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MOBILE APPLICATIONS AS A NEXT GENERATION SOLUTION TO PREVENT FOOD WASTE

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ABSTRACT

Current study addresses the role of mobile applications of platforms recently developed to prevent food waste. Sustainability consciousness have usually been handled in the field. By examining the role of mobile applications this study wants to make a unique contribution to the sustainability literature. To do this we developed a research model according to the relevant literature and tested it on 439 people whom we access through social media. The findings indicate that people who care about sustainability also care about food waste and convert their attitude into sustainable purchase behavior over mobile applications selling food available to prevent waste. This behavior is mediated by attitude towards mobile applications. However, people might prioritize the health concerns as far as risky conditions about those foods concerned. Implications to the policymakers and practitioners are put forward.

Keywords: Sustainability, Sustainable Food Consumption, Food Waste, Mobile Applications.

JEL Classification Codes: M31, Q56, L66.

INTRODUCTION

Food is wasted at every food supply chain phase, from agricultural production to final consumption. An approximately 1.3 billion tons of food waste are produced annually by households and the food industry combined. (FAO, 2011). According to the "UN Environment Programme's Food Waste Index Report 2021, 931 million tons of food waste were generated in 2019, with 61 percent coming from households, 26% from food service, and 13% from retail" (United Nations, 2021, p. 21). These results show the need for avoiding global food waste to ensure sustainability. The Food and Agriculture Organisation (FAO) describes food waste as "the discarding or alternative (non-food) use of food that was fit for human consumption by choice or after the food has been left to spoil or expire as a result of negligence" (FAO,2015, p. 1). Pre- and post-consumer food waste are classified as a result of this concept based on the phases of waste formation (Principato et al., 2021). While post-consumer trash is produced at the consumer level, pre-consumer waste is produced at the manufacturing level. Waste generated during storage, preparation, and production is classified as "pre-consumer waste," whereas leftovers and plate garbage are classified as "post-consumer waste." (Burton et al., 2016). Food waste mostly happens at the consumer level, which means that even though it is still safe for human eating, it gets thrown away, and that a wide variety of factors such as socio-demographic characteristics and consumption patterns play a role in wasting behavior (Di Talia et al., 2019).

With the help of information and communication technologies, mobile applications (apps) have recently been a significant part of business strategies for organizations to reach and interact with their customers (Stöckli et al., 2018). Computer software known as mobile applications are created specifically to operate on portable electronics like smartphones and tablets. Mobile apps usage by organizations and consumers has been unpredictable, especially since the Covid-19 pandemic (Ramos, 2022). Mobile apps offer new opportunities to businesses as mobile devices significantly impact customers' purchasing experience. Therefore, mobile apps are projected to play a critical role in transforming customers' purchasing habits, opening up the potential to contribute to environmental sustainability.

Digital information systems offer a range of apps that may affect sustainability (Apostolidis et al., 2021). By

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reducing food waste and improving the food industry's long-term viability, the development of digital solutions has been accelerated by this shift to digital technologies. In a larger sense, digital technologies have the potential to make a digital enterprise more sustainable by generating social and environmental value. For example, some food waste mobile apps in Turkey, such as Yenir, Oreka, Raf, Sifir, etc., have been created to help food services sell food that is on sale that would otherwise be discarded. Mobile apps to reduce food waste allow enterprises to provide surplus food to willing consumers while also making earnings. Thus, mobile apps show how technology can assist the food industry in providing an advantage for customers, businesses, the environment, and society.

Nonetheless, there is little research on how firms and consumers might utilize food waste reducing mobile apps to produce long-term sustainability. This study intends to determine the role of mobile app acceptance, which is influenced by consumers' social, personal, and psychological traits.

THEORETICAL BACKGROUND

Information technologies are thought to have three effects on sustainability: "automation, information, and transformation" (Chen etal., 2008). While automation is defined as replacing human labor with technology to create more efficient business processes, information is defined as feedback processes that can aid decision-making by giving users a greater grasp of the situation at hand. Transformation is defined as significant changes that will result in the emergence of new products, services, consumption experiences or business models as a result of automation and information (Chen et al., 2008). Mobile apps are expected to deliver the essential transformation for sustainability aims regarding simplicity of use and prevalence.

The public's understanding of sustainability might be the first driver of market opportunities for a new venture or a business model (Klein Woolthuis, 2010). According to the Multi-Level Perspective grounded on "evolutionary economics, sociology of innovation, and neo-institutional theory" (Geels, 2019), radical innovations have the potential to revolutionize the entire system (Geels, 2019). MLP as a multi-dimensional approach, consists of three interconnected layers: socio-technical landscapes, regimes, and niches (Geels, 2019). At the broadest scale, "the socio-technical landscape" symbolizes the exogenous background, which includes all slow-changing demographic trends, macroeconomic trends, and political beliefs; at the meso-level, the socio-technical regime is mainly composed of technological configurations, scientific understanding, industrial networks, and frameworks, formed customs and symbols, marketplaces and consumer behaviors, practices, and infrastructural facilities, and it coordinates and directs the actions of the system's related actors and social circles. (Geels, 2019). At the micro level, niches might be government-funded research initiatives or tiny market segments where consumers have particular demands and are willing to support novel concepts. Entrepreneurs, start-ups, and spinoffs are niche actors who focus on radical ideas that diverge from existing regimes.

The motivation for this study stems from a need to address food waste and how mobile app innovations motivate consumers to target sustainability by using these apps. Mobile apps to reduce food waste develop technology solutions to link consumers with local food suppliers such as restaurants, grocery stores, motels, and bakeries, who may sell unsold extra food at a lower price instead of throwing it away. Besides, this new idea of mobile apps extends beyond using digital technologies for the food waste reduction at the retail level by providing information about sustainability to develop a sustainable vision for consumers. Recently, new ventures like Yenir, Oreka alike have also emerged in Turkey with an aim to save food, money, and the Earth (Alemdar, 2020; Tahirler, 2021). This research investigates whether mobile apps can aid in the food waste reduction and a societal change in the current food industry in Turkey by analyzing consumers' attitudes.

CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

Attitude towards sustainable food consumption

Due to their increased environmental and sustainability knowledge, consumers have a more favorable attitude toward their intake of sustainable foods (Principato et al., 2021). Food is commonly acknowledged as one of the most critical factors related to environmental sustainability. Sustainable food consumption implies the creation of more optimum consumption patterns, all while considering basic human needs and goals to act in the best interests of current and future generations (Gazdecki et al., 2021; Vermeir et al., 2020). According to Reisch et al. (2013), associated environmental problems with food waste include "climate change, water pollution, water scarcity, soil degradation, eutrophication of water bodies, and loss of habitats and biodiversity" are also challenges for future generations. Therefore, consumer

understanding of sustainable food consumption influences their attitude before making a purchase decision.

Studies investigating the attitudes towards sustainable food consumption (Gazdecki et al., 2021; Rana & Paul, 2017) analyze how consumer interest transforms into sustainable purchasing patterns and behavior, as well as the themes of organic versus conventional food, and customer perceptions of eating organic food. Misunderstanding the notion of sustainable food indicates customers' lack of awareness and obstructs its spread. Thus, consumer attitudes toward sustainable food consumption, as well as personal beliefs, perceived impediments, and knowledge, have an impact on their purchasing practices.

"$H_{1=}$There is a positive relationship between attitude towards sustainable food consumption and intention to purchase on food wasting (mobile) apps."

Attitude towards mobile apps

Individuals interested in new digital solutions react in several ways when they are offered. Therefore, it becomes critical to assess attitudes to determine whether or not a new technology will be accepted. Davis (1989) proposed the "Technology Acceptance Model (TAM)" to examine which factors impact the acceptance or rejection of information technology. TAM describes the factors that influence individuals' system acceptability by considering two dimensions (Davis et al., 1989); (1) perceived ease of use and (2) perceived usefulness. The positive or negative attitude of an individual toward achieving the desired action is referred to as attitude (Ajzen, 2001). While perceived ease of use refers to finding easy to use and learn a particular technology perceived usefulness refers to the idea that using a particular technology to perform specific activities while solving difficulties would improve their performance (Davis et al., 1989).

Scholars also argue that technological conveniences have a favorable attitude-altering impact (Veríssimo, 2018). The importance of retailers' mobile apps as a subsidiary of food waste reduction attracts the consumers' attention and consumers are increasingly using mobile apps for all types of eating behaviors, such as dining out and shopping for convenience (Mu et al., 2019). Despite the fact that they utilize use of the convenience of a mobile app, these apps are more similar to a sharing platform than a meal ordering app. In the case of sharing platforms for sustainability, it's critical to investigate the perspectives of the various participants in the purchasing phase. Therefore, this study aims to investigate whether the putative simplicity of mobile app usage can contribute to the sustainable action of reducing food waste by considering the consumers' perception towards sustainable food consumption.

"$H_{2=}$ Attitude towards food wasting (mobile) apps mediates the effect of attitude towards sustainable food consumption on intention to purchase on food wasting (mobile) apps."

"H_3=There is a positive relationship between attitude towards food wasting (mobile) apps and intention to purchase on food wasting (mobile) apps."

Perceived health risk

Food safety and food waste reduction are two opposing challenges. While environmental responsibility entails persuading people to throw less food away, foodborne disease prevention entails, in part, convincing people to do the exact opposite (Watson & Meah, 2012). According to the literature, people judge whether food is still fit for consumption in various ways. The most common methods for determining health risk perception include date labelling, and the usage of odor. This is most likely related to the fact that there are more opportunities to define something as waste. Most consumers are concerned that various foods carry different degrees of risk, for instance meat can be the most harmful, and vegetables can be the least damaging. Food waste is not something that most customers take lightly; in fact, many consumers are concerned about it. People don't want to become sick, therefore, they discard potentially edible food rather than risk it. Health concerns are strongly linked to food safety and nutrition. Therefore, consumers' perceived health risks of food should be given special consideration to reduce food waste.

"H_4=Perceived health risk moderates the effect of attitude towards sustainable food consumption on attitude towards food wasting (mobile) apps."

A conceptual model is built in accordance with the aforementioned evidence.

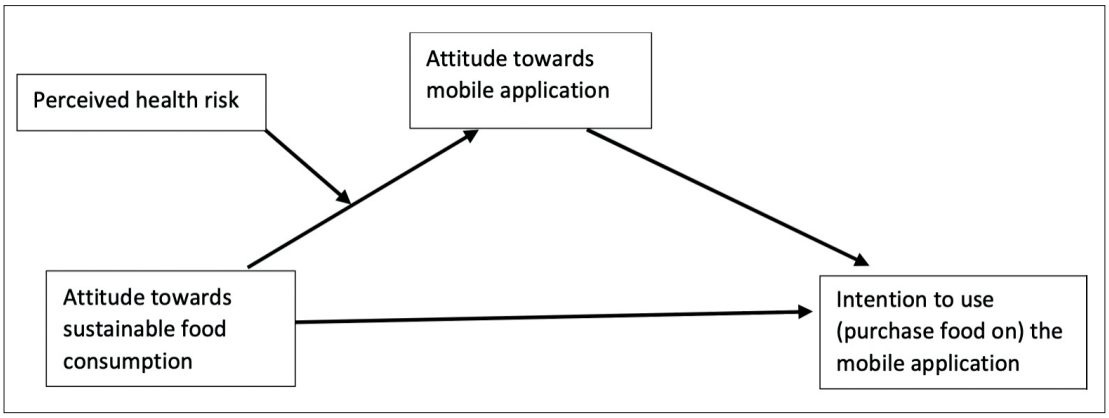

Figure 1. Conceptual Model

METHOD

Sampling

An online questionnaire tool was used to carry out the survey, Google forms, frequently used by academics and practitioners both. It was administered through social media between January 2022 and March 2022. Conveniently reached 443 Turkish respondents over the age of 18 returned the questionnaires. However, four of them were detected as careless respondents with preliminary analysis. The analyses were carried out over the total of 439 questionnaires. The following Table 1 displays the sample's demographic characteristics.

Procedure and Measures

The survey instrument consisted of items adapted from existing scales measured on a 5-point Likert type scale (1-Strongly disagree, 5-Strongly agree) and four parts: attitudes towards sustainable food consumption, the attitude towards the mobile app, intention to use the relevant mobile app, and four items on the perceived risk of consuming food near expiration date as well as the questions on demographics. Attitude towards sustainable food consumption scale by 13 items was adapted from Azzura et al. (2019). Attitude towards the mobile app mediator in the research model was operationalized from the scale of Kim et al. (2014) with five items, and intention to use the mobile

Table 1. Demographic Characteristics of Participants

	Characteristics	N	%
Gender	M(ale)	183	42
	F(emale)	256	58
Age	18-25	124	28
	26-35	164	37
	36-45	120	27
	46-55	23	5
	56-65	7	2
	66 and over	1	1
Education	High School and below	80	18
	Undergraduate school and below	184	42
	Graduate school	175	40

app was evaluated using Shiv et al.'s scale (1997) by three items. Perceived risk of consuming food near expiration date scale was obtained from Visschers et al.'s (2016) study.

We first examined the relevant mobile apps for product selection and created a list of the 15 commonly placed products. Afterwards, we introduced 25 participants the apps briefly and asked them to rank these products according to the risk they perceived when making a purchase. While the sandwich was expressed as the riskiest in the ranking, the banana was evaluated as the least risky product. During the main study, the respondents were allowed to see the two types of products, a packaged sandwich, and a banana to see whether the participant intent change depending on the product type: they were asked to indicate their intention to use such a mobile app when buying each product.

Before delivering to the participants, the items were first translated from their original English form into Turkish and translated back into English to ensure that they kept their meaning. Four marketing academics evaluated the final version of the scales and we finalized it in line with their recommendations.

Data Analysis and Findings

A series of preliminary analyzes of validity and reliability were performed prior to hypothesis testing. Running Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) respectively, we first assessed the construct validity. Subsequent to CFA, the EFA was conducted, and each procedure shows that the scales provide construct validity with existing items. However, the item "I believe that the risk of becoming ill as a result of eating food past its use-by date is high" was omitted since its factor loading value does not meet the threshold of 0.60 or above in EFA and the criteria that the factor loading for every item should be 0.6 or higher in CFA (Awang, 2014) ($\chi 2/df=2,390$, AGFI=.92, CFI=.95, NFI=.92, IFI=.95, TLI= .95, RMSEA= .056).

Findings also indicate that the research model has a convergent validity (scales' Average Variance Extracted (AVE) value ranging between 0.50 and 0.78) and discriminant validity (AVE values exceeding squared correlations for each respective scale) (Fornell and Larcker, 1981). The measure of internal consistency in scale items, the composite reliability values also exceed the threshold of .80 recommended by Netemeyer et al. (2003) (Table 2).

Table 2. Descriptive statistics, validity, reliability, and correlations

	ATSFC	ATM	$MU_{sandwich}$	MU_{banana}	PHR
Attitude towards sustainable food consumption	1	,274**	,121*	,236**	,012
Attitude towards mobile app	,274**	1	,312**	,290**	,211**
(Mobile app usage) $_{sandwich}$	,121*	,312**	1	,441**	,083
(Mobile app usage) $_{banana}$	,236**	,290**	,441**	1	,143**
Perceived Health Risk	,012	,211**	,083	,143**	1
Mean	4,10.	4,49	3,55.	3,85	3,28
Std.Dev.	0,71	0,64	1,02	0,94	0,98
Composite Reliability	.92	.92	.90	.90	.81
AVE	.50	.69	. 75	.78	.62

**p<0.01; *p<0.05
Attitude towards sustainable food consumption: ATSFC; Attitude towards mobile app: ATM; Mobile App Usage: MU; Perceived Health Risk: PHR)

Table 3. Model Coefficients (Sandwich)

	Consequent					
	M (Attitude towards mobile app)			Y (Mobile App Usage Intent)$_{sandwich}$		
Antecedent	Coeff.	SE	p	Coeff.	SE	p
X (Attitude towards sustainable food consumption)	.826	.149	<.001	.054	.067	.420
M (Attitude towards mobile app)	-.870	-.183	-<.001	.479	.075	<.001
W (Perceived Health Risk)				-	-	-
X x W	-.175	.043	<.001	-	-	-
Constant	0.601	0.633	.343	1.169	.377	.002
	R^2=0.149			R^2=0.098		
	F(3,435)=25.564 , p < .001			F(2,436)=23.851 , p < .001		

Prior to mediation analysis, we tested whether the participant's intention to use a mobile app when buying each product (a packaged sandwich or banana) differs and conducted one-sample t-test. The results indicate that there is a significant difference between the intention to use the mobile app for each product ($M_{sandwich=3.55,}$ M_{banana}=3.85, p<.05), and so we tested the relevant hypotheses for each product respectively.

Findings indicate that sustainable food consumption is positively related to purchasing over the mobile apps aiming at preventing food waste depending on the food type. Thus, H1 is partially accepted (direct effect is significant for the banana and not significant for the sandwich)

In accordance with Preacher and Hayes' (2008) methodology, we used SPSS macro to evaluate the moderation and mediation hypotheses. Tables 3 and 4 report the regression coefficients for the paths through the mediator, moderator (attitude towards sustainability x perceived risk), and the direct effect of the independent variable on the dependent variable.

The results of the mediation analyses with intention to use the mobile app for sandwich as the dependent variable (Table 3) support the H2= attitude towards the mobile application mediates the effects of attitude towards sustainable food consumption on intention to use the mobile application conferring perfect mediation: the indirect effect is significant, direct path is not significant (path coeff.=.054, p=.420>.05). However, the relevant finding on the banana indicates that the intention to use the mobile app for banana is partially mediated. The indirect effect and the direct path are significant (path coeff.=.224, p<.05), in support of partial mediation (Table 4). H3 proposing that there is a positive relationship between the attitude towards mobile app and intention to use it is also supported for the two products both.

The moderation analyses support the H4= the risk perceived related to the product (sandwich or banana) sold on the application moderates the effect of attitude towards sustainability on attitude towards the mobile application (Table 3). That is, the consumer perceives buying the product (sandwich or banana) risky in terms of health, then s/he will develop negative attitude towards the app with a suppressing effect (path coeff.= -.175, p<.05).

DISCUSSION and CONCLUSION

Recently, food waste has become an important social, economic, and scientific topic with increasing environmental sustainability concerns. Such environmental concerns have prompted the development of novel distribution techniques designed to minimize food waste and enhance social impact. The number of mobile applications to decrease food waste created by new businesses has lately increased due to opportunities provided by information and communication technology and the growing awareness of eating sustainably.

Table 4. Model Coefficients (Banana)

	Consequent					
	M (Attitude towards mobile app)			Y (Mobile App Usage Intent)$_{banana}$		
Antecedent	Coeff.	SE	p	Coeff.	SE	p
X (Attitude towards sustainable food consumption)	.826	.149	<.001	.224	.062	<.001
M (Attitude towards mobile app)	-	-	-	.359	.069	<.001
W (Perceived Health Risk)	.870	.183	<.001	-	-	-
X x W	-.175	.043	<.001	-	-	-
Constant	0.601	0.633	.343	1.316	.347	<.001
	R^2=0.149			R^2=0.110		
	F(3,435)=25.564 , p < .001			F(2,436)=27.128 , p < .001		

This research broadens our understanding of sustainable food consumption in general., and especially demonstrates why customers may favor food waste reduction smartphone apps. The results obtained in this study have verified that mobile apps can be seen as an incentive or a problem solver for food waste reduction and a societal change in the current food industry. To show that by two different product types (sandwich and banana), we tested a research model which focused on the relationship between the attitude towards the mobile application, attitude towards sustainability, intention to use the mobile application, and perceived health risk. We have verified two main results by this model. First, attitude towards the mobile application is a mediator in the relationship between attitude towards sustainability and intention to use the mobile application. That is, consumers' intention to use the sustainable food application depends on their attitude towards the mobile app. Second, the risk perceived related to the product (sandwich and banana) sold on the application is a moderator in the relationship between attitude towards sustainability and attitudes towards the mobile application. That is, if a product is perceived as risky in terms of health, users develop a negative attitude toward the application.

This research extends existing literature on sustainable food consumption and food waste by making unique contributions. That is, people concerned about sustainability might be motivated to do more for sustainability by preventing food waste by means of mobile applications. As indicated in the existing literature, current study findings also indicate that sustainably conscious people might convert their attitude into sustainably conscious behaviour (Rana & Paul, 2017). However, Vermeir et al. (2020) stated that people might develop positive attitude and favorable opinions towards environmental sustainability while not consuming in line with these attitudes and opinions.

In addition to this, the importance of new technologies in this behavioral effect has also been revealed. The introduction of the attitude towards mobile applications preventing food waste as a mediating variable between sustainable food consumption and consuming food on these platforms is a considerable contribution and there hasn't been any study on how successful mobile applications are in reducing food waste. As stated in the literature that consumers' positive attitudes towards a mobile commerce application have a beneficial impact on customer loyalty, this can affect the continuous usage of these mobile applications over time and in turn reduce food waste.

Another contribution of the current study is related to the health concerns. As in the existing literature findings, it is also revealed in this study that reducing danger and maintaining food safety, takes precedence over avoiding food waste. People might be cautious about sustainable concerns and behave accordingly. However, things might change as far as risky conditions related to health concerned and they might precede health over their sustainable consciousness.

We also develop implications for the stakeholders including practitioners and policy makers. It is proved that practitioners need to focus on marketing communication activities to increase awareness of the app and engage positive feelings and attitudes towards the app if they want to get the attention of consumers who already tends to consume sustainable products. Therefore, there is a need to focus on the perceived health of the products sold on the application. It's essential to bear in mind that if the application provides reliable and detailed information about the product's past, it will be possible to achieve more effective results in a shorter amount of time to reduce food waste. The policy makers might also benefit from such platforms to make the individuals care about sustainability by attracting their attention to the relevant applications. They might urge companies to make such developments on their value propositions by using monetary incentives. They might also communicate to the audience emphasizing merely on sustainability over food waste and how people might prevent it. All over the world people spend most of their time on their smart phones online. Thus, it is the best way to communicate the people fast and effectively.

This study is also confined by a few limitations. Mobile applications aiming at food waste reduction such as Yenir, Oreka, Raf, Sifir etc. are relatively new. Thus, participants are not so familiar with such types of applications. However, current research findings might be considered as a preliminary step to provide foresight for future studies. We recommend future research adopting multiple sorts of food as well as applications with more advanced designs**.**

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THE ROLE OF FEAR OF MISSING OUT (FoMO) IN THE RELATIONSHIP BETWEEN PERSONALITY TRAITS AND CYBERLOAFING

Hamit Murat ÖZCAN[1], Umut KOÇ[2]

ABSTRACT

Cyberloafing is one of the areas that researchers have been following with interest and has been extensively studied with its causes and results. In the studies conducted, it has been argued that personality is one of the factors affecting cyberloafing and in these studies personality is generally discussed in terms of five factor personality traits. Although the growing body of research about the relationship among cyberloafing and personality traits, many important questions remain unanswered. In particular, it is still unclear whether FoMO is related to cyberloafing, and what the mechanism behind the cyberloafing-personality traits link is. The present study addresses this gap by examining the mediator role of fear of missing out (FoMO) on the relationship between cyberloafing and personality traits within the context of need to belong thory and social comparison theory. To this end, suvey data, collected from 443 employees working in state-owned banks and private banks, was used to test hypotheses. Results showed that FoMO mediates the negative relationship between conscientiousness and cyberloafing. Furthermore, it was found that FoMO is negatively associated with cyberloafing.

Keywords: Cyberloafing, Five Factor Personality Traits, Fomo, Need to Belong, Social Comparison, Social Media.

JEL Classification Codes: M10, M12, M19

INTRODUCTION

With the innovations brought by information and technology age, the internet has grown into a substantial vein of human life. With digitalization process, the internet, which facilitates the work of employees in almost every sector as well as in every field of life, has become available anytime and anywhere with the spread of smart phones. Although the widespread use of smart phones offers advantages in many areas of life, it has been interesting for social scientists to investigate some social problems, especially regarding the excessive use of these devices. It is assumed that the internet can have a number of damages as well as the numerous benefits not for only individuals but for also organizations (Lim, 2002; Weatherbee, 2010). The problems come into people's lives with the developments in information technologies, can be considered as the dark side of the digitalization. Information technologies such as smartphones, social networks and artificial intelligence have enabled the digitialization of individuals, organizations and societies (Brennen and Kreiss, 2016). Employees' non-business internet use in the workplace negatively affects productivity and is called problematic internet use (Garrett and Danziger, 2008). The problematic internet use during working hours points to the concept of cyberloafing, which is considered among counter productive behaviors (Blanchard and Henle, 2008). Although in the past years it has been helpful against the problem of cyberloafing to use filters that prevent employees from accessing sites that are not related to work; in todays conditions with the introduction of smart phones this method seems to be largely ineffective. Therefore it has become more important to examine the factors that cause cyberloafing and to answer the question of why people do cyberloafing. In the literature the factors causing cyberloafing are listed as organizational factors, work-related factors and personal factors. For example as the antecedents of cyberloafing; perceived organizational justice (Ahmadi et al., 2011; Blau et al., 2006; Lim, 2002; Zoghbi, 2009), job involvement,

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Bu çalışma, Doç. Dr. Umut KOÇ danışmanlığında Arş. Gör. Dr. Hamid Murad ÖZCAN tarafından yazılan "Kişilik özellikleri ile sanal kaytarma davranışı arasındaki ilişkide gelişmeleri kaçırma korkusunun (GKK) rolü" başlıklı doktora tezinden üretilmiştir.

intrinsic involvement, internet usage policies at work, perceived cyberloafing of coworkers (Liberman et al., 2011) and perceived organizational control (Zoghbi et al., 2006) are examined. As is seen there are many factors causing cyberloafing. Furthermore personality characteristics of personal factors provide predictions about counter productive behaviors such as non-business internet use.

However relationship among five factor personality traits (FFPT) and cyberloafing was examined several times, the results of the studies contradict (Krishnan et al., 2010; Jia et al., 2013; Abidin et al., 2014; Kim et al., 2015; Tan and Demir, 2018). Thus it remains unclear why people do cyberloafing and which people do cyberloafing in the context of FFPT. These differences observed in the results of the studies show that it is important to investigate other factors that may affect the relationship between personality and cyberloafing. Researchers also stated that the inconsistency in the relationship among personality and counter-productive work behaviours may arise from the lack of some intervening variables (Koelega, 1992). Addressing the reasons for these differences in research results is the most important motivation of this study.

Social comparison theory posits that people compare themselves with others to assess their progress and, in the absence of standing and objective standards in various aspects of their lives, to know where they are (Festinger, 1954). Besides people have an intrinsic need to belong to other social groups. This suggests that people want to be part of other social structures, such as family or a group of friends. Social isolation creates the opposite, and people try to avoid it (Baumeister and Leary, 1995). Social media makes it possible to share a person's opinion with thousands and millions of people, which enables a person to reach more people than he could many years ago, and this satisfies the need for belonging. Defined as a common disquietude that others might be having gratifying experiences from which one is absent, FoMO is characterized by the wish to stay continuously connected with what others are doing (Przybylski et al., 2013). It is very important for those who feel FoMO to participate in social networks such as Facebook, Twitter, Swarm which provides them higher levels of social relationship. Individuals who feel FoMO, state that they feel lonely in their lives except when they spend their time in social networks, and they try to fulfill the love that is missing in their daily life by sharing in social media (Hato, 2013). For these reasons, participation in social networks can be quite attractive for individuals who feel FoMO. On the other hand, the need to belong also affects the individual when he receives a notification about an incoming message. The individual has the desire to participate. However, if the individual is unable to join and reply to this message, the need to belong again cannot be met. This results in a fear of missing something. (Przybylski et al., 2013). Therefore the individual wants to check his messages and social media accounts in order to get rid of this fear. Doing this during working hours leads to cyberloafing. Therefore, the FoMO which is a relatively new phenomenon in the Organizational Behavior literature was included in the study to clarify the relationship between cyberloafing and FFPT.

