skills not yet considered crucial to the job today (World Economic Forum, 2016). Therefore, adequate qualification strategies and learning working organizations are required to provide their employees with on the job trainings.

2. Transformation of the Labour Market

A study conducted in 2013 by Frey C. B and Osborne M. A. shows that 47% of the jobs then were in advanced economies were at high risk of being automated in the coming decades. New technological trends like big data analysis, digitalization and robotization are accountable for automating an increasing number of jobs, replacing human workforces in many areas. The computerization on labour markets will cause a decline of employment in routine and intensive tasks.

In the past, computerization has been just supporting routine tasks involving explicit rule-based activities, however new algorithms for big data are now rapidly entering domains reliant upon pattern recognition and will substitute human labour within a great range of non-routine tasks. Advanced robots, for instance, can perform a broader scope of tasks that leads to radical changes of jobs across industries and occupations. According to the Frey and Osborne study, most workers in the transportation and logistics sector, as well as office and administrative support worker and labour in production jobs are at risk (Frey and Osborne, 2013). Controversially, business and financial operations supported by computer and mathematical functions are predicted to rise (Dunne, 2016).

According to the World Economic Forum the highest level of skills stability over 2015-2020 is found in the media, entertainment and information sector, whereas a large amount of skills disruption is expected to happen in the banking sector, industry, infrastructure and mobility (World Economic Forum, 2016). Based on that, it is assumed that low-skill workers in these industries have to retrain and relocate to tasks that are non-susceptible to computerization. It is argued that with the declining prices in computing, problem-solving skills are becoming more important. This indicates that a future workforce must deal with more cognitive tasks (Frey and Osborne, 2013).

The World Economic Forum pointed out that 65% of children entering primary schools today will work in occupations that do not exist yet. Besides, due to connectivity and convergence, our future work places are predicted not to be only in real offices; interconnected workplaces involving virtual conferencing, complete and constant connection and portability will be established. A survey conducted by the World Economic Forum shows that new technologies enabling remote working, co-working space and teleconferencing are the main drivers of future work places (Dunne, 2016).

Besides, in 2013 Frey and Osborne investigated 702 detailed occupations and their probability to be substituted by computerization (Frey and Osborne, 2013). Based on this study and further findings, Table 1

highlights the main jobs that are of high risk of substitution, as well as future jobs that offer great opportunities in several industries.

Table 1: Jobs at high risk vs. future jobs

Jobs at high risk	Future jobs
• Cargo and Freight Agents • Bookkeeping, Accounting, Auditing Clerks • Administrative occupations (e. g. Order and Procurement Clerks) • Office Clerks (e.g. Telephone Operators, Postal Service) • Paralegals and Legal Assistants	• Human Resource Managers • Marketing and International Sales Managers • Database Administrators • Computer and Information Systems Manager/Administrators • International Consultants • Training and Development Managers • Computer System Analysts • Industrial-Organizational Psychologists • Data Scientists/Analysts • Social Media Managers Network and Computer Systems Administrators

Source: Frey and Osborne, 2013

Due to the computerization and other trends, the employment market is facing drastic changes; jobs will become obsolete and new work places that require new skill sets will be established. Higher education is intended to prepare students to be able to work not just in one industry, but to give students a knowledge about the processes in different industries. Hence, in the following chapters the impact of digitalization on selected business sectors is described shortly.

According to a survey conducted by A. T. Kearney, advanced robots, for instance, will be able to perform a broader scope of manual tasks and jeopardize many professional groups. Within the next two decades 42% of all jobs in manufacturing in Germany are in danger. However, smart factories provide greater opportunities for production controllers and planners (Lakner et al., 2015). The study also shows that manufacturing businesses are engaging more into research and development collaborations with suppliers as well as competitors, to create new innovations (Lakner et al., 2015).

This will entail the establishment of international work offices, where people from many different countries and cultures are speaking different languages, having different working behaviours and interests work together.

Additionally, by using modern ICT and by developing the speed of the internet, manufacturing companies will be able to create real-time communication and connectivity with worldwide subsidiaries. All the mentioned facts result in totally new workforce requirements. Jobs at high risk and future jobs related to the industry sector are summarized in appendix A1. Equipment assemblers, all kind of production workers, as well as automotive repairers and car dealers are assumed to be at high risk of substitution, whereas there is a great need for production supervisors, controllers and planners, as well as all kind of engineers

in the future (Frey and Osborne, 2013).

2.2.1. Banking and Financing

Accenture Consulting claims that the organizational philosophy in the banking and financing sector will shift from product-oriented to customer-oriented strategies.

Therefore, banks and other institutions will have to integrate and adopt new technologies in order to develop the ability to engage with customers anywhere and anytime. Even though the majority of banks still have many branches, the digitalization of the industry has already begun. Today the banking sector uses different digital and mobile technologies to diversify their distribution channels and to increase the customer's satisfaction (Accenture Consulting, 2017).

The future human work will possess a broad knowledge in technologies combined with the ability to sense and understand the customers (Ian, 2014). Moreover, another study from The Economist shows that financial institutions have to redefine their business models and strategies to keep up with the exponential pace of technological development in the banking industry (The Economist, 2016). Jobs at high risk and future jobs related to the banking and financing industry are summarized in appendix A1.

Loan officers, receptionists and information clerks, as well as personal financial advisors are assumed to be at high risk of substitution, whereas there is a great future need for user experience designers, behavioural psychologists and telematic specialists (Frey and Osborne, 2013).

2.2.2. Insurance

Demographical trends indicate that people are now living much longer. Consequently, the amount of pensions being paid out is increasing as well. Therefore, the next generations will struggle to pay these pensions adequately. Besides, our population is facing a social trend that nowadays people are interacting much less face-to-face with each other and communication is mostly done via modern technologies.

These trends are also shaping the global insurance industry. Businesses have to integrate social media platforms like Facebook and other innovative technologies in their communication strategies, as most of Gen Y and Gen Z are present on these platforms. In addition, it is presumed that future jobs will require the ability to navigate in these virtual environments that social media platforms provide (PWC, 2017). Telematics specialists are believed to come on the market. It is believed that by 2020, 10% and by 2030, half of world's vehicles will be equipped with telematics policies (Ralph, 2016).

Moreover, a study from the Insurance Information Institute shows the trend of a "Sharing economy" becomes popular. There are several risks associated when people share things such as cars or rent a flat or a room to strangers. Things can break down, accidents can occur or something can get stolen. It can be difficult to define who can be held responsible for such causes. The need for insurances that are specifically designed to cover the damages of such unforeseen events will increase. Consequently, insurers will need workers that have good problem-solving skills to find profitable insurance solutions for such events (Insurance Information Institute, 2016). Jobs at high risk and future jobs related to the insurance industry are summarized in the appendix. Personnel, for instance, insurance advisors are assumed to be at high risk of substitution, whereas there is a great need for risk analysts, reputation builders and cyber insurance providers (Frey and Osborne, 2013).

2.2.3. Commerce

The forth industrial revolution is not only influencing classic industrial sectors (e.g. the automobile industry), but also other industries that are a part of our daily lives.

The retail sector is today one of the most dynamic and changing sectors. New trends and technologies have already resulted in major changes in the business. For several years, the e-commerce and m-commerce (use of mobile devices) have become increasingly important in retail companies' business model. Additionally, other factors, such as big data, apps and intelligent products are influencing business (Hamburgisches WeltWirtschaftsInstitut gemeinnützige GmbH, 2015). Existent retail stores are modernized, upgraded with new information and communication systems and connected with the virtual world.

Additionally, in the last few years, we observe that retail companies establish multiple channels to communicate and interact with their customers. This trend, the integration of the physical and the virtual world is expected to continue. Retail companies' business models need to be adapted to these dynamic changes. Furthermore, this change and integration of new technologies and systems are also a challenge for the human work force of the affected companies. The work force must adapt their skill sets to new requirements directed by the commercial sector's use of new technologies and new business models (Hamburgisches WeltWirtschaftsInstitut gemeinnützige GmbH, 2015). Jobs at high risk and future jobs related to the commerce industry are summarized in appendix A1. Retail salespeople, telemarketers as well as library technicians are assumed to be at high risk of substitution, whereas there will be a great need for user experience specialists and virtual shopping advisors (Frey and Osborne, 2013).

2.2.4. Transport and Traffic

Today the transport and traffic sector, including the logistic branch is already highly competitive. The intense competition can be explained by huge overcapacities and many different actors on the market. Due to new regulations, e.g. concerning emissions and the introduction of new, innovative technologies like 3D-printing, mobile devices and autonomous driving, amongst others, the branch will change significantly (Deutsche Post AG, 2012). Amazon, for example, is already a game changer in the market as it tries to cover the whole transport chain.

This new business model is sustained by investing in means of transport (e.g. ships, planes, drones) and in transport infrastructure (such as logistic centres and airports) (Spiegel Online, 2017). The changes in regulations, use of technologies and business models especially effect the employees in this branch. The field of operations will change as well. Thanks to increased

automation and digitalization, the tasks of the employees will change and therefore, the necessary skill set will also change (Dalziel, 2013). Jobs at high risk and future jobs related to transport and traffic industry are summarized in appendix A1. Packaging and filling machine operators, shipping, receiving and traffic clerks, bus drivers, train drivers and various other jobs are assumed to be at high risk of substitution, whereas there will be a great need for air traffic controllers and all kind of engineers that develop systems for autonomous driving (Frey and Osborne, 2013).

2.2.5. Information and Consulting

Today the information and consulting business is becoming more and more important, new consultancies are founded and the specialization of companies is increasing. Particularly, the market for IT-consultancies is increasing (cf. the other industries described in this article). Digitalization is moving into traditional and new, innovative consultancy businesses. Due to this trend, the business models of the consultancy's customers are changing.

This means also that the information and consulting industry has to change to become more flexible and adaptable. The customers' views on services have also changed in the last number of years, and are still changing. Today it is not sufficient to have (nearly) standardized tools and/ or solutions. The consultancies must deliver more individualized results for smaller projects (Braun, 2015).

The "new" virtual world is having a great impact; it is becoming normal to work in globally spread (project) teams and to work together in a virtual world. In some industries, especially consultancy that is built on trust and personal contact with the client, this trend means a big change in thinking and attitudes (Cecere, 2016). Future jobs related to information and consulting industry are summarized in appendix A1. It is assumed that there will be a great need for software and system developers, commercial and industrial engineers, statisticians, survey researchers, management, business and financial analysts (Frey and Osborne, 2013).

2.2.6. Tourism, Hospitality and Healthcare

Following the technological changes and demographic developments, a series of new skills in the tourism, hospital and healthcare industry will emerge, whereas some jobs are in danger of becoming obsolete within the next decades. Not only will new jobs be established, but in most cases the job profiles of current jobs in these industries will change drastically. New profiles related to the application of the latest ICT will be established.

This does not mean that certain professions will disappear, but many of them will be transformed. Administrative tasks, for instance, will be more and more automated. In exchange, consultancy, excellence in treatment, customer adaptation and other interpersonal tasks will be stressed. The change will have to take place at all positions and professions in tourism, hospitality and healthcare.

In general, specific characteristics like productivity, empathy, efficiency, languages, teamwork, adaptation to continuous change, orientation to results, and

technology as a basis of day to day tasks and services are going to gain importance in these business sectors (Canalis, 2012). Jobs at high risk and expected future jobs in tourism, hospitality and health industry are summarized in appendix A1. Telephone operators, travel agents, receptionists are assumed to be at high risk to be substituted, whereas there is a great need for recreational therapists, mental health and healthcare workers, social workers, psychologists and many other jobs in the future (Frey and Osborne, 2013).

2.2.7. Entrepreneurship and Green Jobs

Digitalization offers great opportunities for entrepreneurships. Since new technologies offer great opportunities for innovations and ideas, new jobs in entrepreneurship are assumed to be established. There will be a call for green entrepreneurs that deal with environmental issues and work to keep our planet healthy and sustainable.

Furthermore, within the last number of years, a new business model called "social entrepreneurship" emerged globally, which involves businesses with governmental and social organizations. Social entrepreneurships are especially focused on environmental and social issues (Gore, 2017). Besides, the demand for jobs dealing with topics like innovation to zero, green innovation and economy will increase. Innovation to zero is a mega vision driven by companies and governments that should enable zero carbon emissions and carbon-neutral cities (Frost and Sullivan, 2012). In order to reach such a mega vision, the demand for jobs like environmental scientists and consultants, agricultural engineers, climatologists, bioinformatics and archaeologists, just to name a few, will increase steadily (Profita, (2016).

2.2.   Skill Portfolio for University Trainings

Institutions in higher education must adapt their curricula and their teaching methods to react particularly to the demographic, social and technological changes presented in the previous chapters. Some jobs will become obsolete, additionally; present jobs as well as new jobs will require new skills sets. Consequently, this chapter examines how universities are supposed to react to these changes and what future skill portfolios university trainings should cover.

2.2.1.   Education

Education is vital for businesses because it concerns concrete goals, such as to maintain economic growth. Today, for many universities it is a huge challenge to not only offer a qualitatively high level of education, but even enhance it steadily, as in the past decade the developments are becoming more dynamic and numerous.

To emerge, the higher educational institutions will have interactive learning which means textbooks will be supported using databases and other online tools. The integration of new technologies and pedagogies needs to be placed at the heart of institutions' teaching and learning strategies, and they should become an integral component of everyday institutional business. Institutional leaders need to consistently communicate the expectation that all staff – while recognising the scope for doing so will differ across disciplines – must

become more active, skilled and experienced in using new, innovative pedagogical tools and provide the support they need to meet that expectation.

Institutional strategies should set out a coherent framework for the development of new modes of delivery as part of an institution's offering, the embedding of innovative technologies and pedagogies in curricula, and the provision of appropriate training for academic staff and students (European Commission, 2014).

Economic growth is strongly affected by the skills of workers. To ensure that the future labour force will be knowledgeable it is essential that universities consider the emerging trends presented in the previous chapters when they update their teaching methods and contents (Daggett, Bill (2014).

Education is a key priority under the European strategy "Horizon 2020" formed in 2010 that comprises a budget of 3% of EUs GDP (FFG, 2017). All EU member states must ensure the quantity and quality of foreign language as a vital instrument for the future labour markets as the command of different languages can ensure competiveness. Besides, students have to be trained in the usage of different information and communications technologies.

Therefore, programs are created that should support universities and students to gain the skills that the dynamic labour markets of the furture requires (Eurostat, 2016). Programs like Erasmus plus, EuroSkills, INTERREG EUROPE, SaveComp, GLOBE Cosme and FFG in Austria are financed within the Horizon 2020 strategy.

2.2.2. Skill Portfolios

Niclas Schaper stateed in his study on the German educational system, that the aim of higher education is to provide students with an "able to act professional education". All learning processes should be targeted to typical phases of actions like informing, planning, decision making, controlling, evaluating and reflecting. The Bologna-process itself defined four different types of competences that students should gain during their education (Schaper et al.,N., 2012):

- **Professional competence:** includes specific skills and abilities that are required to do a certain job (understanding procedures, application of knowledge, analytical skills)

- **Methodological competence:** comprises cognitive and metacognitive skills (problem solving, decision making or self-organized learning) that are necessary to solve complex problems

- **Social competence:** involves knowledge and abilities to realize aims and plans in social interactions, featured by communicative and cooperative behaviours towards other people

- **Personal and Self-competence:** includes personal disposals like attitude, values and motives that influence the working behaviour as well as skills for self-perception (reflection of own skills) and self-organization (time management)

Table 2: Competence portfolios based on the four basic competences

Group of Competences	Competences	Group of Competences	Competences
Professional Competences	• Language Skills • ICT Literacy • New technologies (e. g. electronics, IT) • Governance, Risk Management, Compliance • Entrepreneurial skills • Analytical skills (e.g. statistics)	**Methodological Competences**	• Complex problem solving • Cognitive skills • Savvy in technologies • Creativity • Interdisciplinary skills • Critical thinking Change management and adaption skills
Personal and Self-Competences	• Time management • Knowledge in psychology and body language • Dealing with persistent and pressure • Emotional Intelligence • Judgement and decision making • Intrapreneurial skills.	**Social Competences**	• Interpersonal skills (empathy) • Communication skills • Intercultural skills • Virtual collaboration • Coordinating with others • Open-mindset • Negotiation Skills • People management skills • Ethics and social responsibility • Service orientation

Source: Schaper et al.,N., 2012

In general, training at educational institutions should ensure students acquire these four competences which are valid for every type of study. Consequently, the competence portfolio that is presented in Table 2 is based on these competence areas that comprise all the analyzed skills demanded by future labour markets shaped by an increasing digitalization.

Additionally, the World Economic Forum created a broader skills portfolio called "core work-related skills" that is based on the O*NET Content model and shown in appendix A1. In general, the model that was created by the World Economic Forum differentiates between abilities, basic skills and cross-functional skills (World Economic Forum, 2016). Based on the skills mentioned in the competence portfolio developed by Sharper and

the core-work related skills from the World Economic Forum, the authors have created a new skill portfolio that comprises the other theoretical findings of required skills and the defined skills from the World Economic Forum.

The new skill portfolio is shown in figure 2 and focusses on the skills that graduates from each type of study should have in the year 2020 in order to supply the demands of the labour market in 2020. The presented skill portfolio also serves for the curricula comparison in the following chapter.

Abilities are defined as enduring attributes of the individuals that influence performance. Cognitive skills comprise cognitive flexibility, creativity, logical reasoning, complex problem solving, mathematical reasoning, visualization, and troubleshooting as well as analytical skills like statistics (World Economic Forum, 2016). Personal and mental abilities are a new skillset

that was added by the authors. A basic knowledge in psychology, the control of body language, resilience and entrepreneurial skills are defined by the authors to be essential skills that university students should acquire during their education.

Besides, basic skills are developed capacities that facilitate learning or the more rapid acquisition of knowledge: content skills like active learning, oral expressions, reading comprehension, written expression as well as ICT literacy. ICT literacy means that students should be trained to use and apply different information and communications technologies. ICT literacy is also a main goal under the EU Horzion 2020 (Eurostat, 2016). Process skills including active listening, critical thinking, self monitoring, as well as interdisciplinary skills are very important basic skills students have to learn (World Economic Forum, 2016).

Abilities	Basic skills	Cross-functional Skills	
Cognitive skills	**Content skills**	**Social/Interpersonal skills**	**Resource management skills**
Cognitive flexibility	Active learning	Coordinating with others	Managem. of financial ressources
Creativity	Oral expression	Emotional Intelligence	Managem. of material ressources
Logical reasoning	Reading comprehension	Negotation	People management
Complex problem solving	Written expression	Persuasion	Time management
Mathematical reasoning	ICT literacy	Service orientation	
Visualization		Training and teaching others	**Technical skills**
Troubleshooting	**Process Skills**	Ethics and social responsibility	Equipment maintenance and repair
Analytical Skills (statistics,…)	Active listening	Virtual collaboration	Equipment operation and control
	Critical thinking	Communication skills	Programming
Personal/mental abilities*	Monitoring self and others		Quality control
Knowledge in psychology	Interdisciplinary skills	**System skills**	Techn. and user experience design
Body language		Judgement and decision making	New technologies (ICT, etc.)
Resilience		System analysis	
Intrapreneurial skills		Change mangement and adaption	**Intercultural skills***
		Goverance, risk management	Language skills
Legend		Compliance	Open mind-set
Added skills		Entrepreneural skills	
*added skill sets			

Figure 2: Skill portfolio for university trainings,
Source: World Economic Forum, 2016

The cross-functional skills are defined as entry requirements for developed capacities that facilitate performance of activities that occur across jobs. That is why social skills like coordinating with others, emotional intelligence, negotiation and persuasion skills, service orientation, training and teaching others belong to cross-functional skills. Social skills were also expanded by the authors by adding ethics and social responsibility, virtual collaboration as well as communication skills. System skills like judgement and decision making, system analysis as well as change management and adaption, governance, risk management, compliance and entrepreneurial skills are defined by the authors to be important cross-functional skills.

In addition, the management of financial and material resources and time management are summarized under the term resource management skills. Basic technical skills are further important cross-functional skills involving equipment maintenance and repair, equipment operation and control, programming, quality control,

technical user experience design as well as the knowledge of new technologies (Grey, 2016).

Following the trend of connectivity and convergence, global business interactions increase. Therefore, students at universities are advised to learn basic intercultural competences like an open-mindset as well as foreign languages. For example, the EU provides various programs like Erasmus+ to support European students to develop intercultural skills (European Commission, 2015).

Besides, listing a broad range of skills that graduates of universities should have in 2020, the World Economic Forum defined (based on surveys with chief human resources and strategy officer from leading global employers) the top ten skills in 2020 and how the importance ranking of these skills changed compared to the year 2015 (the information in the bracket is based on the comparison of the skills ranking between 2015 and 2020):
1. Complex problem solving (#1 no change)

2. Critical thinking (#4+)
3. Creativity (#10+)
4. Leadership skills (#3-)
5. Coordinating with others (#2-)
6. Emotional intelligence (new)
7. Judgment and decision making (#8+)
8. Service orientation (#7-)
9. Negotiation (#5-)
10. Cognitive flexibility (new). (World Economic Forum, 2016)

Creativity is assumed to become one of the top three skills. Future workers have to be more creative in order to develop new products, services, technologies and new ways of working. Complex problem solving is seen as the most important skill enabling future workers to deal with complex issues that future megatrends will bring up. Critical thinking, as well as judgment and decision making are seen to be much more important skills in 2020 than in 2015. Besides, emotional intelligence as well as cognitive flexibility is evaluated to be under the top ten skills in 2020, even though these skills were not seen to be that important in the past (Grey, 2016).

It is recommended that universities adapt their trainings to integrate all the skills mentioned in the skills portfolio. Furthermore, they should focus their trainings on the top-ten skills to prepare students with the best education for the job market in the future.

3. Methodology and analysis of results

3.1. Explorative qualitative interviews

Based on theoretical findings, an expert survey was conducted in Austria, Latvia and Spain, with the intention to analyze how university professors train their students for future workplaces. Furthermore, the aim was to find out if the university professors are aware of the skill sets that students have to acquire in order to fulfil the requirements of the future job markets. Therefore, a semi structured interview guide was created. Each student group conducted four to five expert interviews with professors of their university in Austria, Latvia and Spain.

Besides the evaluation of the content of university curricula in the next chapter, the project team decided to conduct an expert interview of professors of their university. Professors are involved in the creation of the university curricula, and can give a deeper insight into the content and teaching methods of the courses. The semi structured interview guide was designed specifically for this project and is presented in the appendix A2. Since only 14 expert interviews are conducted from four different universities the survey cannot claim representatively and only gives an insight in the opinion of questioned professors. In order to get representative results, further investigations have to be done with a much higher sampling size.

Table 3: Survey design

Characteristics of Survey	Description
Interviewee Selection Criteria:	• University professors from Austria (FH Joanneum), Latvia (Ba School of Business and Finance) and Spain (University of Girona and Zaragoza) • Professors of business related studies (e.g. Economics, Business Administration, Marketing, Psychology, QM, Entrepreneurship)
Questioning Techniques:	Open, single and multiple choice questions
Interview Duration:	20 minutes

3.2. Analysis of interviews

The results of the survey are structured into general information about the university, teaching methods, adaption of teaching methods, new skills/jobs in 2020 and personal trainings.

3.1.1. General information about the university

Most universities adapt the curricula of the study programs every five to six years, whereas two Spanish professors stated that their universities change the curricula only every 15 years. New trends, student feedback, companies' feedback, new technologies, new laws and adaption to the European system (Bologna process) are named to be the main reasons for the adaption of the curricula. According to most professors, companies, head of departments and professors are highly involved in the adaption process, whereas students, student councils, the rector of the university as well as the head of department play a minor role in this process.

Benchmarking with other universities, EU/state requests, recommendation of the accreditation committee, interviews/feedback with companies, recommendation of own researches and professors as well as interviews with students are the main information sources for the adaption process. Besides, each university offers their students the possibility to conduct projects with companies. In three out of the four universities, it is obligatory to do an internship within the undergraduate programs and they also provide services like job portals, career centres, seminars to support the students to find an internship.

3.1.2. Teaching methods

Case studies, group works and projects, basic lectures, guest lectures from companies, assignments, excursions and students' presentations are the main teaching methods the questioned professors use in their courses. Computers, videos, audios, podcasts, virtual platforms and computers are the main technologies professors use in their classes.

However, only some have also mentioned the use of virtual games and business simulations to train their students' analytical skills. Each professor uses books as supporting materials and the most part of the professors also use articles and papers. Some use flip charts, games, white boards and real product examples for their trainings. Eight out of fourteen professors assign more subject specific tasks to their students, three said that interdisciplinary tasks are more important and another three professors use subject specific as well as

interdisciplinary tasks in their classes. Furthermore, the most part of the questioned professors hold classes in English.

3.1.3. Adaption of the teaching methods

Ten out of fourteen professors update their teaching methods and content every year and the others between two to three years. Conferences and seminars, workshops, online publications, books, papers, companies' projects, other universities, other professors, professional journals, social media, own innovation institute (ICE) as well as webinars, are the main sources where professors look for new contents and methods for their trainings. Professors adjust their teaching methods and contents based on the outcome of these sources like new trends, new technologies, latest researches and publications as well as own experiences, feedback of the professors, students and companies.

3.1.4. New skills/jobs in 2020

Most professors stated that jobs where social, technical and ICT skills are greatly needed will be highly-demanded in 2020. Some mentioned that those jobs will have a greater international focus and will deal with more interdisciplinary topics than they do today. Specific jobs like data scientists, financial and business analysts, all kind of engineers, psychologists are mentioned.

Whereas, jobs that do not require specific trainings, jobs that can be substituted by computers and robots, too specific jobs, routine jobs, basic manual assembling jobs in manufacturing and administrative jobs like bookkeeping are stated to be at high risk of substitution in 2020. By asking the professor an open question about the most important skills that their graduates should acquire by 2020, a ranking of top ten skills could be made that is shown in table 4. Analytical skills were mentioned by the professor to be the most important skill that should be acquired during training at the University, followed by cognitive skills, social skills, emotional intelligence, technical skills, creativity, ICT literacy, intercultural skills, critical thinking and interdisciplinary skills. Some professors said that there will be no change in the required skills from today to 2020. Others however said that self-evaluation and -development, flexibility and adaptation, critical thinking, creativity, and especially analytical skills will become more important in 2020 than they are today.

Table 4: Top ten skills ranking in 2020 (open questions)

Ranking	Skill	Ranking	Skills	Others skills	
1	Analytical skills	6	Creativity	Self-evaluation	Active learning
2	Cognitive skills	7	ICT literacy	Business ethics	IT collaboration
3	Social skills	8	Intercultural skills	Flexibility, adaptation	Proficiency in English
4	Emotional intelligence	9	Critical thinking	Language skills	Communication skills
5	Technical skills	10	Interdisciplinary skills	Negotiation skills	Market knowledge

Professors were asked to rank a broader range of skills based on the skill portfolio presented in chapter 4 according to their importance. Thereby social skills are evaluated by the professors to be the most important skill, followed by cognitive skills, personal/mental abilities, process skills, system skills, technical skills, content skills, intercultural skills and resource management skills. The ranking is shown in table 5.

Table 5: Skills ranking based on the skill portfolio

Ranking	Skills	Ranking	Skills
1	**Social skills** (e. g. negotiations, emotional intelligence)	6	**Technical skills** (e. g. new technologies, programming)
2	**Cognitive skills** (e. g. creativity, analytical skills)	6	**Content skills** (e. g. ICT literacy, active learning)
3	**Personal/Mental abilities** (e. g. dealing with pressure and persistence)	8	**Intercultural skills**
4	**Process skills** (e. g. critical thinking)	9	**Resource management skills** (e. g. time management)
5	**System skills** (e. g. decision making, entrepreneurial skills)		

Active and self-directed learning methods, case studies, assignments, student's self-reflections, discussion about current issues, teaching psychologic aspects and problems, application of specific analytical software and topics, group works, English classes, students' presentations are methods used by the interviewed professors to support their students to acquire the demanded skill portfolio by 2020.

3.1.5. Personal trainings

Professors attend educational seminars, conferences,

webinars, read books, articles, papers, maintain a broad social network to other professors, use social media platforms like LinkedIn and conduct own researches to educate themselves to provide the students with the latest knowledge. Most professors attend trainings and seminars at least twice a year and mostly to topics like

ICT, leadership, change management, language trainings, new teaching methods and skills evaluation. Half of the professor also gives talks at other universities about interdisciplinary skills, leadership, emotional intelligence, international human resource management, marketing and market research and entrepreneurship.

3.2. Curricula Content Evaluation

Using the skill portfolio deduced from the theoretical findings, ten university curricula from bachelor studies were evaluated to analyze if the universities offer trainings that help students to acquire the necessary skillset. The aim was to analyze gaps between the trainings provided and the skill portfolio demanded by the companies. Every year The QS World University Rankings ranks the best university worldwide involving over 900 universities in 80 states. The rankings are intended to help prospective students to make informed comparison of leading universities around the world based on rankings compiled using four sources (academic reputation, employer reputation, research citations per paper, H-index). According to the ranking, the top five universities in Europe are University of Cambridge, University of Oxford, UCL (University College London), ETH Zurich (Swiss Federal Institute of Technology) and the Imperial College of London (QS World University Rankings 2016/17). Consequently, the curricula from the University of Cambridge serves as a benchmark for the evaluation.

Furthermore, three curricula from bachelor degree programs were taken from Austrian universities, three from Latvian and three from Spanish universities. Austrian and Spanish degree programs last three years and Latvia and the Cambridge ones four years. However, the different length was not considered in the comparison. Additionally, no focus was laid on a special subject of studies, mainly business and technical related study programs were evaluated. The evaluation of the university curricula was based on information on the website, university brochures and the questioning of students that have attended the specific study program. Each student group could evaluate the content of the curricula based on the extent the required skills defined in the skills portfolio have transferred - *Social Skills, Technical Skills, Personal/Mental abilities, Cognitive Skills, Content Skills, Process Skills, System Skills, Resource Management Skills, and Intercultural Skills.*

Therefore, grades from 1 (very poor) to 5 (very good) could be assigned. Based on the evaluation, an average rating was analysed on how all university curricula transfer the required skills to the students. Firstly, the curricula of study "Business management" in the University of Cambridge was analysed to determine the transfer level of the required skills to the students. Subsequently, each university curricula was analysed, based on the information on the website, university brochures and the questioning of students and compered

with the curricula of the study program "Business management" in the University of Cambridge, thereby obtaining the transfer level of the required skills. The average fulfilment for each skill was calculated after the evaluation of nine programs.

3.2.1. Analysis of the content of the curricula

Based on the analysis of the content of the curricula, a ranking of the transfer of required skills was created and is shown in table 6. Content skills with an average grade of 4,6 is assumed to be the best transferred skills within the analyzed curricula, followed by process skills (4,3), social skills (4,2), intercultural skills (4,1), cognitive skills (4), system skills (3,8), resource management skills (3,8) and personal and mental abilities (3,6). Technical skills however, are evaluated to be not very well transferred within the content of the curricula with an average grade of 3,3. The content of three university curricula (one from Austria and two from Latvia) were evaluated to only poorly transfer technical skills to students.

Table 6: Results of curricula content evaluation

Ranking	Skills	Average fulfilment	Ranking	Skills	Ranking
1	Content skills	4,6	**6**	System skills	3,8
2	Process skills	4,3	**6**	Resource management skills	3,8
3	Social skills	4,2	**8**	Personal/ Mental abilities	3,6
4	Intercultural skills	4,1	**9**	Technical skills	3,3
5	Cognitive skills				

4. Discussion and Conclusions

Taking all the above-mentioned information into consideration it can be stated that the increasing connectivity and convergence shaped by the fourth industrial revolution as well as other mega trends (social, environmental, etc.) have a great impact on the future labour market. The application of new ICT will change the labour market immensely by digitalizing jobs and demanding new professional skills. New ICT, as well as big data analysis and robotization will be accountable for jobs being done automatically and human workforces being substituted in many business sectors.

Basic administrative jobs like bookkeeping, accounting and office clerks as well as a wide range of manual tasks like equipment assemblers and repairs are at high risk of substitution in a couple of years. Additionally, due to the implementation of modern ICT, new jobs in different industries will appear, which will

need completely new skillsets. For instance, new jobs like data scientist and analysts, training and development managers will be highly demanded in the future. On the other hand, jobs like financial and business analysts, behavioural psychologist in the banking industry, cyber insurance providers and engineers developing autonomous driving are assessed to become even more crucial. Above that, a broad new range of consultants like software developers, survey researchers and all kind of engineers will be needed to consult companies with issues that they will have to face when implementing and using new ICTs.

New jobs will appear that require new skills. However, the skill sets of present jobs will change as well. Especially higher educational institutions should react to the transformation of the labour market and update their trainings on a regular basis. Beyond that, it is not just recommended that universities change their trainings based on upcoming trends, but they even have to shape those trends. That means that universities should not just follow the trend of connectivity and convergence by teaching their students how to use modern ICT. They should also think critically about the use of ICT and analyze diverse ways that processes can be increased or even automated.

Furthermore, universities should not only focus on transferring some basic skills to their students. Rather it

is recommended that the study content of each type of study should sufficiently fulfil the presented skill portfolio in order to increase the employability of the graduates of a university.

The authors defined nine basic skill sets (presented in table 7) that together define the skill portfolio which students should acquire during their education at a university to fulfil the requirements of the future labour market shaped by the implementation of modern ICT. Social skills like negotiation, communication skills and emotional intelligence are rated by the professor to be the most important skill set in 2020. With an average grade of 4,2, social skills are already integrated in the training of universities, however a special focus on the transfer of this skill set should be laid. Cognitive skills like creativity, analytic skills and personal and mental abilities are evaluated to be the second and third most important skill sets.

Furthermore, personal and mental abilities are insufficiently covered in current curricula, consequently a call to action can be made to universities to integrate trainings that better transfer this skillset to their students. Technical skills, such as the use of new technologies and programming are evaluated to be the sixth most important skillset. However, the evaluated curricula only transfer technical skills with an average grade of 3,3. Thus, universities have to update their trainings in order to better transfer those skills.

Table 7: Skill portfolio ranking

Ranking	Skills	Average
1	**Social skills** (e.g. negotiations, emotional intelligence)	**4,2**
2	**Cognitive skills** (e.g., creativity, analytics)	**4**
3	**Personal/Mental abilities** (e.g. dealing with pressure and persistence)	**3,6**
4	**Process skills** (e.g. critical thinking)	**4,3**
5	**System skills** (e.g. decision making, entrepreneurial skills)	**3,8**
6	**Technical skills** (e.g. new technologies, programming)	**3,3**
6	**Content skills** (e.g. ICT literacy, active learning)	**4,6**
8	**Intercultural skills**	**4,1**
9	**Resource management skills** (e.g. time management)	**3,8**

In general, universities are recommended to update their curricula at least every five years to react to the dynamic requirements of the labour market. In addition, it is recommended that professors regularly review their teaching contents and methods. Thereby, they are able to identify potential for improvement. This article encourages the professors to include new trends and new technologies.

Moreover, the conducted interviews with several professors showed that the usage of multiple sources (e.g. latest research, seminars, conferences, university benchmarks) increased the quality of this change process. Universities need to encourage professors to participate regularly in educational training, conferences, webinars and research projects. Adapting the curricula and training contents, respectively, methods, increase the existing educational quality. Apart from that, regular changes in the education system ensure the competitive advantages of the students in the labour market.

Consequently, on the one hand the universities

increase their influence on the economy and the labour market, and on the other hand, the competitive advantages of the national economies can also be ensured (through highly qualified, young academics). Nevertheless, it is essential to remember that, especially, a change in the professor's training methods is resource-intensive and difficult to achieve as there are many influences to consider (e.g. personality of lecturer and students, course subject, number of students, group dynamic). This complexity could be simplified by creating and implementing a modular toolset of different training contents and methods. However, further research is necessary to define such modular toolsets. The presented article demonstrates that the education

system and the economy are facing the same challenges and megatrends. Universities are constantly monitoring these trends in order to properly react and adapt their curricula. The conducted interviews and analysis of the curricula highlights that most universities already deal with those trends. Nonetheless, it is necessary to enforce this change and adaption process. The article encourages

the university to not only react to current trends, but to also go ahead and establish them.

The skills portfolio, introduced by the authors of the present article supports universities and professors with future adaptions. Different methods and tools are necessary to transmit the different skills to the students. Interactive courses, for example, support students in expanding their social skills by working with colleagues in a team as well as train students in cognitive skills, like finding creative solutions for different, and interdisciplinary cases.

Case studies also support the acquisition of active learning skills and system skills like decision making and entrepreneurial skills. Interdisciplinary tasks provide the possibility to train analytical skills and process skills like critical thinking. By giving presentations, the students can train their personal and mental abilities together with their social skills like emotional intelligence when receiving feedback from their colleagues. Technical skills can be trained by the integration of new technologies on tablets, computers, as wells as the use of new specific software for a certain subject.

Furthermore, it is not enough to know about new technologies, but it is essential to use them correctly and meaningfully. Consequently, is important to train content skills like the use of modern ICT. Companies' projects do not just support the acquirement of professional experiences; they also train resource management skills such as time management and social skills. Additionally, classes in foreign languages, as well as, an exchange semester abroad support the acquirement of intercultural, social skills and personal and mental abilities.

All in all, the aims of the article could be achieved by giving insight in future jobs and by creating a skill portfolio that should be integrated in each type of study at higher educational institutions. In addition, a call to action is made by recommending teaching methods and other measures that universities can use to update their curricula accordingly to the demands of the future labour markets. Even though, the article cannot claim representativity, it can serve as a basis for further investigation and shall provoke discussions within the educational institutions.