The literature shows that the relationship between FoMO and cyberloafing has just begun to be examined. One of the first studies about these concepts shows that FoMO affects cyberloafing positively (Tozkoparan and Kuzu, 2019). Since FoMO is a strong feeling, it is expected to mediate the effect of some variables such as personality, motivation and attitude on behavior. Therefore FoMO literature showed that FoMO has an important role in the relations that cannot be fully explained between the two variables. While Przybylski (2013) stated that FoMO acts as mediator in the relationship between the low levels of psychological need satisfaction and social network engagement; Beyens et al. (2016) concluded that FoMO is mediating the relationship between the need to belong and the Facebook use. Likewise Blackwell et al. (2017) determined FoMO, as a mediator in the relationship between attachment style and social media addiction. While Buglass et al. (2017) alleged that FoMO mediates the relationship among social media use and self esteem; Alt (2015) stated that FoMO is mediating the relationship between academic motivation and social media engagement. In another study of the researcher, it was found that FoMO has a mediating effect in the relationship between the student's maladjustment to college and social media engagement (Alt, 2018). Shen, Zyang and Xin (2020), concluded that FoMO is mediating the relationship between extrinsic academic motivation and problematic social media use. It is correct to state that FoMO plays an extremely essential role in explaining the relationships between the variables, based on such studies where it is possible to increase the number of them. Although the term of cyberloafing is not used directly, there are many studies in the literature that show positive

relationship between FoMO and problematic internet use, smartphone addiction and social media use which mean cyberloafing when performed during working hours (Przybylski et al. 2013; Abel et al. 2016; Blackwell et al., 2017; Buglass et al., 2017; Hoşgör et al., 2017; Blachnio and Przepiorka, 2018). Studies focusing on the relationships between FFPT and FoMO were also conducted. Results show that emotional stability and conscientiousness affects FoMO in negative direction (Blackwell, 2017; Stead and Bibby, 2017). Not surprisingly, individuals with higher levels of emotional stability and conscientiousness feel lower levels of FoMO as lower self control and anxiety are the underlying factors of FoMO (Servidio, 2019). Besides these, Milyavskaya et al. (2018) did not find any significant relationships between FFPT and FoMO.

In this context, the authors intended to determine FoMO's role on the relationship among FFPT and cyberloafing. Considering the fact that cyberloafing behavior is likely to bring great financial harm to both organizations and individual employees especially in some sectors where time is of utmost importance (Weatherbee, 2010), which requires attention and focus, the employees in the banking sector were examined. Therefore four main research questions arise:

1. What is the relationship between dimensions of FFPT and cyberloafing?
2. Do dimensions of FFPT predict cyberloafing adequately?
3. What is the relationship between FoMO and cyberloafing?
4. Does FoMO affect the relationship among dimensions of FFPT and cyberloafing?

THEORETICAL FRAMEWORK

The most widely used personality theory FFPT (Big Five Personality) are founded by Norman (1963) but classification of the factors used today are made by McCrae and Costa (1985; 1987). These factors are extraversion, agreeableness, emotional stability, conscientiousness and openness. FFPT literature shows that the FFPT are associated with many different subjects and researched. Cyberloafing is one of those subjects and is referred to counterproductive work behaviors in general terms.

Cyberloafing is an example of the misuse of information technology in the business environment, and it can be defined as behaviours of employees' using organization's network at working times for private intents as abusage of the internet (Lim, 2002). Considering the digitalization experienced, it can be said that cyberloafing is not only done with organizations' computers and internet tools but also done with individual tools. Cyberloafing is a common behavior among internet addicts (Keser et al., 2016). In addition to studies in which internet addicts are compared to people addicted to gambling, drugs and alcohol (Young, 1998); there are also studies that have concluded that excessive phone use is closely related to sleep disorder and depression symptoms (Thomee et al., 2011). According to the research of the American research company Deloitte, smartphone users have become aware of their addiction (Businessinsider, 2017). 47% of the participants, who have found that this awareness is mostly seen in individuals between the ages of 18-34, stated that they are trying to reduce their smartphone usage time. An important part of this effort is not to take their phones out of their pockets or bags while they are with others. Despite this, all smartphone users in the USA check their smartphones twelve billion times a day. In addition, researchers state that 89% of people check their phones as soon as they wake up. Likewise, the rate of those who say that their last job is to check their phones before going to sleep at night is 81%. While 89% of people are interested in their smart phones even while watching television, 92% of them use their smart phones while shopping. Another study suggests that compulsive usage of smartphone affects psychological traits like locus of control, social interaction anxiety, materialism and the need for touch positively (Lee et al., 2014). Here we come across the concept of social media.

Social media, where people build their own virtual realities, allows them to write about their daily lives, explain their ideas, give information and connect with others on various matters. The regnant use of social media and information technologies has led researchers to examine how the use of such platforms can affect health and well-being (Rogers and Barber, 2019). The increasing number of social network tools that provide more and more social information and encourage individuals to use the internet, has revealed a new phenomenon called FoMO. As mentioned before FoMO is characterized by the passion to stay unremittedly connected with what others are doing (Przybylski et al., 2013). Considered that social media engagement and FoMO are mutually triggering concepts (Abel et al., 2016), it is correct to say that FoMO also increases

internet and smartphone use (Hato, 2013; Hoşgör et al., 2017). Some researchers even went further and concluded that FoMO caused problematic internet use and smartphone addiction (Elhai et al., 2016; Stead and Bibby, 2017; Blachnio and Przepiorka, 2018; Wolniewicz et al., 2018). Research focused on the motivations underlying social media, which were expected to provide additional reasons for FoMO's linking to social media engagement and individuals' lack of general life satisfaction.

Being accepted by other people, belonging to a group and protecting the bonds with the groups to which it belongs are one of the basic needs of human beings, who are social beings (Baumeister and Leary, 1995). Being socially accepted and being a member of a group facilitates adaptation to the environment and provides a normative basis for an individual's behavior (Goodall, 1986). Establishing and maintaining relationships with other people is the basis of many human behaviors (Pickett et al., 2004). This basic need to be together with others cannot be met in situations such as exclusion from the group or society, rejection by others, and this situation motivates the individual to act to ensure that this need can be met again. One of the needs threatened by psychological exclusion is the need to belong. People try to maintain their existing social relations with others or to establish new social relations (Baumeister and Leary, 1995). Since the psychologically excluded individual can no longer feel that he belongs to the group, his need to belong will be threatened and he will be motivated to meet this need. Grohol (2011), defines FoMO as a state of anxiety caused by the thought that "social connection is more important than anything else" and states that FoMO is a very real feeling that seeps into us through our social relationships. When any connection with the social environment is interrupted, the user experiences anxiety because he does not know the reason for this interruption, and this results in fear of missing something because the need to belong is strong and cannot be satisfied. FoMO stems from people's need to belong to a social group and is as old as society (Sezerer Albayrak, 2021). Besides according to social comparison theory, individuals determine their own individual values by comparing themselves with others (Festinger, 1954). Social comparison theory has two dimensions: upward comparison and downward comparison. While upward comparison, as a comparison of situations and events in which others are superior and better, negatively affects the mood; downward comparisons as a comparison of situations and events where others are inferior and worse affect mood positively (Buunk and Gibbons, 2007). It is also among the findings of previous studies that low self-esteem resulting from upward comparison causes high anxiety (Sowislo and Orth, 2012). People with lower self-esteem tend to feel more FoMO, and as a result, the time they spend with smartphones is increasing (Servidio, 2019). Social exclusion and ostracism that affect anxiety and self-esteem, which are the factors underlying FoMO, may play an important role in explaining FoMO. In accordance with Baumeister and Leary's (1995) need to belong theory, social exclusion causes anxiety. Beside that higher degrees of need to belong means higher degrees of FoMO in adolescents (Yin et al., 2021).

Although FoMO is not a brand new concept in psycholgy, it has begun to be discussed more often especially in management and organization research with the raising reputation of social media. Individiuals have a desire to benefit from all communication channels including newspapers and letters in line with the willing to learn about what is going on in the lives of friends, families and even strangers (Wortham, 2011). In the past while following the daily newspapers and waiting for the news on TV to be aware of the events, we are now accessing the information we want to get via our mobile phone, computer or tablet whenever we want. This easy access forces people to compare their lives with the lives of others seen on social media, and as a result, people may begin to feel dissatisfied with their own life. In terms of self-construal theory, FoMO is positively related with interdependent self-construal because individuals with interdependent self-construal are more concerned with what other people are doing (Dogan, 2019).

By smartphones' extensive use and technological developments in internet infrastructures, it will not be wrong to evaluate the internet use in the context of smartphones. Nowadays, when people need to use the internet for their personal or business needs, they do not have to use computers as before and they can access the internet with their smartphones. Especially with the benefits of smartphones in business life, it is inevitable that various problems may arise in case the people's overuse of these devices. According to a study conducted in 2013, 89% of smartphone users go to extremes in smartphone use as addictive users (Shin and Dey, 2013). Addressing the negative consequences of problematic internet use and smartphone addiction in the context of FoMO and Nomophobia that means psychological condition when people have a fear of being detached from mobile phone connectivity (Bhattacharya et al., 2019), which are closely related to such addictions, will provide better results.

According to research, it takes about 25 minutes for a person to return to work when he is interrupted (Hemp, 2009). Forty-five percent of the employees stated that they were interrupted 15 minutes after they started work. In addition, approximately 60% of the interruption is caused by browsing the internet among applications, e-mails, social networks and messaging, resulting in millions of dollars of productivity loss per year (Chow and Blaszcynski, 2014). When an employee is using a mobile phone for both work and personal purposes, it seems possible that the employee is interrupted during the day. The use of smartphones for the employee for both work and personal purposes has been defined as "new open door" (Yun et al., 2012).

FoMO not only affect the social lives of people, their relationships with family and friends, but also cause inefficiency in work life. Even though FoMO's reflections in organizations in the field have not been studied much, considering that it causes the non-business internet and smartphone use at work, the cyberloafing term comes to mind instantly.

HYPOTHESES and RESEARCH MODEL

Literature review shows that the dimensions of FFPT and counterproductive work behaviors are closely related (Salgado, 2002; Ones et al., 2003; Sackett et al., 2006; Krishnan et al., 2010; Jia et al. , 2013; Abidin et al., 2014; Kim et al., 2015; Tan and Demir, 2018). The micro relationship between personality traits and cyberloafing, which is one of the counterproductive work behaviors, also stands out among the topics researchers are working on (Krishnan et al., 2010; Jia et al., 2013; Abidin et al., 2014; Kim et al., 2015; Tan and Demir, 2018).

The findings of the research examining FFPT and cyberloafing relation differ. Despite the positive relationship between extraversion and cyberloafing (Krishnan et al., 2010; Jia et al., 2013; Tan and Demir, 2018), there are also studies show that extraversion is not related with cyberloafing (Abidin et al. Kim et al., 2015). Besides the studies show a negative relationship between agreeableness and cyberloafing (Abidin et al., 2014; Tan and Demir, 2018); Jia et al. (2013) and Kim et al. (2015) confirmed no significant relationship between these two variables. Along with studies that don't show a significant relationship among emotional stability and cyberloafing (Krishnan et al., 2010; Abidin et al., 2014), there are also studies in which a positive relationship is detected (Jia et al., 2013; Kim et al., 2015). In the studies of Tan and Demir (2018), results showed that a emotional stability and learning aimed cyberloafing are related, whereas it was found that emotional stability has a negative relationship with other dimensions of cyberloafing. In many studies, no significant relationship found between openness and cyberloafing (Krishnan et al., 2010; Jia et al., 2013; Abidin et al., 2014, Kim et al., 2015). However according to the results of Tan and Demir's (2018) study, openness factor; while it is positively associated with learning aimed and ambiguous cyberloafing, it is negatively related to social slacking and addictive virtual slacking. Almost all studies showed a negative relationship between conscientiousness and cyberloafing. (Jia et al., 2013; Abidin et al., 2014; Kim et al., 2015; Tan and Demir, 2018). Therefore it is possible to say that researchers are in agreement only on the dimension of conscientiousness.

After these findings it remains unclear why people do cyberloafing and which people do cyberloafing. These differences observed in the results of the studies, revealed the necessity of examining other factors that may affect the relationship between personality and cyberloafing. Therefore, FoMO was included in the study to clarify the relationship between cyberloafing and FFPT.

Studies on FoMO shows that FoMO makes people to use social network tools more and makes them addicted to mobile phones (Przybylski et al., 2013; Abel et al., 2016; Blackwell et al., 2017; Buglass et al., 2017; Stead and Bibby, 2017; Blachnio ve Przepiorka, 2018). In the light of these findings, we think that FoMO may be one of the factors that affect cyberloafing.

The number of studies about the relationships between FFPT and FoMO is almost nonexistent. In one of these studies, findings showed a positive relationship among extraversion and FoMO, but no significant relationship between emotional stability and FoMO (Blackwell et al., 2017). According to the results obtained from Stead and Bibby's (2017) study, there's negative relationship among emotional stability and conscientiousness and FoMO.

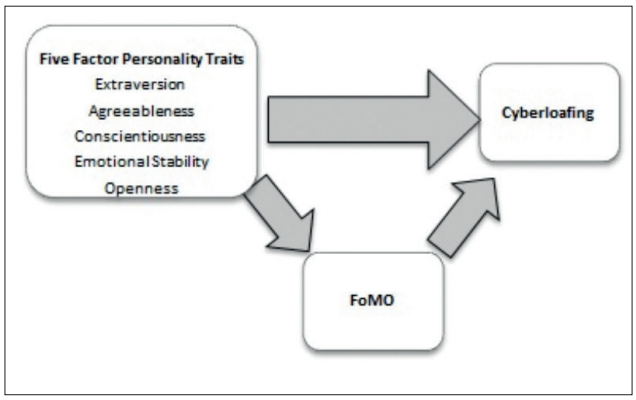
In this context, the hypotheses emerging within the scope of the research are as follows:

H_1: There is a significant relationship among dimensions of FFPT and cyberloafing.

H_2: There is a significant relationship among dimensions of FFPT and FoMO.

H_3: There is a significant relationship among FoMO and cyberloafing.

H_4: FoMO has a positive mediator effect on the relationship among the dimensions of FFPT and cyberloafing.



In line with the aim of the study, the graphical model of the research was established as in Figure 1. Personality cannot be considered as a whole because the dimensions that make up the FFPT do not refer the same concepts. Each factor that make up the FFPT were put into the model to be analyzed separately.

METHOD

In accordance with the aim of the research, the "relational" research model, which examines the relationships between variables and the degree of these relations, was used (Özdamar et al., 1999). In this research, the relationship and the level of difference between the dependent and variables were determined together.

Research Design

With the purpose of collecting data, questionnaire form was sent to the participants via WhatsApp. The questionnaire form consists of five parts. The first part includes 10 statements to detect the personality characteristics of the participants. Gosling et al.'s (2003) "short form of the five factor personality scale" was adapted to Turkish by Atak (2013). As a result of the validity analysis of the scale, we found the cronbach alpha value as 0.74. In the second part, there is Przbylski et al.'s (2013) "FoMO scale" consisting of 10 statements and adapted to Turkish by Gökler et al. (2016). That scale's cronbach alpha value was obtained as 0.85. In the third part, there is the "cyberloafing scale" developed by Blanchard and Henle (2008), and adapted to Turkish by Örücü and Yıldız (2014). The scale consists of 14 statements. We obtained the cronbach alpha value as 0.92 via the reliability analysis. In the fourth section, there are questions to learn the demographic information about the participants.

Target group of the research is banking sector employees in Turkey. The banking sector has been chosen with the thought that time is extremely valuable and that even the slightest mistake to be made as a result of carelessness will cause great harm to the employee and the organization (Malachowski, 2005). Also previous studies show that cyberloafing levels are high in banking sector (Zoghbi et al., 2020; Kularathne and Senevirathne, 2021). In this research, in which convenience sampling method is applied, questionnaire forms were generated through Google Docs and generated link was sent to employees work in state-owned and private banks via WhatsApp during the data collection process in January 2019. Considering that the employees in the banking sector may have reservations about answering the questions in the questionnaire forms, we sent questionnaire forms by way of friends who knows people works in banking sector. As can be expected, it is thought that online surveys will be answered more objectively than face-to-face interviews on subjects such as cyberloafing, where individuals are likely to have reservations while expressing themselves.Thus, we tried to prevent the participants from dreadingly responding. Moreover, the advantages of the online survey are geographical area wider, lower cost, convenient times and more importantly the data tend to be less bias (Sekaran and Bougie, 2013). After all questionnaire forms were sent to employees and the number of suitable questionnaire forms collected during the period of the research is 443. Another advantage of sending questionnaire forms via link is that all questions are answered.

Results

Table 1 showes demographic informations about the participants in terms of gender, age, education level, and job position in the bank they work. As seen in the table education level of the participants is quite high and their distribution by gender is homogeneous enough.

Multiple regression analysis was used to state the relationships among FFPT-FoMO-cyberloafing. In Table 2, a correlation matrix was created. According to these results, there is a significant relationship at the level of -0.126 ($p<0.01$) between "agreeableness" and "cyberloafing". There's a significant relationship between "conscientiousness" and "cyberloafing" at -,145 ($p<0.01$) level and between "conscientiousness" and "FoMO" at -0.199 ($p <0.01$) level. Again, there is a significant relationship at the level of -0.222 ($p<0.01$) between "emotional stability" and "FoMO". Besides a significant relationship among "FoMO" and "cyberloafing" at 0.258 ($p <0.01$) level was found.

Table 1. Sample Demographic Information

Age		Job Position	
30 or younger	24.8%	Assistant	26.6%
31-35	43.1%	Executive	46.5%
36-40	17.2%	Administrator	23.9%
41 or older	14.9%	Director	2.9%
Education Level		Gender	
College graduate	79.7%	Male	52.6%
Postgraduate	20.3%	Female	47.4%

Table 2. Correlation Matrix

	Ext.	Aggr.	Cons.	Em. St.	Open.	Cyb.	FoMO
1.Extraversion	1						
2.Agreeableness	,437**	1					
3.Conscientiousness	,270**	,312**	1				
4.Emotional Stability	,217**	,268**	,292**	1			
5.Openness	,435**	,348**	,375**	,283**	1		
6.Cyberloafing	-,049	,126**	-,145**	-,086	-,059	1	
7.FoMO	-,036	-,94*	-,199**	,222**	-,083	,258**	1

*p<0.05, **p<0.01

Three-stage regression analysis proposed by Baron and Kenny (1986) was applied to examine the mediation effect of FoMO in FFPT and cyberloafing relationship. According to this method, the following conditions must be met in order to talk about the mediation effect:

1. The independent variable (FFPT) should significantly affects the dependent variable (cyberloafing).
2. The independent variable (FFPT) should significantly affects the mediator (FoMO).
3. When the mediator (FoMO) is included in the regression analysis together with the independent variable (FFPT), while independent variable's (FFPT) regression coefficient on dependent variable (cyberloafing) decreases, the mediator (FoMO) also must significantly affects the dependent variable (cyberloafing).

While the decrease in the coefficient of the independent variable is expressed as partial intermediation; the disappearance of this relationship, in other words, the fact that it turns out to be statistically insignificant, is expressed as a full mediating effect. In addition, the decrease or disappearance of the relations between the independent and dependent variable should be statistically tested. Sobel test is used to test the significance of the value calculated (Kenny et al., 1998).

Table 3 shows a statistically significant relationship between FFPT and cyberloafing (F = 2.718; p <0.05). FFPT factors explain approximately 2% of the entire dependent variable named cyberloafing. Thus H_1 is supported.

As seen in Table 4, "conscientiousness" (b = -0.118; p <0.05) of personality traits factors has an effect on the cyberloafing variable, whereas there's no statistically significant relationship between the other dimensions of FFPT and cyberloafing.

Findings in Table 5 shows a significant relationship between independent variable FFPT and mediator FoMO (F = 6.773; p <0.01). FFPT factors explain approximately 6% of the entire mediator named FoMO. Thus H_2 is supported.

Table 3. Regression Model Summary in the Relationship Between FFPT and Cyberloafing

	Ind. Var.	**Dep. Var.**	**R**	**R^2**	**Adj.R^2**	**F**	**p**
H_1	FFPT	Cyberloafing	0.174	0.030	0.019	2.718	0.020*

*p < 0.05; Predictors: (Constant), FFPT dimensions

Table 4. Regression Coefficients in the Relationship Between FFPT and Cyberloafing

Independent Variable	Nonstandardised Coefficients		Standardised Coefficients		
	b	**Std. Dev.**	**b**	**t**	**p**
Extraversion	0.028	0.059	0.026	0.469	0.639
Agreeableness	-0.109	0.061	-0.098	-1.783	0.075
Conscientiousness	-0.138	0.062	-0.118	-2.223	0.027*
Emotional stability	-0.038	0.053	-0.036	-0.704	0.482
Openness	0.020	0.065	0.017	0.310	0.756

*$p < 0.05$; Dependent Variable: Cyberloafing

Table 5. Regression Model Summary in the Relationship Between FFPT and FoMO

	Ind. Var.	**Mediator**	**R**	**R^2**	**Adj. R^2**	**F**	**p**
H_2	FFPT	FoMO	,267	,072	,061	6.773	,000**

**$p < 0.01$; Predictors: (Constant), FFPT dimensions

Table 6. Regression Coefficients in the Relationship Between FFPT and FoMO

Independent Variable	Nonstandardised Coefficients		Standardised Coefficients		
	b	**Std. Dev.**	**b**	**t**	**p**
Extraversion	0.044	0.048	0.050	0.919	0.359
Agreeableness	-0.020	0.050	-0.022	-0.405	0.685
Conscientiousness	-0.155	0.051	-0.157	-3.034	0.003**
Emotional stability	-0.164	0.044	-0.185	-3.722	0.000**
Openness	0.013	0.054	0.014	0.249	0.803

**$p < 0.01$; Dependent Variable: FoMO

Table 7. Regression Model Summary in the Relationship Between FoMO and Cyberloafing

	Mediator	**Dep. Var.**	**R**	**R^2**	**Adj.R^2**	**F**	**p**	**b**
H_3	FoMO	Cyberloafing	,258	,067	,064	31.447	,000**	0.258

**$p < 0.01$

As seen in Table 6, "conscientiousness" (b = 0.157; p<0.01) and "emotional stability" (b = -,185; p<0.01) of FFPT factors has an effect on the FoMO variable, whereas there is no statistically significant relationship between "extraversion", "agreeableness" and "openness" factors and FoMO.

Table 7 shows that mediator FoMO is significantly related with dependent variable cyberloafing (F = 31.447; p <0.01). FoMO explain approximately 6% of the entire dependent variable named cyberloafing. FoMO (b = 0.258; p <0.01) has an effect on the cyberloafing variable. According to these results, H_3 is supported.

Table 8 shows that the regression coefficients of the "conscientiousness" dimension of FFPT decrease with the inclusion of "FoMO" in the model. Besides the effect of the "conscientiousness" on "cyberloafing" disappears in the model. According to these results, it is possible to mention that the third condition is met for the mediation effect and there is a full mediation effect of "FoMO" between the "conscientiousness" dimension of FFPT" and "cyberloafing". According to this result, H_4 is supported.

It is seen with the Sobel test that the FoMO has an mediator role between the conscientiousness dimension

Table 8. Hierarchical Regression Analysis

Model	Ind. Var.	Unstd. Coef.		Std. Coef.		
		B	**Std. Dev.**	**B**	**t**	**p**
1	Extraversion	0.028	0.059	0.026	0.469	0.639
	Agreeableness	-0.109	0.061	-0.098	-1.783	0.075
	Conscientiousness	-0.138	0.062	-0.118	-2.223	0.027*
	Emotional stability	-0.038	0.053	-0.036	-0.704	0.482
	Openness	0.020	0.065	0.017	0.310	0.756
Model in mediator is included	Extraversion	0.015	0.057	0.014	0.263	0.793
	Agreeableness	-0.103	0.060	-0.092	-1.734	0.084
	Conscientiousness	-0.094	0.061	-0.080	-1.545	0.123
	Emotional stability	0.008	0.053	0.008	0.160	0.873
	Openness	0.016	0.063	0.014	0.259	0.795
	FoMO	0.282	0.057	0.237	4.973	0.000**

*p<0.05, **p<0.01; Dependent variable: Cyberloafing

of the FFPT and cyberloafing (Sobel test value = -3.6224, standard error = 0.0146, p = 0.001).

Another statistical test of the mediating relationship was carried out with the bootstrapping method. As a result of the Process Macro Analysis (Hayes, 2017), indirect effect was found to be significant ($\beta_{indirect}$ = -.06, standard error = .01, confidence intervals = -.097-lower limit and -.02-upper limit).

As a result, the status of the hypotheses in the study are as follows in Table 9.

Table 9. The Status of Hypotheses

H_1	There is a significant relationship among dimensions of FFPT and cyberloafing.	Supported
H_2	There is a significant relationship among dimensions of FFPT and FoMO.	Supported
H_3	There is a significant relationship among FoMO and cyberloafing.	Supported
H_4	FoMO has a positive mediator effect on the relationship among the dimensions of FFPT and cyberloafing.	Supported

CONCLUSION and DISCUSSION

In this study, data were collected from 443 employees working in state-owned and private banks in Turkey via questionnaires. The questionnaire forms in this study include questions about demographic information, personality characteristics, cyberloafing tendency and FoMO levels of employees. Data were analyzed through regression analysis to test research hypotheses.

As a result of the first hypothesis that examined the relationship between the FFPT and cyberloafing, a statistically significant negative relationship was determined between the conscientiousness dimension of the FFPT and cyberloafing. This finding is supported by the results of many studies (Jia et al., 2013; Abidin et al., 2014; Kim et al., 2015; Tan and Demir, 2018). In accordance with these findings, it is possible to say that employees with high sense of responsibility, primarily focus on their work in the workplace and do not tend towards cyberloafing, which is one of the counterproductive work behaviors. Significant relationship wasn't detected between extraversion and cyberloafing like as Abidin et al.,'s (2014) and Kim et al.,'s (2015) studies. Similarly no significant relationship was found between agreeableness and cyberloafing. Jia et al. (2013) and Kim et al. (2015) also did not determine a relationship between these two variables. In present research, significant relationship is not detected between emotional stability and cyberloafing like as the other studies' (Krishnan et al., 2010; Abidin et al., 2014). Likewise there is no significant relationship between openness, which is the last dimension of the FFPT, and cyberloafing. Many studies in the literature support this finding (Krishnan et al., 2010; Jia et al., 2013; Abidin et al. , 2014, Kim et al., 2015).

As mentioned before, various researchers have obtained different results in the relationship between the dimensions of FFPT and cyberloafing. One of the most important reasons why these results differ from each other and do not find the lowest common denominator can be the neglection of some factors that may affect this relationship (Koelega, 1992). Although it is very normal to examine personality traits in terms of personal factors, which are among the factors affecting cyberloafing, personality traits do not have the power to explain cyberloafing alone.

While conducting a literature review, it was seen that there are some psychological factors in the personal factors that are given rise to thought to affect cyberloafing (Akca, 2013). When the basis of FoMO which is a relatively new concept is examined, it is predicted that FoMO can play an important role on in the relationship between FFPT and cyberloafing. In the literature, it can be seen that the relationship between FoMO and cyberloafing has just begun to be examined. In one of newest studies in the field, obtained results show that FoMO is an important predictor of cyberloafing, and individuals with high FoMO levels frequently engage in cyberloafing behavior (Tozkoparan and Kuzu, 2019). Also, there are many studies suggest that FoMO is directly associated with the internet use, mobile phone use, social network addiction, may be considered as cyberloafing tools (Przybylski et al., 2013; Abel et al., 2016; Blackwell et al., 2017; Buglass et al., 2017; Stead and Bibby, 2017; Blachnio ve Przepiorka, 2018).

In accordance with the results obtained from the analysis, a significant relationship between FoMO and cyberloafing was detected. It is seen that FoMO explained 6% of cyberloafing like as Tozkoparan and Kuzu's (2019) study. In the light of these findings; it is correct to say that individuals with high levels of FoMO, will be more curious about what is happening around, will want to get more news and they will use their phones more often in their workplaces and cyberloaf more.

Along with the statistically significant relationship between FoMO and cyberloafing, it is wondered that FoMO may have an mediator role in the relationship between FFPT and cyberloafing. In this framework, first of all, the relationship between the dimensions of the FFPT and FoMO was examined. A significant relationship wasn't detected between extraversion, agreeableness and openness dimensions and the FoMO. Statistically significant relationships were determined between constientiousness and emotional stability dimensions and FoMO. These findings supported with the findings of Stead and Bibby's (2017), study that is one of the very few studies examining the relationship between FFPT and FoMO.