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Appendix I

Table A1 –Future Jobs

	Jobs at high risk	Future jobs
General	• Cargo and Freight Agents • Bookkeeping, Accounting, Auditing Clerks • Administrative occupations (Order and Procurement clerks, …) • Office Clerks (Telephone operators, postal service, …) • Paralegals and Legal Assistants	• Human Resource Managers • Marketing and International Sales Managers • Database Administrators • Computer and Information Systems Manager/Administrators • International Consultants • Training and Development Managers • Computer System Analysts • Industrial-Organizational Psychologists • Data scientist/analyst • Social Media Managers • Network and Computer Systems Administrators
Business Sector specific — **Industrial sector**	• Equipment Assemblers • Operating Engineers and other construction equipment operators • All kind of production workers • Automotive Body and Related Repairers / Car dealerships	• Production Supervisors, Controller, Planners • Mechanical/Industrial Engineers • Material Scientist/Engineers • Electronical and Electrical Engineers
Banking and finance	• Loan Officers • Receptionists and Information clerks • Personal Financial Advisors	• User experience designer • Behavioral psychologist • Algorithmic risk specialist • Community builder • Telematic specialists
Insurance	• Personal Insurance Advisors	• Risk Analysts (for investments) • Reputation builders/ Image improvers • Cyber insurance provider
Commerce	• Retail Salespeople • Telemarketers • Library Technicians	• User experience specialists • Virtual shopping advisors
Transport and traffic	• Cargo and freight Agents/Postal service Mail sorters • Packaging and Filling Machine Operators and Tenders • Shipping, Receiving and Traffic Clerks • Procurement Clerks, Billing and Posting Clerks • Counter and Rental Clerks • Couriers and Messengers • Traffic Technicians • Taxi Drivers and Chauffeurs • Bus Drivers, Train Drivers.	• Air traffic controllers

		Jobs at high risk	Future jobs
Business Sector specific	**Information and Consulting**		• Software, System Developers • Commercial and Industrial Designers • Statisticians • Survey researchers • Management/ Business Analysts • Training and Development Managers • Financial Analysts
	a.Tourism, Health and Hospitality	• Hosts and Hostesses, Restaurant, Lounge and Coffee Shop • Telephone Operators • Chefs, Cooks, Restaurants • Postal Service Clerks • Hotel, Motel and Resort Desk Clerks • Waiters and Waitresses • Bartenders • Travel Agents • Receptionist	• Recreational Therapists • Mental Health and Healthcare Workers • Social Workers • Dietitians and Nutritionists • Physicians and Surgeons • Psychologists (all kinds) • Nurses • Marketing and sales operator/ PR manager/ Branding • Tourism destination planner • Strategic sales and channel manager • Community manager • Cultural manager • Innovation manager
	Entrepreneurship green josb	•	• Green Entrepreneurs • Social Entrepreneurs • Environmental scientists and consultants • Agricultural engineers • Climatologist, • Bioinformatics • Archeologist
	Others	•	• Teachers all kind • Medical Scientists • Clinical, Counseling and School Psychologists • Educational, Guidance, School and Vocational Counselors • Career/Technical Education Teachers • Marriage and Family Therapists

Source: Frey and Osborne, 2013

Figure A2: Skills portfolio
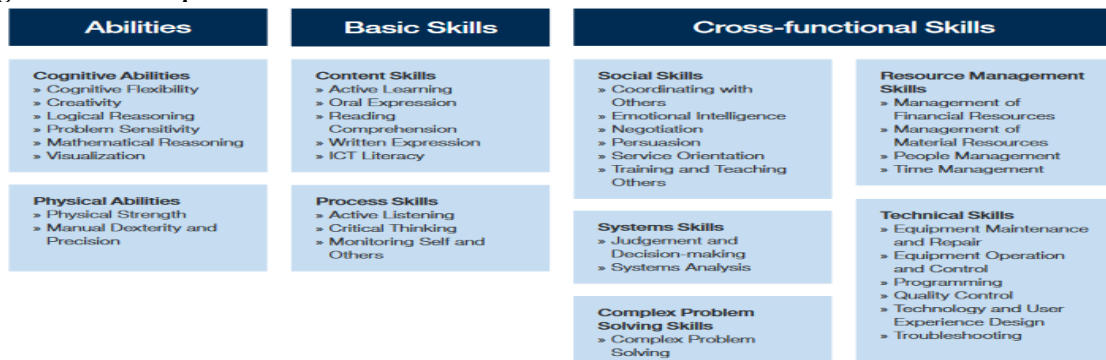
Source: World Economic Forum, based on O*NET Content Model.

A3 Interview Guide – Expert Survey

Expert Survey
Adaption of university trainings reacting to digitalization

We are a team of 6 international students from Austria, Latvia and Spain. Together we want to analyse what future skill portfolios are required from university graduates by the labour market in 2020 due to the digitalization and how universities should adapt their trainings in order to prepare their students for requirements of the labour market in 2020.

For us it is important to collect as many expert opinions to this topic as possible. Therefore, we really appreciate if you have 20 minutes to answer the following questions. Your answers will be treated strictly confidential and remain anonymous.

Demographic Data
Nationality:
University:
Taught subjects:
Education:

General information about the university
1. How often are curricula of the study programs at your university changed?
2. What are the main criteria/factors to update the curricula?
3. Who is involved in the change process of the curricula? (Mulitiple choice possible)
☐ Companies
☐ Head of department
☐ Professors
☐ Rector of the university
☐ Students (general)
☐ Student council
☐ Others: _____
4. Which information sources does your study program use for the adaption of the curricula?(Multiple choice possible)
☐ Benchmarking with other universities
☐ EU/state requests
☐ External researches/reports/articles

Subject specific questions
Teaching methods
5. Which teaching methods do you use in your courses/ lessons? (Multiple choice possible) ☐ Case studies ☐ Excursions ☐ Group works/projects ☐ Guest lectures ☐ Lectures ☐ Papers (Assignments, Comments, etc.) ☐ Presentations ☐ Role Plays ☐ Others:_____
6. Which technologies do you use in your courses/ lessons? (Multiple choice possible) ☐ Audios/Podcasts ☐ Computers ☐ Mobile devices/ tablets ☐ Videos ☐ Virtual games/ simulations ☐ Virtual platforms (f.i. Moodle) ☐ Others:_____
7. Which other supporting material do you use in your courses/ classes? (Multiple choice possible) ☐ Articles/Papers ☐ Books ☐ Flip Charts ☐ Games ☐ White Boards ☐ Others:_____
8. If you assign tasks to your students are the subjects more: ☐ Interdisciplinary ☐ Subject specific
9. How many subjects are you holding in English? (please indicate it in %)
Adaption of teaching
10. How often do you update your teaching method and content?
11. What are the main criteria/ factors for the update?
12. Where do you look for new methods and contents?
New skills/jobs in 2020
13. What do you think are further jobs in 2020?
14. Which jobs do you think are at risk in 2020?
15. What are the five most important skills that graduates of your university should gain today?
16. What are the five most important skills that graduates of your university should gain in 2020?
17. How do you prepare your students in your subject to gain these skills?
18. How is your university in general preparing the students to gain the requested skills?
19. Please rank the following skills according to the importance in 2020: (1= most important, 9 = least important) ☐ Social skills (f.i. negotiations, emotional intelligence, communication) ☐ Technical skills (f.i. new technologies, programming) ☐ Cognitive skills (f.i. creativity, analytics) ☐ Content skills (f.i ICT literacy, active learning) ☐ Personal/mental abilities (f.i. dealing with pressure and persistence) ☐ Process skills (f.i. critical thinking) ☐ System skills (f.i. decision making, entrepreneurial skills) ☐ Resource management skills (f.i. people management, time management) ☐ Intercultural skills (f.i. open mind-set)
Personal trainings
20. How do you educate yourself to be able to provide students with the latest training?
21. How often do you take part in trainings/ seminars to expand your knowledge?

22. Trainings in which subjects/ areas are you attending?
23. Do you give guest lectures/ talks at other foreign universities?   ☐ Yes   ☐ No
24. If yes, to which topics do you give guest lectures/ talks?

☐ Interviews/feedback of companies

☐ Interviews/feedback of students

☐ Recommendations of accreditation committee

☐ Recommendations of own researches

☐ Recommendations of professors

☐ Recommendations of professors from other universities

☐ Recommendations of students council

☐ Others: _____

25. Does your university offer students the possibility to conduct projects with companies?   ☐ Yes   ☐ No   ☐ I don't know
26. Is it obligatory within the undergraduate program to do an internship?   ☐ Yes   ☐ No   ☐ I don't know
27. Is your university providing services that help students to find an internship?   ☐ Yes   ☐ No   ☐ I don't know
28. If yes, what kind of services?

A4: Curricula Content Evaluation

Skills portfolio

Criteria	Loading	Corricula																			Average fulfillment	
		Cambridge		Austria/Germany						Latvia						Spain						
		Business Manage-ment		FH Joanneum Industrial Manage-ment		Campus02 Interna-tional Marketing		FH Internatio-nal Engineering		BA School of Business and Finance "Business Admini-stration"		The University of Latvia "Business Administartion"		Stockholm School of Economics "Economics and Business"		Universitat pompeu fabra "Business Admini-stration"		University of Barcelona "Business Admini-stration"		University of Valencia "Business Admini-stration"			
		C	CxL	C	CxL	C	CxL	C	CxL	C	CxL	C	CxL	C	CxL	C	CxL	C	CxL	C	CxL	Average	Ranking
Social Skills	3	5	15	4	12	4	12	3	9	4	12	4	12	5	15	5	15	3	9	5	15	4,2	3
Technical Skills	3	4	12	4	12	2	6	3	9	2	6	2	6	3	9	5	15	4	12	4	12	3,3	9
Personal/Mental abilities	3	5	15	3	9	4	12	3	9	3	9	4	12	4	12	3	9	3	9	4	12	3,6	8
Cognitive Skills	2	5	10	3	6	4	8	4	8	4	8	4	8	5	10	4	8	4	8	3	6	4	5
Content Skills	2	5	10	3	6	4	8	4	8	5	10	5	10	5	10	5	10	5	10	5	10	4,6	1
Process Skills	1	4	4	3	3	3	3	4	4	5	5	5	5	5	5	5	5	4	4	5	5	4,3	2
System Skills	1	5	5	3	3	3	3	4	4	5	5	3	3	4	4	4	4	4	4	3	3	3,8	6
Resource Management Sk	1	4	4	4	4	3	3	3	3	4	4	3	3	5	5	5	5	3	3	4	4	3,8	6
Intercultural Skills	1	5	5	4	4	3	3	4	4	5	5	3	3	5	5	4	4	4	4	4	4	4,1	4
Total	14	Value	65		47		46		49		52		50		60		60		54		56		

Legend

Evaluation criteria:		5	4	3	2	1		C- Number of fulfillment		max. of 70 points
Level of fulfillment		very good	good	accept	poor	very poor		CxL - Number of fulfillment x laoding		

Aviation Fuel Hedging and Firm Value Analysis using Dynamic Panel Data Methodology: Evidence from the U.S. Major Passenger Airlines

Ahmet Duran and Mahmut Sami Gungor

Aviation Fuel Hedging and Firm Value Analysis using Dynamic Panel Data Methodology: Evidence from the U.S. Major Passenger Airlines

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ABSTRACT

Purpose
Investigation of the relation between firms' values and aviation fuel hedging activities via a dynamic panel data methodology for the major U.S. passenger airlines during the period 2002-2011.

Design/methodology/approach:
We use data from nine U.S. major passenger airlines representing 77.2 per cent of the U.S. domestic airline industry, in terms of available seat miles. The data is taken from the Securities and Exchange Commission (SEC) 10-K filings, the Bloomberg database and the Bureau of Transportation Statistics. In accordance with the dynamic panel data methodology, we use cross-sectional dependence tests, first generation panel unit root tests, the Durbin-Hausman panel co-integration test, and the panel fully modified ordinary least square estimator, respectively.

Findings:
The Durbin-Hausman panel co-integration (DHp) test reveals a statistically significant long run relationship between firms' values and aviation fuel hedging activities for the U.S. major passenger airlines. Moreover, the results of the fully modified least square estimation suggest that aviation fuel hedging has positive impact on those firms' values. Additionally, we discuss the U.S. major passenger airlines loss of ten to fifteen per cent of their value in the global financial crisis. Another important finding is that merger agreements results in an almost 10 per cent increase in those firms' values..

Research limitations/implications:
− Clear hedging information was manually searched for in the airlines' annual audited reports. This process was both time consuming, and labour intensive.

Originality/value:
This is the first study that focuses exclusively on the major U.S. passenger airlines, for the effects of hedging strategies on firm value. Furthermore, we use the DHp test which allows for a co-integration relationship in the case of integrated of different order series.

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1. Introduction

According to the Federal Aviation Administration (2016), the civil aviation sector had an economic activity of $1.6 trillion, contributed 5.1 per cent to gross domestic product, and more importantly, provided 10.6 million jobs in the U.S. economy during 2014. These figures clearly show that the civil aviation sector is an indispensable facilitator in the economies they belong to. However, they are exposed to unexpected ascent in operating costs, deriving from increasing aviation fuel prices.

As shown in Figure 1, the percentage contribution of fuel costs to operating expenses for the major U.S. passenger airlines increased until 2008. In 2008, aviation fuel cost constituted approximately one third of operating expenses. In the case of possible global oil price shocks in the future, aviation fuel cost is likely to be the primary cost factor, outstripping labour costs.

At this stage, we should investigate how to deal with unexpectedly rising aviation fuel costs. According to Morrell (2007), airlines could increase the fuel efficiency of their operations, and/or place additional cost such as surcharges on their customers, and/or hedge their fuel cost using physical or derivatives markets. Under safety constraints, there are some limitations to increasing fuel efficiency.

Besides being costly, it takes longer time. On the other hand, it is not easy for passenger airlines to implement surcharges. Airlines' financial managers strive for stabilizing fuel prices by using hedging strategies. Moreover, they can stabilize operating costs, cash flows and profits with the help of hedging instruments. These influential tools are expected to ultimately affect firms' values.

Modigliani and Miller (1958) propose that the firm's value is independent from hedging strategies under the perfect market hypothesis. However, firms do not

encounter any financial frictions in their model as opposed to the real financial world. In case of relaxing the perfect market hypothesis, it is likely to observe considerable value effects of hedging strategies.
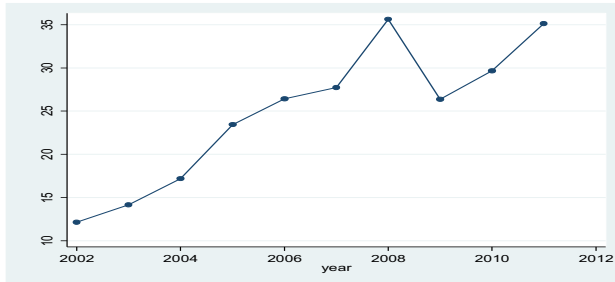

Figure 1[1]: Percentage of aggregated[2] aviation fuel cost among operating expenses for the U.S. major passenger airlines

It is essential to analyze the relationship between firms' values and hedging activities for different time intervals and economic situations. In the past two decades, a number of researchers have studied the relation in several industries by using different econometric techniques. Nevertheless, their findings are either contradictory, or there is no general agreement about this relationship.

This issue was first investigated empirically by Allayannis and Weston (2001). In their seminal paper, they showed a positive relation between firm value and the use of foreign currency derivatives on U.S. nonfinancial firms over the period of 1990-1995. In a similar manner, Gomez-Gonzales et. al. (2012) suggest that hedging lead to higher growth in Colombian nonfinancial firms' value in the period of 1995-2008. Likewise, Carter et al. (2006) point out the positive relationship between aviation fuel hedging and airline firms' values in the U.S. airline industry over the 1992-2003 period. In spite of the evidence of hedging premium, several studies reported hedging discount. Khediri and

Folus (2010) put forth that firms' values do not increase by using derivative instruments. In a similar fashion, Nguyen and Faff (2010) reveal hedging discount for Australian publicly listed companies over the period of 1999-2000. Recently, for the U.S. airline industry, Treanor et. al. (2014) argue that airlines having more hedging activity due to higher fuel price exposure are not valued higher than those airlines following more stable hedging strategies.

Among such discussions in the related literature, we examine the relationship between firms' values and aviation fuel hedging activities by using dynamic panel data methodology, unlike the other studies in the literature, for the U.S. major passenger airlines during 2002-2011 period which includes the 2008 global financial crisis, following the large fluctuations in oil prices. To the best of our knowledge, this is the first study that focuses exclusively on the U.S. major passenger

airlines while investigating the effects of hedging strategies on firm value.

2. Sample and Variables
2.1 Sample

The Air Transport Association of America (ATA) classifies U.S. airlines into three categories based on their annual operating revenue. Major airlines are those generating annual operating revenue in excess of $1 billion, while those with annual revenue between $100 million and $1 billion are categorized as national airlines. On the other hand, regional airlines provide both services to a specific geographic region of the country and generate annual operating revenues less than $100 million. Further broad classification can also be made as passenger and cargo airlines. However, we focus on passenger airlines rather than cargo airlines, which can easily apply surcharges in the case of a sudden increase in fuel cost.

On the other hand, major airlines more commonly use hedging instruments compared to smaller airlines. That is because, implementing hedging strategies require more sophisticated finance department and experienced managers. This might be unaffordable for smaller airlines. In addition, some of the smaller airlines operate as a charter airline. They generally do not bear the risk of aviation fuel cost and passes on savings to their customers. Another reason why we investigate the effects of aviation fuel hedging on firm value exclusively, via the major passenger airlines, is the access to sufficient information regarding the hedging activities of those firms over the period of 2002-2011.

We use data from nine U.S. major passenger airlines; American Airlines, Alaska Airlines, JetBlue Airways, Continental Airlines, Delta Air Lines, Airtran Airways, United Air Lines, US Airways, and Southwest Airlines in the period of 2002 to 2011. They are listed as major passenger airlines in the 2011 IATA report. When market share of the U.S. major passenger airlines are calculated, it has been revealed that the sample represents 77.2 per cent of domestic industry in terms of ASM[3] based on the data obtained from Bureau of Transportation Statistics.

The availability of clear and complete data on hedging information is essential for conducting such an empirical research. As discussed by Judge (2006), data extracted from audited financial statements does not have a non-response bias inherent in survey design. We used Securities and Exchange Commission (SEC) 10-K filings audited annual reports to obtain airlines' financial and operating data and hedging information as of 31st of December per annum. The market value of common stock is taken from the Bloomberg database.

2.2 Variables

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[1] Unless otherwise is stated all the figures and tables are produced by the authors.
[2] Aggregated figures are obtained by calculating the weighted average of aviation fuel cost for each year. The weight is based on the total assets of airlines.

[3] Available seat miles (ASM) represent one seat flown one mile. For instance, an airline with 200 passenger seats, flown distance of 1000 miles, indicates 200.000 available seat miles.

The dependent variable is firm value, which is measured according to Tobin's q. This is the most commonly used proxy for firm value in empirical studies. Firms' values are measured by the simple approximation of Tobin's q[4], developed by Chung and Pruitt (1994).

Figure 2 shows that aggregated Tobin's q for the U.S major passenger airlines plumbs the depths in the year of 2007. However, the aggregated Tobin's q is higher than 1 during 2002-2011. This means the market value of the U.S. major passenger airlines exceeds the replacement costs of their assets even after the global financial crisis. We use the natural logarithm of Tobin's q [LTOBINQ] instead of the absolute value in econometric estimation.

The aim is to investigate the relation between aviation fuel hedging practices and the U.S. major passenger airlines firm values. Airlines disclose their hedging information in terms of the percentage of their aviation fuel requirements for the coming year. Therefore, we use the percentage of next year's aviation fuel requirements hedged [NEXTHEDGED] as a measure of fuel hedging activities. The coefficient of this variable shows that if an airline hedged 100 per cent of its fuel requirements, at what percentage its firm value would be expected to change compared to that airline's hedging none of its fuel requirements.

Figure 2: Aggregated[5] Tobin's q for the U.S. major passenger airlines
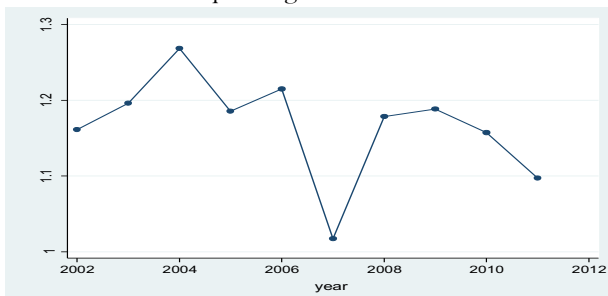
There are a number of factors that can affect firm value in addition to aviation fuel hedging. That is why we include several control variables consistent with Allayannis and Weston (2001) and Carter et al. (2006). First, as underlined by Allayannis and Weston (2001), larger firms are more likely to use hedging instruments due to the high start-up cost of the hedging program.

Therefore, we need to take into consideration the possible effect of firm size. Hence, the natural logarithm of total assets is used to control firm size [LTA]. Second, firm's value might be affected by its capital structure. Accordingly, we control for leverage [LEVERAGE] by using the ratio of long term debt to total assets. Third, a profitable firm is more likely rewarded by investors. To

account for the effect of profitability, we use the return on assets [ROA] which is the ratio of net income to total assets. Fourth, the more investment opportunities firms have, the more likely they are to have higher firms' values.

Hence, we include the natural logarithm of the ratio of capital expenditures to sales [LINVOPP] as a proxy for investment opportunities. Fifth, firms' values are expected to be higher following merger agreements. Therefore, we use a merger dummy [MD] that is equal to 1 on and after the date of merger agreement to control for effects of merger agreements. A positive (negative) coefficient on MD suggests that merger agreement leads to an increase (a decrease) in firm value. Finally, we use a crisis dummy [CD] for the year of 2007 to take into account possible detrimental effects of global financial crisis.

3. Empirical Methods and Results

3.1 Estimation of Panel Data Models

The model under investigation is as follows:

$$y_{it} = \alpha + X'_{it}\beta + u_{it} \quad (1)$$

$$u_{it} = \mu_i + \vartheta_{it} \quad (2)$$

with i denoting airlines and t denoting years. α is a scalar and β is a K×1 vector and X_{it} is the it[th] observation on K explanatory variables. The term μ_i is the unobserved individual specific effect or individual heterogeneity for the ith airline. The ϑ_{it} is the remainder stochastic disturbance term. We define y_{it} and X_{it} as follows:

$$y_{it} = [LTOBINQ_{it}] \quad (3)$$

$$X_{it} = \begin{bmatrix} NEXTHEDGED_{it} \\ LTA_{it} \\ LEVERAGE_{it} \\ ROA_{it} \\ LINVOPP_{it} \\ CD_{it} \\ MD_{it} \end{bmatrix} \quad (4)$$

As stated by Baltagi (2008), the fixed effects model is a suitable specification when we concentrate on a specific set of N firms and our inference is limited to the behaviour of these set of firms. Since we focus exclusively on the major U.S. passenger airlines, we follow the fixed effect specification.

3.2 Panel Unit Root Tests

We examine time series specifications of the variables under investigation before carrying out panel regressions. As discussed by O'Connell (1998), the null hypothesis of a unit root can be rejected in the presence of cross-section

correlations among series. Correspondingly, we test for the presence of cross-sectional dependence in panels prior to panel unit root tests. We use the Pesaran's CD test (2004), Friedman's test (1937) and Frees' test (2004) to test the cross-sectional dependence. The results of the tests are given in Table 1. On the report of all tests, we

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[4]The Tobin's q ratio is calculated as follows: (market value of equity + liquidation value of preferred stock + book values of long-term debt and current liabilities + book value of inventory – current assets) divided by book value of total assets.

[5]Aggregated figures are obtained by calculating the weighted average of Tobin's q for each year. The weight is based on the total assets of airlines.

cannot reject the null hypothesis of no cross-sectional dependence. Therefore, we can use first generation panel unit root tests which do not allow for cross-section

correlations, instead of second generation panel unit root tests[1].

Table 1: Fixed effects regression results

NEXTHEDGED	0.0017**	0.0017**	
LTA	-0.2119***	-0.2126***	0.2140***
LEVERAGE	0.8819***	0.8772***	0.8537***
LINVOPP	0.0534**	0.0539**	0.0664***
ROA	-0.0118		0.006
F test	18.84***	23.85***	21.79***
Pesaran	1.187	1.196	1.216
Frees	0.096	0.096	0.281
Friedman	13.156	13.156	11.615
DHP	32.821***	25.627***	2.322**

Note: *, ** and *** indicate that statistics are significance at the 10, 5, and 1 per cent level of significance respectively.

We use the LLC test (Levin, Lin and Chu, 2002), MW test (Maddala and Wu, 1999), IPS test (Im, Pesaran and Shin, 2003), Fisher type tests (Maddala and Wu, 1999; Choi, 2001) in order to test unit root in panel data. The test result is illustrated in Table 2[1] and Table 3. They show contradictory results. Hence, the results of the panel unit root tests give the impression of being integrated of different order series.

To investigate whether the series are cointegrated or not, we use Durbin-Hausman Panel (DHp) test[2] (Westerlund, 2008) which allows for a cointegration relationship in the case of integrated of different order series. Furthermore, this test takes account of possible cross-sectional correlations in the residuals. The DHp test results are shown at the bottom of Table 1.

According to DHp test results, we reject the null hypothesis of no cointegration in all cases. Therefore, the DHp indicates for all model specifications that the models are panel cointegrated at one per cent significance level.

That is to say, there exists a statistically significant long run relationship between firm values and explanatory variables in the U.S. major passenger airlines. Hence, we use the panel fully modified ordinary least square (panel FMOLS) estimator proposed by (Pedroni, 2000) to estimate cointegrating regressions for all specifications. The panel FMOLS is a consistent estimator in relatively small samples. Furthermore, it controls for the possible endogeneity and serial correlation.

Table 2: Panel unit root tests results (series in level)

	LLC intercept	LLC intercept + trend	MW intercept	MW intercept + trend	IPS intercept
LTOBINQ	-1.672**	-5.089***	17.048	28.015*	0.377
NEXTHEDGED	-2.968***	-5.758***	26.46*	29.826**	-1.011
LTA	-9.569***	-3.056***	91.915***	15.283	-2.861***
LEVERAGE	-1.514*	-4.297***	12.041	27.388*	0.486
ROA	-7.3***	-8.228***	63.688***	49.851***	-3.496***
LINVOPP	-2.587***	-6.276***	26.426*	44.388***	-0.963

Note: For all test the null hypothesis is non-stationary. The LLC test assumes common unit root process and the others assume individual unit root process. *, ** and *** indicate that statistics are significance at the 10, 5, and 1 per cent level of significance respectively.

Table 3: Panel unit root tests results (Continued) (series in level)

	IPS intercept + trend	Fisher ADF intercept	Fisher ADF intercept + trend	Fisher PP intercept	Fisher PP intercept + trend
LTOBINQ	-0.619	15.241	23.711	17.254	36.75***
NEXTHEDGED	-0.729	24.158	25.02	28.155	40.964***
LTA	0.437	42.377***	13.387	59.382***	25.139
LEVERAGE	-0.144	12.705	19.441	11.585	24.216
ROA	-1.386*	45.00***	34.471***	61.99***	65.565***
LINVOPP	-0.566	23.756	27.477*	29.618	48.462***

Note: For all test the null hypothesis is non-stationary. The LLC test assumes common unit root process and the others assume individual unit root process. *, ** and *** indicate that statistics are significance at the 10, 5, and 1 per cent level of significance respectively.

3.3 Empirical Findings

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[1]See for instance, Pesaran (2007), Hadri and Kurozumi (2012) and Pesaran, Smith and Yamagata (2013).
[1]Besides these panel unit root test, Breitung test (Breitung, 2000) and Hadri test (Hadri, 2000) were carried out as well. The results

confirm Table 2 and Table 3. Therefore, we do not report the results to save space.
[2]We use GAUSS codes written by Joakim Westerlund from Department of Economics at Lund University.

We estimate eight different model specifications and present the results of panel fully modified least square estimation in Table 4 and Table 5. There is a positive long run relationship between firms' values and aviation fuel hedging for the U.S. major passenger airlines. The coefficient on *NEXTHEDGED* becomes statistically significant at five per cent, when the *MD* is excluded from the model.

Table 4: Panel fully modified least squares results

	Model 1	Model 2	Model 3	Model 4
LTA	−0.2148***	−0.1886***	−0.3195***	−0.2783**
LEVERAGE	0.9663***	0.9793***	0.8012***	0.842***
LINVOPP	0.0677**	0.086**	0.1225**	0.1452***
ROA	0.0074	0.029	0.0258	0.0458
NEXTHEDGED	0.0025**	0.0023**	0.002	0.001
CD		−0.1185**		−0.1483*
MD			0.1213*	0.097
Adj. R-sq.	0.7695	0.7894	0.7469	0.778

Note: *, ** and *** indicate that statistics are significance at the 10, 5, and 1 per cent level of significance respectively.

One of the important findings is that the coefficient on *CD* is both economically and statistically significant. We discuss how the global financial crisis has a detrimental impact on firm value; in the crisis of 2007, the U.S. major passenger airlines lose out almost ten to fifteen per cent of their firm value. The parameter *MD* is positive and economically significant for all cases; however, it becomes statistically significant in the absence of the *CD*. After

merger agreement, the value of the merging firm increases almost 10 per cent for the U.S. major passenger airlines. All of other control variables except for *ROA* are statistically significant in all model specifications. The *LEVERAGE* and *LINVOPP* have positive long run effects on the firm value. However, the *LTA* has negative long run impact on the firm value.

Table 5: Panel fully modified least squares results (Continued)

	Model 5	Model 6	Model 7	Model 8
LTA	−0.2145***	−0.1894***	−0.313***	−0.273**
LEVERAGE	0.971492***	0.9913***	0.8169***	0.8638***
LINVOPP	0.0677**	0.085***	0.1203**	0.1421**
NEXTHEDGED	0.0026**	0.0023**	0.0021	0.002
CD		−0.1164**		−0.1459*
MD			0.1183*	0.0947
Adj. R-sq.	0.773	0.7926	0.7529	0.7824

Note: *, ** and *** indicate that statistics are significance at the 10, 5, and 1 per cent level of significance respectively.

4. Conclusion

We use dynamic panel data methodology to investigate the relationship between firms' values and aviation fuel hedging activities for the period of 2002 to 2011 which exhibits large fluctuations in oil prices. We reveal a positive long run impact of aviation fuel hedging on firms' values for the U.S. major passenger airlines. For this reason, airlines should use hedging strategies to stabilize their aviation fuel cost in addition to other managerial

tools. In the year of the global financial crisis, the major U.S. passenger airlines lose approximately ten to fifteen per cent of their firm values.

However, market value of the U.S. major passenger airlines exceeds the replacement costs of their assets even after the global financial crisis. Besides, merger agreements lead to approximately ten per cent increase in firms' values. This study can be extended to multi-country sample. However, obtaining and analysing hedging information remains to be laborious.

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Financial and fiscal crises, prices and EUR/USD rate of exchange

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Financial and fiscal crises, prices and the EUR/USD rate of exchange

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ARTICLE INFO	ABSTRACT
	Purpose The purpose of this paper is to answer the following question: How did the standard and non-standard ECB policy measures influence the price level and the EUR/USD rate of exchange in the period 2008-2013? **Design/methodology/approach:** We formulated the following hypothesis: Depreciation of the Euro versus American dollar exchange rate occurred in the period of financial and fiscal crisis (2008-2014). The main reasons for that included: fiscal crisis in the euro area, implementation of standard and non–standard (quantitative easing) ECB monetary policy measures and growth of money supply in the euro area. In that period, the economically and statistically significant impacts of money supply aggregate M2 and differences between interest rates and rates of inflation in the euro area and USA on changes in EUR/USD rate of exchange were noted. For verification of our hypothesis we used econometric modeling - model of regression estimated using the GARCH (0.1), using the monthly data for the period 1999:01-2013:12. Results of our research confirmed the hypothesis formulated by us. **Findings:** Our study confirmed the formulated hypothesis; the EBC monetary policy, both standard and non-standard, in the years 2008-2014 had a significant effect on the EUR/USD exchange rate, contributing largely to the depreciation of the euro in the same period. **Research limitations/implications**: The same method of research could be applied to other cases of currency area and central bank monetary policy. **Originality/value**: The results support the existence of statistically and economically significant impact of central bank policy on the rate of exchange, by the expansion of money supply, changes of differences between interest rates and rates of inflation inside and outside the currency rate area. Those results confirm conclusion formulated based on the theory of interest rate parity and assets theory of currency rates.

Introduction

The financial and fiscal crisis in the euro area has had a crucial impact on prices and the EUR/USD exchange rate. The aim of the research, which has become the basis for this paper was to examine how the standard and non-standard ECB policy measures affected the price level and the EUR/USD rate of exchange in the period 2008-2013?

The monetary policy of the European Central Bank had a considerable impact on changes in the M2 money supply aggregate and interest rates. Those factors, together with the FED monetary policy effects and differences in inflation rates in the euro area and USA

influenced the EUR/USD rates of exchange. Hence the following hypothesis has been formulated in our research: Depreciation of the EUR/USD exchange range occurred in the period of financial and fiscal crisis (2008-2014). The main reasons for that included: fiscal crisis in the euro area, implementation of standard and non-standard (quantitative easing) ECB monetary policy measures and growth of money supply in the euro area. That period was also characterized by: the economically and statistically significant impacts of the money supply aggregate M2 and differences between interest rates and rates of inflation in the euro area and USA on changes in EUR/USD rate of exchange.

We have used econometric modeling - models of regression estimated with the use of GARCH (0.1) for verification of the above hypothesis. We have used the monthly data for the period 2008-2014.
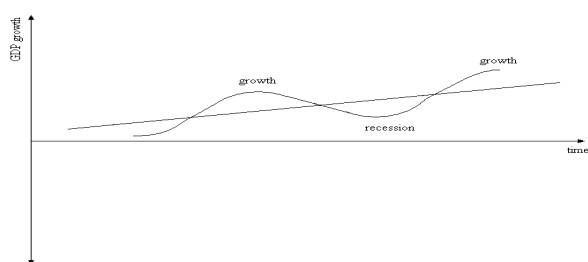
1. 1 Financial and fiscal crisis in the euro area

The global recession started in 2008 but already at the end of November and the beginning of December 2007, the top turning point of the business cycle was noted in the American economy. It was accompanied by an equally deep financial crisis.
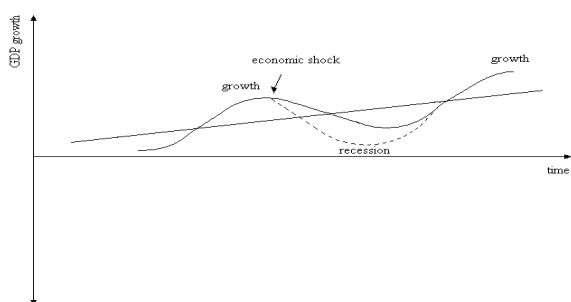
Business cycle, economic expansion and recession are natural phenomena in the market economy, as natural as high and low tides, or the phases of the moon. Recession is a natural mechanism of clearing the economy of inefficient economic units and a mechanism of restoring economic equilibrium after economic growth induced turbulence.

In the upward phase of the business cycle (economic boom and growth) we deal with a self-stimulation mechanism of the following components: alleviation of financial restrictions, increase in asset prices, currency appreciation as well as growth of economic efficiency at the micro-economic level and growth of the profit rate.

A. Regular course of the cycle

B. Economic shock accelerating recession

Figure. 1. Business cycle and impact of economic shocks
Source: author's own compilation

Shocks of financial nature in the situation when the financial system is liberalized and adjusts easily to the fluctuations in economic activity are particular cases. In

1.2 Financial crisis

Financial shocks are a subject of many theoretical concepts. H.P. Minsky formulated the financial instability hypothesis. According to this concept, market economy is a financial system that in essence consists of transforming
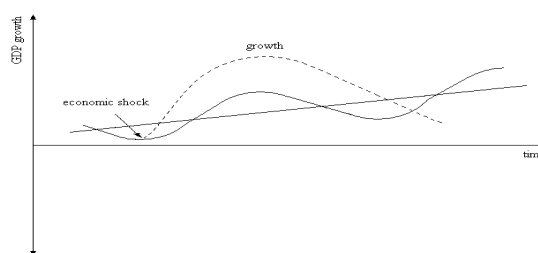
These processes are usually accompanied by a growing inflation rate.

In the downward phase, a fall in production, employment and economic efficiency is observed, as well as losses at the microeconomic level, lower asset prices and currency depreciation. These changes are a natural component of the business cycle. However, in some cases, the above changes can be stronger than in the regular course of the cycle (see: Barczyk, et. al., 2006: 15–14). These cases may concern the occurrence of economic shocks, demand- or supply-side ones, monetary and currency related ones, fiscal ones, etc.

Economic shocks are understood as unpredictable economic and/or political events, either stimulating economic growth (favourable ones), or causing recession. They can lead to a boom in economy which occurs earlier than could be expected from a regular, predictable course of the cycle, a rapid and earlier slump and recession, a higher economic growth rate and longer lasting upward phase, or a deeper and longer recession (see: Fig. 1).

C. Economic shock accelerating and stimulating economic growth

D. Economic shock deepening recession

such circumstances a tendency to take risks in pursuit of higher return rates on capital is an important factor stimulating changes in economy.

current money into future money. Current money serves the aim of financing a purchase of production factors. Future money consists of profits ascribed to capital assets. The process of financing investments leads to a situation in which control over capital assets is related to liabilities. The financial situation of every economic entity is

determined by its liabilities written down in the balance sheet, as well as predicted revenues (Minsky 1992, p. 2).