Considering that conscious individuals are responsible, resolute and self-controlled people, the FoMO levels of this kind of people are expected to be low (Somer and Goldberg, 1999). Individuals with low levels of emotional stability are neurotic people and they are characterised as anxious, tense and agitated (Somer and Goldberg, 1999). Emotions such as anxiety and insecurity lie behind the neuroticism, just as the basis of FoMO (McCrae and Costa, 1987). Accordingly, individuals with high emotional stability scores can be expected to feel much less FoMO. In other words, as the neurotic people will have high anxiety to learn what is happening around, the FoMO levels of them are also expected to be high.

According to the results of the analysis examining the mediating effect of FoMO in the relationship between FFPT and cyberloafing; with the inclusion of FoMO in the model it is seen that the regression coefficients of the personality traits factors decrease and the effect of the factors disappears. The significant relationship between the conscientiousness dimension of FFPT and the cyberloafing has become insignificant with the inclusion of FoMO in the model. This result reveals the effect of FoMO in explaining cyberloafing. According to this; individuals' cyberloafing behavior is shaped by their personality, as a result of the relationship between FFPT and cyberloafing occurs in the context of FoMO. For example, the low level of conscientiousness among the FFPT does not mean that individuals will engage in cyberloafing behavior. One of the reasons that push people to cyberloaf is that they have high levels of FoMO.

This result shows that personality traits have an indirect effect on cyberloafing behavior through FoMO and not a direct effect. In other words, individuals' cyberloafing behavior will increase even if their conscientiousness levels increase. Besides FoMO has more influence on cyberloafing than personality traits. In conclusion, the results reveal a negative relationship among the conscientiousness dimension of the FFPT and the cyberloafing while FoMO has a fully mediating effect in this relationship.

RECOMMENDATIONS and LIMITATIONS

In the light of the findings obtained from the research, it is possible to provide some recommendations for the practitioners. Even if organizations can somehow block their employees' cyberloafing behaviors, employees may experience problems with focusing when they cannot check their phones and go online, due to FoMO, which is an important factor affecting cyberloafing. Therefore their performance at work may decrease. In other words, keeping employees away from the internet or preventing them from dealing with their phones during working hours can eliminate cyberloafing, but may create other problems. Considering that human resources managers have been applying personality tests for many years (Jeanneret and Silzer, 1998; Terpstra and Rozell, 1993), this research showed that personality tests are not sufficient to determine people's behaviors in certain issues like counterproductive work behaviors. Also it is known that psychometric tests have been used in recruitment processes in addition to personality tests for years (Yelboğa, 2008). Considering that FoMO is also a psychological condition, it may be useful for businesses to measure the FoMO tendencies of the candidates if they deem necessary. Especially if organizations want to avoid encountering counterproductive work behaviors and hiring personnel who do not tend to be cyberloafer, they can think about evaluating candidates' FoMO levels along with their personality traits. Moreover this study showed that FoMO has much more impact on cyberloafing than personality traits as seen in Table 3 and Table 7. Thus a new question arises: Does traditional personality test still work effectively in hiring decisions?

It also may be important for the organizations to think about what can be done to reduce the FoMO levels of employees with high FoMO levels. When taken together with its causes and consequences, FoMO not only causes cyberloafing behavior but also negatively affects the general life satisfaction of the employees. For this reason, organizations may also seek to provide psychological support to their employees by experts in this regard, if necessary.

As for the recommendations for researchers; it is obvious that cyberloafing behavior causes a loss of workforce and it is thought that the performance of an employee, who spends a certain time of his work by non-business internet use, will decrease. For this reason, future studies on cyberloafing can be examined as part of human resources management and job performance. The key result of this study to the literature is FoMO's role on the relationship among FFPT and cyberloafing. The relationship between FFPT and cyberloafing has been examined several times before and inconsistencies have occured in the results of the previous studies. In some studies while some dimensions of FFPT predict cyberloafing, in some other studies, the direction of the relationship changes, and in some other studies, no relation is occured. Therefore, in this study considering that there may be other factors affecting this relationship, FoMO has been included in the research model and the effect of FoMO in explaining cyberloafing has been revealed. FoMO, a quite new fact in the behavioral science literature, mediates the relationships between variables in many studies, as mentioned before. For this reason, it is important that FoMO should be researched more widely in future research. FoMO should be examined in various issues in business management like organizational citizenship, organizational commitment, organizational culture, motivation, ethics, counterproductive work behaviors, job satisfaction, group dynamics, teamwork skills, leadership, organizational conflict, organizational stress and stress management, mobbing and absenteeism. It should be considered and consensus can not be reached in the literature.

Considering that this study is carried out in the banking sector, it may be important to examine the employees working in different sectors in future research, especially in terms of clearly revealing the value of FoMO. Significant differences can occur between employees working in different sectors, different departments and different job descriptions, in terms of both FoMO level and cyberloafing behavior. Considering the negative consequences of FoMO to the individuals and indirectly to the organizations, research can be conducted on what kind of studies can be done in terms of eliminating or reducing the FoMO felt by people.

As most important limitation in this study, employees were sent questionnaire forms and asked to fill these forms. Since the subject of cyberloafing is an issue where employees can be sensitive about giving unbiased and accurate answers, it may be useful to perform qualitative research in future studies. Another limitation is that it is not possible to reach all of the employees working in the banking sector, so convenience sampling method is applied. Thus, this research can be studied in small scale inudstries. Beside, it may be useful to conduct research with experimental design in the future in order to reveal causal relationships more strongly.

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How Do Customers Respond to Digital Banking Products and Services in New Zealand?

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ABSTRACT

Fast development in the technology and the intense competition have driven banks to spend considerable money on transforming from traditional banking business to digital banking business to sustain competitive advantage. Since the changing habits, customers are demanding new approaches to access financial services through both secured and unsecured digital channels. This study develops and tests a modified theoretical model based on the Unified Theory of Acceptance and Use of Technology (UTAUT) to analyse how customers respond to digital banking products or services in New Zealand from behavioural intention perspective. This study finds that the individuals' behavioural intention towards digital banking products or services can be predicted from performance expectancy, effort expectancy, and service quality conditions. Besides, this study discovers that customer gender, age and experience are having moderating influence when determining the intention of using digital banking products or services in New Zealand. Study contributes to knowledge in the field of individual technology acceptance research. It demonstrates that customer satisfaction also plays a major role in the digital banking context.

Keywords: Digital Banking Products, User Acceptance, UTAUT, Technology Acceptance, PLS.

JEL Classification Codes: M00

INTRODUCTION

Digital banking, a concept of "home banking", firstly appeared in the form of telephone banking in the 1980s because of the lack of computer and internet resources (Howcroft, Hamilton, & Hewer, 2002). In 1996, US initiated its first online banking system and then it started to spread to other countries (Şanlı & Hobikoğlu, 2015). The bank, as a firm, is to conduct regulated activities of accepting deposits and creating credits so that they can generate revenues through lending interest, transaction fees, and financial consulting services. As the internet and digital technology evolves, the preferred accessing channels from customers start to shift and re-form customer habits.

The penetration of the internet and mobile phones enable users to interact with digital content, which becomes the foundation of transformational habits and customer preferences (Cuesta, Ruesta, Tuesta, & Urbiola, 2015; Omarini, 2017; Filotto, Caratelli, & Fornezza, 2021). The changing habits of customers are driving banks to accelerate their digitalisation transformation processes through the adoption of latest technology (Cuesta et al., 2017; Omarini, 2017; Kitsios, Giatsidis, & Kamariotou, 2021). Digitalisation transformation can trigger the development of new channels and products, the adoption of the technological infrastructure and the far-reaching changes to achieve strategic digital positioning (Cuesta et al., 2017; Filotto et al., 2021). Therefore, developing right digital banking products or services through new digital channels can be a high priority objective for banks.

Digital banking products or services have been designed for customers to access their financial information going beyond traditional channels, such as automated teller machine (ATM), telephone banking, mobile banking, online banking, and video banking, which provide different digital customer journeys (McMillan, 2015). However, traditionally, banks provide products or services to customers in person in a centralised branch during open hours (Berry & Berry, 2016). Instead of visiting a physical bank branch, digital banking products or services allow customers to make payments, request loans and pay back credit cards at home through self-service channels (CANSTAR, 2016).

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For example, customer satisfaction can increase if they can make payments to another bank account within a minute via mobile banking any time beyond the bank's working hours.

Digital banking products or services have pre-defined service level agreements (SLA), which direct the day to day service operations (Zhu, Wymer, & Chen, 2002). Managing SLAs leads to the different expectation of products or services quality; this consequently will influence customers' behaviour towards the adoption of digital banking products or services (Zhu, Wymer, & Chen, 2002). For example, customers will physically withdraw cash from one bank and then deposit money into another bank in a few hours to complete an inter-bank money transfer, instead of waiting for an overnight time to have the money transferred via digital channels. Customers will behave differently because of the pre-defined time in SLAs for inter-bank money transfer.

Digital banking products or services produce unique customer experience, which is transformed by digital technology (Parise, Guinan, & Kafka, 2016). Managing customer experience leads to different levels of customer satisfaction, this, in turn, will influence customers' behaviour towards to use digital banking products or services (Liébana-Cabanillas, Muñoz-Leiva, Sánchez-Fernández, & Viedma-del Jesús, 2016). For example, customers will pay no surcharge to withdraw cash from ATM, instead of paying additional fees to a teller in the physical bank branch. Customers will be satisfied in different levels because customer experience has been built on various digital technology.

Digital banking products or services play an essential role in banks' business. Better customer experience will increase the customer sense of efficiency of digital banking leading to increased customer loyalty. In the meantime, the delivery of banking products and services over digital channels may enable banks achieving of cost saving, increased customer base, mass customisation, easy marketing and communication operations, innovative and novel approaches or development, and also various development of areas out of their core businesses (Ukpabi & Karjaluoto, 2016). For this reason, the bank should transform the business into a digital compatible mix and shape those changes by adapting to a new business model relying on customer experience in the digital banking context.

This study addresses the question "how do bank customers respond to digital banking products or services in New Zealand?" from individual behavioural intention perspective. The success of introducing a new digital banking products or services highly depends on the benefits that digital technology can produce. Therefore, the depth of understanding major influences of customers' behavioural intention should be studied which is tightly linked to technology impacts of how digital customer experience re-shapes value proposition of banks in New Zealand. Unified theory of acceptance and use of technology (UTAUT) model, an extension of Technology acceptance model (TAM) argues that individuals will adopt a technology considering the combined effect of performance expectancy, effort expectancy, social influence, and facilitation conditions (Venkatesh & Davis, 2000). This study integrates UTAUT model with age, gender, experience, and voluntariness of use as moderating effects, and variables of satisfaction and service quality from integrative model to elaborately investigate what influences individuals to the behavioural intention towards banking products or services.

The rest of the paper is organized as follows: Next section explains the literature on digital banking, the models on technology acceptance and influential factors in digital banking. This section is followed by hypothesis development, methods, data analysis and results. Discussion and conclusion with future research concludes the paper.

LITERATURE REVIEW

Digital banking in New Zealand

New Zealand has the population of 4.5 million and GDP of $173 billion in USD (Economic Overview, 2016). Compared to other countries like the US or Australia, New Zealand is relatively small regarding population, market size, economical scale and demonstrates less risk aversion in business culture (Gandelman & Hernandez-Murillo, 2014). Despite the amount of digital banking products or services available in the market, it is imperative to find out which aspects New Zealand banks should improve to among those digital banking products or services.

The current technological trends in the market start to re-form customers' digital experiences through tracking customer journey, managing customer service quality and enhancing customer satisfaction (Singh & Hess, 2017). Therefore, customers' view towards digital banking products or services and to what extent that customers can and will adopt digital banking products or services in their daily work and life should be understood and analysed to provide better digital banking products or services and then appropriate decisions can be made to obtain better competitive advantages in the future.

In New Zealand, top ten banks, including ANZ Bank NZ, ASB Bank, Bank of New Zealand, Co-Operative Bank, Heartland Bank, HSBC, Kiwi Bank, SBS Bank, TSB Bank, and Westpac, are providing various digital banking products or services across both on-lines channels and mobile channels (CANSTAR, 2016). Some of digital banking products or services are secured channels requiring customers' unique login such as, scheduling future payments, showing bank statements, pre-populating data for new product application, activating credit cards and debit cards, home screen transfer capability, setting a savings goal, and setting temporary card lock (CANSTAR, 2016), while others, such as mortgage repayment calculator services, location a branch function, etc. work as unsecured channels.

Digital Banking

Customers are demanding new ways to access financial services because of changing habits towards technology, such as mobile experiences, social network experience (Cuesta, Ruesta, Tuesta, & Urbiola, 2015). The gap between the demand and supply is required to be bridged. Thus, banks are facing digital challenges from these new ways of transforming into a digital bank such as the adaptation of technology platform, and automation processes (Cuesta, Ruesta, Tuesta, & Urbiola, 2015). By overcoming these digital challenges, banks can supply digital banking products or services to customers to obtain competitive advantages in the new competitive environment. Therefore, digital banking is termed as a multi-channel solution providing Internet and mobile services in addition to traditional branch services (Schmitt & Gautam, 2017).

Digital banking, in one hand like traditional banking, concludes the supply generation, products or services distribution, sales of financial products or services through digital channels to fulfil customers' need and meet their expectations (Cuesta, Ruesta, Tuesta, & Urbiola, 2015). In this regard, it is expected that digital banking products or services will give priority to end user demands. By developing new digital channels and products across internet banking, mobile banking, and text banking from social networks, banks enable end users to access financial products or services through these new approaches.

In another hand, digital banking also goes beyond the new means of access, distribution and responding to transaction business (Cuesta, Ruesta, Tuesta, & Urbiola, 2015). For example, advanced digital tracking and analytical techniques enable the possibility of managing customer's digital journey from the analysis of customer satisfaction feedback and service quality setup. The outcome of this provides a better understanding of customers' preferences, behavioural intention and the actual behaviour. Thus, digital banking products or services, as the output of digital banking, are considered as the financial products or services that allow customers to access through digital channels, such as the internet, mobile, phone, social network sites, and so on (Cuesta, Ruesta, Tuesta, & Urbiola, 2015).

Technology Acceptance

In this study, we focus on individual acceptance of digital banking product or services. Researchers have examined Internet banking and mobile banking from both the technology acceptance model (TAM), and the unified theory of acceptance and use of technology (UTAUT) model. User acceptance of technology has been an important field of study for several years now, which tries to explain and predict the actual use of a particular system or technology.

TAM, extending the theory of reasoned action (TRA), describes that concepts like perceived usefulness and perceived ease of use will determine an individual's intention to adopt a technology or system, and furthermore the intention to use will directly impact the actual use of technology or system (Davis, 1989). Perceived ease of use directly affects perceived usefulness as well (Davis, 1989). In TAM, perceived usefulness is related to the level of an individual's agreement that the technology or system will enhance the job performance, while perceived ease of use is defined as the perception of the extent to which an individual agrees that the technology or system will require less effort (Davis, 1989).

As an extension to TAM, Unified Theory of Acceptance and Use of Technology (UTAUT) model provides a framework to explain user intentions and subsequent usage behaviours. UTAUT model describes four main factors namely: performance expectancy, effort expectancy, social influence and facilitating conditions, along with four moderating factors as: gender, age, experience, and voluntariness of use (Morris, Venkatesh, Davis, & Davis, 2003).

Among four main factors, performance expectancy, effort expectancy, and social influence have direct impact on behavioural intention, whereas the other factor, facilitating conditions affect use behaviour. According to Morris, Venkatesh, Davis and Davis (2003), performance expectancy is the extent to which a person thinks that using the system will boost the productivity or obtain

gains in term of performance while effort expectancy can be referred as the extent to which a person agrees or perceives that it is easy to use technology or the systems. Also, social influence refers to "the degree to which an individual perceives that important others believe he or she should use the new system" (Morris et al., 2003, p. 451) whereas facilitation conditions are considered as "the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (Morris et al., 2003, p. 453). For example, online credit card payment is facilitated when no extra surcharge is required on top of the payment amount.

Influential factors in digital banking

In a digital banking context, customer satisfaction and service quality factors both have been identified to have an influence on post-purchase behaviours (Gan, Clemes, Wei, & Kao, 2011). Customer satisfaction is defined as "an outcome of purchase and use resulting from the buyer's comparison of the rewards and costs of the purchase in relation to the anticipated consequences" (Churchill Jr & Surprenant, 1982, p. 493) and as an emotional state responding to the service assessment (Westbrook, 1981). Moreover, service quality refers to how the expectation about a service performance is related to the experienced service performance the customers perceive (Zeithaml, Berry, & Parasuraman, 1988).

Customer Satisfaction

Customer satisfaction has been termed as the post-decision customer experience based on the comparison result of performance and expectation (Caruana, 2002). By all means, when disconfirmation arises from discrepancies between performance and expectation, customers can be satisfied or dissatisfied after consumption of products or service (Caruana, 2002). Expectations are defined as "a normative standard of future events", which are stable and not affected by the marketing or competitive factors (Boulding, Kalra, Staelin, & Zeithaml, 1993, p. 8). Therefore, customer satisfaction can help organisations influence customers' decisions by constantly providing expected products or services (Caruana, 2002).

According to Giese and Cote (2000), extensive research has been conducted to study customer satisfaction and its components. Customer satisfaction represents a measurement framework for company performance in delivering products or services process and helps companies develop a customer-based culture and strategy to sustain the competitive advantages (Mihelis, Grigoroudis, Siskos, Politis, & Malandrakis, 2001). Digital banking products or services provide various service channels that enable customers to manage their pace with digital banking products or services. According to Oliveira and von Hippel (2011), experienced digital banking customers are lead users as the products or services they build for their usage are at a leading-edge potential in the commercial context. Lead users are satisfied through a co-development of innovation relationship (Ranjan & Read, 2016) or advanced service portals (Oliveira & von Hippel, 2011). There are also possibilities that individuals who are satisfied may not adopt digital banking products or services depending on the size of market that the competition is in (Gan, Cohen, Clemes, & Chong, 2006; Ramachandran & Chidambaram, 2012). Therefore, customer satisfaction can determine the behavioural intention instead of the actual use behaviour.

Service Quality

Service quality is essential to support the intended individual behaviours. In a digital banking context, service quality can be termed as an integration of customer service quality, digital systems quality and banking product quality (Sharma, Govindaluri, & Al Balushi, 2015). With limited resources to maintain a high-level credibility of digital banking products or services, the the bank authorities should focus more on level of responsiveness to requests, reliability on their work and access to customer service quality, enhanced usability and accuracy in digital systems quality, and product variety and diverse features in banking product quality respectively (Sharma, Govindaluri, & Al Balushi, 2015). High service quality can help create a "bond" with customers if it consistently meets the demand at a higher standard and provides personalised services by tracking customer behaviour information to manage customer experiences (Sharma, Govindaluri, & Al Balushi, 2015). Therefore, long-term customer relationships can be developed and maintained.

HYPOTHESIS DEVELOPMENT

The UTAUT model is composed of four key constructs serving as independent variables, two constructs about behaviour intention and use, as well as four moderators. Performance expectancy construct is about whether the system would be helpful for daily work and life regarding swift completion of the transaction and high successful action rate, which determines the intention use of systems (Zhou, Lu, & Wang, 2010). For example, an individual will pay for the house bills by secured digital banking products or services. The successful completion of this transaction to fulfil a general payment request

is part of performance expectancy. Alternatively, an individual has a complaint about a banking product or services. The successful submission of complaining request by unsecured channel like Facebook, Twitter is also part of performance expectancy. Thus, we have:

H1: Performance Expectancy is positively associated with Behavioural intention in digital banking industry.

Effort expectancy means whether users can easily navigate online digital banking portal, mobile banking portal, or any unsecured digital banking portal in terms of system access, system interaction, and the ease to perform the desired functionalities, which determines the intention use of systems (Zhou, Lu, & Wang, 2010). Comparing to TAM model, concepts of effort expectancy and perceived ease of use match (Venkatesh & Davis, 2000). For example, an individual can pay the house bills through online digital banking channel and mobile banking channel. The less effort and time spent on this transaction is part of effort expectancy. Thus, we have:

H2: Effort Expectancy is positively associated with Behavioural intention in digital banking industry.

Social influence means refers to the use of the system being socially compatible with family members, friends, and the company regarding interacting with individuals and other entities, which determines the intention use of systems (Zhou, Lu, & Wang, 2010). Comparing with TAM model, social influence matches the concept of external variables (Venkatesh & Davis, 2000). Thus, we have:

H3: Social Influence is positively associated with Behavioural intention in digital banking industry.

The UTAUT hypothesised that four factors would moderate the relationships shown in their model. First, gender is referred as one moderator to affect the constructs of performance expectancy, effort expectancy, and social influence. Second, age is referred as one moderator that potentially impacts the factors of performance expectancy, effort expectancy, social influence, and facilitating conditions. Third, the experience is referred as a moderator that will have an influence on effort expectancy, social influence, and facilitating conditions rather than performance expectancy. Also, voluntariness of use is identified as a moderator that impacts to social influence only (Morris, Venkatesh, Davis, & Davis, 2003).

To understand moderators, customer profiles of digital banking products or services should be identified first regarding gender, age, experience, and voluntariness. Customer profile including gender, age, experience, voluntariness matters in determining customer behavioural intention (Morris, Venkatesh, Davis, & Davis, 2003). Digital banking products or services are built on Internet and computer usage. The preference of using the Internet will have an impact on the voluntariness of adopting digital banking products or services. Also, in the digital era, the level of demand for digital banking products or services is driven by the number of individuals who are using the Internet, mobile devices, and social media. The population of global Internet users and mobile users is the primary factor as all digital products or services are delivered through either online or mobile channels. Thus, we have:

- *H1a: Gender moderates the relationship between Performance Expectancy and Behavioural intention in the UTAUT in digital banking industry.*
- *H1b: Age moderates the relationship between Performance Expectancy and Behavioural intention in the UTAUT in digital banking industry.*
- *H2a: Gender moderates the relationship between Effort Expectancy and Behavioural intention in the UTAUT in digital banking industry.*
- *H2b: Age moderates the relationship between Effort Expectancy and Behavioural intention in the UTAUT in digital banking industry.*
- *H2c: Experience moderates the relationship between Effort Expectancy and Behavioural intention in the UTAUT in digital banking industry.*
- *H3a: Gender moderates the relationship between Social Influence and Behavioural intention in the UTAUT in digital banking industry.*
- *H3b: Age moderates the relationship between Social Influence and Behavioural intention in the UTAUT in digital banking industry.*
- *H3c: Experience moderates the relationship between Social Influence and Behavioural intention in the UTAUT in digital banking industry.*
- *H3d: Voluntariness of use moderates the relationship between Social Influence and Behavioural intention in the UTAUT in digital banking industry.*

Satisfaction conditions relate to attitudes or future intentions to use the technology or system based on past experiences of using digital banking products or services (Gan et al., 2006). According to Olsen (2002), repurchase behavioural intention is significantly associated with the

level of customer satisfaction. Individuals who are satisfied with the experience of digital banking products or services are not always using digital banking products or service in next experience since facilitation conditions affect the actual use behaviour (Shih & Fang, 2004). Therefore, satisfaction conditions can determine the behavioural intention towards digital banking products or service. Also, satisfaction, as an attitude coming end users, should be an ongoing innovation relationship between banks and customers (Ranjan & Read, 2016). Therefore, customer profile including age, gender and experience, does matter in generating customer satisfactions. Experienced users are the lead users in digital banking products or services (Oliveira & von Hippel, 2011). Thus, we have:

- *H4: Satisfaction Conditions is positively associated with Behavioural intention in digital banking industry.*
- *H4a: Gender moderates the relationship between Satisfaction Conditions and Behavioural intention in digital banking industry.*
- *H4b: Age moderates the relationship between Satisfaction Conditions and Behavioural intention in digital banking industry.*
- *H4c: Experience moderates the relationship between Satisfaction Conditions and Behavioural intention in digital banking industry.*

Service quality is related to the outcome of digital banking products or services meeting the quality expectation of customer service, digital systems, along with products or services in general (Sharma, Govindaluri, & Al Balushi, 2015). First, better services can build a long-term relationship with customers, associating with the repurchase behavioural intention (Ramachandran & Chidambaram, 2012). Second, TAM model describes that the perceived ease of use towards digital systems quality has an influence on behavioural intention (Davis, 1989). Third, products or services quality can be tracked and managed by enabling tracking in digital channels across the responsiveness, reliability, and accessibility of digital banking products or services (Sharma, Govindaluri, & Al Balushi, 2015). Therefore, service quality conditions can determine the behavioural intention towards digital banking products or services. Also, service quality, as a perceived value from customers, will vary depending on customer demographics (Santos, 2003). Therefore, customer characteristics difference, including age, gender and experience, does matter in service quality conditions. Thus, we have:

- *H5: Service Quality Conditions is positively associated with Behavioural intention.*
- *H5a: Gender moderates the relationship between Service Quality Conditions and Behaviour in digital banking industry.*
- *H5b: Age moderates the relationship between Service Quality Conditions and Behaviour in digital banking industry.*
- *H5c: Experience moderates the relationship between Service Quality Conditions and Behaviour in digital banking industry.*

By adding service quality and customer satisfaction as new constructs into UTAUT model, new direct determinants can be proposed to affect individual's

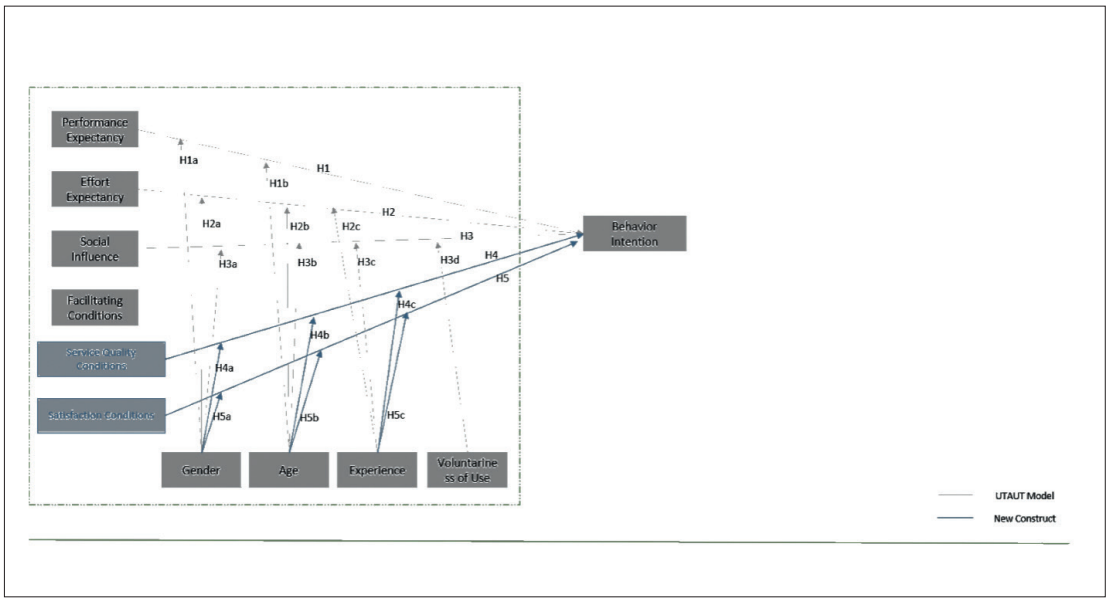

Figure 1: Proposed research model

behavioural intention. Like other direct determinants in UTAUT model, service quality condition and satisfaction condition are expected to be moderated by customer profile such as gender, age, and experience (Tam, 2004). Figure 1 demonstrates the proposed research model.

Proposed model does not include use behaviour (UB) construct as in the original UTAUT model since this study aims to answer the question on how customers respond to digital banking products or services from individual behavioural intention perspective.

The experience result is converted into dichotomous variable representing whether or not individual users have adopted digital banking products or services in the past. Thus, the used experience (UE) is represented as a dependent variable which has been affected by facilitating conditions and behavioural intention (Yu, 2012).

METHODS

The research adopts a quantitative methodology. The on-line survey has been conducted to answer the research question "how do customers respond to digital banking products and services in New Zealand?" from individual behavioural intention perspective.

Measures

The scales used in this study are adopted from validated instruments from prior studies. Scales including behavioural intention to use the system section, performance expectancy section, effort expectancy section, social influence section, facilitating conditions section, voluntariness of use section, derives from UTAUT model (Morris, Venkatesh, Davis, & Davis, 2003). Scales on service quality conditions section and satisfaction conditions section, derives from the service quality and intentions research (Su, Swanson, & Chen, 2016).