H.P. Minsky pointed to the increasing fragility of the financial system before the top point of the cycle. He also argued that in market economy, the period of growth is followed by the emergence of financial structures susceptible to deflation, a decline in the value of assets and deep depression (see: Minsky1992, p. 6). The problem, however, is rooted in the fact that the amount and structure of liability repayments are explicitly determined, whereas revenues are subject to business cycle fluctuations.

H.P. Minsky points also to two price-setting mechanisms. The first of them is the product and labour market mechanism. The regular price-setting processes occur here. Prices cover current costs of enterprises, are the source of profit, household income and state revenue obtained via the tax system. The second mechanism – the market of capital assets – relies on the fact that prices are determined, not by current, but by the future value of anticipated profits.

A prerequisite of the undisturbed functioning of economy is an efficient flow of money along the line: depositors – banks – companies, and back.

The financial system stimulates consumer and investment demand leading to full employment and a high growth rate, but these processes are accompanied by a deteriorating structure of financing. Additionally, safe financing, which is observed when cash inflows from companies' operations permanently exceeding operational expenditure, gradually give place to speculative financing and a Ponzi scheme. The essence of speculative financing is the capability of settling all liabilities before the date of crediting elapses. Difficulties occurring in the repayment of liabilities usually do not pose a problem if creditors understand and agree to extend the repayment period. The Ponzi scheme consists of repayment of previous debts with new debts. In this case, limiting the inflow of financial resources entails the bankruptcies of companies (see: Bukowski 2009).

Fragility of the financial system is also revealed by the fact that seemingly small disturbances can lead to a sudden economic collapse.

An expansive economic (fiscal and monetary) policy can be a factor strengthening negative tendencies and leading to speculative bubbles, especially in the real estate market. On the other hand, a stricter monetary policy leading to bursting of the speculative bubble usually causes an immediate collapse of the business cycle. Allegedly, this, among others, may have been the case in the American economy when the FED raised interest rates in the years 2004–2006.

It must be emphasized that the financial crisis, which grows together with recession, is made more severe by phenomena such as: development of financial engineering, or lack of ownership supervision over the return on capital to risk ratio.

F. Mishkin draws attention to the significance of information asymmetry in the financial market and its consequences in the form of adverse selection and moral hazard. He defines the financial crisis as a financial market disturbance as a result of adverse selection and moral hazard becoming such strong phenomena that financial markets are no longer efficient channels of investment financing. Consequently, the financial crisis causes the economy to depart from the state of equilibrium with high output and head towards rapid recession (Mishkin 1991, pp. 10–14).

It seems that the above-mentioned concepts are a good depiction of mechanisms for the impact of financial system disturbances on the course of the business cycle. It must also be emphasized that the state plays an adverse role in financial market disturbances if it keeps up appearances or creates real opportunities making managers feel that budgetary restrictions imposed on their companies are less strict. This can occur as a result of past government support to troubled financial enterprises and institutions. Another case is a government policy which reinforces the conviction that because of the particular role of the financial sector in maintaining employment, the government will not let enterprises go bankrupt (they are "too big to be allowed to fail"). Such a situation actually encourages managers to make risky decisions in pursuit of high rates of return on capital, which itself is profitable for managers owing to the system of corporate rewards and bonuses (Bukowski 2009).

In summary, the recession occurred in the years 2007–2012 due to a natural consequence of the business cycle logic. Yet, its severity was determined by a large scale of the financial crisis. The causes of the crisis should be looked for in the nature of the system and the market economy's financial mechanism. Still, its severity results from the following:

- expansive monetary policy of the US government;

- exacerbation of monetary policy by raising the FED interest rates on federal funds in the period July 2004 to July 2006 in the USA;

- development of financial engineering and its large-scale usage (ABS, CDO, etc.) in poor risk-assessment undertaken by the rating agencies;

- creation by the state of an impression of less strict budget limitations for companies and related higher expectations of companies,

- detachment of corporate management from the ownership supervision and related to this, the pursuit of high return rates at a price of high risk. (Bukowski 2009).

The occurrence of another recession in the 21st century between 2007 and 2012 (the first having occurred in the period of 2001-2003) was a natural course of events in accordance with the course of the business cycle. Globalization processes and increased international-scale economic interdependence accelerated transmission of economic disturbances from the USA to other countries of the world, including the European Union. Unfortunately, recession was deepened by a financial shock caused by the US real-estate market collapse that impacted on other countries in which the construction industry's share in the creation of added value and employment was particularly high (Ireland, Greece, Portugal, Spain). As a result, a collapse in the market of structured securities (CDOs) followed, as well as the financial crisis in the majority of developed countries manifesting itself as lower financial market

capitalization, a decline in financial liquidity, and the high losses of financial institutions including banks, some of which faced bankruptcy, while others went bankrupt (see: Bukowski 2011).

1.3 Fiscal crisis

The fiscal problems of the euro area countries were a result of the impact of four groups of factors:
- abandonment of public finance reforms and structural changes enhancing market efficiency as an adjustment mechanism,
- non-compliance with the Stability and Growth Pact imposed regimes,
- high tendency for budget deficits and public debt increase since the very beginning of the euro area existence, especially in Greece, Italy, Portugal and Spain,
- procyclical easing of fiscal policy in many countries in the period of the 2002-2007 boom,
- increase in fixed expenses in total budget expenditure and GDP,
- economic recession in the years 2008-2009 which caused a sharp decline in the economic growth rate and in some countries practically a drop in the absolute value of GDP which resulted in lower budget revenues (see: Table 1),
- end of the boom in the market of assets including, in particular, the real estate market in the USA and other developed countries affected by the financial crisis. An adverse impact of this collapse was felt most by the countries characterized by a high share of the construction sector in economy; the crisis resulted also in the financial aid costs for financial institutions, especially in the countries characterized by a weak banking system and poor bank supervision (e.g. in Ireland),
- implementation of fiscal packages which were to stimulate economic growth.
- relatively low international competitiveness of some economies (Cyprus, Greece, Spain, Portugal, Italy) (Bukowski 2011).

The countries characterized by a large share of fixed expenses in budget expenditure and high budget debt in relation to GDP, using public debt rollover, are particularly vulnerable to public finance crisis and long-term recession. Financial market responses to all kinds of signals concerning the macroeconomic market of the country in connection with the increasing budget deficit and debt are violent. Growing public debt in relation to GDP as a result of growing budget deficit, leads to a higher risk of investment in treasury bonds and more difficulties in placing new issues on the market. This means also growing yield of the bonds in the financial market and more difficulties in raising capital for debt servicing and repayment on the maturity date due in a given year. Higher interest rates become necessary to encourage investors to purchase treasury bonds in the situation of higher investment risk and macroeconomic risk of the country. This, in turn, leads to increased public debt and further difficulties in debt repayment, necessity to issue successive treasury bonds and, in the case where it is impossible to place them on the market, to insolvency (Bukowski 2011).

All this is accompanied by the contagion effect: lower rating for subsequent countries which reveal a high debt and budget deficit to GDP ratio, higher costs of debt servicing and difficulties in placing new issues indispensable to raise capital for debt repayment in the case of more and more countries.

1.4 European Central Bank monetary policy against financial and fiscal crisis

In the period of the financial and fiscal crises (2008-2013) the euro versus dollar exchange rate, as well as inflation rates in the euro area, fluctuated considerably. Their values were affected by many factors of both economic and non-economic nature.

The financial crisis in Europe was revealed only in mid-September 2008, immediately after a collapse of the Lehman Brothers investment bank in the USA. In the same period the euro area experienced a crisis of confidence and related to it, a liquidity crisis in the inter-bank sector which resulted in rapid growth of short-term interest rates in the market. Low activity and high risk occurring in the banking sector meant that financing the real sphere was limited, which contributed to a decline in consumption and investment demand. For this reason the European Central Bank undertook activities aiming at restoring equilibrium in the inter-bank market. Initially these were standard activities consisting of using basic monetary policy measures referring mainly to official interest rate developments. In the period from October 2008 to May 2009, the European Central Bank reduced interest rates to a level close to zero, which limited any further active use of this instrument. The interest rate policy implemented by the ECB did not bring about the expected effects and for this reason the ECB decided to implement non-standard monetary policy measures consisting mainly of modification of classical monetary policy instruments in this phase of the crisis which contributed to a reduction in short-term interest rates in the inter-bank market. Considering the events which took place at the time of the financial crisis and actions undertaken by the ECB, the financial crisis in the euro area can be divided into several phases where one can distinguish the period of market disturbances, the financial crisis as well as fiscal crisis (Cassola, Durre, Holthausen 2011, p. 281). With reference to particular phases of the crisis, one can identify the following non-standard measures used by the monetary authorities of the euro area:

a) phase I – market disturbances
- implementing additional fine-tuning operations,
- increasing liquidity provision at the beginning of the period of maintaining the required cash reserve ratio,
- extending maturity dates of open-market basic and long-term operations,
- ensuring liquidity in US dollars – TAF *(Term Auction Facility)* programme,
b) phase II – financial crisis
- conducting re-financing operations in the form of public procurement with full allocation of resources and a fixed interest rate,

-        further modification of maturity dates of long-term re-financing operations,

-        extending the list of assets permissible as a collateral,

-        ensuring liquidity in US dollars and Swiss francs,

-        Covered Bond Purchase Programme (CBPP),

c)   phase III –fiscal crisis

-        extending the period of conducting re-financing operations in the form of public procurement with full allocation of resources and a fixed interest rate,

-        implementation and further modification of maturity dates of additional long-term re-financing operations,

-        further extending the list of assets permissible as collateral,

-        ensuring additional liquidity in US dollars,

-        implementation of the Securities Markets Programme (SMP),

-        resuming the Covered Bond Purchase Programme II (CBPPII),

-        launching the *Outright Monetary Transactions* (OMT) programme of government bond buyout.

All activities, both standard and non-standard, undertaken by the ECB aimed at improvement of liquidity in the inter-bank market which, to some extent, was successful. However, it did not manage to completely eliminate disturbances in functioning of the monetary policy impulse transmission mechanism. The liquidity crisis in the inter-bank sector resulted in limited financing of the real sphere.

In the period 2008-2009, a dramatic fall in growth of the monetary aggregate M2 occurred, as well as a dramatic fall in the inflation rate in the euro area (see: Figures 1 and 2).

The situation changed considerably in May 2010 when the financial crisis evolved into fiscal crisis. This was a result of excessive public debt and high deficit in the public sector in some euro area countries. The financial problems faced by the euro area countries was a result of, among others, a lack of financial discipline in the period of favorable circumstances that preceded the crisis, abandonment of necessary public finance reforms, increase in public debt that was a consequence of high budget deficits, as well as non-compliance with the principles of the Stability and Growth Pact[1]. The situation deteriorated further due to overlapping of the financial and fiscal crisis. Economic slowdown and limited efficiency of monetary policy implemented by the ECB caused the euro area countries to use hugely active and passive fiscal policies. Implementation of fiscal packages to stabilize the financial system and stimulate the economic situation, increase in fixed expenses in total budget spending as well as reduction in budget revenues being the effect of economic slowdown, were additional stimuli having adverse effects on the situation of public finance and an increase in the deficits of some euro area

countries. Upon escalation of disturbances resulting from the euro area fiscal crisis, the European Central Bank decided to use more decisive non-standard programme actions, such as: the *Securities Markets Programme, Covered Bond Purchase Programme* and *Outright Monetary Transactions,* all aiming at long-term liquidity. Additionally, the countries having particularly high budget deficits were covered by the aid programmes of the European Union and International Monetary Fund.

In the period of fiscal crisis which started in mid-2010, the dynamics of the monetary aggregate M2 and inflation rate increased in the euro area (see: Figures 2 and 3).
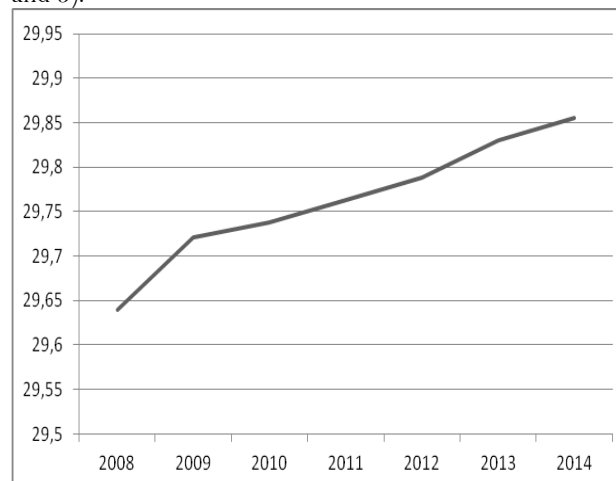
Figure 2. Dynamics of monetary aggregate M2 (*lnM2*) in the euro area for the period 2008-2014
Source: author's own compilation based on the data from: ECB Statistical Data Warehouse, http://sdw.ecb.europa.eu/(access: 7.03.2016

Figure 3. Rate of inflation in the euro area in the period 2008-2014.
Source: author's own compilation based on the data from: ECB Statistical Data Warehouse, http://sdw.ecb.europa.eu/(access: 7.03.2016

Both the European Central Bank's non-standard monetary policy and the euro area fiscal crisis had a

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[1] According to the principles of the Stability and Growth Pact, the euro area member states are obliged to prevent excessive state budget deficits and adhere to their levels of 3% GDP. It is the so called budget criterion.

Moreover, the member states are also obliged not to exceed the public debt level of 60% of GDP. It is the so called fiscal criterion.

considerable effect on the EUR/USD rate of exchange. In the period 2008-2013 the euro exchange rage underwent depreciation (see: Fig.4).

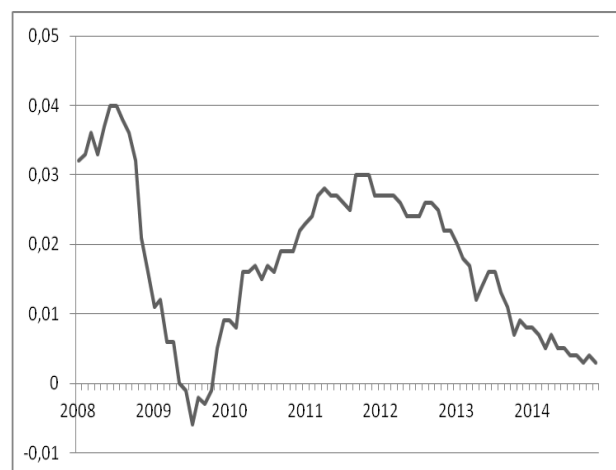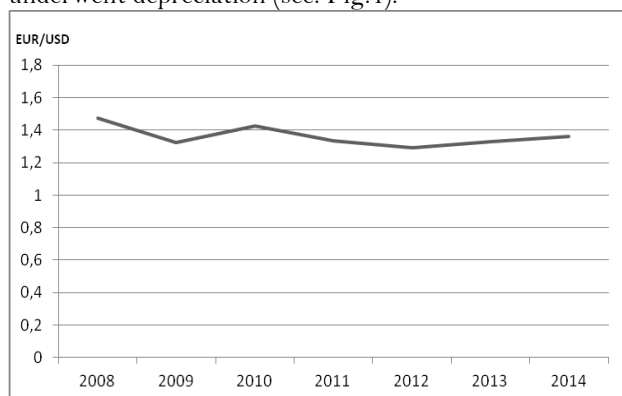**Figure 4.** EUR/USD rate of exchange in the period 2008-2014.

Source: author's own compilation based on the data from: ECB Statistical Data Warehouse, http://sdw.ecb.europa.eu/(access: 7.03.2016

Other factors affecting the *euro* exchange rate during the financial and fiscal crises were of non-economic character – they were of psychological nature. High risk and uncertainty that were observed in financial markets during that period resulted in the capital flight to safe and liquid assets in the currency, ensuring relative stability of its purchasing power.

2. Financial and fiscal crisis versus prices and EUR/USD rate of exchange

2.1 Statistical data

In our research we used monthly data from the period 2008-2014. The data regarding the EUR/USD nominal exchange rates, inflation rates in the euro area and monetary aggregate M2 are taken from the *ECB Statistical Data Warehouse*. The data on United States inflation rates and the USA monetary aggregate M2 come from the *Federal Reserve Statistical Releases*. The data referring to short-term, 3-month interest rates in

the inter-bank market in the euro area and the United States were taken from the *OECD* database.

2.2 Model

In order to examine whether and how the changes in money supply (monetary policy effect) in the euro area, changes in price levels (inflation rate) and in interest rates in the euro area in relation to these magnitudes in the United States affected the euro exchange rate (the price of <u>euro</u> expressed in US dollars) in the period of the financial and fiscal crises (2008-2014), the following model was formulated:

$$lnE_t = a_{1t} + a_{2t}lnMe2_{t-1} + a_{3t}\Delta P_t + a_{4t}\Delta P_{t-1} + a_{5t}\,ie_{t-1} + a_{6t}iu_{t-1} + \varepsilon_t$$

where:

lnE- logarithm of the USD/EUR nominal exchange rate,

$lnMe2$ – logarithm of the monetary aggregate M2 in the euro area, Pe, Pu – inflation rates in the euro area and United States, respectively,

ΔP- first differences from the difference in inflation rates in the euro area and United States, where:

$$\Delta P_t = \Delta(Pe_t - Pu_t)$$

$\Delta ie, \Delta ie$ – first differences in short-term interest rates in the euro area and United States, respectively,

a – constant (intercept)

ε – residuls,

t – current period,

$t - 1$ – the period lagged by 1 month,

$t - 2$ – the period lagged by 2 months.

Estimation: GARCH (0.1).

The model was estimated using the GARCH (0.1) method.

3. Results

The conducted Engel-Granger co-integration test shows that the examined time series are co-integrated (see: Table 1A).

Table 1. GARCH, using observations 2008:03-2014:11 (T = 81) Dependent variable: lE, QML standard errors

	Coefficient	Std. Error	Z	p-value	
const	21.5543	1.35114	15.9527	<0.0001	***
l_Me2_1	−0.713326	0.0454081	−15.7092	<0.0001	***
d_P	−4.4104	0.652543	−6.7588	<0.0001	***
d_P_1	−1.45133	0.632048	−2.2962	0.0217	**
d_ie_1	15.6518	1.10936	14.1089	<0.0001	***
d_iu_1	−6.22052	0.7323	−8.4945	<0.0001	***
alpha(0)	0.000338735	8.6963e-05	3.8952	<0.0001	***
alpha(1)	0.732598	0.169082	4.3328	<0.0001	***
Mean dependent var	0.305427		S.D. dependent var	0.058151	
Log-likelihood	172.3816		Akaike criterion	−326.7633	
Schwarz criterion	−305.2132		Hannan-Quinn	−318.1171	

Unconditional error variance = 0.00126676

*The variable is statistically significant at the 10% significance level, ** the variable is statistically significant at the 5% significance level, *** the variable is significant at the 1% significance level.

Source: authors' own calculations with the use of GRETL program.

Table 1A. Engle-Granger's Co-integration Test. Augmented Dickey-Fuller test with constant and linear trend for uhat including 0 lags of (1-L)uhat (max was 12, criterion AIC) sample size 82

unit-root null hypothesis: a = 1
model: (1-L)y = (a-1)*y(-1) + e
estimated value of (a - 1): -0.259001
test statistic: tau_ct(6) = -3.49288, critical value with significance level 0.05 = -3.45.
p-value 0.6594
1st-order autocorrelation coeff. for e: -0.011

Source: authors' own calculations with the use of GRETL program.

Analysis of the model estimation results (see: Table 1) shows that all variables are statistically significant and have signs in line with the economic theory.

4. Conclusions

Conducted analysis allows us to formulate the following conclusions:

a)The use of standard and non-standard ECB monetary policy measures as a reaction to the financial crisis in the euro area caused a dramatic reduction in interest rates in the inter-bank market and higher money supply expressed, among others, in higher aggregate M2; that was the main reason for the euro versus US dollar depreciation in the period 2008-2014.

b)there was a statistically significant and fairly strong relationship between short-term interest rates in the euro area and USA which affected the nominal EUR/USD exchange rate in the period 2008-2014,

c)there was a statistically significant, negative and fairly strong relationship between growing differences in interest rates in the euro area and the United States and the nominal USD/EUR exchange rate in the years 2008-2014,

d)there was a statistically significant, negative and strong relationship between the money M2 supply in the euro area and the nominal USD/EUR exchange rate in the years 2008-2014.

Thus, in summary, the EBC monetary policy, both standard and non-standard, in the years 2008-2014 had a significant effect on the EUR/USD exchange rate, contributing largely to the depreciation of the euro in the same period.

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Is Nigerian Growth Trade-Led

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Is Nigerian Growth Trade-Led?

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ARTICLE INFO

ABSTRACT

Purpose

Nigeria is currently in recession, a situation described as induced by decreases in oil output and export, caused by the bombings of oil pipelines in its Niger Delta region, and the unanticipated decline in its value of exports and currency, resulting from the decline in oil prices. With the export value decline, somersaulting to growth, could it then be that Nigerian economic growth is trade constrained? How important is export to growth?. This study investigates these, its invention balances in its methodology

Design/methodology/approach:

To achieve the above, this paper employs the Autoregressive Distributed Lag Model (ARDL) and the Thirlwall's Law of balance of payment led growth, using a combination of annual $(1981 - 2016)$ and quarterly $(2000Q1 - 2016Q4)$ data to ensure robustness. This combination not only allows for comparison but also ensures the reflection of the current government's trade decisions and trade activities; these are missing in other studies.

Findings:

Using the Wald F-Statistic, Economic growth is found to be equal to export growth rate divided by income elasticity of import, the estimated income elasticity of import which is greater than 100% or elastic reflects over dependence on import both in the short and long run, implying that Nigeria imports more than it earns. Exchange rate and terms of trade are insignificant especially in the long run. The study calls for monitoring of import contents; the government needs to enforce its recent directives to stop importation of some products that are already being produced within with higher quality and adequate export promotion strategies should be formulated and enforced.

Research limitations/implications:

The data span is restricted by data availability, the study could as well confirm its results with monthly data for robustness and better confidence, but most of the variables are reported annually and quarterly only.

Originality/value:

Many studies have confirmed the importance of export to Nigerian economic growth; none known to this study has combined both quarterly and annual data and covered recent data as this. This study will help policy makers in their focus when trying to deal with negative economic adjustments.
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1.Introduction

The orthodox economic theory is premised on a supply-driven economic system and a self-equilibrating balance of payment as accentuated by Say's Law, where growth is ascertained by factor inputs and technical advancement (see, Braudel, 1979). The inefficiency of this was later realized from the lessons taught by the great economic slump. John Maynard Keynes was able to tell us that the capitalist economy, where everything depends on market forces and whose basis is supply oriented, is inherently unstable, and there is the need to focus on aggregate demand (see Keynes, 1936; Thirlwall, 1979; McCombe and Thirlwall, 2004; and Aricioglu, *et.*

al., 2013). In an open economy, the aggregate demand is more important; what if against Say's Law, what is produced is not demanded, would it not be better to allow demand to create its own supply? According to Thirlwall (1979), the growth of an economy may be constrained by its aggregate demand long before the optimum supply is attained. If therefore, aggregate demand or economic output is constrained by the balance of payment equilibrium, it is impossible to understand the differences in the long run economic growth among countries without reference to the balance of payment (McCombie and Thirlwal, 2004).

Prior to the 1970's oil discovery in Nigeria, investment projects were executed with domestic savings, the big earnings from agricultural product exports, foreign aids and the advantageous increasing industrialization in the developed countries, which created a prosperous market for the Nigerian primary products (Okezie, 2011). However, after the discovery of oil and its massive and increasing exportation since the 1970s, one would expect that more foreign exchange earnings would accrue to the economy and the economy would be able to undertake viable investment projects that continue to lay a basis for sustainable growth and development, but the drastic divergence from agriculture and high dependence on oil that stands to compete with international technological development has finally paid off negatively on the economy. The large competition experienced in the international oil market, has deteriorated the price of oil and the total export value by Nigeria, and the continuous unrest in the Niger Delta region of the country resulting in bombings of oil pipelines, thereby decreasing oil production capacity and export, and causing a reduction in economic growth. These has paralysed the Nigerian currency and real economic growth up until the first quarter of 2017 when the end of tunnel seems to bear some light; the country has been in recession (see, Okonkwo, 1989; Awokuse 2008; Njoku and Olajide, 2016; IMF, 2017, and Ismail & Adenekan, 2017).

With these turbulent, somersaulting from export decline in growth, could it be that Nigerian long run aggregate demand is constrained by the balance of payment current account equilibrium? If true, would Nigeria not need to focus on its export sector to promote growth and escape depression? This study investigates this. The study differs in its approach, a combination of quarterly and annual data is employed to emphasize the robustness of the results and a longer data span that covers recent economic activities is used. No study known to the authors has conducted the same research via the same methodology in terms of data span and data combination.

2. Theoretical and Empirical Literature

No country can grow beyond the growth coherent with equilibrium in the balance of payment on current account unless it is prepared to infinitely finance growing deficit, which surely it cannot (Thirlwall, 2011). In his pioneering study, the growth experiences of major advanced countries were analyzed by Thirlwall, where he demonstrated that the growth in these countries approximates to the growth rate of export, divided by the income elasticity of import.

According to Thirlwall *"It is demand that 'drives' the economic system to which supply, within limits, adapts. Taking this approach, growth rates differ because the growth of demand differs between countries"*. This proposition has resisted several heterodox criticisms over time with some modifications introduced in the case of developing and underdeveloped economies (see, Razmi 2011;2016; Ros 2013; Clavijo and Ros 2015; and Ibarra and Blecker 2016).

The validity of Thirlwall's law is well proclaimed; such studies that emphasized Thirlwall's law include Lima and Carvalho (2008) in which they explained that in the long run aggregate demand plays an important role in determining economic growth. If a country's growth rate results in the import growth rate raising above growth of exports, the resulting deterioration in the balance of payments disturbs the system of economic growth and hence reduces economic growth (Acaravci and Ozturk, 2010). Kilavuz and Topcu, (2012) also explain that when the supply elasticity of demand and the demand elasticity of demand for a country's commodity rise; this stimulates the export-led growth of the economy pioneered by its industrialization, this is why they reasoned that Kaldor (1968) referred to industry as the "engine of growth". To Kaldor, growth in industrial manufacturing sector is made possible by growth in external demand; that is, through export growth. The higher the manufacturing industry growth rate that export determines, the faster the transfer of labour from sectors in which economic productivity is low to the industrial sector, which leads to a faster productivity increase and results in macroeconomic growth.

Yongbok (2006) empirically tested the validity of Thirlwall's law in the case of China during the reforms period of 1979 to 2002; the study estimated the income elasticity of imports using the ARDL-VEC model and the bounds test. The results revealed that the Chinese economy has grown in accordance with the predictions of Thirlwall's law and that the growth of GDP and exports are co integrated over the sample period. Hansen and Virmantas (2004), in examining the balance of payments constrained growth model in three Baltic countries, found that based on their estimation of income elasticity of imports and assumptions about export growth, GDP growth rates are consistent with the balance of payment equilibrium. Complementing these results, Alvarez *et al.* (2008) concluded that the balance of payment is an important determinant of the Cuban long run economic growth over the periods of 1960 to 2004, after employing the Johansen co-integration technique, the result revealed that economic growth, exports of goods and services, and terms of trade, are driven by a common stochastic trend. The study then drew conclusions that economic growth is constrained by the country's external demand position.

Several authors have tested the validity of Thirlwall's proposition in Nigeria, this study however is inventive in nature for using both quarterly and annual data to examine if the results differ, and also extends the data span to accommodate recent economic activities in Nigeria.

3. Theoretical Framework and Methodology

3.1 The Framework

The picture displayed in the Balance of Payment Constrained Growth (BPCG) theory explains trade – growth interactions, especially the proposition that growth of an economy is demand-led and that demand is trade-led, this is coherent with perpetual external trade balance where exports value equals imports value as in equation (1),

$$P_h X = P_f M E \qquad (1)$$

$$X = c \left(P_h \middle/ P_f E \right)^{\infty} Z^{\pi}$$

Where $c, \pi > 0 \qquad \infty < 0 \quad (2)$

$$M = k \left(P_f E \middle/ P_h \right)^{\omega} Y^{\psi}$$

Where $g, \psi > 0 \qquad \omega < 0 \quad (3)$,

where P_h is export price (domestic currency), the price of import is P_f (in foreign currency), X is export, M is import and E refers to nominal exchange rate (domestic price of foreign currency). Z represents world income, Y is domestic income, and ∞, π, ω and ψ are price elasticity of export, income elasticity of export, price elasticity of import and income elasticity of import respectively.

$$p_h + x = p_f + m + e \qquad (4)$$

$$x = \infty(p_h - p_f - e) + \pi z \qquad (5)$$

$$m = \omega(p_f + e - p_h) + \psi y \qquad (6)$$

The proportional rates of growth of equation (1), (2) and (3) are given by equations (4), (5) and (6)
Substituting equations (5) and (6) into (4), equation (7) results in;

$$y = \frac{(1 + \infty + \omega)(p_h - p_f - e) + \pi z}{\psi} \qquad (7)$$

$$y = \frac{(1 + \omega)(p_h - p_f - e) + x + \pi z}{\psi} \qquad (8)$$

Given that the rate of growth of the world income is exogenous, that is $z = \overline{z}$ and that the relative prices and exchange rates in the international market are relatively constant in the long run, then equation (8) will reduce to (9). Equation (9) is the canonical equation for the long run equilibrium rate of economic growth in the Balance of Payment Constrained Growth (BPCG) model (see, Setterfield, 2011).

$$y^{**} = \frac{x}{\psi} \qquad (9)$$

The income elasticity of import (ψ) can be derived from the long run estimation of equation (3) as stated in equation (10).
From equation 3, taking the natural logarithm

$$\ln M_t = \ln k + \omega \ln P_t + \omega \ln E_t + \psi \ln Y_t$$

$$k \text{ is constant and } P_t = \frac{P_f}{P_h} \qquad (10)$$

Also, the growth rate of export (x) is derived using $x_t = \ln X_t - \ln X_{t-1}$.

3.2 Methodology

Based on the ongoing, this study employs the Autoregressive Distributed Lag Model (ARDL) of Pesaran and Shin (1999) and Pesaran *et. al.*, (2001) in estimating equation (10), this method is also popularly referred to as the Unrestricted Error Correction Model (UECM) or Bound Test. The procedure can be used efficiently for small sample data. The procedure allows the combination of a series of different orders of integration, $I(0)$ or $I(1)$. However, unlike the notion in some studies, there is still the need to carry out the traditional unit root tests, to ensure that none of the series is $I(2)$ and to difference such if it occurs. (See, Tang, 2003; Pesaran and Tosetti, 2011; and Tursoy, 2016).
From equation (10), the ARDL specification is given in equation (11);

$$\Delta \ln M_t = \gamma + \sum_{i=1}^{p} \partial_i \Delta \ln M_{t-i} +$$

$$+ \sum_{i=0}^{p} \omega_i \Delta \ln P_{t-i} + \sum_{i=0}^{q} \phi_i \Delta \ln E_{t-i} + \qquad (11)$$

$$+ \sum_{i=0}^{r} \psi_i \Delta \ln Y_{t-i} + \delta_1 \ln M_{t-1} + \delta_2 \ln P_{t-1} +$$

$$+ \delta_3 \ln E_{t-1} + \delta_4 \ln Y_{t-1} + \varepsilon_t$$

The last part of equation (11) without operators represent the long run parameters, the Wald F-statistic is used to test for co-integration, by testing the null hypothesis of $\delta_1 = \delta_2 = \delta_3 = \delta_4 = 0$, that is, no co-integration or no long run equilibrium. A rejection of this suggests long run relationship. After the co-integration test, the long run and short run import equation relationships are estimated and from this, the income elasticity of import (the coefficient of $\ln Y_t$ (ψ) as in equations (9) and (10)) is obtained, "predicted growth rate" (y_t) will then be calculated by the ratio of export growth rate and income elasticity of import (as in equation (9)), after which this predicted growth rate will be regressed on the actual growth rate ($\dot{Y_t}$) represented by GDP growth rate. The Wald F statistic is used again to test for the Thirlwall's law, in equation (12) that is

$$a = 0 \quad \text{and} \quad b = 1$$

$$y_t = a + b \dot{Y_t} \qquad (12)$$

3.3 Data Description

Distinct from the past studies conducted on Nigeria for the test of Thirlwall's law, this study employs both

quarterly and annual data to ensure result robustness, higher frequency data may produce results that differ, a data span covering activities of the new government and capturing recent economic affairs is also used. The data used are sourced from the Central Bank of Nigeria Statistical Bulletins for 2015 and 2016. The annual data spans from 1981 to 2016 (36 observations), while the quarterly data spans from 2000Q1 to 2016Q4 (68 observations). The choice of data span is dictated by data availability from the same source and that the quarterly data for most of the series are available only from the year 2000Q1.

4. Empirical Results

4.1 Graphical Presentation and Descriptive Statistics

Figure 1 and Figure 2 present the time series plot of annual and quarterly Gross Domestic Product (GDP), Export (EXP), Import (IMP), Exchange rate (EXR) and Terms of Trade (TOT). Both annual and quarterly data are plotted to clearly reflect movements in the series over years, apart from terms of trade that is S-like, other series tend upward, which simply suggests positive correlations, the quarterly data however suggests otherwise as the fluctuations become more obvious.

The quarterly plot reveals increasing but fluctuating imports since around 2012, while exports have been on a fluctuating fall from early 2012 to 2016, the fall is more aggressive immediately after 2014 until the end of 2016, a suggestion that reveals the net consuming nature of the Nigerian economy. Exchange rate from the annual and quarterly plot is on the increase, Nigerian currency loses its value with fluctuations in the US dollar. The decline in the rate of growth is more obvious on the quarterly data plot.

Table 1 presents the descriptive statistics of the series, using the method proposed by Jarque and Bera (1987), the Jarque Bera probabilities (JB) suggest an acceptance of the null hypothesis of normal distribution. Under the assumptions of normal distribution, it is assumed that skewness and kurtosis have asymptotic distributions of $N(0)$ and $N(3)$ respectively (Gujarati, 2003). The table shows that almost all variables have negative skewness, which means that decreases occur more often than increases, although, the kurtosis values for the series are all below the threshold of 3, the use of kurtosis and skewness is not enough to justify the normal distribution of a series since the thresholds are not realistically obtainable, a compensating statistic is the Jarque Bera statistic, which suggests that all variables are normally distributed as shown on table 1.

1981 − 2016 (Annual)