Sample

Data were collected from social media sites as there are varioud advantages of using social media as data collection platform (Alshaikh, Ramzan, Rawaf, & Majeed, 2014). According to Couper (2001), social network sites for surveys could offer a large user base from Facebook, Linkedin and Twitter. The increasing user base trend is hard to ignore. Social networking sites, as an entry to the on-line survey, provides more possibility to expose the survey to New Zealand users and reach them. There are previous studies to collect data from Facebook users (Rife, Cate, Kosinski, & Stillwell, 2016) and WeChat users (Yang, Mok, Au, Lai, & Ng, 2016).

Data Collection

This study collects data from on-line survey via social media to randomly invite customers of New Zealand banks to participate in this survey. In this study, three social media channels have been applied in this survey are Facebook, LinkedIn, and Wechat. Facebook and Wechat both are commonly accepted for personal use, whereas LinkedIn is primarily for business use.

The target population is all New Zealand bank customers. However, the ten banks[1], including ANZ Bank, Kiwi Bank, ASB Bank, Westpac Bank, BNZ Bank, Cooperative Bank, Heartland Bank, HSBC, TSB Bank and SBS Bank, are the most common banks in New Zealand. Therefore, those banks are chosen as samples. Their customers' responses, therefore, can represent the digital banking preferences at a national level.

Analysis

The partial least squares (PLS) method, an SEM-based method, was used for the identification of the research model along with its evaluation. PLS is a variance-based modelling approach, and has been preferred over covariance-based modelling approaches for incremental researches (Hair, Ringle, & Sarstedt, 2011). Besides, it also works better on smaller sample size than structural equation modelling (SEM) and regressions (Compeau & Higgins, 1995). Also, the PLS-SEM analysis validates the measurement model (Hair, Ringle, & Sarstedt, 2011). It also enables analysis of the relationships among latent variables and measurable variables at the same time (Haenlein & Kaplan, 2004). Furthermore, since the main objective of this study is to predict key constructs and identify key constructs instead of theory testing or theory confirmation, the PLS-SEM is a better analysis approach (Hair, Ringle, & Sarstedt, 2011).

The two-step approach was adopted to assess the measurement model and the structural model along with the considered moderating variables (Anderson & Gerbing, 1988). This analysis is to ensure the reliability and validity of the measurement model. WrapPLS (version 5.0) was used to perform the analyses.

1 Reserve Bank of New Zealand 27 banks registered in New Zealand (https://www.rbnz.govt.nz/regulation-and-supervision/cross-sector-oversight/registers-of-entities-we-regulate/registered-banks-in-new-zealand). Among these banks while 15 of them are incorporated in New Zealand, 12 of them operate as branches of "overseas-incorporated" banks. Considering various factors such as number of employees, branches, ATMs, Assets, liabilities, operating income and net profit, although the rankings change for each, these banks are usually ranked within top ten banks in New Zealand (https://nzbanks.com/largest-banks-new-zealand).

RESULTS

Data has been acquired from 81 respondents. However, 19 responses are considered invalid because all survey questions are not answered. Therefore, in total, there is 62 valid responses in this study. Among several reasons for choosing PLS-SEM over covariance-based SEM (Lin et al., 2020), major ones include the superior performance and efficiency (Hair, Hollingsworth, et al., 2017) of PLS/PLS-SEM over CB-SEM for small sample size, being free from normality assumption and the focus being the prediction for PLS studies. Generally, the minimum sample size for the PLS analysis can be determined with 10-times rule (Hair, Ringle & Sarstedt, 2013; Lin et al., 2020; Civelek, 2018; Barclay, Higgings, & Thompson, 1995). This rule indicates that the minimum sample size that will work for PLS analysis should be "equal to 10 times the largest number of formative indicators to measure the construct in the outer model, or the largest number of structural paths directed at a particular latent construct in the inner model" (Lin et al., 2020, p. 1371). However, Hair, Hollingsworth et al., (2017) indicate that sample size determination should be complemented with power analysis.

Considering another method, called the R-square method (Kock & Hadaya, 2018) developed based on Cohen's seminal works (1988; 1992), minimum sample size can be determined based on: i) the maximum number of path; ii) level of significance; and iii) the minimum value of R2 in the model. Based on this method, in a model with number of paths pointing to a construct being five requires a sample size at least 40 (our sample size is 62) given the R2 value is at least 0.50 (our R2 is ARS=0.661 for the study) at 0.05 significance level and 80% statistical power (Hair book). Similarly, with the same statistical power, number of paths but at 0.01 significance level, and minimum R2 of 0.25, minimum sample size can be 62 (Hair, Hollingsworth et al., 2017). Considering power, 10-times rule and R-squared method together for determining the sample size show that our study has sufficient sample size for the PLS analysis.

Since the survey has been distributed through social networking sites without a defined sample group, the response rate cannot be calculated in this case (Nulty, 2008). Participants of this research are age between 18 and 72 years old. The survey was developed on the modified model including the basis of UTAUT model and new constructs of service quality conditions and satisfaction conditions.

The descriptive analysis in this study was conducted to determine how high the behavioural intention of adopting digital banking products or services. Table 1 presents the descriptive analysis of the sample in this research.

About slightly over half (53%) of respondents were male and slightly less than half (47%) were female. Majority (73%) of the respondents aged between 18 and 36. Slightly over half (52%) of respondents had been using the digital banking products or services for more than four years, whilst 6% had been using it for less than a year, about 13% for more than one but less two years, about 22% for more than three but less than four years, and about 6% had no experience.

Measurement Model Analysis

Confirmatory factor analysis is conducted against measurement model before the analysis of model fitness and validity check are conducted. CFA enables the researcher to confirm or reject the theory, focusing

Table 1: Descriptive Analysis

Item	Category	Sample Size	%
Gender	Male	33	53%
	Female	29	47%
Age	57 - 72	4	6%
	37 - 56	13	21%
	18 - 36	46	73%
Experience	Never	4	6%
	Less than one year	4	6%
	1-2 years	8	13%
	3-4 years	14	22%
	More than four years	33	52%

on both extracting factors from the statistical results and prior knowledge of which factor belongs to which construct (Ahire & Devaraj, 2001). The result of the CFA as shown in Table 2 indicated that the factors loadings are above the thresholds.

Validity refers to the extent that the measured variables represent the theoretical variables that are designed to measure (Hair, Blake, Babin, & Tatham, 2006). Convergent validity and discriminant validity are two well-known validity types that can be helpful in construct validity measurement (Hair, Blake, Babin, & Tatham, 2006). Convergent validity of a construct is related to how much indicators of a construct converge, which can be assessed through factor loadings, variance extracted and reliability (Hair, Blake, Babin, & Tatham, 2006). Cronbach alpha and another well-known reliability measure, composite reliability measure, were used to test the reliability of the scale constructs for proposed model and alternative model. The reported reliability of the Cronbach alpha coefficient should be above 0.70 being acceptable (Pallant, 2013) and composite reliability (CR) values should be at least 0.7. The reliability for each construct is illustrated in Table 2. In measurement model, all values of Cronbach alpha coefficient less than 0.70 (Palanisamy, Verville, Bernadas, & Taskin, 2010).

Convergent validity can be assessed through investigation of average variances extracted (AVE). It is recommended that AVE threshold should be 0.5 for acceptable validity (Kock, 2015).

Discriminant validity is to explain that how one construct is distinct from other constructs (Hair, Blake, Babin, & Tatham, 2006). One approach is to validate correlations with the square root of AVE for that construct. Discriminant validity is supported whenever the AVE is consistently higher than the other constructs' squared correlation (Hair, Blake, Babin, & Tatham, 2006). Correlations presented in Table 3 showing that all the squared constructs' inter-scale correlations are lower than the constructs' (square root of) AVE, which indicates good discriminant validity for the model. At the end of the measurement model, facilitating conditions construct was removed from the model because of the issues with reliability and validity.

Table 2: Confirmatory Factor Analysis and Reliability Measures

	BI	PE	EE	SI	SQC	SC	Cronbach's Alpha	Composite Reliability
BI_1	**0.932**	0.063	-0.078	0.013	0.088	-0.115	0.930	0.955
BI _2	**0.915**	-0.066	0.044	-0.001	-0.146	0.207		
BI _3	**0.962**	0.001	0.033	-0.012	0.054	-0.085		
PE_1	0.223	**0.906**	-0.262	0.096	0.12	-0.029	0.847	0.9
PE_2	-0.063	**0.87**	-0.007	-0.203	-0.023	0.202		
PE_3	-0.045	**0.918**	0.1	-0.093	0.029	-0.009		
PE_4	-0.174	**0.609**	0.248	0.287	-0.19	-0.233		
EE_1	-0.149	0.21	**0.827**	-0.106	-0.044	-0.131	0.789	0.876
EE_2	0.07	-0.092	**0.84**	0.155	0.096	-0.006		
EE_3	0.076	-0.113	**0.847**	-0.05	-0.052	0.133		
SI_1	0.013	-0.188	0.205	**0.935**	-0.02	-0.098	0.881	0.927
SI_2	0.006	-0.114	0.071	**0.926**	0.2	-0.193		
SI_3	-0.021	0.338	-0.308	**0.835**	-0.199	0.324		
SQC_1	0.059	0.044	0.331	0.288	**0.795**	-0.261	0.753	0.86
SQC _3	-0.152	-0.073	-0.288	-0.241	**0.766**	0.197		
SQC _2	0.078	0.024	-0.048	-0.05	**0.892**	0.063		
SC_1	0.062	0.083	-0.15	-0.034	0.396	**0.891**	0.811	0.928
SC_2	-0.013	0.024	-0.006	0.066	-0.061	**0.971**		
SC_3	-0.051	-0.116	0.167	-0.04	-0.351	**0.834**		

Note: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Service Quality Conditions (SQC), Satisfaction Conditions (SC), Behavioural intention (BI)

Table 3: Variable Correlations

	Measurement model					
Construct	**BI**	**PE**	**EE**	**SI**	**SQC**	**SC**
BI	0.937					
PE	0.248	**0.835**				
EE	0.495	0.347	**0.838**			
SI	0.121	0.306	0.19	0.9		
SQC	0.449	0.222	0.693	0.241	**0.82**	
SC	0.461	0.194	0.735	0.107	0.754	**0.901**

Structural Model Analysis

Having tested the measurement model, the structural model analysis is conducted to test the hypothesised proposed model and the relationships among the constructs. Compared to the measurement model, the structural model focuses on the form and magnitude of the relationships among study constructs (Hair et al., 2006).

Various goodness-of-fit statistics and quality indices are measured. Proposed model indicates that measurement of Average Path Coefficient (APC=0.180) and Average R-Squared (ARS=0.661) are a good fit (Jaradat & Al Rababaa, 2013). Besides, proposed model represents large effect size from the measurement of Tenenhaus GoF (with the value of 0.716) (Kock, 2015). Moreover, the Sympson's Paradox Ratio (SPR=0.750) in proposed model shows good quality (Kock, 2015).

Table 4 shows the path coefficients and p-values for each variable for the proposed model. The results indicate that constructs, including performance expectancy (positive), effect expectancy (negative), and

Table 4: Path Coefficients and P-Values

	Proposed model	
Constructs	**Path Coefficients**	**P values**
PE	0.267	*
EE	-0.427	***
SI	0.112	0.179
SQC	-0.195	*
SC	0.156	0.099
Gender*PE	0.067	0.296
Gender*EE	-0.12	0.163
Gender*SI	0.007	0.478
Gender*SQC	-0.141	0.122
Gender*SC	-0.174	0.074
Age*PE	-0.104	0.197
Age*EE	-0.073	0.278
Age*SI	-0.148	0.11
Age*SQC	0.149	0.11
Age*SC	-0.324	**
Exp*EE	-0.279	**
Exp*SI	-0.063	0.305
Exp*SQC	-0.578	***
Exp*SC	0.115	0.174
VU*SI	-0.107	0.19

Note: P values Significance Level, *** Less than 0.001, ** Less than 0.01, and * Less than 0.05

service quality conditions (negative) have significant effect on behavioural intention to use digital banking products or services.. Also, the satisfaction conditions has no significant effect on behavioural intention of digital banking products or services. The results also indicate that user age has a negative and significant moderating effect on satisfaction conditions, and user experience has negative and significant moderating effect on effort expectancy, and service quality conditions.

Based on the results, hypotheses H1, H2, H3, H5, H5b, H2c, and H4c are supported. However, our results did not support the hypotheses H4, H1a, H2a, H3a, H4a, H5a, H1b, H2b, H3b, H4b, H3c, H5c, and H3d.

DISCUSSION

It is suggested by the proposed model results that users' behavioural intention on digital banking products or services can be predicted from performance expectancy, effort expectancy and service quality conditions. In addition, age and experience on digital banking products or services are playing an important moderating role towards behavioural intention of digital banking products or services.

Among those factors, performance expectancy, effort expectancy, and service quality conditions are the most significant determinants that have a direct effect on behavioural intention towards digital banking products or services. This can be an indication to New Zealand banks that compared to satisfaction, digital banking products or services should be able to help customers resolve their problems, develop the user-friendly interface, reduce effort on systems, build a long-term and mutually satisfying relationship with customers and offer improved, high-quality services. Also, the effect of effort expectancy is relatively larger than other factors, which comes to the first in importance. This result is consistent with the previous research (Slade, Dwivedi, Piercy, & Williams, 2015). Therefore, when banks develop digital banking products or services, they need first to consider effort expectations toward these products or services along with performance expectations, and service quality conditions. Bank can improve the efficiency of digital banking products or services through the adoption of technology. Cutting-edge technology drives the changing habits of customers and the way to construct digital banking products or services. Process automation with intelligence through self-service portals can reduce the effort on digital journeys. Thus, effort expectancy can be improved. Banks can also improve their digital banking products or services based on users' satisfaction feedback to meet customers' various expectations better. Furthermore, banks need to run a serial of continual improvement processes based on the implication of satisfaction feedback to provide long-term oriented and high-quality services. Thus, service quality can be improved. The effect of performance expectancy also deserves further attention. Existing banking products or services can be obtained through traditional channels. Digital banking products or services are a new entry to access existing banking products or services. Regarding what existing banking products or services should be digitalised, and what new banking products or services should be created can be more critical to meet customers' performance expectations. These analyses help banks understand more about how digital banking products or services can be effective in customers' daily work.

Regarding moderating variables (age, and experience), effort expectancy is moderated by individual experience. This can be an indication that individual experience difference will have different effort expectation. When providing digital banking products or services to a specific customer group, banks can respond to customers within an expected effort expectation to improve adoption of digital banking product or services. More than that, the proposed model results indicate that gender and age do not influence the performance expectancy towards behavioural intention. This shows that regardless of age and gender, New Zealand bank customers have their common performance expectation and are affected by their demands and actions towards using digital banking products or services. They expect digital banking products or services to be helpful in their daily work and life. Also, service quality conditions are moderated by customer experience. Regardless of gender, different levels of individual experience have their service quality expectations towards the perception of technology as well as digital banking products or services. Furthermore, satisfaction conditions are moderated by customer age. Regardless of gender and experience levels, different age groups of customers have their satisfaction measurement depending on the past digital banking products or services experience.

Implications

From a theoretical perspective, this research integrates UTAUT model with service quality and satisfaction condition concepts to explain behavioural intention of digital banking products or services. In addition to technology perceptions such as performance expectancy, effort expectancy, service quality conditions also have a significant effect on predicting behavioural

intention in New Zealand. This shows that, when examining the factors affecting digital banking products or services behavioural intention, UTAUT can be taken into consideration, but also pay attention to the effect of good service quality conditions. Moreover, the effect of satisfaction conditions deserves further attention. Future research can apply satisfaction conditions to examine individual behavioural intention of other technologies and digital products or services.

From a practical perspective, this study shows that products or services providers should firstly improve the effort expectancy when providing products or services. Regarding service quality, banks can segment the customer profiles and provide differentiated expectation during the journey of using products or services. For example, university students may be more concerned with ease of use, whereas working professionals would focus on the reliability and time costs of digital banking products or services. Products or service providers can also design different service level agreement models to meet the demand of different age group, experience group, and gender group. Banks can also run marketing campaigns to enhance users' knowledge about digital banking products or services and skills in using them. Thus, users' perceptions of service quality can be improved.

Conclusion, Limitations and Future Research

Compared to traditional banking products or services, digital banking products or services can provide valuable added-value to customers. New Zealand banks are expecting to be beneficial to the wider digital banking adoption. Therefore, banks are expected to understand customer view of digital banking products or services and predict behavioural intention towards digital banking products or services. This research analyses factors determining behavioural intention of digital banking products or services from UTAUT model with service quality and satisfaction variables. The results show that the behavioural intention of digital banking products or services is affected not only by the technology perception but also by the service quality towards consumption of digital banking products or services. These results lead us to encourage development on understanding customers' demand and insight to deliver appropriate digital banking products or services which may have been discovered before.

This study answers the question how New Zealand bank customers respond to digital banking products or services from behavioural intention perspective. This result should help New Zealand banks understand the appetite of their customers and avoid spending excessively may have little effect on whether the customer will determine to use digital banking products or services in New Zealand.

Research Limitations

This research has the following limitations. First, this research mainly explains digital banking products or services behavioural intention using UTAUT model. The integration with other models may provide more insights and comprehensive understanding. Second, the research only receives a limited number of survey responses. More participants' response may provide more validity. The results may not generalise to the whole nations or countries. Third, user behaviour is dynamic and continuously changing. A longitudinal research may provide more insights on how customers respond to digital banking products or services.

Researchers can also examine if the results can be generalised to the whole nations or other similar countries with relatively population and GDP. This may provide richer insights on digital banking products or services adoption worldwide. Last but not the least, conducting more analysis to find out whether the intention and usage of some digital banking services or products differ for early adapters and late adopters of such services and products could be an interesting future study.

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Gendered Emotional Labor; As a Normative Conformity of Hospital Organizations to the Gender Institution

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ABSTRACT

This study examines the normative effects of gender context on emotional labor. Those effects had been observed, in the frame of an organization (hospital) and with three agents: manager, employee (hospital hostesses) and customer (patients/ patients' relatives). This study intends to overcome the limitations of Hochschild's emotion theory in order to explain those normative effects of the context, with the help of New Institutional Theory and Norm Theory. In this regard twenty-five semi-structured interviews and one focus group meeting were conducted in Yalova. According to our findings; as a survival practice, hospitals conform to the institution of gender via formal (job description, customer satisfaction policies) and informal organization designs (norms directing the related job descriptions). The agents of this conformity play an active role in the reproduction and continuity of "normative role of the gender context on behavior" and "gender-based inequalities".

Keywords: Context, Gender, Emotional Labor, Conformity, Norm.

JEL Classification Codes: J16, E71

INTRODUCTION

Examining the context is the way to construct a link between institutions and practices. Context needs to be taken into account not just to explain emotion regulation of individuals (Grandey and Melloy, 2017; Gross, 1998) but also to track traces of gender related institutional regulations (Ridgeway and Correll, 2004). Mowday and Sutton (1993:198) characterized context as "stimuli and phenomena that surround and thus exist in the environment external to the individual, most often at a different level of analysis". Johns (2006: 386) defined context as the "situational opportunities and constraints that affect the occurrence and meaning of organizational behavior as well as functional relationships between variables." A specific source of context; gender is also directly linked to the opportunities and constraints. Those opportunities and constraints are result of actors' choices who are trying to conform to or deviate from the formal and informal rules and norms of institutions. Price (2008) also demonstrates the importance of context in facilitating particular gendered processes, stereotypes, and gendered substructures. So, the main rationale for the present study comes from two sources: first the explanatory potential of the context at different levels of analysis and second, call for the context specific research in emotional labor and gender studies (Grandey and Melloy, 2017; Ridgeway and Correll, 2004). From this point on, we will share how we will use the theoretical background that we have followed in our study. The present study approaches emotional labor as an institutionalized behavior pattern which makes possible to track the normative effects of the gender context on behavior.

Hochschild's Emotion Theory is the most influential theory discussing the influence of the context on emotions. In her book "Managed Heart", Hochschild (1983) explains how people actively shape their feelings within the frame of social structure, framing and feeling rules. In this regard with the effect of the social structure individual define the context via framing rules and this definition of the context clarify the right feeling rules which determines appropriate emotions for that context. While acknowledging the importance of some of the widely accepted assumptions of this theory; it is also necessary to be aware of the limitations especially in explanation of how the social structures determines the framing

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and feeling rules. That's why, we use Hochschild's (1979) emotion theory with some modifications. As our first modification, social structure takes place within our research model as the institution of gender. With reference to the New Institutional Theory, we propose that hospitals regulate how their employees' emotional labor be displayed with the influence of gender institution. So, in this study instead of using Hochschild's social structure concept, we prefer to focus on gender institution with reference to New Institutional Theory. As Wharton (2009: 149) quoted "gender also enters into Hochschild's argument about how workers perform emotional labor and the ways in which gender shapes the social interactions between worker and customer that it entails". Definition of the context plays an important role to shape social interactions. To explain how different actors define the context Hochscild uses the conceptualization of framing rules. This framed context also rationalizes formel and informal rules. Although Hochschild uses feeling rules to conceptualize those formal and informal rules, our focus is going to be on the formal rules and norms as an informal regulatory mechanism of the gender institution. Hochschild's Emotion Theory provides limited explanation for why organizations impose these rules and norms, and individuals conform with them. So as our second modification, instead of using Hochchild's conceptualization of 'feeling rules', We use Bicchieri's norm theory in order to comprehensively explain why people conform to those formal and informal mechanisms. Although some studies (Fairchild and Mikuska, 2021; Gray and Smith, 2009; Miller et al. 2008; Rodriquez, 2011; Theodosius, 2006) have investigated organizational, occupational and societal sources of emotional labor, but none of the previous studies try to unearth the normative mechanisms with its relation to the context. This study addresses this research gap, by clarifying concrete normative mechanisms directing emotional labor and associating these mechanisms with the organization's effort to conform to the gender institution. Besides, Emotional labor can be considered as an example of self regulated actions (McClelland et al., 2018) or as a type of emotion regulation (Grandey and Melloy, 2017). However, questions of how and in what ways emotions are regulated are beyond the scope of this study. Similar to this study, Grandey and Melloy (2017) considers the work context's effect on emotional labor. But their model does not include the relationship between the work context and the organization's effort to conform to institutions. In this regard this study discusses the findings obtained from the work context in relation to the gender institution. So, this is a cross level study (Johns, 2006: 400) that aims to understand the normative effects of gender context on emotional labor. The structure of this paper is set as follows. In the next two sections, we provide an overview to point out firstly gender context and its relation with gender institution, secondly emotional labor and its relation with gender context. Afterwards, methodology, findings, and discussion sections will be shared.

GENDER AS A SOCIAL INSTITUTION, AND IT'S NORMATIVE MECHANISM

Gender institution (Martin, 2004) is a social system that is socially structured on the basis of some differences that are artificial and not based on biological differences (Ridgeway and Smith-Lovin, 1999; Risman and Davis, 2013). These differences have been reinforced by societal values, norms, and formal structures; thus, they create inequality among individuals (Ridgeway and Smith-Lovin, 1999; Acker, 2006; Martin, 2004). Under the influence of this institution, *gender-based status beliefs produce the unequal distribution of formal roles. In this case, some powerful roles are reserved for men in organizations. Afterwards, unequal formal roles reinforce the beliefs about inequality that create new experiences for mutual interactions among gender types* (Ridgeway and Smith-Lovin, 1999: 204-205). In this unequal distribution of roles, of course, women possess beliefs towards their own gender roles are as effective as gender perceptions. Status characteristics theory (Berger et al. 1998), also emphasized on the unequal assignment of societal status to the sexes, one explanation for this is the interaction process. According to the theory, the acceptance of men granted higher status than women, shapes gender belief systems. In this regard, this acceptance can be reinforced by new experiences and new interactions in the work environment. As Powell and Greenhaus (2010: 514) suggest that individuals develop gender belief systems, consisting of a multi-faceted, internally consistent set of ideas which includes gender stereotypes (Kite at al., 2008). Social interaction plays a role as a source to create and reproduce gender-based status (Ridgeway and Smith-Lovin, 1999: 209) and beliefs. At this point, as a social structural condition, interaction reproduces or transforms gender systems (Ridgeway, 1997). Then, "cultural beliefs about gender differences and inequalities" and "related gender roles" are both

product and producer of this interaction process (Ridgeway and Smith-Lovin, 1999). As Martin (2004) pointed out contexts influence workers' intellectual and emotional responses to gendering practice; thus, in order to understand gender's influence at work, context needs to be addressed (Ridgeway and Correll, 2004).

In order to see links between a social institution like gender (Martin, 2004) and behavior within an organizational context, the new institutionalism's assumptions provide a ground for possible explanations. According to new institutionalism, societal expectations of appropriate organizational action influence the structuring and behavior of organizations in given ways (Meyer and Rowan, 1977; Scott, and Meyer, 1994). Besides in order to survive and legitimize their existence, organizations conform to the rules and belief systems prevailing in the environment (DiMaggio and Powell, 1991; Scott 1995). The institutional environment includes, rules, regulations (formal rules), and norms, beliefs and legends (informal rules) are structured and rationalized over time (Özen, 2007: 241). Formal and informal rules (North, 1990: 13) provide an understanding to read the regulatory and normative effects of institutions within the contexts. As informal rules, norms are defined by Bicchieri and Muldoon (2011) as behavioral rule for a specific situation. According to them, these rules function under two criteria: (1) the rule and its potential to be applied to a specific situation needs to be known and (2) to conform to these rules is contextual. In this regard individuals prefer to conform to norms on condition that they believe that most people in their reference network conform to these norms and most people in their reference network believe they ought to conform to it (Bicchieri, 2005).

Those, norms which can be a source of prescriptions and organizations acquiesce to those prescriptions based on a variety of institutional norms, or rules, become isomorphic with their normative environments (DiMaggio and Powell, 1983). By means of these isomorphism processes, organizations find the legitimacy basis by adapting their system to the institution of gender (Lorber, 1991). And those isomorphic processes are also highly related with the normative embeddedness of an organization within its institutional context (Baum and Oliver, 1992; Palthe, 2014). So, we follow this literature to build our theoretical framework and propose that the organization under consideration here tries to adapt its formal and informal structures to the gender institution.

EMOTIONAL LABOR

To conduct research about the effects of the context on individual behavior, focusing on a specific type of behavior -in other words a specific concept- ensures methodological integrity. Emotional labor one of the most promising concepts to provide this methodological integrity. Hochschild (1983: 7) defines emotional labor as "the management of feeling to create a publicly observable facial and bodily display." Also, Hochschild (1979) asserts that emotions can be merchandised in the labor market and thus, they become a commodity. Korkman (2015) and Kang's (2003) findings also highlight commodified and commercialized aspects of emotions within specific service fields like coffee divinations and Nail saloons.

Emotional labor is also defined as an invisible part of work performance (Steinberg and Figart, 1999), with an effort to plan, control, display and manage emotions that are expected by organizations in accordance with organizationally constructed display rules and emotions through social exchanges among individuals (Ashforth and Humphrey, 1993; Morris and Feldman, 1997). The concept of emotional labor is evaluated within the process of social exchange and focuses on how people manage felt emotions and behaviors caused by socially constructed rules (Thoits, 1989; Hochschild, 1979).

Hochschild's (1979) emotion theory has an important role for our research design, since it tries to explain individual emotion management processes with a theoretical framework. This theory focuses on static links among social structure (frames to the individuals such as how to evaluate their circumstances and the context and how to manage their emotions), framing rules (as meanings and definitions, which are attributed to the context by the individual), feeling rules (guidelines pointing out which emotions are appropriate for which kind of situations), and emotion management. Emotion management "includes the idea of a reference to how people actively shape and direct their feelings, and recognition that social structure and institutions impose constraints on these efforts" (Wharton, 2009: 148). At this point, Hochschild (1983) categorizes individual emotion management practices into two clusters: emotion work and emotional labor. "*Emotion work is essentially a private act, influenced by broad cultural and social norms about*

what is appropriate to feel and express, but not directly regulated by other people or organizations" (Wharton, 2009: 149). Emotional labor, by contrast, is regulated by employers with reference to context specific feeling rules (Hochschild, 1983). In order to follow these rules, employees engage two different emotion regulation strategies; deep acting as antecedent focused emotion regulation or surface acting as response focused emotion regulation (Grandey and Melloy, 2017:4). According to Hochschild (1983) in *surface acting, employees mask their own feelings and "paste on" the expected expressions, thus experiencing what she termed emotive dissonance between feelings and expressions; and deep acting, where employees work to change feelings to appear more genuine in the performance, but perhaps losing their true feelings in the process* (Grandey and Melloy, 2017:2). This soundly developed theoretical and conceptual framework of emotional labor has of course been associated with gender literature. In this regard there are important contributions from studies highlighting gendered and taken for granted aspects of emotional labour and "natural carers" labels for women (Fairchild and Mikuska, 2021; Gattuso and Bevan, 2000; Gray and Smith, 2009). So, the present study try to expand this perspective which interrogate the interaction between context and emotional labor.