Fig. 1. Annual plot of variables used 2000 − 2016 (Quarterly)
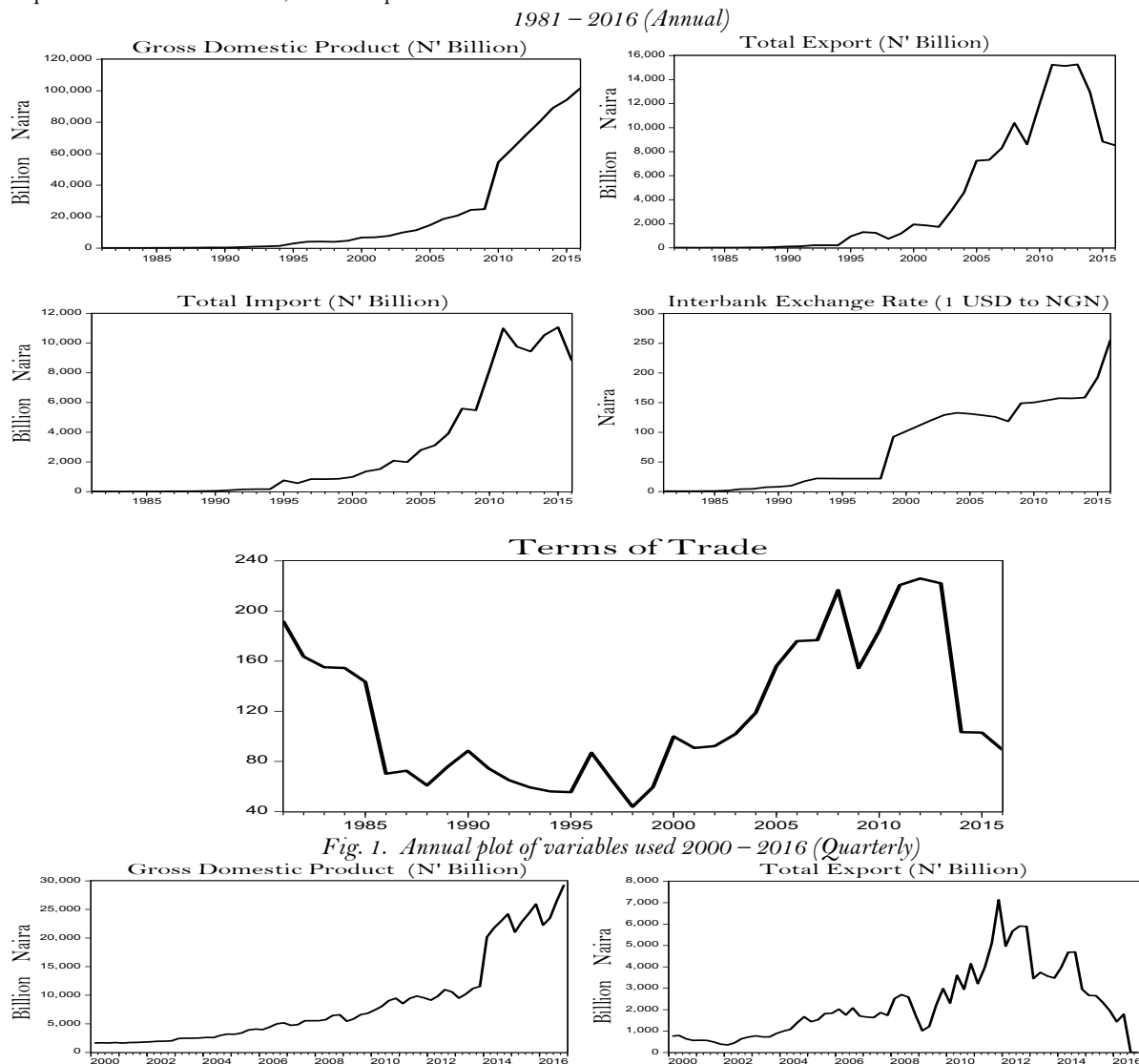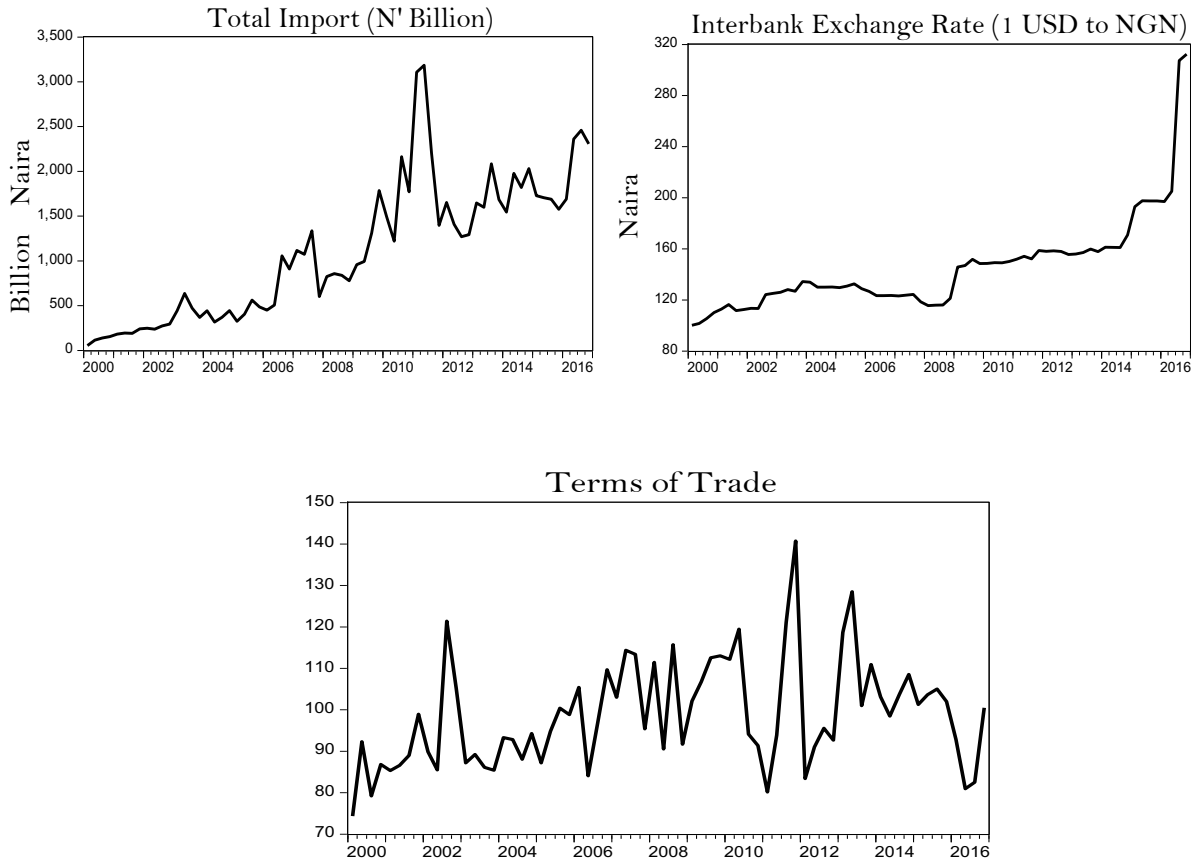
Figure. 2. Quarterly plot of variables used

Table 1.   Descriptive Statistics

	Annual				
	Mean	*Std. Dev.*	*Skewness*	*Kurtosis*	*JB. Pr.*
lnGDP	8.1447	2.3349	−0.1529	1.7127	0.2690
lnEXP	6.5206	2.6558	−0.4646	1.7887	0.1741
lnIMP	6.1488	2.5804	−0.3997	1.7369	0.1871
lnEXR	3.2896	1.9519	−0.7338	2.1915	0.1217
lnTOT	−4.6677	−0.4711	−0.6290	1.7620	0.3131
			Quarterly		
	Mean	*Std. Dev.*	*Skewness*	*Kurtosis*	*JB. Pr.*
lnGDP	8.6892	0.8732	0.1779	1.9772	0.1899
lnEXP	7.4931	0.7517	−0.3143	2.2349	0.2493
lnIMP	6.6761	0.9199	−0.6778	2.6612	0.0629
lnEXR	4.9538	0.2196	1.3613	5.8158	0.0000
lnTOT	−4.5845	−0.1272	−0.3615	2.8318	0.4580

Note: Std. dev means standard deviation and JB pr. is Jarque Bera Probabbility

4.2 Stationarity Test

The results of the unit root tests performed on the natural logs of the series are presented in table 2, using the Augmented Dickey – Fuller (ADF) and Phillips-Perron unit root tests (see, Fuller, 1976; Dickey and Fuller, 1979; and Phillips and Perron, 1988), the result shows that apart from the quarterly terms of trade which is *I(0)*, other series are *I(1)*, this means that all the series are stationary only after first difference except quarterly terms of trade which is stationary at level. The result

suggests that the series be differenced to ensure constancy in their means, a non-stationary series may render estimates spurious. Meanwhile, differencing a variable removes its long run properties; this is a trade-off, however reasonable estimation technique to bypass this problem is the Autoregressive Distributed Lag model (ARDL) that permits the combination of *I(0)* and *I(1)* series and estimates both short-run and long run relationships simultaneously.

Table 2. Stationarity Test Results

Var.	Level Series				First Difference			
	ADF		PP		ADF		PP	
	Annual	Quarterly	Annual	Quarterly	Annual	Quarterly	Annual	Quarterly
lnGDP	0.8722	0.9728	0.8715	0.9817	0.0000*	0.0000*	0.0000*	0.0000*
lnEXP	0.6117	0.5695	0.5915	0.6074	0.0000*	0.0000*	0.0000*	0.0000*
lnIMP	0.7241	0.0557	0.8014	0.0425	0.0000*	0.0000*	0.0000*	0.0000*
lnEXR	0.3290	0.9991	0.27470.	0.9993	0.0002*	0.0000*	0.0002*	0.0000*
lnTOT	0.3268	0.0000*	3069	0.0000*	0.0000*	0.0000*	0.0000*	0.0001*

*Note: all figures are probability values and * denotes 1% significance, the variables are all in natural logarithm forms and Var. means Variables.*

4.3 Lag Selection
Table 3 presents the result of the optimum lag selection, all criteria suggest lag one for both the annual and quarterly data. Although, the ARDL automatically selects the optimum lag structure during estimation, it has become traditional to check optimum lags before estimation

Table 3. Lag Selection

Lags	LogL	LR	FPE	AIC	SC	HQ
			Annual			
0	-120.2921	NA	0.021959	7.532855	7.7142	7.5938
1	9.486745	220.2308*	2.24e-05*	0.637167*	1.5441*	0.9423*
2	19.88013	15.11766	3.30e-05	0.976962	2.6095	1.5262
3	29.91771	12.16676	5.36e-05	1.338320	3.6964	2.1317
			Quarterly			
0	-8.017141	NA	1.70e-05	0.369758	0.5035	0.4225
1	213.1392	408.2886*	3.09e-08*	-5.942744*	-5.2737*	-5.6787*
2	218.1161	8.575597	4.36e-08	-5.603572	-4.3992	-5.1284
3	229.6907	18.51939	5.07e-08	-5.467406	-3.7278	-4.7810

*Note: * denotes optimum lag selected*

4.4 ARDL Model Result for Equation (11)
As stated in equation 11, the autoregressive distributed lag model is estimated to carry out the Bound test and estimate long run and short run relationships. In table 4, the selected autoregressive model for the two data frequencies differ, for the annual data, after estimating about 500 equations, the best equation using the Akaike Information criterion (AIC) is selected to be ARDL (1, 4, 0, 1), while ARDL (1, 0, 0, 0) is selected for the quarterly data, after estimating 500 models. The coefficients of determination for the two (2) equations are very high and their closeness to their respective adjusted R^2 suggests non-inclusion of irrelevant variables, the Durbin Watsons are also close to the threshold of 2 a suggestion of no autocorrelation. The output of the ARDL model may need to be decomposed if co-integration is discovered, so that the short run relationships can be explained separately from the long run relationships.

Table 4. ARDL Model Result
Dependent Variable: lnIMP

	Annual				Quarterly		
Variables	Coefficients	t-stat	Prob.	Variables	Coefficients	t-stat	Prob.
lnIMP(-1)	0.0809	0.4121	0.6842	lnIMP(-1)	0.7268	9.8375	0.000*
lnTOT	-0.0177	-0.0935	0.9263	lnTOT	0.1181	0.4372	0.6634
lnTOT(-1)	-0.1487	-0.6070	0.5500	lnEXR	-0.1451	-0.5394	0.5915
lnTOT(-2)	-0.0079	-0.0349	0.9724	lnGDP	0.2481	2.5457	0.013**
lnTOT(-3)	-0.0073	-0.0298	0.9765	Constant	0.9760	0.6032	0.5486
lnTOT(-4)	-0.6069	-2.6366	0.0151**				
lnEXR	0.0786	0.6966	0.4933				
lnGDP	1.3747	5.3020	0.0000*				
lnGDP(-1)	-0.4105	-1.5295	0.1404				
Constant	-0.4164	-0.7562	0.4575				
R^2 = 0.99, Adj. R^2 = 0.98, DW =2.16				R^2 = 0.93, Adj. R^2 = 0.92, DW =2.15			
ARDL (1, 4, 0, 1)				ARDL (1, 0, 0, 0)			

Note: *, **, *** denotes 1%, 5% and 10% significance respectively, the variables are all in natural logarithm forms.

4.5 Result of the Bound Test (Co-integration Test)

The result of the co-integration test is presented on table 5, using the Bound Test technique to test the null hypothesis of no co-integration, the Wald F – Statistic is compared with the critical values of the lower and upper bounds. A statistic above the upper bound suggests presence of co-integration, while below the lower bound means no co-integration and a statistic between the two (2) boundaries reveals inconclusiveness, (see, Pesaran *et al.*, 2001). In table 5, the annual data series estimates co-integrate even at 1% (6.79 > 5.61), but the quarterly data series are only co-integrated at 10% (4.22 > 3.77). The study therefore proceeds to derive the long and short run estimates of the ARDL model having rejected the null hypothesis of no co-integration. The long and short run estimates are presented in table 6.

4.6 Short run and long run Contemporaneous Estimation of the Import Function

In table 6, the growth rate of income in Nigeria represented by the growth rate of Gross Domestic Product (GDP) continues to be a significant determinant of import growth, both in the short and long run. The general significance of terms of trade is however in doubt, as only terms of trade growth in the past three years influence export growth significantly in the short run using the annual series, meanwhile the quarterly data pronounces it as insignificant in the short run.

The same also holds for terms of trade in the long run; the annual data shows that it is significant in determining growth of import, but the higher frequency data pronounced it otherwise. Since the quarterly data is expected to expose more properties of a series, this result may suggest a validation of Thirlwall's law's non-significance of terms of trade in the long run; this validation obviously is then better obtained with a long span of data. The exchange rate however remains insignificant throughout.

Note that the coefficient of income growth rate (lnGDP) in the long run, which is Thirlwall's income elasticity of import ψ, as in equation 9, is obtainable in table 6 as 1.0490 for the annual data and 0.9085 for the quarterly data. Annual and quarterly data on export growth rate are divided by these coefficients respectively to obtain Thirlwall's predicted growth rate. These predicted growth rates are then regressed on actual growth rate and the equality is tested using the Wald F-Statistic.

Table 5. Bound Test Result

Annual			Quarterly		
Test Statistic	Value k		Test Statistic	Value	k
			F-statistic	4.220936	3
F-statistic	6.798780*	3			
Critical Value Bounds					
Significance	I(0) Bound	I(1) Bound	Significance	I(0) Bound	I(1) Bound
10%	2.72	3.77	10%	2.72	3.77
5%	3.23	4.35	5%	3.23	4.35
2.5%	3.69	4.89	2.5%	3.69	4.89
1%	4.29	5.61	1%	4.29	5.61

Note: *, **, *** denotes 1%, 5% and 10% significance respectively.

Table 6. Co-integrating Form of the ARDL

Short run Annual				Short run Quarterly			
Variable	Coefficient	t-Stat	Prob.	Variable	Coefficient	t-stat	Prob.
D(lnTOT)	-0.0177	-0.0935	0.9263	D(lnTOT)	0.1181		0.6634
D(lnTOT(-1))	-0.0079	-0.0349	0.9724	D(lnEXR)	-0.1451	0.4372	0.5915
D(lnTOT(-2))	-0.0073	-0.0298	0.9765	D(lnGDP)	0.2481	-0.5394	0.0134**
				DCointEq(-1)	-0.2731		0.0005*
D(lnTOT(-3))	-0.6069	-2.6366	0.0151			2.5457	
D(lnEXR)	0.0786	0.6966	0.4933			-3.6961	
D(lnGDP)	1.3747	5.3020	0.0000*				
CointEq(-1)	-0.9190	-4.6802	0.0001*				
Long run Annual				Long run Quarterly			
Variable	Coefficient	t-Stat	Prob.	Variable	Coefficient	t-Stat	Prob.
					0.4326		0.6761
lnTOT	0.4959	3.0986	0.0052*	lnTOT		0.4197	
					-0.5315	-	0.5938
lnEXR	0.0855	0.6956	0.4939	lnEXR		0.5361	
					0.9085		0.0007*
lnGDP	1.0490	11.0633	0.0000*	lnGDP		3.5561	
			0.4330		3.7537		0.5697
Constant	-0.4530	-0.7986		Constant		0.5715	

Note: *, **, *** denotes 1%, 5% and 10% significance respectively, the variables are all in natural logarithm forms.

Table 7 presents the diagnostic tests on the stochastic term of the ARDL regression based on the assumptions of the error term in the Ordinary Least Square Regression. The result shows an acceptance of all null hypotheses, that is, the error term is normally distributed (Jarque Bera), no serial correlation (Breusch-Godfrey) and there is homoscedasticity (ARCH).

Table 7. Diagnostic Test of the ARDL Regression Result

Tests	Probability Values	
	Annual	*Quarterly*
Breusch-Godfrey Serial Correlation LM Test	0.6911***	0.8453***
ARCH: Heteroscedasticity Test	0.7345***	0.9028***
Normality Test	0.6398***	0.1483***

*** denotes acceptance of null hypothesis at 1%, 5%, and 10% significance level.

4.7 Test of Thirlwall's Law

Since the long run income elasticity of import is now obtainable from table 6, and export growth rate can be calculated, then the annual and quarterly predicted growth rate can be derived using equation (9). Table 8 presents the annual and quarterly income elasticity of import extracted from table 6.

Table 8. Income Elasticity of Import

From equation 9 and table 6,	*Annual*	*Quarterly*
ψ, Income Elasticity of import or the coefficient of lnGDP in the long run	1.0490*	0.9085*

*Note: * denotes 1% significance level*

Recall that,

$$y^{**} = \frac{x}{\psi},$$

that is $GDP\,growth = \dfrac{\text{export growth rate}}{\text{income elasticity of import}}$

From equation 12

$$\dot{y}_t = a + b\dot{Y}_t$$

where y_t is the predicted growth rate and $\dot{Y}_t$ is the actual GDP growth rate

Table 9. Test of Equation 12 (Regression Result)

Annual				*Quarterly*			
Variable	Coefficient	t-Stat	Prob.	Variable	Coefficient	t-stat	Prob
a	-0.0206	-0.6571	0.5134	a	-0.0514	-0.658513	0.5148
$\dot{Y}_t$	1.0032	3.3355	0.0014*	$\dot{Y}_t$	1.1663	4.191640	0.0002*

*Note: *, denotes 1% significance level*

Table 9 presents the OLS regression result of equation 12, the Wald F-statistic of coefficient restriction test is then used to test the assumption that $a = 0$, $b = 1$, the result of which is presented in table 10. The probability values for both annual and monthly data shows an acceptance of the null hypothesis. The study then concludes that Nigerian economic growth rate is a balance of payment constrained. Whether quarterly or annual data is employed, the result remains the same, even though the magnitude of influence may differ with different data properties. Thirlwall's law continues to be remarkable and durable in Nigeria.

Table 10. Wald Test of Thirlwall's Law $H_0 : a = 0, b = 1$

Annual				Quarterly		
Test Statistic	Value	df	Prob.	Value	df	Prob.
F-statistic	0.233850	(2, 33)	0.7928	0.256034	(2,65)	0.7749
Chi-square	0.467701	2	0.7915	0.512067	2	0.7741

The importance of a healthy balance of payment to a country need not be overemphasized. Using Thirlwall's

2. Conclusion and Recommendations

Law, this paper employed both quarterly and annual data to validate the importance of a positive balance of payment to growth in Nigeria. The study confirmed Thirlwall's law, that, no country can grow beyond the growth inherent in its balance of payment condition and that the growth rate of an economy equals the growth rate in the balance of payment calculated by the ratio of export growth rate and income elasticity of import. This shows that Nigeria is international trade-dependent and the activities in its balance of payments determine its growth.

The reality of this result can be further strengthened with the recent destructive activities that took place in the Niger Delta region of the country; the bombing of oil pipelines that saw to the decline in oil output thereby reducing total export contributed to Nigeria's decline into recession; a decline in export resulted in decline in growth. The import consuming nature in Nigeria is also obvious; this is revealed by the income elasticity of import which is greater than 100% or elastic using the annual data, both in the short run and long run.

Although, investigating import on quarterly basis, import is slightly income inelastic in the short and long run.

This study calls for monitoring of total imports and import contents. Nigeria has the capacity to produce majority of what it consumes; income elasticity of import shows that Nigeria consumes more than it produces, this may result in financing a form of everlasting debt. The government needs to enforce its recent directives to stop importation of some products that are produced within with higher quality, and adequate export promotion strategies must be formulated, executed and maintained. The import contents can be manufacturing sector oriented, so that they can be used in boosting production and thereby raise export growth.

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Impact of Foreign Direct Investments on Unemployment in Emerging Market Economies: A Co-integration Analysis

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Impact of Foreign Direct Investments on Unemployment in Emerging Market Economies: A Co-integration Analysis

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ARTICLE INFO	ABSTRACT

ABSTRACT

Purpose
The goal of the paper is to investigate the long run effect of both foreign direct investments and domestic investments on the unemployment in 21 emerging economies over the period 1994-2014.
Design/methodology/approach:
The effect of domestic and foreign direct investments on unemployment was investigated via panel data analysis. First tests of cross-section dependence and homogeneity were conducted, and then the stationarity of the series was analyzed with Pesaran's (2007) CIPS unit root test. The long run relationship among the series was examined with Westerlund-Durbin-Hausman's (2008) co-integration test. Finally, we estimated the long run coefficients with the Augmented Mean Group (AMG) estimator.
Findings:
The empirical findings revealed a co-integrating relationship among domestic investments, foreign direct investments, and unemployment. Furthermore, foreign direct investment inflows affected the unemployment positively in the long term, but domestic investments affected the unemployment negatively.
Originality/value:
This study can be considered as one of the early studies researching the long run interaction between domestic investments, foreign direct investments and unemployment for the sample of emerging market economies. Furthermore, the findings are very meaningful for policymakers in the design the economic policies for decreasing unemployment.