METHOD

Procedure

This is an exploratory study. This research was conducted at a private hospital in Turkey. At the frame of the research model, 25 semi-structured interviews (10 hostesses and, 3 hospital managers and 12 patients and patients' relatives) and one focus group meeting (with 12 hospital hostesses) were conducted. Table 1 and 2 present demographic information about our interviewees who joined semi-structured interviews (table 1) and the focus group meeting (table 2).

The results of the research consisted of three-stage field research. In the first stage, we conducted 10 semi-structured interviews with hospital hostesses. All interviews were conducted in the hospital and recorded with the permission of the interviewees who were informed that all information they shared would be used just for academic purposes and would not be shared with the hospital management. Mean duration of interviews was 28.8 minutes. Full verbatim transcriptions of interviews conducted just after every meeting with participants. Mean number of words in transcriptions was 700,4. The reason for choosing the semi-structured interview is the technique's potential to provide social cues and insights about our research questions. Interview questions developed by reviewing papers focused on Turkey's gender structure (Dedeoglu, 2000) and emotional labor concept (Hochschild, 1979; 1983). These questions focus on three topics; first how home and work contexts are defined (with reference to framing rules) by hospital hostesses; second formal rules and informal norms to regulate their emotional labor and emotion work within these two contexts; and third topic, questions their autonomy and gender-based inequalities they faced within these contexts. The semi-structured interview technique's weaknesses –such as the "interviewer effect (Denscombe, 2007: 184)" and "gender bias related to the researchers' sex" were taken into consideration. To overcome these weaknesses; all interviews were conducted with two researchers and at least one female researcher in respect for some women interviewees' privacy and cultural needs.

In the second phase of the study, our aim was to discuss the patterns, -obtained at the first phase- with hospital managers and patients. For this phase, a semi-structured interview was formed by adapting hospital hostess' interviews with some findings from the first phase of the research. The strategy for this second phase is solely built upon the confirmation of the findings acquired from the first phase. All procedures for the semi-structured interviews from the first phase were followed again. Interviews with patients and patient's relatives were conducted in a café close to the hospital and at some interviewees' houses. Interviews with managers were conducted in their rooms in the hospital. All interviews were recorded. Full verbatim transcriptions of interviews conducted just after every meeting with participants. Mean numbers of words in transcriptions were 1421,3 for managers, 1174,1 for patients and patient's relatives.

In the third phase of this study, we conducted a focus group meeting (62 minutes) with hospital hostesses who joined the initial semi-structured interviews. There were two reasons for this focus group meeting: (1) to test the content validity of previous findings and (2) to discuss the gendered norm examples which derived from the previous findings. In this phase, by means of previous findings we generated an item pool for emotional labor based-gendered norms. This item pool was generated within the frame of Biccheri's (2006) norm theory and Thogersen's (2008)

Table 1. Demographic Information of Semi-Structured Interviews

		Age	Sex	Marital	Education	Children
				Status		
Hospital Hostesses	Participant 1	26	Female	Married	High School	1
	Participant 2	24	Female	Single	High School	-
	Participant 3	24	Female	Married	High School	-
	Participant 4	30	Female	Married	Vocational School	1
	Participant 5	25	Female	Single	Vocational School	-
	Participant 6	28	Female	Married	Vocational School	1
	Participant 7	24	Female	Single	Vocational School	-
	Participant 8	32	Female	Single	Vocational School	2
	Participant 9	25	Female	Married	Vocational School	1
	Participant 10	26	Female	Married	Vocational School	-
Patient / Patient's Relatives	Participant 1	33	Female	Married	Undergraduate	1
	Participant 2	24	Male	Single	Undergraduate	-
	Participant 3	25	Female	Single	Undergraduate	-
	Participant 4	37	Male	Married	High Scholl	1
	Participant 5	40	Male	Married	Undergraduate	1
	Participant 6	37	Female	Married	Undergraduate	1
	Participant 7	60	Female	Married	Primary School	2
	Participant 8	35	Female	Married	Primary School	2
	Participant 9	40	Female	Married	High School	2
	Participant 10	63	Female	Married	Primary School	3
	Participant 11	56	Female	Married	High School	4
	Participant 12	63	Female	Married	Primary School	2
Managers	Participant 1	43	Male	Married	Undergraduate	2
	Participant 2	45	Male	Married	Undergraduate	1
	Participant 3	42	Male	Married	Undergraduate	1

distinction about normative beliefs (descriptive and injunctive norms). The content of the gendered norm items focused on the gender's regulatory effects on emotional labor. In order to use the appropriate adjectives for gendered norm items, which can aptly capture an individuals' mood state, Er's (2006) study was taken into consideration. This consideration also helped us provide content validity (Hinkin, 1995) for the item pool.

Table 2. Demographic Information of Focus Group Meeting

		Age	Sex	Marital	Education	Children
Hospital Hostesses	Participant 1	26	Female	Married	High School	1
	Participant 2	24	Female	Single	High School	-
	Participant 3	24	Female	Married	High School	-
	Participant 4	30	Female	Married	Vocational School	1
	Participant 5	25	Female	Single	Vocational School	-
	Participant 6	28	Female	Married	Vocational School	1
	Participant 7	24	Female	Single	Vocational School	-
	Participant 8	32	Female	Single	Vocational School	2
	Participant 9	25	Female	Married	Vocational School	1
	Participant 10	26	Female	Married	Vocational School	-
A manager and her assistant joint for focus group	Participant 11	37	Female	Married	Undergraduate	1
	Participant 12	25	Female	Single	Undergraduate	-

For the methodological soundness of this research, the triangulation method (Denzin, 1978) was followed; we adhered to three types of the triangulation (Jick, 1979: 602) method. At first, data was gathered from different sources such as primary data sources; hospital hostesses, hospital managers and patients / patient relatives (totally 25 interviews, 703 minutes). Our aim behind this sampling decision was to try to capture all agents to understand gender's role on emotional labor. For the second triangulation strategy, different data collection strategies (semi-structured interviews and a focus groups meeting) were used. For the third triangulation strategy, at every phase of this research, three researchers separately analyzed data. To ensure the inter-rater reliability (Armstrong et al., 1997) data was coded independently by researchers. Coding differences among researchers were eliminated by reconciliation.

FINDINGS

The findings will be shared in two stages. In the first stage, as the first step of content analysis, descriptive analysis findings will be shared from perspectives of hospital hosteses, patient/patient's relative and manager. In the second stage categorical analysis findings will be shared under two themes: first "meaning and definition of the work context" and second "gendered rules and norms regulating emotional labor". These themes determined in accordance with our theoretical framework. In the light of the new institutional theory's assumptions, first theme created in accordance with Hochschild's Emotion Theory and its Framing Rules Concept; and second theme created in accordance with Bicchieri's Norm Theory. Finally in the title of discussion, the findings will be associated with our theoretical framework.

Descriptive Findings

Hospital Hostesses

Six participants live with their partners and with their children if they have the rest however (40%) live with their parents or their parents-in-laws. Only two individuals out of four, live with their parents,

are responsible for taking care of them. In this sense, among the participants there is no woman living alone. While three of the participants say that they are not responsible for the chores, the remaining seven individuals state they get help from their mothers or mothers-in-laws. Five of the participants have children. Also, 6 participants believe their brothers are held in the foreground. Besides, one participant thinks that their brothers were provided with more investment by their parents when it comes their education.

In addition to their economic needs and their desire to attain economic independence, women want to take part in working life to gain necessities such as: personal development, personal satisfaction, and status acquisition. However, in addition to this, eight of the participants remarked that they must get permission from their parents to work. Also, all the participants believe that appearance is effective when getting hired. Although it has to be specified that appearance does not only include beauty, but also factors such as diction, communication skills, cleaning and being well-kept. While only one of the participants leave the control of their wage to their mother, the others keep their wages in a budget with their partners or their spending are shared.

Patients and Patient Relatives / Managers

In descriptive analysis, we have taken the information of hospital hostesses at the center of our analysis. Moreover, the opinions of the patients' relatives and managers on some subjects were very valuable to understand the context. From this point on, information about the patient, patient relatives and managers will be shared.

The following questions were asked in the interviews with patients, patient relatives and managers. For the following question "In your opinion, do you think single women are required to obtain permission from her family/husband (if she is married) to work?" While three participants (2 females, 1 male) stated "there is no permission needed". 7 females and 2 males of participants stated that "the individual must obtain permission", four of these affirmed the situation by saying it should be more of a consultancy rather than getting permission. This situation was also confirmed by M3.

> M3: "*Even if they are married or single, they get permission from their husbands or fathers. Apart from getting permission to work, even when we change their positions* (referring to the hospital hostesses*) within the hospital, we get reactions such as "first let me ask my husband/father" from the female workers. This is generally a problem I come across in Yalova*."

For a question such as "What type of job do you see suitable for women?" patients and patient relatives highlighted the features below. These features focus on place and characteristics of the job. So, Ideal place for working women where there are not many males around *(P/PR3: "I can say from my husband's perspective, if there were no males, he would love it. In fact, he had an idea to open a women's tea house. If it was possible, he would say "Let me start up and you can take the reins."*); A place which has a *"safe environment";* and *A "place where they can receive what they deserve".* Ideal job for women is *a job where they will not get too tired; with specific start and finish times (with no night shifts); which is suitable for desk work rather than a job where they must travel.*

Along with this, only P/PR1 responded by saying that a woman can work wherever she wants. Manager1 reveals that it is an organization which satisfies this expectation. Furthermore, P/PR1 and M1 gave answers covering many of the above features.

> M1: "*This hospital in fact seems safer in Yalova. When I was indifferent cities before I never saw prominent differences but there are in Yalova. Because there are no alternative occupations, for example they (hospital hostesses) may have worked with a real estate agent but had problems, they may have worked in a factory but had problems; they may have worked in a florist and also had problems. Maybe this is due to the limited job opportunities in Yalova. Is it a safety problem? Of course. This hospital is traditional, where you can get your wages, get your full insurance, and get your payment on the first of each month. They work with cleaner, more decent people here at this hospital. They are in a safe environment*."

> P/PR1: "*Of course jobs which there are not many males but more females, and which they will not get tired to much are more suitable. It is not about the wage; it is enough for the woman to support her own needs or contribute a little to the family budget. But her work must not affect the family order, if it does, the husband would definitely not accept. Just because the woman works the man definitely does not undertake household responsibilities*."

For the question **"Can hostesses reflect their problems in their personal life to their workplace?"** all the participants answered no. Also, an interesting detail is that we obtained signs that there is a hierarchy of power between hostesses and patients. Especially a manager's emphasis on "a customer saying, 'Is this a public hospital?' is the worst thing for us"; he emphasized that people working at public hospitals may be able to be hard on people, but such a situation is not permitted in private hospitals. Due to this, we can take this as a sign that the need for power asymmetry between patients/patient relatives and hostesses is defended.

For the question **"Why is this occupation such women-dominated?"** managers said that they prefer women hostesses specially to provide patient privacy and to provide a ground that women patients can feel better in the interaction with a male doctor. Further, both female and male patients point out that they feel more comfortable with women hostesses. However, for male patients in the urology department male hosts are made to work, not women hostesses. In addition to this, patients and patient relatives explained why they prefer women in these positions:

> P/PR6: "*Females are probably preferred as they are more presentable. Also, a male would not prefer this career with a low wage, they would expect higher pay. This is due to (males) having to get their family by, which is why females prefer this job. Women are more naive and are able to do this job better. Seeing pretty girls is better. Women are emotional and understanding whereas males are not.*"
>
> P/PR7: "*Males do not like to talk much, maybe females can express themselves better. Females are good-humoured but males will not show this. I feel more comfortable next to female hostesses. The same is valid for male patients; they are also more comfortable with female hostesses.*"
>
> P/PR3: "*The hosteses role was given, by society, to women. This is like pre-school teaching, but why? I think it is due to appearance. The fact that women are more nurturing, more concerned, and more compassionate is why female hostesses are prefferred. Males are more like machines; they have less emotional aspects.*"

Categorical Findings

Under the Influence of Gender Institution, Meaning and Definition of the Work Context

From this point on categorical analysis findings were shared. Some findings were obtained at the frame of "framing rules". For example, hospital hostesses describe their working environment and positions as **more appropriate for women.** Hospital hostesses describe their working environment as an **"acceptable place for the family and social environment".** This finding is clear in comments HH8 and HH10. HH8: "*As my husband feels distrust towards the society, he chooses where I work, and I try to convince him.*" HH10"*Since he* (her husband) *knows the outside he wanted a proper place, he wanted the people I work with to be decent, he allowed me to work here because here is reliable*". Hostesses and the patients and the PRs explained this characteristic within the frame of "security". Hospital hostesses, managers, patients, and patients' relatives mostly agree upon the fact that **"young" women need to rely on the experiences of their social environment to find an appropriate job.** Moreover, hospital hostesses describe their working environment and their position by means of features such as "*not too mobile*", "*desk work*", and "*crowded*". These are important qualities especially for women employees with the same demographic features of hospital hostesses. One of the important findings gathered from the semi-structured interviews (with hospital hostesses, managers, and patients) was capturing this characteristic of the city's social structure. Because within the same demographic features (where women are between the ages of 19-28, graduated from high school or vocational school of higher education) it is important to "get a job" in the labor market which is appropriate for women. These characteristics draw a picture in which there are socially appropriate working conditions for women. Managers confirm this characteristic, which they face especially during the hiring process and when offering some assignments. In this direction, M3 emphasized that "*we couldn't even find hostesses to work at our booth, because they don't want to work outside the hospital. Even when we want to change their position within the hospital, they need to ask their husbands or parents.*"

Hospital hostesses also describe their working environment as a place where there are specific working hours and no overtime. So, definite working hours is a very important quality for our interviewees. This kind of well-ordered working hours give them

a chance to manage their day and take care of their family-based responsibilities. A hospital hostesses' working environment is also described as a place where they need to be careful in their manner towards doctors. Sixty percent of interviewees mentioned that they also need to display emotional labor in front of doctors. Especially three hospital hostesses emphasized the power distance (Hofstede 1980) between them and doctors.

They also believe that the hospital host/hostess as an occupation is more suitable for women since male workers get angry easily. As evidence of this statement, 95 percent of employees for the related position are occupied by women in the hospital. Hence, they describe their job as a position where **"women are more successful than men"** (Hospital Hostess 1: HH1.)[1] This finding is consistent with the related literature, for example it is indicated in Guy and Newman's (2004) research, after social construction processes, tasks and jobs which require emotional labor "naturally" are considered appropriate for women. According to our findings, 90 percent of our interviewees point out that, despite equally expected emotional labor between men and women, men are not as successful as women, and they are even prone to "*lash out*" (HH5's statement) on the basis of anger. Hospital hostesses generally describe this situation like HH5's statement *"Females can not get angry they have to assume a humble attitude, while males are able to get heated."* HH5 points out that patient/patient relatives are in general not rude to men in same position, but they can be rude to female hospital hostesses. But they and hospital management (P/PRs) might still expect more tolerance-based behavior from female hospital hostesses, but not from male ones. This finding is also consistent with the related literature (Grandey, 2000: 106). Hospital hostesses expand this unequal position from emotional labor to emotion work and from the hospital to different social contexts. HH4 points out that: *"In this society women do everything. Even my partner does this; women do everything and if the man is bothered by something, they will show this directly, if he doesn't like the food, he will show this outright. For example, my mother-in-law makes rice, and my husband will say it is soggy, but I will say no mother it tastes amazing, thank you. In fact, the rice was truly bad, but that woman is looking after her grandchild while going through menopause. It is winter and she does not go out anywhere. It is expected of women to do these things, which is why my partner knows I will always save the situation."* Like this answer, which HH5gave, Hochschild (1983: 182) also argued that women are expected to do more emotion management than men both at work and at home.

As Hochschild (1979) and Wharton and Erickson (1993) point out, for an in-depth analysis on emotional labor, researchers need to add emotion work expectations from the contexts like home, neighborhood and family to emotional labor expectations from the labor market. Without taking into consideration the togetherness of emotion work and emotional labor for women it is not possible to see the real pressures of emotion management expectations on their shoulders from different facets of society. In this regard we have supportive findings. HH10 points out this issue with this statement: *"Let me give an example from my child. They expect a lot from me, they want love and care. You want to spend time with your partner and family, but no one gives up on their requests even if you are tired."*

Likewise, HH5 adds her thoughts on this issue: *"I try to do it more at the hospital. At home it is more like you are snapping at them. But again, I do try to be soft towards my family also. Because we talk to people here all day, we do not want to talk to anyone else. I just sit with them for a while and then go to my bedroom. My brother understands me, because he had worked at a call center, so they (her family) do not come onto me."* In this respect, hospital hostesses reflect the togetherness of emotion work and emotional labor with their statements.

Hospital hostesses are also aware of the fact that working in a private hospital is different than working in a state-owned hospital and this puts an extra burden on their shoulders. This characteristic, -working in a private hospital- totally changes the perspectives of managers, service providers, patients, and patient relatives.

One important contribution from Hochschild (1983) for the emotional labor concept is the discussion of a weaker status shield of women. This discussion on a weaker status shield which can be a cause of inequality, was realized within our findings too. As hospital hostesses and managers point out through the following factors; "high elasticity of demand for labor"; "social acceptance of the hospital' working environment for young women within the related demographic characteristics"; "a need for differentiation of services

[1] Some abbreviations -such as: "HH1"-Hospital Hostess1; "PR1"- Patient Relative1; "P1"-Paitent1; "M1"-Manager1- were used to represent our interviewees. After every abbreviation, numbers were used to show specific persons.

in a private hospital from a public hospital service perspective"; "customer -oriented service perspective and its coercive interpretation by managers"; we can explain this weaker status shields of young women in the related hospital organization. HH's statement reveals an explanation for "high elasticity of demand for labor". She emphasized, "*Whenever I go to the human resources department, I see new application files on the desk*". M3 also confirms this issue and according to him, to find a new hospital hostess for an open position takes just one or two days.

Gendered Rules and Norms Regulating Emotional Labor

After talking about patient/patient's relatives' misbehaviors, which led hospital hostesses to apply emotional labor, a question like the following was addressed to hospital hostesses: "Did you ever say that; if a man were in my shoes, they (P/PRs) would not behave like this?" The reason for asking this question is to see whether there are any perceived gender-based inequalities within the frame of emotional labor. Ninety percent of HHs answered this question as "yes". HH10 also shared her experiences about hospital management's tactics to solve customer-based disputes. She mentioned *"They put men at the front desk because there's so much controversy and the women cannot cope ... but they (patients and patient's relatives) are unable to do it to a man."* This finding highlights, organizations assign their employees based on gender -based inequalities for organization- specific purposes. At the same time this finding might be the sign of the men's status shield which protect them from having to perform emotional labor as frequently as women (Cottingham et. al., 2015). HH4 also shares her comments on this issue "*Yes, absolutely, especially when men walk up to you, just because you're a woman, they* (patient and patient's relatives) *think they can knock you down with one blow*". For a question like "*Under these circumstances, how does the hospital management expect you to behave?*" every hospital hostess answer with the same patterns such as HH6: *"Whatever the customer says, you need to smile all the time*" and at the Focus Group: *"The customer is always right, yes, okay, but as hostesses we also need to see positive things from them. Here, we earn a small amount of money, but we still work. The biggest problem is the wage; the hospital gives us the minimum wage but expects us to work with maximum energy and good humor."* Besides within the frame of feeling rules, hospital management expects to see a display of positive, neutral, or negative emotions (Wharton and Erickson, 1993). Displaying the right emotion, as HH6 pointed out, depends on the "patient's status".

In the analogy with findings by Sutton (1991), which is shared in this paper, compliance to the hospital organization's feeling rules was obtained by internalizing of these rules among hospital hostesses and monitoring the worker's behavior on the job. Another finding shows that ninety percent of interviewees among hospital hostesses pointed out that P/PRs are expecting more care from hospital hostesses than doctors. For example, HH5 describes this issue as a sharp difference. Because according to her, P/PRs can behave as they wish but in front of doctors they are "*as innocent as a cat that's just swallowed the family parrot*"[2]. This difference in behavior can be read as different evaluations of power distances for different roles and statuses in the hospital.

Furthermore, hospital hostesses answered the question; "Which characteristics make women more successful than men?" and their answers include some characteristics, which come into prominence for women within the frame of the social identity theory (Tajfel and Turner, 2004) and Hochschild's (1983) feeling rules conceptualization. These characteristics can be sorted as so: "using soft language towards a rude customer", being "altruistic", acting like "the mother hen", being "moderate", "smiling" and being "friendly".

To discuss the regulatory role of the gender context on emotional labor, we created an item pool, which reflects norms to direct emotional labor. In order to generate this item pool, we used our findings from the semi-structured interviews which were conducted in the first and second phase of our study. As mentioned before, Bicchieri's norm theory and Thøgersen's (2008: 460) descriptive and injunctive norm distinction were followed to constitute this item pool. To follow the continuity of gender structure and emotional labor, it is important to note that; all gendered norm items which were used in the focus group meeting, corresponded with - more or less-, one or two feminine items in the BEM sex role inventory (BSRI). This correspondency was discovered and constructed by researchers by comparing findings from the first two phases of the study with the related literature. As known the BEM sex role inventory (Bem, 1974) is a widely used instrument

[2] We decided to use this idiom in English; because its meaning is close to the idiom HH5 used.

in measuring gender role perceptions. The reason behind this correspondence of our norm items with the BEM sex role inventory is an effort to try to reflect the gendered notion of our findings and, the gendered notion of norm items which we are going to test in the focus group meeting. In this regard 18 different norm items are created under two clusters: injunctive and descriptive norms. These norm items are shown below:

Descriptive norm items: I believe that most of my fellow workers behave (1) frankly, (2) cheerfully, (3) by using compassionate language, (4) in a self-sacrificing way, (5) moderately, (6) soothingly, (7) appealingly, (8) connectedly, (9) in a self-effacement way towards patients and patient relatives under all circumstances.

Injunctive norm items: I believe that most of my fellow workers expect that I behave (1) frankly, (2) cheerfully, (3) by using compassionate language, (4) in a self-sacrificing way, (5) moderately, (6) soothingly, (7) appealingly, (8) connectedly, (9) in a self-effacement way towards patients and patient's relatives under all circumstances.

All norm items were discussed during the focus group meeting. Hospital hostesses agreed upon every norm item towards emotional labor. Furthermore, they pointed out a difference between descriptive and injunctive norms. According to them, injunctive norms are more relevant or followed than descriptive norms. At an organizational level, as known, norms are formed and enforced only with respect to behaviors that have some significance for the group (Shaw, 1981). Groups, like individuals, try to operate in such a way that they maximize their chances for task success and minimize their chances of task failure (Feldman, 1984: 48). In this regard, those gendered norms are enforced within this private hospital to maximize their chances for task success. According to our findings, women are aware of the expectation to conform to those gendered norms but, do not believe that most of their fellow workers behave in this way. At the same time, they emphasized how important those norms are to satisfy customers. These findings are consistent with the related literature. As Feldman (1984: 48) pointed out first a group will enforce norms that facilitate its very survival; second, the group will want to increase the predictability of group members' behaviors. In this regard, by highlighting the importance to conform those norms and being aware of those norm-based expectations they reflect the role of those norms for their survival. On this ground, women were expected to predict the behaviors of their fellow group members. and at this point, they criticize their co-workers as they do not believe that "some" of their fellow workers conform to those norms.

DISCUSSION

In this conclusion, by means of findings of descriptive and categorical analysis we will try to answer the following question: How does the gender context affect emotional labor behaviors? As highlighted before, according to new institutionalism, normative embeddedness of an organization within its institutional context (Baum and Oliver, 1992) and societal expectations of appropriate organizational action influence the structuring and behavior of organizations in given ways (Meyer and Rowan, 1977; Scott et al., 1994). As Dacin pointed out (1997: 48) *institutional norms affect two primary dimensions; first cognitive interpretations of founders (Aldrich 1990) who incorporate institutionally favored characteristics in the hope of their organizations being judged as appropriate or legitimate* (Meyer and Rowan, 1977)*; and institutional forces have important resource consequences for organizations because they shape people's tastes and preferences and the nature of economic activity* (DiMaggio and Powell, 1991; Zukin and DiMaggio, 1990).

In the frame of interaction between context and emotional labor, contrary to the Hochschild's explanation between "social structure" and "framing rules", our research findings support assumptions of new institutional theory and suggest that in order for hospital organizations to survive, they conform to the institution of gender. As shared before, all managers agreed upon what Manager 1 stated: *"You can not have a host* (male hostess) *with a general surgeon; " if a female patient is taken in* (to surgery) *a female hostess is needed; the prior reason is patient privacy, the second is so that there are no other dilemmas. But for example, a male secretary works in urology. In addition, women definitely have an advantage over men in appearance and dialect when addressing someone."* In this regard, a job description such as a "Hospital Hostess" is also designed to meet the necessities of gender institution on the doctor-patient interaction. At the same time, as the second sentence of the M1's statement points out, managers are trying to meet the expectations of customers' *tastes and preferences* (DiMaggio and Powell, 1991; Zukin and DiMaggio, 1990) who want to see a woman in that position as shared in the remaining lines.

Those efforts to conform to the gender institution can be clustered under two titles: formal and informal organizational design. As Sutton's (1991) study in a bill collection agency highlights, norms are one factor that influences emotions expressed by role occupants (Rafaeli and Sutton, 1989: 5). Also, our findings pointed out the norms as an informal regulator have an important role in directing and controlling the job description of hospital hostesses. Based on the fact that another factor taken into consideration when designing both formal and informal organization activities is the expectations of the customers. Because customer expectations are tangible normative instruments of institution of gender. So, in the frame of hospital organizations, we suggest that, as formal organizational design, the job description and customer satisfcation policies and as informal organizational design, the organizational norms directing the related job descriptions are designed in accordance with the gender institution.

Managers, P/PR and hostesses, who are the main agents of the organizational context, they play an active role in the reproduction and continuity of gender patterns. In this regard *patients/patient relatives play an active role in the reproduction and continuity of gender patterns in the context of the organization by reflecting their expectations and reminding hostesses how women should act in their work life.*

For Managers, trying to meet expectations of customers is an important factor that ensures the continuity of gender patterns. In addition to this, even though private hospital organization is seen to be supporting women's participation in the working life via their 'a good place to work for women' discourse, in reality, they use this as an instrument of control by reminding women the fact that the turnover rate is insignificant for the management (if necessary, management is able to find someone else almost instantly). This instrument of control when combined with the fact that women have limited job options in the labor market becomes more efficient. In this sense, job insecurity status is used in determining both wage rates and conducting formal and informal surveillance activities.

But what about female emotional labor workers? What role do they play in the reproduction and continuity of these gender patterns? First, of course in an organization that accepts gender-based expectations as they are, which are reflected under the umbrella of customer expectations, their choices in order to preserve their current positions take on the leading role in the continuity of these patterns. As a matter of fact, this is a bounded rational choice for a woman (who wants to have economic freedom). In this context, as we shared in our findings, while factors such as "working with the consent and approval of the family", and as indicated by the agreement of both families and customers, "working in a suitable organization" leads to the positions, where women are able to work, to become limited; the presence of many females who have an education at the related level and lower in the labor force market and the unemployment rate in this area cause a bulge in the supply of labor for the hospital hostess position. This situation generates some of the requirements needed to create elasticity of labor of demand and job insecurity. Another important point to note is the potential of job insecurity to increase the power asymmetry between positions. In this sense, both the women trying to maintain their current position and the women aspiring to the same position play an important role in the continuity of gender patterns.

In the findings of the study, it was seen that hospital hostesses tried to conform to normative structures of gender. In this sense, this conformity constructs the discourse of why women are more successful on this ground. The issue to be discussed at this point is that; the "women are more successful" felicitation covers a reality; the gender, society wants to see in that position is women, and the possibility that this success may rise on the ground created by what they expect from that gendered job description. This finding is also related to the gendered and taken for granted aspects of emotional labour and critique of women as 'natural carers' (Fairchild and Mikuska, 2021; Gattuso and Bevan, 2000; Gray and Smith, 2009). To have or to gain the characteristics which society attributes to (or wants to see in) the relevant position, and to defend these characteristics, supply coal to generate steams for the trains of, the gender institution contining on its path. In short, we are trying to point out the possibility that the characteristics which make a person successful are in conformity with the expectations formed by gender patterns. Moreover, in the frame of task maintenance and social maintenance duties (Feldman, 1984: 47), this conformity to normative structures of gender, help hospital hostesses to survive and keep their position in these organizations. This finding points out the main contribution we make in this study which is norms originating from gender institution regulate the emotional labor of a job description, hospital hostess.

According to our findings, there are gender-based inequalities which display emotional labor in the hospital. In this respect, women have unequal positions in terms of fulfilling gender based emotional labor demands. Although hospital hostesses are aware of these inequalities, they evaluate them as "normal". This evaluation by hospital hostesses may be explained by "a weaker status shield", "job insecurity" and "patients' and patient relatives' gender-based beliefs". As we shared before, gender-based status beliefs produce the unequal distribution of formal roles. Unequal formal roles reinforce inequality beliefs that create new experiences for mutual interactions among gender types (Ridgeway and Smith-Lovin, 1999: 204-205).

Consequently, organizations which try to conform to the institution of gender are places where make the normative effects of gender context on the emotional labor visible. Within these places, women frame, interpret context; then give direction to their emotional labor under the influence of norms. These norms which regulates both the job description and its emotional labor are gendered. With reference to the customer satisfaction argument, Private hospitals imposing these norms on this job description are in search of conformity with gender institution.

Limitations

The main limitation for this study is not to test the item pool by means of a survey. However, to obtain important patterns to point out the normative role of gender context on emotional labor-based behaviors, we must conduct a survey study to test our item pool. Although our findings provide a ground to discuss existing theories, they cannot be generalized.

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Green Organizational Climate: Measurement Scale Development and Validation to Measure Green Climate Structure in Organizations

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ABSTRACT

This paper aimed to develop a valid and reliable measurement scale for green organizational climate. Both qualitative and quantitative research methodologies were applied. In the research, the three-stage scale development process proposed by Schwab (1980) was be used. The conceptual framework were first clarified and a proposal pool were created by compiling the expressions in scale through a qualitative exploration study, which includes literature review, in-depth interviews and focus group studies using deductive and inductive methods. Expert opinions were sought for the examination of face validity and content validity. After the pilot application, draft scale was applied to 750 managers of businesses operating in different sectors in various provinces of Türkiye. According to the results of the exploratory factor analysis, 21 items and 4 dimensions were extracted, namely green economic climate, green social climate, green digital climate, and green bureaucratic climate. The results of confirmatory factor analysis indicated that the measurement items developed were had an acceptable level of compatibility. The cronbach alpha coefficients had sufficient reliability in all dimensions. As a result, it was seen that the green organizational climate scale is a valid and reliable measurement tool.

Keywords: Green Organizational Climate, Green Business, Measurement Scale, Organizational Behavior, Green Climate Structure.

JEL Classification Codes: D23, L20, M10, Q56.

INTRODUCTION

The concept of green has started to take the attention of all scientific fields in recent years. This attention can be based on many reasons such as the change in the environment, the negative effects of climate change on life, and the increase in unnatural production methods. In this context, branches of science are in search of methods that contribute to the environment related to their fields of interest. For example, applications such as researches focusing on the effective use of energy in the field of engineering, service delivery tools of accommodation enterprises that do not harm the environment in the field of tourism, how to create green hospitals in the field of health, and the contents of environmental production materials in the field of chemistry have become very popular. These practices also have various reflections in the field of business administration. Examples of these are green management, green human resources management, green procurement and logistics, green marketing, green accounting, green finance. One of the most comprehensive application areas of the green concept in the field of business is the field of management. It is seen that a wide variety of green-oriented concepts such as green management, green organisational behavior, green organisational climate, green psychological climate have begun to be discussed in the field of business administration.

In order for organisations to be environment-friendly or for employees to exhibit environment-friendly behaviours, the organisational structure must have a suitable climate. The issue of creating an organisational climate that increases the green-oriented behavior of employees or drives them in this direction is conceptualised under the name of green organisational climate in the organisational behavior literature. There are very few studies on green organisational climate in the literature. Since the concept of green organisational climate is a relatively new in the literature, there are very few scale development searches for the measurement of the concept. Among these few studies, the organizational behavior literature lacks a comprehensive scale for the determination of the green organizational climate structure. Developing a green organizational climate scale will be the right step to determine how a green climate can be created in an organization. The main problem here is about which organisational practices will

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be considered as green organisational climate practices. In other words, the first step in creating organisations with a green climate is the development of measurement tools that can guide what organizations should do in this context. Therefore, the issue of which practices will establish a green organisational climate within the organisation is a subject that needs to be discussed comprehensively. Despite this necessity, when the literature is examined, it is understood that researchers have produced few answers to the question of "how to create a green climate in organizations", and these answers are not at a satisfactory level.

When the search for a small number of scales developed for the measurement of green organizational climate, which is explained in detail in the literature review, is examined, it is thought that some of them suggest a single-factor model, and some of them do not include some features that should be found in a green organizational climate review or only contain features for a certain universe. So much so that the green organizational climate has been tried to be explained with a single factor model in some studies (for example, Norton et al., 2017). In some studies (for example, Chou, 2014; Tsai et al., 2017), the characteristics of the sample or the sector in which the scale is applied come to the fore. For example, Tsai et al. (2017), a four-factor structure was proposed, namely green port policy, green education, green communication and green motivation, and a scale proposal was made to apply to port workers. In this respect, there is a need to develop a green organizational climate scale that can be measured in organizations in all sectors and that can examine measurement in terms of different dimensions. In addition, the measurement of a green organizational climate should have a structure that includes social, economic and digital etc. elements. These dimensions included in the measurement tool developed with this research stand out as a distinctive feature of the developed scale against other scales.

The search for the practices within the organization can serve to create a green organizational climate, in other words, the elements of a green organizational climate constitutes the scope of this research. In the research, answer is sought for the question "*How can a statistically valid and reliable green organisational climate scale be developed?*". For this reason, in the research it is aimed to develop a valid and reliable measurement tool to measure the green organisational climate.

LITERATURE REVIEW

Organizations are encouraged to adopt and improve green policies and practices in order to increase their environmental performance (Xiao et al., 2020: 13). This has led to the emergence of various concepts in the field of management that focus on the organizational policies that contribute to the environment and direct employee behaviors. From this point of view, the concept of green organizational climate has emerged with the assumption that organizational climate predicts the behavior of employees towards the environment.

At the focus of the literature on the measurement of green organizational climate is a theoretical compilation study on green organizational climate by Norton et al. (2012). In this study, a conceptual framework has been presented for the concepts of organizational climate and green organizational climate, and various suggestions have been developed for future research. In this context, the authors presented some item suggestions to measure the green organizational climate in the study.

Two years after the publication of this research (Norton et al., 2012), Norton et al. (2014) examined the mediating role of organizational climate perceptions in the relationship between organizational sustainable policies and environmental behavior of employees. The authors state in their research that organizations are increasingly implementing sustainability policies to promote environment-friendly behaviors. Accordingly, it is emphasized that employees' perceptions of the green work environment (in other words, how their organizations and colleagues perceive their environmental sustainability orientation) create psychological mechanisms that associate such policies with behavior. In the research, the perceived existence of the corporational sustainability policies, green organisational climate perceptions and the relations between employees' green behaviours have been worked on. The basic assumption in this research is that employees' perceptions of green work climate mediate the positive relationship between their perceptions of the existence of a sustainability policy and their green organizational behavior. In the application part of the research, members of Amazon's Mechanical Turk online survey site were used and survey data were collected from 168 employees with 1-6 years of working experience in the industrial sector. As a result of the research, it was found that the organization's and colleagues' perceptions of the green working environment differentially mediate the effects of the perceived presence of a

sustainability policy on task-related and proactive green behaviors. From this point of view, it is emphasized that there is a significant relationship between perceived organizational sustainable policies and environmental behavior of employees, and the mediating role of employees' organizational climate perceptions in this relationship. In this direction, if there are those who exhibit environmentalist behaviors in the organization, other employees are also affected by this and tend to exhibit environmentalist behaviors. The findings shed new light on the psychological mechanisms associated with the green organizational behaviors of employees, guide research on the effectiveness of sustainability policies. A model consisting of 8 items and 2 dimensions was presented in the green organizational climate scale, which was developed within the scope of the research and recommended for the literature. In the creation of these items, it was explained that some item suggestions given in the theoretical compilation study conducted by Norton et al. (2012) on the green organizational climate were included. While 4 of the 8 items used in the research to measure the green organizational climate represent the green perceptions of the employees in the organizations, the other 4 items represent the perceptions of the employees towards the green behaviors of their colleagues. The Cronbach Alpha reliability coefficient of the 4-item dimension representing the green perceptions of the employees was determined as .93, and the Cronbach Alpha reliability coefficient of the 4-item dimension representing the green perceptions of the colleagues was determined as .92.

In another study, Norton et al. (2015) discussed the concepts of environmental sustainability, green organizational behavior, organizational culture, green organizational culture, organizational climate, strategic climate, and green organizational climate. Accordingly, environmental sustainability is the main objective in organizations and it is possible to achieve this with the green organizational behavior of employees. At this stage, the green organizational climate is considered as an important factor in the formation of green organizational behavior. The concept of strategic climate, on the other hand, is a concept that examines the issue from a safety perspective and is evaluated at individual and organizational levels such as accident and injury rates or safety motivation and participation. The authors, who create an integrative framework in the perspective of organizational culture and organizational climate, propose the structure in three dimensions: antecedents, social context and behavior, and outcomes. In this integrative framework, authors emphasize the dynamic processes that create and maintain a culture, and how culture leads to behavior. Accordingly, antecedents consist of two aspects: organizational (institutional pressure from regulatory, normative and socio-cultural perspectives, size, age) and individual (leader attitudes). Cultural elements such as assumptions, symbols, beliefs and values create social context and behavior through interpretation, symbolization, realization and manifestation. Perceptions of employees towards the organization create climate at individual and organizational level, and climate perceptions create individual and organizational behaviors through social norms. As a result, organizational (effectiveness and identity) and individual (working conditions and effectiveness) outcomes emerge. This model implies that an organization's social context is not an end-state, but a dynamic process through which an organization responds to external pressures.

Norton et al. (2017) examined the effect of employees' perceptions and interpretations of organizational policies, practices, and procedures on their behavioral intentions. In addition, the mediating role of the green psychological climate in this relationship was evaluated. To conduct these reviews, they collected survey data from 74 employees for 10 working days and found that corporate environmental strategy was positively associated with green psychological climate, which in turn improved the relationship between green behavior intentions and the employee's green behavior the next day. Accordingly, they found that the aforementioned relationship was positive only when employees perceived a positive green psychological climate. The scale used in the research includes 5 items of the scale used in the study by Norton et al. (2014), the details of which are given above. The researchers used 4 items that factored into the dimension of organizational perception out of 8 items here, and added 1 item to it. As can be seen, items that were considered as a dimension of green organizational climate in previous studies (Norton et al., 2014) were used as green psychological climate in this study (Norton et al., 2017).

Chou (2014) examined the effect of hotel employees' perceptions towards the green organizational climate on environmental behavior. According to the author, the recent trends in green consumption are driving the hotel industry to take on corporate social responsibility based on green innovation. Studies conducted in this direction reveal that adopting green practices is beneficial for the hotel industry. However, an organization's success in adopting green practices depends not only on corporate

attitudes towards environmental issues, but also on the personal beliefs and daily actions of its employees. The author focused on personal belief variables to explore the contextual and individual variation in the environmental behavior of hotel employees. In this direction, they tried to examine these behaviors through the concept of green organizational climate. In the research, questionnaires obtained from 254 employees of 32 hotels among 65 hotels in Taiwan that have the environmental program award and participate in environment-friendly programs were evaluated. According to the results of the research, it was determined that the factors at the individual and group level were significantly related to the environmental beliefs and behaviors of the employees. In other words, it has been determined that the green organizational climate perceptions of employees in Taiwan's environmentally oriented hotels have a significant effect on their environmental behavior. Accordingly, the author states that more emphasis should be placed on and applied to intensive institutional participation in environmental policies, human resource management and the provision of environmental education for employees. The scale used by the author in this research was created by making use of 7 criteria used for green hotel certification in Taiwan (corporate environmental management and policies, energy saving, water saving, green purchasing, reduction in the use of disposable products, waste reduction, pest control) and some of the articles of the corporate environmental policies recommended by Ramus (2000). In this context, there are 14 items in the scale used to measure the green organizational climate.

Brnova (2020) developed a scale called strategic organizational sustainability climate in their study. As a result of the research, they presented a scale consisting of 3 dimensions and 25 items. Labeling of the 3 dimensions in which the scale was modeled was made as environmental sustainability climate dimension (11 items), social sustainability climate dimension (7 items) and economic sustainability climate dimension (7 items). The environmental sustainability climate dimension is divided into sub-dimensions as "Finding alternatives (6 items)" and "Reducing negative effects (5 items)".

Tsai et al. (2017) examined in their study the effect of green organizational climate on green organizational behavior. Survey data collected from 164 participants working at Kaohsiung Eco Port in Taiwan were analyzed in the study. As a result of the research, they proposed a 4-dimensional green organizational climate scale. These dimensions are green port policy, green education, green communication and green motivation. In addition, structural equation modeling was conducted to examine the effects of green organizational climate dimensions on employees' green behaviors. As a result of the research, it was determined that the green organizational climate dimensions were positively related to the green behaviors of the employees. As a result of the evaluation made between the dimensions, it has been determined that the green motivation dimension is the green organizational climate dimension that has the most important effect on the green behavior of the employees, followed by green port policy, green communication and green education, respectively.

Kuo and Lin (2020) examined the relationship between lean management, green operations and green behavior and the role of green organizational climate in this process. Using data from 268 samples in Kaohsiung, the findings of the study showed that lean management positively affects both green operations and green behavior; that green operational practices have a positive effect on both green behavior and green performance, and that the green organizational climate has a mediating role in this relationship. To measure the green organizational climate in this study, the authors used a one-dimensional, 7-item scale by making use of the literature review.

Although studies on green have gained popularity in Turkish literature, it is not possible to say the same for the green organizational climate literature. In addition to the limited number of studies in Turkish literature on the concept of green organizational climate, the literature on green organizational climate research in Türkiye has not sought to develop a scale. Among the Turkish-sourced studies on the concept of green organizational climate, Özalp ve Erbaşı (2021) examined the differences between the green organizational climate perception of hotel employees and the levels of green behavior in the organization according to some demographic variables. In the study, it is used to developed by Norton et al. (2014) and consisting of 8 questions. According to the findings obtained from 293 employees who works in the hotel enterprises having 5 and 4 stars environmental certificates in Konya, the participants had a high level of green organization climate perception and a high level of green organizational behavior. In the study, it was determined that the perception of green organizational climate significantly differ to the employees' duties in the hotel. And it was detected that the green organizational climate perception does not differ significantly in terms of variables such as gender, age, education level, income,

work experience, working time and department.

The most comprehensive and preliminary research on green organizational climate in Turkish literature was conducted by Erbaşı (2022), and the theoretical structure of the concepts of green organizational climate and green psychological climate was revealed in the research. According to the author, although these two terms are frequently used interchangeably in Turkish literature, they do not have the same meaning. Accordingly, when the measurement of the climate concept is done at the organizational level, it is called the organizational climate, and when it is done at the individual level, it is called the psychological climate. In other words, the focus of the research on the green organizational climate is the green working environment of the organization, and the focus of the research on the green psychological climate is the perception of the employees about the environmentalist working environment of the organization. In this context, if a research is concerned with the current environmentalist working environment in the organization, the concept of green organizational climate comes to the fore, if it is concerned with the individual perceptions of employees regarding environmental practices in the organization's working environment, the concept of green psychological climate comes to the fore. As a result, it is emphasized that researches on individual results on employees should use scales on psychological climate, while studies examining the results on the organization collectively should use scales on organizational climate. In his research, the author defines the green organizational climate as the environmentally friendly structure of an organization, while he defines the green psychological climate as the individual perceptions of the employees about how environmentally friendly the organizational environment is.

In this study, it was attempted to answer the question of how to develop a statistically valid and reliable green organizational climate scale. In this context, the aim of the research is to develop a valid and reliable measurement tool to measure the green organizational climate. For this purpose, a pool of propositions that can be used to determine the elements constituting the green organizational climate was created, the green organizational climate scale was structured, and the structured green organizational climate scale was tested.

Developing a scale for the measurement of green climate structure in organizations constitutes the original aspect of the research. It is expected that the developed green organizational climate scale will provide an understanding of the green climate in organizations and the dimensions that lead to the formation of this climate. It is expected that the scale developed within the scope of the research will give an idea to the managers about how they can create a green climate in their organizations and will guide future research on this subject. It is expected that the green organizational climate scale developed within the scope of the research will enable the green climate to be disseminated in organizations and the concept to be discussed more comprehensively in the organizational behavior literature. In addition, the new growth strategy of the European Green Deal focuses on realizing the green transformation across society. With this focus, it is planned to achieve the goals of green transformation of the Turkish economy and industry and establishing a sustainable growth. The spread of the achieved scale as an implementation policy will contribute to the goals of the "Green Agreement", the new growth strategy of the European Union. The scale developed in this context will contribute to the "Clean and Circular Economy" and "Climate Change, Environment and Biodiversity" research titles of "Green Deal".

METHOD

This research has an exploratory character to develop an original scale. Since in studies of this nature, there is no need to develop problem statements or hypotheses, such an attempt was not undertaken here as well. Since it is tried to determine which green practices will create a green organizational climate, it has been tried to be designed a formative scale.

In order to develop the green organizational climate scale, the scale development process proposed by Schwab (1980) was taken as a basis. These three stages are creating a proposition pool, structuring the scale, and evaluating the scale.

FINDINGS

The findings of the study were presented under the headings of creating a proposition pool, structuring the scale, and evaluating the scale, respectively, as suggested by Schwab (1980).

Creating A Proposition Pool

In the process of creating the proposition pool, deductive and inductive methods were used together and literature review, in-depth interviews with 16 experts and 6 focus group studies were conducted. At this stage, a comprehensive literature review was conducted and the findings of the researches on the green organizational climate were examined. The studies

performed in particular on the measurement of the concept were examined in detail and the findings related to these were presented in the previous titles of the research. In addition, at this stage, in-depth interviews were conducted with 16 managers who participated in any study in the field of "green", in order to understand the green climate in organizations. Purposive sampling method was used in the selection of the interview participants and the principles of working as a manager in different sectors and volunteering were taken as basis. Participants were determined from among people who worked as managers in companies in different sectors operating in Türkiye and had practical applications in green before. In this method, which was used to analyze the expert opinions on the subject in depth, semi-structured interview method was used to focus on the subject and to determine the boundaries of the interview. The group of respondents to the in-depth interviews were asked to define the following questions about the green organizational climate:

- "What do you understand by the concept of green organizational climate?"
- "What is the difference between the concepts of organizational climate and green organizational climate?"
- "What kinds of organizational practices can be used to induce green behaviors among employees in the organization?"
- "What are the obstacles to creating a green climate in organizations?"
- "What does the business you work at do to create a green organizational climate and what do you recommend them to do?"

Within the scope of the qualitative discovery study, 6 focus group studies were carried out in addition to the interviews. 6 people participated in each of the focus group discussions. For focus group discussions, which is a technique in which the researcher and participants meet face-to-face on a determined topic, the participation of the MBA students who have worked in organizations that carry out green studies and have knowledge on this subject, academics who have done at least one study on green, and members of the board of directors of the non-governmental organizations working in green field in Türkiye was ensured. Issues related to the functioning and process of the focus group interviews proceeded in the same way as in the semi-structured interviews. In both semi-structured interviews and focus group interviews, the participants were not intervened, provided that they did not deviate from the main topic. Based on the data obtained at this stage, a draft scale consisting of 52 items was created.

Structuring the Scale

In order to examine the content validity of the scale, first of all, the 52-item draft scale was presented to the opinions of 6 academicians who took part in the final focus group meeting. Here, experts were provided to evaluate the scale items in terms of content, meaning and language integrity. As a result of content validity, a draft scale consisting of 41 items was obtained.

This 41-item draft scale was applied as a pilot to 100 managers who participated in the practices in the green field, and as a result of the subsequent analyzes, various corrections were made in some items in the scale. Accordingly, a draft scale, which was reduced to 37 items, was obtained.

The report of Selçuk University Faculty of Economics and Administrative Sciences Social and Humanities Scientific Research and Publication Ethics Committee Report dated 05.10.2021 and numbered 09/26 that the resulting scale is suitable for scientific research and publication ethics has been received.

A 5-point Likert-type rating was used to express the level of agreement about the items in the scale. This rating is "Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1)". (1) represents that the green organizational climate practices were not carried out, ..., (5) represents that the green organizational climate practices were carried out. Therefore, while making the evaluations, it has been commented that the green organizational climate increases as it approaches 5, and moves away from the green organizational climate as it approaches 1.

The 37-item draft scale, which was ready to be applied to the main sample, was transformed into a questionnaire consisting of two parts. In the first part of the questionnaire, there was a 37-item draft scale, and in the second part, there were 8 items to examine the demographic characteristics of the participants. The questionnaire form was applied to 750 organization managers online via Googleform, one of the online application tools, by choosing the purposive sampling method. Data analyzes were performed using SPSS 21 and AMOS 21 programs. The answers of 750 participants who filled out the questionnaire were examined, 115 questionnaires that were found to be incompletely filled

were excluded from the evaluation, and the analyzes continued with 635 questionnaires. It has been found out that 43.5% of the 635 participants were female and 56.5% were male; 48.3% of them were undergraduate, 21.9% of them had associate degree and 13.5% of them were graduates; 41.6% of them have a monthly income of 2826 TL and below, 44.4% of them have a monthly income between 2827-7972 TL and 14% of them have a monthly income of 7973 TL and above; 61.4% of them work in the private sector and 38.6% in the public sector; and there are employees from 26 different sectors. In addition, the average age of the participants was 27 years, the average working time in the sector was 6.6 years, and the average working time in the current organization was 5.2.

Explanatory factor analysis and confirmatory factor analysis were performed on 37 items included in the scale configuration. At this stage, propositions with a correlation value of less than 0.40 among themselves, propositions with a common factor variance value of less than 0.30, propositions with a load value of less than 0.30, the ones not included in a single factor, and propositions with a difference of less than 0.10 between the factors in two factors were excluded from the analysis. After each inference, the change in values within the scope of explanatory factor analysis and confirmatory factor analysis was examined. In the following parts of the research, the values of the propositions remaining in the scale as a result of all reanalysis are included.

At the stage of scale configuration, primarily the descriptive findings of the data obtained for the green organizational climate scale were evaluated. In Table 1, the minimum, maximum, average and standard deviation values of the items in the draft scale are given. As stated above, only the values of the propositions remaining in the scale as a result of the analyzes are included. According to the findings, it is seen that the average values of the items are between 4.4378 and 3.5024.

A series of analyzes were conducted to obtain the findings regarding the validity of the scale. In this context, Kaiser Meyer Olkin (KMO) test and Barlett test were performed to examine whether the data are suitable for factor analysis. Table 2 shows the results of the KMO and Barlett test.

As can be seen in Table 2, the result of the KMO test was found to be 0.947. This value is well above the acceptable

Table 1. Minimum, Maximum, Average and Standard Deviation Values of Items

Item No	Minimum Value	Maximum Value	Average Value	Standard Deviation
GOC1	1	5	4.1528	1.06876
GOC2	1	5	3.8205	1.11311
GOC3	1	5	4.0110	1.04242
GOC4	1	5	4.0094	1.09483
GOC5	1	5	4.3638	.86006
GOC6	1	5	4.4378	.87400
GOC8	1	5	3.9433	1.09051
GOC9	1	5	4.3323	.87273
GOC10	1	5	4.1559	1.09167
GOC11	1	5	4.2079	.99728
GOC12	1	5	4.1654	1.01692
GOC13	1	5	4.1055	1.06710
GOC15	1	5	4.2756	.88874
GOC18	1	5	3.8992	1.20039
GOC19	1	5	3.5024	1.41797
GOC20	1	5	4.1291	1.03367
GOC21	1	5	4.1921	.96350
GOC23	1	5	3.7969	1.20906
GOC26	1	5	4.2299	.98924
GOC28	1	5	4.0488	1.08291
GOC30	1	5	4.0709	1.06108

Table 2. KMO and Barlett's Test Results

		Green Organizational Climate Scale
Kaiser Meyer Olkin Measure of Sampling Adequacy		0,947
Bartlett's Test of Sphericity	Approximate chi-square (χ^2)	5409,90
	Degrees of freedom (df)	210
	Sig. (p)	0,000

values. In addition, the Bartlett test rejected the null hypothesis with a statistically significant χ^2 result (χ^2= 5409.90, df= 210, p=0.000).

After obtaining the KMO and Bartlett values indicating that the data set of the scale was suitable for factor analysis, explanatory factor analysis was applied to control the dimensions of the scale and to ensure unidimensionality in the relationship between the variables. First of all, correlation findings between propositions were examined and it was determined that all correlations were higher than 0.40 as expected.

Principal component analysis was used as factorization method. Eigenvalues and percentages of variance were used to determine the number of factors. Table 3 shows the total variance explained in the final version of the 21-item scale.

Table 3. Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	Percentage of Variance Explained	Cumulative Percentage of Variance Explained	Total	Percentage of Variance Explained	Cumulative Percentage of Variance Explained
1	8.284	39.449	39.449	3.860	18.360	18.380
2	1.518	7.228	46.678	3.182	15.151	33.532
3	1.095	5.214	51.891	2.498	11.896	45.428
4	1.000	4.575	56.467	2.318	11.039	56.467

While performing the exploratory factor analysis, the rotated components matrix method was chosen to determine in which factor the items had a strong correlation. The load value of the items is at least .30, the items are included in a single factor, and there is at least .10 difference between the factors in the two factors (Büyüköztürk, 2007). The 25 degree varimax axis rotation method was used. Among the 37 items for which the scale was started to be constructed (Annex-3), 2 items with a load value of less than .30, 7 overlapping items that were not included in a single factor and had a difference of less than .10 between the two factor loading values, and 7 items that were not loaded under the correct factor were excluded from the analysis. At this stage, the items were removed one by one, and factor analysis was repeated each time. The factor pattern findings obtained for the green organizational climate scale are given in Table 4.

The analyzes started with 37 items, but as a result of the explanatory factor analysis, the items in the scale were grouped under 4 factors with an eigenvalue above 1, a total of 21 items were loaded on these factors, the variance explanation rate of the scale was 56,467%, and all items had acceptable loading values (>.40) (the lowest item load value is .443 and the highest item load value is .707). Table 5 shows the dimensions of the green organizational climate scale and the labeling for these dimensions, the number of items in the factors and the numbers of the items in the draft scale.

As can be seen in Table 5, economic, social, digital and bureaucratic aspects were determined in factor labeling in the scale. *The green economic climate* dimension is used for green practices in the organizational climate and carried out with economic motives. *Green social climate* has been used to describe green practices carried out with social motives in the organization. *The green digital climate* is used to explain the digital practices that

Table 4. Factor Pattern of the Green Organizational Climate

Item No	Green Economic Climate	Green Social Climate	Green Digital Climate	Green Bureaucratic Climate
GOC4	.407			
GOC5	.579			
GOC12	.687			
GOC13	.617			
GOC18	.700			
GOC20	.567			
GOC1		.728		
GOC2		.762		
GOC6		.454		
GOC10		.640		
GOC26		.542		
GOC9			.835	
GOC11			.685	
GOC15			.714	
GOC30			.453	
GOC3				.610
GOC8				.400
GOC19				.721
GOC21				.443
GOC23				.567
GOC28				.484

Table 5. Dimensions and Items of the Green Organizational Climate Scale

Dimension	Number of Item	Item No.
Factor 1: Green Economic Climate	6	4, 5, 12, 13, 18, 20
Factor 2: Green Social Climate	5	1, 2, 6, 10, 26
Factor 3: Green Digital Climate	4	9, 11, 15, 30
Factor 4: Green Bureaucratic Climate	6	3, 8, 19, 21, 23, 28

contribute to the environment in the organization, and *the green bureaucratic climate* is used to describe the bureaucratic processes of the management levels of the organization that contribute to the environment.