1. Introduction

Globalisation has accelerated as of mid-1980s, although its past dated back to the Second World War and has had many economic, technological, social and cultural impacts on the societies. One of the most important impacts and causes of globalisation is foreign direct investment (FDI) flows. FDI can be implemented by a new establishment termed green-field investment or by merger and acquisition of a local enterprise termed brown-field investment (Wong and Adams, 2002). Global FDI inflows reached to about $1.871 trillion in 2007, but then significant contractions have been experienced in global FDI inflows due to recent financial crises and amounted to about $1.228 trillion in 2014 as seen in Figure 1.

Emerging market economies have experienced a similar trend in FDI inflows and the share of emerging economies in international FDI inflows reached approximately 34.5% in 2014, up from 9.3% in 1990 (UNCTAD, 2016).
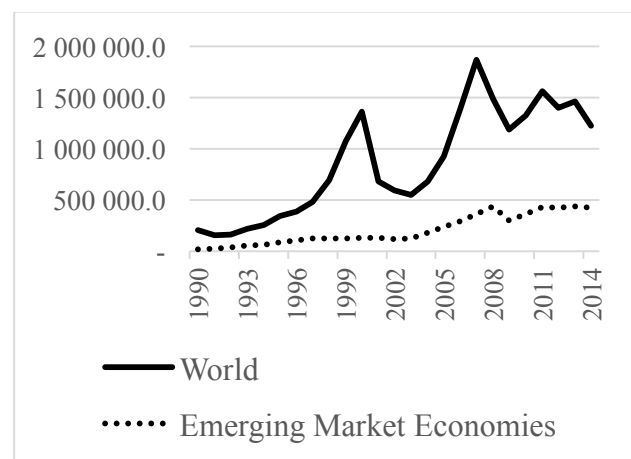

Figure 1: FDI inflows in the world and emerging market economies (millions of dollars)
Source: UNCTAD, 2016

FDI inflows place the economies of host countries at both an advantage and disadvantage; major advantages

of FDIs are that they provide capital for productive investments and in turn, foster economic growth, create jobs, particularly FDI in the form of green-field investment, and also contribute to the economy via technology and productivity spillovers and improvements in production and competitiveness. On the other hand, FDIs harm economies by deteriorations in financial stability and inequality and environmental degradation.

The goal of this study was to analyze the interaction among unemployment, domestic investments, and foreign direct investments in 21 emerging economies between the 1994 to 2014 period via a Westerlund-Durbin-Hausman (2008) co-integration test. In this context, we first review the literature, then give information about data and method. We then present the major results of the empirical application in section 4 and finally conclude the study in section 5.

2. Review of the Literature

The considerable increase in global FDI flows have directed scholars to analyze the effect of FDI flows on various macroeconomic and microeconomic indicators

such as economic activity, unemployment, tax revenues, environmental degradation, and competitiveness. However, a great majority of the studies have focused on the interplay between FDI flows-economic growth; these studies mostly revealed that FDI inflows have had a positive influence on growth (See Yao (2006), Yucel (2014), Bhattarai (2016)). However, relatively few studies have been carried out to determine the impact of FDI inflows on unemployment and those that did, have reached different mixed findings. A large number of studies revealed that FDI inflows affected unemployment negatively (see Seyf (2000), Craigwell (2006), Karlsson et al. (2009), Balcerzak and Zurek (2011), Carp (2012), Shaari et al. (2012), Mehra (2013), Gocer et al. (2013), Zeb et al. (2014) and Kurtovic et al. (2015)), while relatively fewer studies have discovered a positive relationship through FDI inflows and unemployment (see Mucuk et al. (2013), Bayar (2014)). Furthermore, a considerable number of studies also found no significant relationship between FDI inflows and unemployment (see Chang (2007), Rizvi and Nishat (2009), Aktar et al. (2009), Peker ve Gocer (2010) and Djambaska and Lozanoska (2015)).

Table 1: Literature summary

Study	Country/Country Group and Period	Method	Impact of FDI on unemployment
Seyf (2000)	France, Germany, Spain, UK, 1994	Regression	Negative
Craigwell (2006)	20 Caribbean countries, 1990-2000	Panel data analysis	Negative
Chang (2007)	Taiwan, 1981-2003	VAR analysis	No causality
Rizvi and Nishat (2009)	Pakistan, India and China, 1985-2008	Panel data analysis	No significant impact
Karlsson et al. (2009)	China, 1998-2004	Time series analysis	Negative
Aktar et al. (2009)	Turkey, 2001-2007	VAR analysis	No significant impact
Peker ve Gocer (2010)	Turkey, 2000-2009	ARDL cointegration	No significant impact in the long run
Pinn et al. (2011)	Malaysia, 1970-2007	ARDL cointegration and causality tests	One-way causality from FDI to employment
Balcerzak and Zurek (2011)	Poland, 1995-2009	VAR analysis	Negative
Carp (2012)	Romania, 1991-2010	Regression	Negative
Shaari et al. (2012)	Malaysia, 1980-2010	Regression	Negative
Yayli ve Deger (2012)	27 developing countries, 1991-2008	Causality analysis	One-way causality from FDI to employment
Mucuk et al. (2013)	7 countries, 1981-2009	Panel data analysis	Positive (Turkey and Argentina), while negative (Thailand)
Mehra (2013)	India, 1970-2007	Regression	Negative
Gocer et al. (2013)	Turkey, 2000-2011	ARDL cointegration	Negative
Zeb et al. (2014)	Pakistan, 1995-2011	Regression	Negative
Bayar (2014)	Turkey, 2000-2013	ARDL cointegration	Positive
Kurtovic et al. (2015)	6 Western Balkan countries, 1998-2012	Pedroni and Fisher-Johansson cointegration tests and Granger causality test	Negative
Djambaska and Lozanoska (2015)	Macedonia 1999-2013	Regression	No significant impact

Study	Country/Country Group and Period	Method	Impact of FDI on unemployment
Strat et al. (2015)	last 13 EU member countries, 1991-2012	Toda and Yamamoto (1995) causality test	Unidirectional causality from FDI inflows to unemployment for 4 countries, opposite one-way causality for 3 countries and no causality for 6 countries

3. Data and Econometric Methodology

3.1. Data

The annual values of FDI inflows, gross capital formation, and unemployment were extracted from World Bank (2016a, 2016b and 2016c) data to investigate the relationship among FDI net inflows, unemployment and gross capital formation, as seen in Table 2. The study sample was established taking notice of the MSCI (2016) emerging markets index, but the existence of data limited the sample and study period. The sample included 21 emerging economies (Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Russia, South Africa, Thailand and Turkey) and the period of study was 1994 to 2014.

Table 2: Data description

Variables	Description	Source
unemp	Unemployment, total (% of total labor force)	World Bank (2016a)
fdi	Foreign Direct Investment, Net Inflows (% of GDP)	World Bank (2016b)
gcf	Gross capital formation (percent of GDP)	World Bank (2016c)

3.2. Econometric Methodology

First the cross-sectional dependence was investigated with LM adjusted test of Pesaran et al. (2008) considering the equality of time dimension and cross-section dimension (N=T=21) of the dataset. Secondly, homogeneity of the co-integrating coefficients was analyzed with the adjusted delta tilde test established by Pesaran and Yamagata (2008). Thirdly, the stationarity of the series was examined with Pesaran's (2007) CIPS unit root test, taking notice of cross-sectional dependence. Fourthly, the co-integrating relationship was analyzed using the Westerlund-Durbin-Hausman (2008) co-integration test. Finally, we estimated the long run coefficients with Augmented Mean Group (AMG) estimator (see Eberhardt and Bond (2009), Eberhardt and Teal (2010, 2011)).

3.2.1. Cross-sectional Dependency and Homogeneity Test

Cross-sectional dependence indicates that a shock in a cross-sectional unit affects the other cross-sectional units. Therefore, cross-sectional dependence should be considered in the selection of the econometric tests used in the study. The first test, the LM (cross-section dependence LaGrange multiplier) test, investigating cross-sectional dependence was developed by Breusch and Pagan (1980), then Pesaran (2004) developed the

LM CD (cross-section dependence) test. However, these two tests may yield biased results when group average equals zero, but individual average is different from zero. Thereupon Pesaran et al. (2008) corrected the biasness by adding the variance and mean to the test statistics. Therefore, Pesaran et al. (2008) cross-sectional dependence test called as LM_{adj} (adjusted LM test) and the test statistic of adjusted LM is calculated as follows (Pesaran et al., 2008):

$$LM_{adj} = \sqrt{\frac{2}{N(N-1)} \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} \frac{(T-k)\hat{\rho}_{ij}^2 - \mu_{Tij}}{v_{Tij}}} \quad (1)$$

The null hypothesis indicates that there is a cross-sectional independence among the series, while alternative hypothesis shows that there is cross-sectional dependency. On the other hand, the homogeneity test investigates whether the slope coefficients are homogenous or not (Pesaran and Yamagata, 2008). The homogeneity of the slope coefficients is also important for the selection of unit root, co-integration, and causality tests. The test statistics of delta and adjusted delta tests of Pesaran and Yamagata (2008) are calculated as follows:

$$\tilde{\Delta} = \sqrt{N}\left((N^{-1}S^- - k)/2k\right) \sim X\_k^2 \quad (2)$$
$$\tilde{\Delta}\_adj = \sqrt{N}\left((N^{-1}S^- - k)/v(T,k)\right) \sim N(0,1) \quad (3)$$

In the equations numbered (2) and (3), N represents the cross-section dimension, S indicates Swamy test statistic, k shows the number of independent variables, and v(T,k) represents the standard error. Finally, the null hypothesis indicates that the slope coefficients are homogenous, while alternative hypothesis indicates that the slope coefficients are heterogeneous.

3.2.2. CIPS Panel Unit Root Test

Pesaran's (2007) Cross-Sectionally Augmented Dickey Fuller (CADF) test uses the panel regression model in equation (3) and the stationarity of the variables is investigated using the t statistics of the $\hat{\alpha}_{1i}$. Furthermore, Pesaran (2007) calls the Cross-Sectionally Augmented IPS (CIPS) (Im-Pesaran-Shin (2003)) as arithmetic mean of the CADF test statistics, as seen in equation (5).

$$\Delta y_{it} = \alpha_{0i} + \alpha_{1i}y_{i,t-1} + \alpha_{2i}\bar{y}_{t-1} + \alpha_{3i}\Delta\bar{y}_{t-1} + \varepsilon_{it} \quad (4)$$
$$CIPS = \frac{\sum_{i=1}^{N} CADF_i}{N} \quad (5)$$

The null hypothesis of the test indicates that every cross-section of the panel is not stationary. CIPS test has an asymptotically standard distribution and the critical values of the test were tabulated by Pesaran (2006) with use of Monte Carlo Simulation.

3.2.3. Westerlund-Durbin-Hausman (2008) Cointegration Test

The Westerlund-Durbin-Hausman (2008) co-integration test considers both cross-sectional dependency and heterogeneity and can be used where the independent variables are different integration levels, on condition that the dependent variable is I(1). The test calculates two different test statistics called as Durbin-Hausman group (DH_g) and Durbin-Hausman panel (DH_p). The DH_g statistic is considered when the panel is heterogeneous, while DH_p test statistic is considered when the panel is homogeneous (Westerlund, 2008)

$$DH_g = \sum_{i=1}^{n} \bar{S}_i \left(\tilde{\phi}_\iota - \bar{\phi}_\iota \right)^2 \sum_{t=2}^{T} \bar{e}_{it-1} \quad (6)$$

$$DH_p = \bar{S}_n = \left(\tilde{\phi}_\iota - \bar{\phi}_\iota \right)^2 \sum_{i=1}^{n} \sum_{t=2}^{T} \bar{e}_{it-1} \quad (7)$$

The refusal of the null hypothesis revealed the existence of the co-integrating relationship among the variables.

4. Empirical Analysis

4.1. Cross-sectional Dependency and Homogeneity Test

The Pesaran et al. (2008) LM adjusted test was used where the time dimension and cross-sectional dimension both are 21; the test results are presented in Table 3. We rejected the null hypothesis (there is cross-sectional independence) at 5% significance level, because probability values were found to be smaller than 5%. So we discovered a cross-section between the series. Furthermore, the homogeneity of the co-integrating coefficients was investigated by adjusted delta tilde test of Pesaran and Yamagata (2008) and null hypothesis (there is homogeneity) was denied as a result of test results. We therefore concluded that the cointegrating coefficients were heterogenous.

Table 3: Results of cross-sectional dependency and homogeneity tests

Cross-sectional dependency tests		
Test	Statistic	p-value
LM (Breusch and Pagan (1980))	469.7	0.0000
LM adj* (Pesaran et al. (2008))	28.95	0.0000
LM CD* (Pesaran (2004))	2.757	0.0058
Homogeneity tests		
Test	Statistic	p-value
Delta_tilde	11.461	0.000
Delta_tilde_adj	12.899	0.000

*two-sided test

4.2. CIPS Panel Unit Root Test

The integration levels of the series was analyzed with Pesaran's (2007) CIPS (Im- Pesaran-Shin (2003) unit root test due to the cross-sectional dependence between the variables. The test results can be found in Table 4 and the unemp and gcf were found to be I(1), while fdi was found to be I(0) considering the test results.

Table 4: CIPS panel unit root test results

Variables	Constant	Constant + Trend
unemp	-0.043(0.483)	-1.158 (0.124)
d(unemp)	-7.522 (0.000)***	-5.897 (0.000)***
fdi	-3.196 (0.001)***	-1.569 (0.058)*
d(fdi)	-10.384 (0.000)***	-8.076 (0.000)***
gcf	0.628 (0.735)	-0.316 (0.376)
d(gcf)	-6.934 (0.000)***	-4.262 (0.000)***

* significance at 1% level

4.3. Westerlund-Durbin-Hausman (2008) Co-integration Test

The Westerlund-Durbin-Hausman (2008) co-integration test was employed to analyse the long run relationship among unemployment, FDI inflows and gross capital formation, because dependent variable *unemp* was I(1) and the remaining variables had different integration levels; the findings of the test are shown in Table 5. The group statistic was taken in consideration due to heterogeneity of the cointegrating coefficients. Therefore, the null hypothesis was denied and we revealed a cointegration for some cross-section units.

Table 5: Results of Westerlund-Durbin-Hausman (2008) cointegration test

	Statistic	p-value
Durbin-Hausman Group Statistic	9.087	0.000
Durbin-Hausman Panel Statistic	5.019	0.000

4.4. Estimation of Co-integrating Coefficients

The long run coefficients was estimated by AMG estimator taking notice of cross-sectional dependence and the heterogeneity. These results , displayed in table 6 show that FDI inflows (FDI) affected the unemployment positively in the overall panel, while gross capital formation (GCF) affected the unemployment negatively in the overall panel. However, individual long run coefficients denoted that FDI inflows affected the unemployment negatively in Colombia, Mexico and Russia, while FDI inflows affected the unemployment positively in Brazil, China, Czech Republic, India, Korea, Poland, Thailand and Turkey. Furthermore, FDI inflows had no significant effects on the unemployment in Chile, Egypt, Greece, Hungary, Indonesia, Malaysia, Peru, Qatar, and South Africa.

On the other hand, gross capital formation (GCF) affected the unemployment negatively in Brazil, Chile, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Mexico, Peru, Poland, Russia and Turkey, but gross capital formation (GCF) had no significant effects over the unemployment in China, Malaysia, Philippines, Qatar, South Africa and Thailand.

Table 6: The cointegrating coefficients

Country	FDI Coefficient	FDI P value	GCF Coefficient	GCF P value
Brazil	0.2813926	0.065*	–0.380289	0.000***
Chile	–0.0275237	0.785	–0.2585017	0.003***
China	0.1988082	0.097*	0.0116024	0.647
Colombia	–0.4717443	0.001***	–0.3266206	0.000***
Czech Republic	0.2807283	0.000***	–0.2230807	0.001***
Egypt	0.1151952	0.272	–0.5046835	0.000***
Greece	1.156838	0.410	–1.035121	0.000***
Hungary	0.0023687	0.922	–0.5585909	0.000***
India	0.3998078	0.028**	–0.0569857	0.028**
Indonesia	0.4780541	0.218	–0.1668575	0.099*
Korea	0.8875871	0.011**	–0.2270043	0.000***
Malaysia	0.0272136	0.777	0.0012122	0.947
Mexico	–1.075137	0.016**	–0.3534863	0.020**
Peru	0.173671	0.198	–0.1420864	0.012**
Philippines	–0.0023873	0.995	0.2051428	0.112
Poland	1.132812	0.059*	–1.028136	0.005***
Qatar	0.0167804	0.691	0.0202223	0.136
Russia	–0.7895164	0.020**	–0.3345997	0.016**
South Africa	0.2310312	0.510	–0.3275028	0.217

Country	FDI Coefficient	FDI P value	GCF Coefficient	GCF P value
Thailand	0.235786	0.068**	0.0073256	0.790
Turkey	0.9418496	0.004***	–0.2818455	0.018**
Panel	**0.199696**	**0.000***	**–0.2838041**	**0.000***

5.Conclusion

The significant increases in both-green field and brown-field FDI flows have been experienced globally, and changes in FDI flows have affected many economic indicators such as growth rate of economic activity, unemployment, tax revenues, environmental degradation, and competitiveness. In this study, we researched the long run interaction among domestic investment, foreign direct investments, and the unemployment in emerging markets during 1994-2014 period with Westerlund-Durbin-Hausman (2008) co-integration test. The results indicate that FDI inflows positively affects unemployment in overall panel, as in Mucuk et al. (2013) and Bayar (2014), while gross capital formation negatively affected the unemployment in the overall panel. However, FDI inflows affected the unemployment negatively in Colombia, Mexico and Russia, while FDI inflows affected the unemployment positively in Brazil, China, Czech Republic, India, Korea, Poland, Thailand and Turkey. Furthermore, FDI inflows had no significant effects on unemployment in Chile, Egypt, Greece, Hungary, Indonesia, Malaysia, Peru, Qatar and South Africa.

The large part of the empirical literature on the FDI-unemployment nexus showed that FDI inflows have negatively impacted unemployment. Therefore, our findings were found to be inconsistent with the general trend in the relevant literature. However, we evaluated that the positive impact of FDI inflows on the unemployment may be a result of the relatively higher share of brown-field investments consisting of mergers and acquisitions in FDI inflows in our sample. Future studies can be conducted to investigate the separate impact of both brown-field investments and green-field investments on the unemployment.

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