The common variance values of the propositions that make up the green organizational climate scale were examined. The communality values were found to be the lowest .443 and the highest .707. Since there was no value less than .30 among the variance values of the extraction, all items remained on the scale. Table 6 shows the common variance values of the propositions that make up the green organizational climate scale.

At this stage, partial correlation coefficients of 21 items were examined and values close to 0 were obtained for all items. The findings regarding the anti-image correlation coefficients, which are the negative of the partial correlation coefficients, are shown in Table 7. The anti-image correlation coefficients give information about the sample adequacy of each variable. For a good scale model, it is recommended that the coefficients of the diagonal elements be greater than .50. When these values of the scale were examined, it was determined that the anti-image correlation coefficients of each item were close to 1. Accordingly, the lowest anti-image correlation coefficients of the propositions forming the green

Table 6. Communality Values of the Green Organizational Climate Scale

Item No.	Initial	Extraction	Item No.	Initial	Extraction
GOC4	1.000	.473	**GOC9**	1.000	.707
GOC5	1.000	.595	**GOC11**	1.000	.569
GOC12	1.000	.540	**GOC15**	1.000	.578
GOC13	1.000	.638	**GOC30**	1.000	.533
GOC18	1.000	.593	**GOC3**	1.000	.599
GOC20	1.000	.584	**GOC8**	1.000	.443
GOC1	1.000	.592	**GOC19**	1.000	.524
GOC2	1.000	.659	**GOC21**	1.000	.519
GOC6	1.000	.564	**GOC23**	1.000	.588
GOC10	1.000	.546	**GOC28**	1.000	.544
GOC26	1.000	.471			

Table 7. Anti-Image Correlation Coefficients of Propositions Constituting the Green Organizational Climate Scale

Item No.	Coefficient	Item No.	Coefficient
GOC4	.953	**GOC9**	.856
GOC5	.928	**GOC11**	.926
GOC12	.939	**GOC15**	.927
GOC13	.948	**GOC30**	.954
GOC18	.949	**GOC3**	.953
GOC20	.950	**GOC8**	.967
GOC1	.944	**GOC19**	.921
GOC2	.925	**GOC21**	.968
GOC6	.954	**GOC23**	.950
GOC10	.971	**GOC28**	.959
GOC26	.964		

organizational climate scale were determined as .833 and the highest as .942. It has been observed that the out-of-diagonal elements in the anti-image matrix are close to zero as expected.

When the distinctiveness of the items was examined to support the construct validity findings, it was seen that none of the items had a negative, zero or close to zero item-total correlation. In addition, when the t-test findings on item distinctiveness were examined, it was determined that the mean score of all items differed statistically in the lower and upper 27% groups.

Evaluation of the Scale

In order to evaluate the scale, the model obtained as a result of the explanatory factor analysis was validated. In this context, firstly, the Path diagram was used to establish the measurement model, secondly, the goodness-of-fit indices were examined to test the measurement model, and thirdly, the reliability findings were examined. The Path diagram created using the AMOS 21 program in order to set up the measurement model is presented in Figure 1.

The goodness-of-fit index values of the established measurement model were determined using the AMOS 21 program and are shown in Table 8.

According to the data obtained, the chi-square value = 491.462 and the degree of freedom = 176. Accordingly, χ^2/df=2.792; GFI=0.929; AGFI=0.907; RMR=0.045; NFI=0.910; IFI=0.940; CFI=0.940; RMSEA=.053; and SRMR=.041 values were obtained. Among these values, it is seen that χ^2/df, GFI, AGFI, NFI, IFI, CFI and RMSEA values are acceptable, and RMR and SRMR values are in the excellent goodness of fit index ranges.

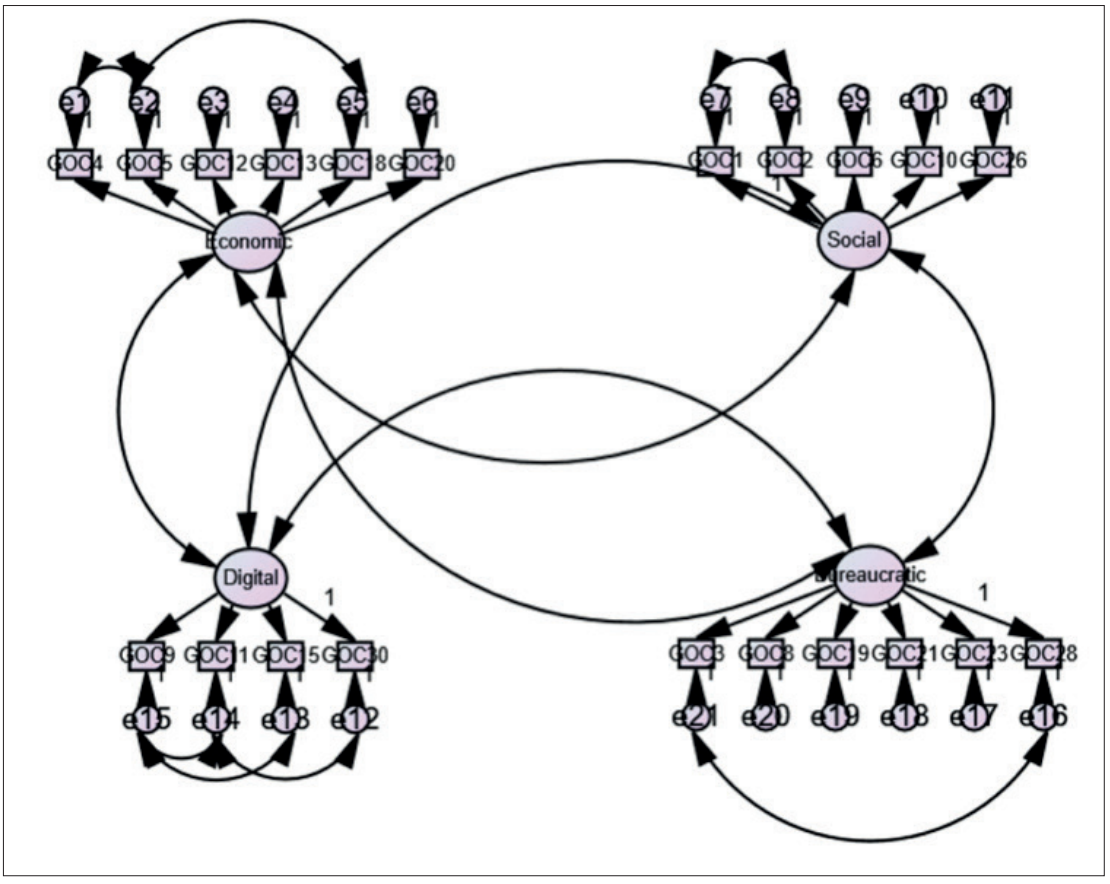

Figure 1. Path Diagram of the Green Organizational Climate Scale Model

Table 8. Goodness of Fit Index for the Green Organizational Climate Scale

Index	Result	Comment
χ^2/df	491,462 / 176 = 2,792	Acceptable Fit
GFI	.929	Acceptable Fit
AGFI	.907	Acceptable Fit
RMR	.045	Excellent Fit
NFI	.910	Acceptable Fit
IFI	.940	Acceptable Fit
CFI	.940	Acceptable Fit
RMSEA	.053	Acceptable Fit
SRMR	.041	Excellent Fit

Table 9. Cronbach Alpha Values of the Green Organizational Climate Scale

Dimensions	Item No	Cronbach Alfa Value
Factor 1: Green Economic Climate	6	.817
Factor 2: Green Social Climate	5	.758
Factor 3: Green Digital Climate	4	.726
Factor 4: Green Bureaucratic Climate	6	.768
Green Organizational Climate Scale	**21**	**.918**

Finally, for the evaluation of the measurement model, the Cronbach alpha internal consistency coefficients were calculated and the reliability values were examined. The findings are presented in Table 9. Accordingly, the cronbach alpha value of 6 items in the "Green Economic Climate" dimension is .817, the cronbach alpha value of 5 items in the "Green Social Climate" dimension is .758, the cronbach alpha value of 4 items in the "Green Digital Climate" dimension is .726 and the cronbach alpha value of 6 items in the "Green Bureaucratic Climate" dimension was found to be .768. In addition, the cronbach alpha value of all 21 items of the Green Organization Climate Scale was determined as .918. When these values are examined, it is seen that the whole scale and its sub-dimensions are reliable.

CONCLUSION

The aim of this research is to develop a valid and reliable measurement tool for the measurement of green climate structure in organizations. The three-stage scale development process suggested by Schwab (1980) was used in the study. First of all, a proposition pool consisting of 52 items was created by using deductive and inductive methods together, through a literature review, in-depth interviews with 16 experts and a qualitative exploration study including 6 focus group studies. In the second stage, which is the structuring of the scale, expert opinions were taken to examine the face validity and content validity. The 41-item draft scale, which was obtained as a result of the removed and corrected items, was applied to 100 managers as a pilot, and some items in the scale were removed and some items were corrected in terms of meaning. 37-item draft scale obtained after the pilot application was converted into a questionnaire and the questionnaires were applied to 750 managers of businesses operating in different sectors in various provinces of Türkiye, using the purposive sampling method. Data analysis was performed using SPSS 21 and AMOS 21 programs. The exploratory factor analysis findings revealed a model with 21 items and 4 factors with construct validity. Factors were labeled as green economic climate, green social climate, green digital climate, and green bureaucratic climate. In the third stage, which is the evaluation of the scale, the structure consisting of 4 factors was tested with confirmatory factor analysis and acceptable goodness of fit index values were obtained. Cronbach alpha internal consistency coefficients were examined for the reliability of the scale, and reliable values were obtained in all dimensions and in the whole scale. As a result, it has been seen that the developed green organizational climate scale is a valid and reliable measurement tool.

The findings of this study have to be seen in light of some limitations. First, considering the time constraints and financial opportunities in the research, only the data obtained from the managers of the companies operating in Türkiye were included in the analysis. Future research on managers in different countries will make the results of the research more meaningful. Secondly, due to the search for a measurement that can measure the green climate in all organizations, no sectoral discrimination was observed in the determination of the universe and sample. Comparing the results of the green organizational climate scale in different sectors can be recommended for further research. The third limitation of the study is that the questionnaire form created in the study was only applied online to the participants due to the constraints about sample size, lack of time and cost. For this reason, it was not possible to obtain information about the environment and how long it took the participants to fill out the questionnaires. The fact that the markings made at extreme values and 7 items were not gathered under the correct factor in factorial structures make it possible that there may be sloppy behaviors in filling out the questionnaires. The fourth limitation of the study is that although a quota application was planned on the basis of the cities where the surveyed companies are located in Türkiye, quota sampling could not be made because sufficient volunteer participants could not be reached from some cities and a uniformity could not be achieved in this context. In relation to this, about 50% of those who requested participation were able to return, but the planned number of 750 managers were still reached. The fifth and last limitation of the study is that, as stated before, very little research has been done on green organizational climate in the literature, and different concepts (for example, green psychological climate, green organizational culture) are often used interchangeably. Although this situation has brought some difficulties in the development of the research typology, it reveals the need for more research on the green organizational climate. Future research to determine the relationships between different variables in the field of organizational behavior and the green organizational climate will make significant contributions to the understanding of the concept.

The Turkish scale (Annex-2) obtained as a result of the research was translated into English by the researcher and was reviewed and edited by 3 experts in the field with good command of both languages. The Turkish and English scales obtained were applied to 30 managers who were fluent in both languages, twice within 10 days and and the Pearson product-moment correlation coefficients were found to be significant in all items, and the related group t-test results were found to be insignificant. As a result, it was seen that linguistic equivalence was achieved.

It is considered that the green organizational climate scale (Annex-1) obtained within the scope of the research provides an understanding of the green climate in organizations and the dimensions that make up this climate. The developed green organizational climate scale is the original value of the research. It is expected that the scale developed within the scope of the research will give an idea to the managers about how they can create a green climate in their organizations and will guide future research on this subject. It is expected that the green organizational climate scale developed within the scope of the research will enable the green climate to be disseminated in organizations and the concept to be discussed more comprehensively in the organizational behavior literature.

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Annex 1. Developed **"**Green Organizational Climate Scale"

GREEN ORGANIZATIONAL CLIMATE SCALE For the following statements, tick the box that reflects the current status of the organization you work for. In the organization that I work,	
Green Economic Climate	
1	Photocell lamps and/or taps are used.
2	Energy saving light bulbs are used.
3	Manual adjustment of the ambient temperature is possible (eg. possibility to switch off when hot).
4	Environmentally friendly products are preferred in the supply of inputs (eg. cleaning products such as soap and detergent).
5	The use of environmentally friendly vehicles is preferred (eg. hybrid, electric).
6	Renewable energy is used or planned to be used (eg. solar energy).
Green Social Climate	
7	The use of public transport is encouraged (eg. giving free transportation cards for bus, tram, metrobus or offering staff shuttles).
8	Membership to environmental clubs/associations is encouraged and/or this kind of organizations are supported.
9	Paper, glass, metal, plastic, bottle, battery, etc. waste materials are separated in recycling bins.
10	Leftovers are not thrown away.
11	Where possible, afforestation and greening activities are carried out (eg. growing plants in pots, planting saplings).
Green Digital Climate	
12	Digital media is used in intra-organizational communication (eg. electronic correspondence or e-mails).
13	Personnel follow-ups are done electronically (eg. entry, exit, leave, vacation).
14	E-archive, e-invoice or e-signature systems are used.
15	Internet and electronic-based materials are used in promotions instead of paper-derived materials such as brochures.
Green Bureaucratic Climate	
16	Environmentally friendly programs are organized for employees (eg. environmental trainings).
17	When a written output is required, the use of scrap paper is encouraged.
18	The use of tobacco and tobacco products is prohibited.
19	There is at least one warning assembly (eg. informational sign or text) that reminds them of environmental sensitivity (eg. for the economical use of electricity or water).
20	Employees who exhibit environmentally friendly behaviors are preferred.
21	Archive documents are sent for recycling when the legal waiting period is over.

Suggested Level of Participation Rating: (5) Strongly Agree, (4) Agree, (3) Undecided, (2) Disagree, (1) Strongly Disagree
Note: The use of the Green Organizational Climate Scale in academic research does not require permission from the author (with the appropriate reference to scientific qualifications).

Annex 2. Turkish Language Version of **"**Green Organizational Climate Scale"

YEŞİL ÖRGÜT İKLİMİ ÖLÇEĞİ Aşağıdaki ifadeler için çalıştığınız örgütün mevcut durumunu yansıtan kutucuğu işaretleyiniz. Çalıştığım örgütte,	
Yeşil Ekonomik İklim	
1	Fotoselli lambalar ve/veya musluklar kullanılır.
2	Enerji tasarruflu ampuller kullanılır.
3	Ortam ısısının manuel ayarlanması (örneğin sıcak olduğunda kapatma imkânı) mümkündür.
4	Girdilerin (örneğin temizlik için kullanılan sabun, deterjan gibi ürünlerin) tedarik edilmesinde çevre dostu ürünlerin tercihine önem verilir.
5	Çevre dostu (hibrit, elektrikli gibi) araçların kullanımı tercih edilir.
6	Yenilenebilir enerji (örneğin güneş enerjisi gibi) kullanılır veya kullanımı düşünülmektedir.
Yeşil Sosyal İklim	
7	Toplu taşıma araçlarının kullanımı teşvik edilir (örneğin ücretsiz otobüs, tramvay, metrobüs kartı vermek ya da personel servis aracı imkânı sunmak gibi).
8	Çevre kulüplerine/derneklerine üyelik özendirilir ve/veya bu tür organizasyonlara destek verilir.
9	Kâğıt, cam, metal, plastik, şişe, pil vb. atık maddelerin geri dönüşüm kutularında ayrıştırılması sağlanır.
10	Artan yemekler/gıda ürünleri çöpe atılmaz.
11	Mümkün olan yerlerde ağaçlandırma ve (saksıda bitki yetiştirme, fidan dikimi gibi) yeşillendirme çalışmaları yapılır.
Yeşil Dijital İklim	
12	Örgüt içi iletişimde dijital ortamlar (elektronik yazışma veya e-mailler gibi) kullanılır.
13	Personel takipleri (giriş, çıkış, izin, tatil vb.) elektronik ortamda yapılır.
14	E-arşiv, e-fatura veya e-imza sistemi kullanılır.
15	Tanıtımlarda broşür gibi kâğıt türevi materyaller yerine, internet ve elektronik tabanlı materyaller kullanılır.
Yeşil Bürokratik İklim	
16	Çalışanlara yönelik çevre dostu programlar düzenlenir (örneğin çevre konusunda eğitimler gibi).
17	Yazılı bir çıktı gerektiğinde, müsvedde kâğıt kullanımı özendirilir.
18	Tütün ve tütün ürünlerinin kullanımı yasaktır.
19	Çevre konusundaki hassasiyeti hatırlatan (örneğin elektrik veya suyun tasarruflu kullanımına yönelik) en azından bir tane uyarıcı (bilgilendirici levha veya yazı vb.) vardır.
20	Çevre dostu davranışlar sergileyen personellerin çalıştırılması tercih edilir.
21	Arşiv belgeleri, yasal bekleme süresi tamamlanınca geri dönüşüme gönderilir.

Önerilen Katılım Düzeyi Derecelendirmesi: (5) Kesinlikle Katılıyorum, (4) Katılıyorum, (3) Kararsızım, (2) Katılmıyorum, (1) Kesinlikle Katılmıyorum

Not: Yeşil Örgüt İklimi Ölçeğinin, akademik araştırmalarda kullanımı için (bilimsel niteliklere uygun atıfta bulunmak kaydıyla) yazarından izin alınmasına gerek bulunmamaktadır.

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The Effects of Managers' Strategic Behaviors on Motivation at Workplace in a Chaotic Environment

Yunus Emre TAŞGİT[1], Tuğba ÇİÇEK[2], Mert YILDIRIM[3], Birol COŞKUN[4]

ABSTRACT

This research aims to study the influences of strategic behaviors preferred by managers on motivation at workplace in a chaotic environment. In this context, first of all, the strategic behavior characteristics of the managers were determined by considering the characteristics of the chaotic environment and then they were associated with the motivational situations. Quantitative method was used in the research and the data were obtained via face to face and e-mail survey method. According to the results of the research, managers prefer more strategic behaviors related to creating alliances in a chaotic environment. Strategic behaviors that have the highest impact on motivation in the workplace are the using power sources and creating alliance. However, if a more holistic assessment is to be made, it seems that in chaotic environments, managers prefer to create alliances as a strategic behavior to reduce the impact of negative external conditions on internal dynamics or increase resistance. And this behavior not only prevents the negative effects of the chaotic environment, but also makes an important contribution to the continuity of the motivational conditions in the workplace.

Keywords: Chaotic Environment, Strategic Behavior, Keeping Position, Using Power Sources, Creating Alliance, Motivation at Workplace.

JEL Classification Codes: M10, M12.

INTRODUCTION

Firms that regulate their structural relations according to the open system understanding are necessarily dependent on some conditions. One of these conditions is the business environment characteristics in which they are carrying out their activities (Burns & Stalker, 1961). In this environment, the multiplicity and frequency of change and the predictability of factors with a high potential to influence business behavior directly affect the success of businesses. At the same time, the characteristics of the conditions are considered as an important determinant of performance (Emery & Trist, 1965).

On the other hand, although the importance level of each of the factors affecting motivation in the workplace varies according to the time and the characteristics of conditions, one of the issues that draw attention in the discussions is related to the effect of the manager behaviors who shown as one of the most important responsible of the firm results. Especially in an environment where business environment conditions have chaotic features, how managers' strategic behaviors will influence on employee motivation is considered as an interesting and not to be ignored. Therefore, the problematic of this research is to determine which strategic behaviors managers prefer in the chaos environment and how these behaviors reflect to motivation in the workplace. With the solution of this problem, it is expected that the research will make significant and original contributions to the literature and practice. In this context, the research, examining the effect of strategic behaviors on motivation in chaotic environments, provides findings on causality and mediation roles to the literature, while also sharing exploratory and confirmatory findings with the literature in terms of the analysis techniques used. On the other hand, because the research offers guiding findings to managers on strategic behaviors to

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motivate employees in chaotic environments, it points to important administrative clues for implementation.

The research was designed methodically as a relational screening model to examine the following topics: the characteristics of the chaotic environment; the strategic behaviors of the managers such as keeping the position, creating alliances with others and using power source; and motivational situations in the workplace.

LITERATURE REVIEW

Chaotic Environment

Chaos as a system, it includes an open, uncontrollable situation against random shocks of external influences (Gleick, 1995: 358), a behavior that is sensitive to the initial condition in which it occurs (Mann, 1992: 58), an unpredictable and non-periodic process (Singh & Singh, 2002: 23). Chaos theory, whose basic idea is shocking, does not refer to anarchy or randomness, but rather to an order that is difficult to see and is considered as the result of asymmetric information. What chaos implies is a kind of natural uncertainty. It is even argued that chaos represents the compromise of freewill and determinism (Cartwright, 1991: 44-45). Chaos theory is discussed as a suitable model for creating a strategy in a combination of instability and unbalanced order in today's rapidly changing business environment (Bechtold, 1997: 194). It is applied in many social sciences fields such as economics, sociology, political science, organizational studies (Sellnow et al., 2002: 271). While the rational approach claims that decision making can be achieved successfully with the existence of complete and accurate information, chaos theory suggests that such a situation is very difficult / unavailable. Therefore, this approach changes the reference conditions of decision making in managerial sense and points out the manager's main role in learning the unbalanced conditions required for the new strategic management (Hayward & Preston, 1999: 180). The most important reason why behavior is unpredictable in a chaotic system is that all factors that play a role in behavior can never be fully defined (Kauffman, 1996: 115). Also, since all the elements of the system contain chaotic features, it takes a long time to create a new order (Kiel & Elliot, 1996: 2), and long-term forecasting becomes very difficult with the increase in the actors number in the system and the expected projection time extending (Mann, 1992: 64).

Strategic Behaviors

In the managerial sense, the emergence of behavior is associated with group dynamics (Aldag & Fuller, 1993: 533). Considering the role of the managers in the organization, the obligations to direct the change and adapt to the change take the managers' behavior to a strategic point in achieving individual and organizational goals (Salaman & Butler, 1990; Walecka, 2016). Strategic behavior addresses the behaviors that the managers put forward in accordance with the expectations and goals of the organization, and refers to decision making that defines the direct link between the behavior of one and the others, usually taking into account the actions and reactions of others (Luo, Yu, Lu, & Van, 2012). Schelling (1960) defines the strategic behavior as the action that affects the opponent's choice and expectations about your behavior in the desired direction. If a move or action by A changes the expectations of B about how A behaves, and as a result B's behavior appropriate A, the situation that arises describes the strategic behavior (Church & Ware, 2000). According to Schelling (1960), strategic behavior emerges in the form of threats and promises that show the punishment and reward given to the other/opponent when acted/not acted upon, and commitments that express determination to demonstrate whether these threats or promises are reliable. While researchers were examining sectoral applications, observed that managers take into account many different issues related to the internal and external environment while displaying of strategic behavior. Among these topics, three critical issues that are thought to constitute the main axis of the strategic behavior in the internal environment in terms of research scope have been the focus of this research. The first of these is that managers use power sources to keep their employees together in a chaos environment; the second one is the reflexes that the managers display in order to protect their positions; finally create alliances to involve the others in the game.

Using Power Sources

It is strategically imperative for managers to keep others in a position tied to them in order to achieve pre-determined goals (Naeemullah et al. 2010: 189). For this, the manager must achieve and maintain consensus with the employees in terms of purpose and action (Breen et al., 2005: 216). According to Yukl & Falbe (1991: 416), executives use various power sources to provide unity (togetherness) and achieve commitment from others to unusual requests that require initiative and extra effort. French and Raven (1959) divide the power resources used by the managers into five groups: reward, expertise, coercive, legal and charismatic power. While the reward power expresses that managers direct their employees' behavior towards the target desired to be achieved

by offering concrete or intangible awards; the legal power arises from the rights that the manager's position gives him (Aguinis, Simonsen & Pierce, 1998: 456). The coercive power, on the other hand, represents the fact that managers affect the employees by material and moral, threats and punishments. When using personal skills, knowledge and expertise to influence others demonstrate the expertise power; managers' personal traits inspire their employees and set an example define the charismatic power (Lunenburg, 2012: 3). The use of these power sources by the manager has strategic importance in terms of in terms of potential to influence the behavior of an individual or group in the desired direction (Luthans, 1989). Therefore, it is essential for the manager strategically to know and direct which power elements will be effective in the organization (Raven, 2008).

Keeping Position

The positional reflexes that managers display as a strategic behavior to keep their position are among the critical issues of organizational policy. According to Bozeman et al. (2001: 486), managers exhibit such constructive or destructive reflexes in order to achieve positive results or avoid negative results as a result of competition with others. For example; as a constructive reflex, managers can apply to impression management by using their images to generate the desired perception in the others' minds with various tactics (Harris et al., 2007: 278), and in order to create an impact on individuals, it can engage in coalition-oriented behaviors with impact groups within the organization (Kipnis, Schmidt, & Wilkinson, 1980: 443), or they can use the rationalization mechanism to provide logical propositions/arguments and real evidences to demonstrate the effectiveness of their request on feasibility and to persuade others (Yukl & Falbe, 1990: 133). In addition, the managers can promise to share some of the benefits by implying a value that may be subject to exchange, if the willingness is specified in response to the change to be proposed and helping to fulfill the task (Yukl & Falbe, 1990: 133; 1992: 526). As a destructive reflex, when an undesirable situation arises, managers can display attitudes like being in a tendency to blame others by exerting pressure and finding someone to load the error; attempting to prevent the opposing individual's efforts and actions towards reaching the target; and using administrative authority/ possibilities against the opposition (Kipnis, Schmidt & Wilkinson, 1980: 447).

Creating Alliance

Managers carry out various strategic alliance actions to involve others in the game and to survive in a chaotic environment. Strategic alliances, which have become an important competitive weapon for executives who aim to pursue mutual strategic goals and to realize common collaborative arrangements, require more access to others' valuable resources and persuade them to use the resources together. Resources owned by the parties lay the groundwork for alliances (Das & Teng, 2000: 33). Alliances, which are used as the most inexpensive way to obtain new resources, offer partners the opportunity to benefit from their complementary resources to create competitive advantage, improve or reshape existing processes (Wernerfelt, 1984; Huang, Tzeng & Ong, 2005). Because of the alliances that are offered as an important alternative to managers, they gain a critical advantage in achieving works that cannot be achieved alone if they work separately (Gebrekidan & Awuah, 2002: 680), both to increase resource diversity and to form a union of forces by adding the opponent to his side. In addition to preventing others from threatening; they can create synergies by using their skills and knowledge (Doz & Hamel, 1999: 4-5). The alliances realized provide the opportunity for one partner to internalize another's skills; it can improve its position both in the alliance and in its activities (Hamel, 1991) and can offer unique learning opportunities for both parties (Inkpen, 1998: 69).

Motivation at Workplace

Changing the existing order and conditions in the organization can also cause some effects on the motivation of employees (Elias, 2009: 39). Motivation, which is considered as a process to influence the behavior of individuals to achieve a job, comes to the forefront as some practices that increase performance at workplace (Jonnathan & Serans, 1992: 365). Motivation can also be defined as the process in which the individual is encouraged to take action by creating a work environment that will satisfy the needs of both the employees and the organization (Ganta, 2014: 222). Motivation is a concept that emerges when a person is motivated to fulfill a specific task or act in a certain way, and can vary according to its level, intensity or direction (Perryer et al., 2016: 328). Motivation level in the workplace has a direct effect on employee productivity. Employees, motivated and excited about their jobs, use their talents in the best way and fulfill their responsibilities (Ganta, 2014: 221-223). In this context, it is critical to develop policies that motivate employees and management practices that support organizational success, and to ensure individual-

business-organization harmony (Kanfer et al., 2017: 338). The presence of a motivating working environment in organizations is directly reflected in the personal development and performance of the employees (Hagemann, 1997: 24). Highly motivated employees who willingly strive towards a common purpose (McShane & Von Glinow, 2017: 87) will be an important advantage for an organization to outperform its competitors (Wagner & Hollenbeck, 2010: 81). Likewise, in a workplace where employee complaints and demands are taken into consideration, organizational compliance of employees will increase and this will positively affect the corporate results (Hanks, 1999: 114) and will naturally result in job satisfaction (Lai & Chang, 2010: 455). In addition, working in a business environment that they believe will be supported in all conditions will help employees to increase their motivation and focus on corporate goals by removing their anxiety situations about job security (Lai & Chang, 2010: 455).

METHODOLOGY

Research Population and Sample

Quantitative method was preferred in the research. The data were collected by questionnaire form. Firm lists, at the official web pages of Düzce Chamber of Commerce and Industry, were used to determine which businesses and managers involving in the research population. In this context, based on this list, companies and managers who could participate in the research were determined. And after a total of 1627 managers were determined as the research universe, the number of samples was clarified according to Sekeran's (2003) sample determination formulation. The number of samples calculated considering this formulation is 310. In this direction, a questionnaire form was sent to 350 randomly selected managers among 1627 managers. 326 of the questionnaires were answered and 319 were found suitable for analysis.

Measuring Tools

Based on the preliminary studies in the literature such as Chaotic Environment (Mann, 1992; Gleick, 1995, etc.), Strategic Behaviors (Yukl and Falbe, 1991; Das and Teng, 2000, etc.), Motivation at Workplace (Hanks, 1999; Kanfer, Frese, and Johnson, 2017, etc.) measurement tools were developed and examined by 3 professors in the field of strategic management. Some arrangements were made for the suggestions of the experts and their approvals were obtained. Then, an interview was held with 10 managers on the intelligibility of the measurement tools and the tools were finalized. The questionnaire form was designed as 2 parts. In the first part, questions about the demographic characteristics of the participants were included. In the second part, there were 25 statements regarding the perceptions of the participants about the Chaotic Environment (5), Strategic Behavior (13) and Motivation at Workplace (7).

Data Collection and Analysis

In the collection of research data, 3 survey methods, both e-mail, postal and face-to-face, were used together. First of all, the questionnaire form was sent by e-mail to all managers in the research universe, whose contact information can be accessed.326 of these managers returned as suitable for answering the survey. Data were collected over a period of about 2 months (December-January). A total of 326 questionnaires were obtained at the end of a 2-month research period.42 of them are face-to-face surveys and 284 are via e-mail.7 questionnaires were excluded from the dataset because they were problematic in terms of content. Analyzes were carried out on 319 questionnaires. In the study, SPSS was used in data set analysis for exploratory analysis (Descriptive Statistics, Exploratory Factor Analysis, Correlation and Reliability Test) and LISREL program was used for confirmatory analysis (Confirmatory Factor Analysis (CFA) and Path Analysis).

Model and Hypotheses of the Research

The research model was inspired by the findings of the studies in the literature and the observation of the researcher related to business practices. Details are presented in Figure 1.

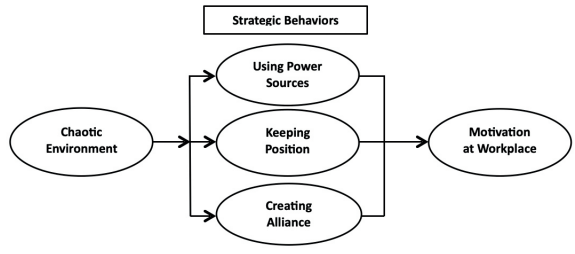

Figure 1. The Research Model

In the research model, there are 3 basic variables and three sub-dimensions. While the chaotic environment, motivation at workplace and strategic behaviors represent the main variables; the using power sources, keeping position and creating alliances are also included as sub-dimensions of the strategic behavior variable in the research model. Six hypotheses were created to

Table 1. Exploratory Factor Analysis

Factors	Items	KMO	Bartlett's Test	Extraction Method	Rotation Method	Explained Variance	Eigen values
Chaotic Environment	5	,847	,000	Principal Component Analysis	Varimax	62,614	3,131
Keeping Position	5					25,967	5,732
Using Power Sources	4	,888	,000			20,906	1,448
Creating Alliance	4					18,055	1,221
Motivation at Workplace	4	,837	,000			74,713	2,989

test the theoretical model (Figure 1) that examines the relationships between chaotic environment, strategic behaviors, and motivation variables in the workplace. In reviewing the literature, it is seen that each of the hypothesis in the research model, specifically, has not been tested previously. Hence, the hypotheses of the study were developed by taking into account the properties of the variables in the model and, indirect and general relations in the literature. For example in a chaotic environment there are conditions such as the high number of uncontrollable situations (Gleick, 1995: 358), unpredictable and non-periodic processes (Singh & Singh, 2002: 23), lack of incomplete information between the parties (Cartwright, 1991: 44-45), indecision being very dominant (Bechtold, 1997: 194) and that it's almost impossible to get the actor's behavior right (Kauffman, 1996: 115). These conditions usually make it difficult for managers to fulfill their functions in two ways. The first is to be able to make accurate analysis of changing conditions. Second, to provide motivation within the organization to react effectively and in a timely manner to changing conditions. Findings in the literature generally show that changes and uncertainties in chaotic processes can cause a decrease in motivation of employees (Reichers, Wanous and Austin, 1997: 49). Therefore, managers must take on a number of different roles and act strategically in order to manage such processes successfully. Different typologies on strategic behavior are discussed in the literature. Behavioral tendencies such as forming various alliances to increase risk sharing and resilience, maintaining managerial position to ensure determination in actions, and using power to fight more effectively can be evaluated within the scope of these strategic behavioral typologies. These behaviors are very important both to make the organization successful from this critical process and to reveal a strong manager profile. In this context, the research hypotheses were created as follows;

$H1_{a\text{-}b\text{-}c:}$ Chaotic Environment (CE) has a positive effect on a) Using Power Source (UPS), b) Keeping Position (KP) and c) Creating Alliance (CA).

$H2_{a\text{-}b\text{-}c}$: a) Using Power Source (UPS), b) Keeping Position (KP) and c) Creating Alliance (CA) has a positive effect on motivation at work.

FINDINGS

This study was carried out on a sample group in which male and female manager ratios are close to each other (55.5% male, 44.5% female), mostly over the age of 35, mostly undergraduate (63.3%). They have 6 years or more of managerial experience and, in terms of position, they are mostly in the middle management level (77.1%). The enterprises that the managers work with continue their activities in different sectors (the main ones: textile, food and construction). These businesses position themselves more as a follower (56.1%). They consider them as experienced companies that have a strict business environment analysis and have an operating history of 16 years or more.

The results of the exploratory factor analysis, determining the structural validity of the variables included in the research model are shown in Table 1.

The findings in table 1 show that the KMO and Bartlett test values of the data subjected to factor analysis to determine dimensions related to chaotic environment, strategic behavior and motivation in the workplace

Table 2. Descriptive Statistics and Correlation Analysis

Variables	Mean	Std. Dev.	Skew.	Kurto.	α	CE	KP	CA	UPS
Chaotic Environment (CE)	4,1273	,73594	-,967	,343	,850	1			
Keeping Position(KP)	3,4313	,94491	-,264	-,607	,883	,447**	1		
Creating Alliance (CA)	3,9498	,71501	-,964	1,577	,828	,426**	,604**	1	
Using Power Sources (UPS)	4,0572	,61049	-,312	-,073	,716	,415**	,462**	,461**	1
Motivation at Workplace (MOT)	3,7563	,79451	-,762	1,024	,881	,276**	,371**	,394**	,359**

**. Correlation is significant at the 0.01 level (2-tailed).

are acceptable. According to the findings of principal components analysis and varimax rotation technique, expressions showing low communalities (below 0.45) 2 items from the chaotic environment dimension, 3 items from the strategic behavior dimensions and 1 item from the workplace motivation dimension were removed from the structure. It is seen that the explained variance rates for each variable are quite sufficient for social sciences. In terms of Eigenvalues, the chaotic environment, position retention and motivation at work score high, while the power using and creating alliance is above the threshold. The factor load values of the items in the chaotic environment dimension are between 0.855 and 0.714, in the keeping position dimension are between 0.853 and 0.522, in the using power sources dimension are between 0.850 and 0.621, in the creating alliance dimension are values are between 0.769 and 0.630, and in the workplace motivation dimension range between 0.907 and 0.775. This closeness between the factor load values indicates that the internal consistency of the factors is good.

After exploratory factor analysis, descriptive statistics, reliability coefficients and correlation analysis results were examined for the variables. Relevant details are presented in table 2.

According to descriptive statistics at table 2, the participant managers perceive current business environment conditions as chaotic ($\overline{X}$: 4,1273) and prefer more using power sources ($\overline{X}$: 4.0572) and creating alliances ($\overline{X}$: 3.9498) as strategic behaviors. The motivation level at work ($\overline{X}$: 3.7563) is medium. Skewness and Kurtosis values are within the accepted limits in the literature (in the range of -1 and +1). At the same time, the reliability coefficients of all variables are acceptable level ($\alpha > 0.60$) (Nunnally, 1978). These show that the measurements obtained are reliable and meet the basic assumption for correlation and effect tests.

Correlation analysis findings show that there is a moderately positive and significant relationship between managers' perception of chaoticness towards the business environment and their strategic behaviors.

Table 3. Confirmatory Factor Analysis

Factors	χ^2	df	NNFI	CFI	GFI	AGFI	RMSEA	SRMR
Chaotic Environment	13,99	5	0,98	0,99	0,98	0,95	0,07	0,02
Keeping Position	2,93	2	1.00	1.00	1.00	0.98	0.03	0.01
Using Power Sources	2.85	2	1.00	1.00	1.00	0.98	0.03	0.01
Creating Alliance	5.34	2	0.97	0.99	0.99	0.96	0.07	0.02
Motivation at Workplace	3.45	2	0.99	1	0,99	0.97	0,04	0,01

Table 4. Chaotic Environment-Strategic Behaviors Dual Models Path Analysis

Models		χ^2	df	NNFI	CFI	GFI	AGFI	RMSEA	SRMR
CE	**KP**	93,49	26	0.96	0.97	0.94	0.90	0.08	0.07
CE	**UPS**	54.14	26	0.98	0.99	0.96	0.94	0.05	0.04
CE	**CA**	56.76	26	0.98	0.98	0.96	0.94	0.05	0.03

CE (Chaotic Environment), KP (Keeping Position), UPS (Using Power Sources), CA (Creating Alliance)

It seems that the strategic behavior most associated with the chaotic environment is keeping position. This is followed by creating alliance and using power sources. On the other hand, there is a moderately positive and significant relationship between strategic behaviors and motivation at workplace. Strategic behavior associated with motivation in the workplace at the highest level is creating alliance. This is followed by keeping position and using power sources.

After the exploratory analysis of the variables in the research model, confirmatory measurement models were produced to test the structural validity. The goodness of fit scores related to the models are shown in Table 3. The number of goodness of fit indices discussed in the literature is quite high, and none of them is sufficient on its own, it should be evaluated together with the others. The goodness of fit indices explain the model-to-data fit and generally categorized into two groups: Absolute fit indices, Incremental fit indices (Hooper and et al., 2008). In this study, five tests were used for absolute fit measures: Relative/ normed Chi-square (χ2/df) test, RMSEA, GFI, AGFI, RMR and for incremental fit measures: the comparative fit index (CFI) and the Non-Normed Fit Index (NNFI).

The findings in table 3 show that the scores regarding the chaotic environment, strategic behaviors and motivation models in the workplace are at an acceptable and good level of compliance in terms of the goodness of fit criteria considered. The chaotic environment model has an acceptable level of fit in terms of RMSEA and (χ2/df) test results, and good fit in terms of NNFI, CFI, GFI, AGFI and SRMR scores. Strategic behaviors related model consists of 3 dimensions (Keeping Position, Using Power Sources, Creating Alliance). Among these dimensions, it is seen that the dimension that best represents business strategic behaviors is using power sources (r2 = 0.71). This is followed respectively by keeping position (r2 = 0.63) and creating alliances (r2 = 0.47). While the using power sources and the keeping position models have a good level of fit in terms of all the goodness of fit criteria, the creating alliance model has acceptable compliance scores in terms of RMSEA and (χ2 / df) test results, and good fit in terms of other criteria. The motivation model in the workplace, on the other hand, produced scores at the level of good in all the criteria for good fit. For example, the ratio of chi-square value to degrees of freedom is less than 2, and this is an indicator of a good fit. Likewise, RMSEA, NNFI, CFI, GFI, AGFI and SRMR values also show a good fit. Therefore, all models can be accepted without modification. These findings show that the conceptual models developed for managers' perception of chaotic environment, types of strategic behavior and motivation in the workplace are valid.

After the confirmatory factor analysis, Path analysis was carried out to determine the correlation between the variables in the model and to evaluate the causal effect. Standardized regression coefficients were used to interpret the coefficients. Regarding the variables included in the research model, firstly direct effect models (dual models: tables 4 and 5) and then indirect and total effect models (triple models: tables 6) were evaluated. In this context, models that best explain the conceptual concept in the research model are interpreted. Details on model structures and goodness of fit criteria values are presented below. Firstly, the effect of chaotic environment on managers' strategic behaviors is examined. Path analysis findings are presented in Table 4.

The findings in table 4 show that the models produced poor fit for some criteria and acceptable and good fit for some criteria. The model that produces the best fit good values is the chaotic environment-creating alliance model (CE-CA). When considered specifically, the chaotic environment-keeping position (CE-KP) model has poor fit scores in terms of (χ2/df) test results, acceptable fit in terms of RMSEA, NNFI, CFI, GFI, AGFI and SRMR scores. Chaotic environment-using power sources (CE-UPS) and chaotic environment-

Table 5. Strategic Behaviors- Motivation at Workplace Dual Models-Path Analysis

Models		χ^2	df	NNFI	CFI	GFI	AGFI	RMSEA	SRMR
KP	**MOT**	57,05	19	0.97	0.98	0.96	0.92	0.07	0.06
UPS	**MOT**	32.74	19	0.99	0.99	0.97	0.95	0.04	0.03
CA	**MOT**	29.00	19	0.99	0.99	0.98	0.96	0.04	0.03

KP (Keeping Position), UPS (Using Power Sources), CA (Creating Alliance), MOT (Motivation at Workplace)

creating alliance (CE-CA) models have acceptable fit in terms of RMSEA, NNFI and (χ2/df) test results, and good fit in terms of CFI, GFI, AGFI and SRMR scores. Models were accepted without modification as they produced sufficient acceptable / good values. The highest level of significant relationship and effect between the models was found in the chaotic environment and creating alliance model (r2=0.27). On the other hand, the same level of significant relationship and effect was determined between the chaotic environment and keeping position (r2=0.23) and power using (r2=0.23) models. Within the framework of these findings, in the research model; "H1a-b-c: Chaotic Environment (CE) has a positive effect on a) Using Power Sources (UPS), b) Keeping Position (KP) and c) Creating Alliance (CA)" hypotheses were accepted.

Secondly, within the scope of dual models for direct effect, the effects of managers' strategic behaviors on motivation conditions at work were examined. Findings obtained as a result of the path analysis are shown in Table 5.

When the scores of the models in Table 5 are examined, it is seen that all models produce acceptable and good level of fit results in terms of goodness of fit criteria. The model that produces the best goodness of fit among models is the creating alliance-motivation at workplace model (CA-MOT). When evaluated specifically, the keeping position- motivation at workplace model has acceptable compliance scores in terms of (χ2/df) test results, RMSEA and SRMR scores, and has good level of compliance scores in terms of NNFI, CFI, GFI, AGFI scores. The using power sources-motivation at workplace and the creating alliance-motivation at workplace models have a good level of fit in terms of all goodness of fit criteria; (χ2/df) test, NNFI, CFI, GFI, AGFI, RMSEA and SRMR scores. Models were accepted without modification as they produced sufficient acceptable/good values. The highest level of significant relationship and effect among the models was found in the using power sources-motivation in the workplace model (r2=0.22). This is followed respectively by the creating alliance-motivation in the workplace model (r2=0.19) and the keeping position-motivation in the workplace model (r2=0.15). Within the framework of these findings, in the research model; "H2a-b-c: a) Using Power Sources (UPS), b) Keeping Position (KP) and c) Creating Alliance (CA) has a positive effect on motivation at work" hypotheses were accepted.

After the dual model studies, indirect and total effect models (triple models) related to the chaotic environment, strategic behaviors and motivation in the workplace were evaluated. Findings obtained in the path analysis are shown in Table 6.

When the scores of the models in Table 6 are examined, it is seen that the model that produces the best goodness of fit values is the chaotic environment-creating alliance-motivation in the workplace model, although other models produce acceptable goodness of fit results. The model produced scores at a good fit

Table 6. Triple Models-Path Analysis

Models			χ2	df	NNFI	CFI	GFI	AGFI	RMSEA	SRMR
CE	**KP**	**MOT**	191,62	63	0.96	0.97	0.92	0.88	0.08	0.08
CE	**UPS**	**MOT**	130.92	63	0.98	0.98	0.94	0.91	0.05	0.05
CE	**CA**	**MOT**	127.59	63	0.97	0.98	0.94	0.92	0.05	0.05

CE (Chaotic Environment), KP (Keeping Position), UPS (Using Power Sources), CA (Creating Alliance),MOT (Motivation at Workplace)

level in terms of all goodness of fit criteria. Likewise, the chaotic environment-using power sources-motivation in the workplace model also has a good fit in terms of NNFI, CFI, GFI, AGFI, RMSEA and SRMR fit criteria scores, but only has an acceptable fit score in terms of (χ^2/df) test result. On the other hand, the chaotic environment-keeping position-motivation at workplace model falls outside the acceptable limits in the (χ2 / df) test, RMSEA and SRMR scores. Therefore, while the first two models produce quite acceptable/ good values in terms of all the goodness of fit criteria considered, some modifications are needed for the final model. In the light of these findings, it can be said that managers prefer strategic behaviors in the style of creating alliances in order to provide motivation within the organization in chaotic environments. However, the effect of using power source as a strategic behavior on motivation is remarkable. Behaviors to maintain position in chaotic environments are relatively ineffective on motivation.

DISCUSSION AND CONCLUSIONS

The results of the research mostly include the views of mid-level male and female managers with 6 years or more of management experience working in businesses that operate in different sectors (the main ones: textile, food and construction) and position themselves as followers.

The managers participating in the research perceive the business environments in which they operate as chaotic. Managers prefer three different strategic behaviors: keeping position, using power sources and creating alliance. Among these behaviors, using power sources and creating alliances are more preferred. Under current circumstances, motivation at the workplace is considered to be moderate.

There were two basic questions examined within the scope of the research: "What kind of strategic behaviors do managers prefer in chaotic environments? and Which of the strategic behaviors have more impact on motivation conditions in the workplace? Statistically significant answers were found to these questions. First of all, according to the dual model results showing the direct effect between the chaotic environment and strategic behaviors, the managers prefer strategic behaviors in the chaotic environment in the form of creating alliances. This result supports the existing information in the literature. The chaotic environment has some special conditions such as; large number of uncontrollable situations (Gleick, 1995: 358), unpredictable and non-periodic processes (Singh et al., 2002: 23), lack of incomplete information among the parties (Cartwright, 1991: 44-45), (Bechtold, 1997: 194) and almost impossible to fully understand the behavior of actors (Kauffman, 1996: 115). It is reasonable and appropriate that these conditions direct managers to act in creating alliance behaviors such as accessing valuable resources (Das and Teng, 2000: 33), preventing potential competitors from posing a threat, and creating a union of forces (Doz and Hamel, 1999: 4-5), and taking advantage of synergy (Gebrekidan and Awuah, 2002: 680). On the other hand, although it is not as strong as creating alliances, the chaotic environment forced managers to act in direction using power sources such as position power (Naeemullah et al., 2010: 189; Breen et al., 2005: 216), expertise power (Breen et al., 2005: 216) and reward power (Yukl and Falbe, 1991: 416). And it is understood that as a result of these behaviors, managers enable employees to create consensus and action unity and make extra effort. Likewise, at the point of minimizing the reflections of the effects of the chaotic environment on the organizational environment, it is observed that the managers also attempt some behaviors to maintain their position such as using the managerial image to influence others' thoughts (Harris, Kacmar, Zivnuska and Shaw, 2007: 278), actions to share the risk (Kipniset al., 1980: 443), making exchanges (Yukl and Falbe, 1990: 133; Yukl and Tracey, 1992: 526) and rationalizing the events (Yukl and Falbe, 1990: 133).

Secondly, in the models between strategic behaviors and motivation in the workplace, it is seen that managers' strategic behaviors directly influence on motivational conditions. It has been determined that the strategic behavior that has the highest effect on motivation in the workplace is using power sources. Likewise, creating alliance is also very effective on motivation. Managers' behavior towards keeping their positions has a relatively low effect on motivation. The findings obtained are quite reasonable and will contribute to the discussions in the literature. That is, employees' lack of worries about job security (Lai and Chang, 2010: 455), which is one of the conditions that provide motivation in the workplace, can be associated with the managers to provide a unity of ideas and action by using their position and expertise power (Naeemullah et al., 2010: 189; Breen et al., 2005: 216). Likewise, the tendency of employees' satisfaction levels to increase and no significant

increase in their complaints (Hanks, 1999: 114), their willingness to continue their efforts towards corporate goals (McShane and Von Glinow, 2017: 87) may be a reflection of some behaviors of managers such as collaborating (Doz and Hamel, 1999: 4-5) and taking advantage of synergy (Gebrekidan and Awuah, 2002: 680) that are related to creating alliances and using the reward power (Yukl and Falbe, 1991: 416).

The results of the triple models for the total effect carried out to provide a holistic perspective to the research subject are also very interesting. In the triple models produced, it is seen that the strategic behaviors of creating alliances and using power sources are solving the research problem, as in the dual models. However, it seems that in chaotic environments, managers prefer strategic behaviors to create alliances to reduce the impact of negative external conditions on internal dynamics or to increase resistance. And this behavior, in addition to preventing the negative effects of the chaotic environment, contributes significantly to the continuity of motivational conditions in the workplace. From the point of view of the managers, such alliance-oriented behaviors exhibited almost the role of a savior in an environment where there is chaos. In terms of employees, negative reflections such as stress and anxiety created by the chaotic environment on employees can be reduced with the alliances provided.

Ultimately, managers try to perform their management activities in a chaotic environment dominated by uncertainty and unpredictable conditions. In line with the findings obtained, it is recommended that managers benefit from alliances in order to prevent these difficult conditions from being a burden on the shoulders of employees and to eliminate possible threats. Similarly, the findings also indicate that managers should use their power resources. Because of the conditions that require extra effort, such as the chaotic environment, the manager needs the others and their commitment. In this direction, power sources can be preferred as an effective strategic behavior in order to reach a consensus of opinion and purpose and to direct the behaviors of individuals.

Since the research was carried out with business managers operating in various sectors, a homogeneous sample could not be selected. Different results can be revealed by choosing homogeneous samples in future studies. In addition, it can be evaluated whether the strategic behaviors of the managers who affect the workplace motivation in a chaotic environment differ according to the sector.

Finally, the research has some limitations. For example, a more comprehensive and multidimensional scale about the chaotic environment could not be created. A limited number of behaviors related to the strategic behavior of managers were examined. The diversity of behavior was unintentionally overlooked. An evaluation was made on a single dimension regarding motivation in the workplace. Nevertheless, significant results have been obtained for the literature within all these limitations. However, for critical information on the subject, subsequent research needs to be designed to eliminate these limitations.

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Transformation of the Institutional Political Economy of Japan: From Rice Field Property Reform to the Zaibatsu

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ABSTRACT

This article examines the evolution of the institutional political economy of Japan from feudal to modern times and conceptualizes the origins of the Zaibatsu[3] (financial clique of Japan) heritage, which has been around for centuries. The historical events were considered based on their impact on economic transformation while the methodology is based on the theoretical framework of institutional economics. In this way, the Japanese economy has been examined from a variety of angles within the contexts of the Edo Period, Meiji Reforms, and World Wars. We assert that there is a historical continuity between the rice field property reforms of the Edo Period and the success of the zaibatsu. The linkages between the state, business, and labor illuminate economic evolution of Japan, which is clearly stated throughout the research with regard to the material and nonmaterial components. As a result, while distinguishing itself from the enormous and present literature on the Japanese economy, this study stresses rice field reforms and their continued repercussions on the main institutions of Japan's economic miracle.

Keywords: Institutional Economics, Political Economy, Longue Durée, Development, Japan, Meiji Era, World Wars.

JEL Classification Codes: N00 · N01 · N15 · N25 · N70 · N85 · N95 · O25 · O38 · O53 · R58

INTRODUCTION

Japan is known for the ability to accommodate itself rapidly to new technologies and developments. In this way, Japan has become one of the greatest economic and technological powers in the world with politically oriented economic policies. From the beginning of the Meiji Restoration (1868-1912) to World War II (WWII), Japan was able to assort new economic developments with the help of the zaibatsu unexpectedly. The term zaibatsu refers to financial and industrial businesses of Japanese Empire whose dominance and scale allowed them to control large areas of the Japanese economy from the Meiji period to the end of WWII. A few attempts were undertaken to dissolve the power of zaibatsu during the American occupation following Japan's surrender in 1945. Yet, it is known that the new Japan has emerged from its legacy of the zaibatsu tradition (Addicott, 2017). The destruction of the manufacturing sector in the war did not restrain the economic and social development of Japan. This technological and economic leapfrogging of Japan was described as an economic miracle in the literature.

Yamada (2021) stated the theoretical clarification of the great economic development of Japan and underlined the importance of the political economy approach to Japanese modernization with a cite to Banno & Ōno (2010):

> *"...although a large body of literature on the Meiji Restoration already exists, the influence of the modernization paradigm and Marxism was strong in past studies, and its political process has not much been analyzed from the comparative perspective in relation to the political economy theories concerning developing economies. Only recently this under-charted sea has begun to be explored." (Yamada, 2021, p. 2).*

The political economy of Japan is conceptualized under the "Institutional Political Economy of Zaibatsu (IPEZ)" dedicated to this gap in the literature in this research paper. The IPEZ refers to seeking to develop a new conceptualization of Japan's political economy and it links the Tokugawa period (1603–1867) through to the present, with a particular focus on Meiji-era tax reform for rice paddies. The conceptualization is broadly

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[3] The term zaibatsu was used in the 19th century to refer to large family century to refer to a large family-controlled banking and industrial combines in Japan. One zaibatsu might operate companies in nearly all-important areas of economic activity.

institutional and draws on history, culture, and politics. Thus, the zaibatsu's institutionalization set the foundation for Japanese industrial prosperity. The success of the economic system, on which Japan laid the institutional foundations, can be an example, as countries are in search of new economic programs and models today.

In the second part of the paper, the institutional economics approach will be discussed and the relationship between economic development and institutions will be emphasized. In the third part, rice fields reforms in Feudal Japan will be discussed. The fourth part of the paper focuses on the Meiji Period. The development steps taken in the Meiji Period will be discussed in this part. The fifth part examines the reforms and transformation of the zaibatsu during the world wars. In this sense, the paper reveals the role of transformations in institutions in the historical process in the current economic situation of Japan in a broad and general sense.

INSTITUTIONAL ECONOMICS

Institutional economics concentrates on apprehension the function of the evolutionary action and the function of institutions in defining economic behavior. The widen study of institutions and scrutinizing of markets as a result of the complex interaction of these various institutions are being underlined mainly through these approaches (Samuels, 2008). As a put forth of the traditional theoreticians, institutions are not reduced to tastes, technology, and nature. Not only do societies' tastes, future expectations, habits, and historical motivations determine the nature of their economic institutions, and these institutions are constrained and shaped in this way (Malcolm, 2008, p. 374). The technological development and prosperity alone are insufficient to explain today's economic institutions for a country with developed institutions such as Japan. From a historical perspective, the characteristics of economic institutionalism and society's preferences that lie at the root of society are very important in explaining the economic institutions of today's Japan. Economic institutions have clearly positioned themselves for a progressive economy that is in sync with societal aspirations.

Some countries develop at a faster rate than others throughout history. The explanation behind this phenomenon is still one of the most significant topics in economics today. For example, Diamond (1997) claims that the geography can cause this difference and some countries are lucky to have suitable geography for developing (Diamond, 1997). According to Acemoglu and Robinson (2008), the economic and political development of a society or country is closely related to institutions (Acemoglu & Robinson, 2008). Now, there is a consensus on that institutions are the rule of games in society (North, 1990). The political and economic factors determined by the institutions of a country, shape performance directly or indirectly. Institutional alteration and the performance of adapting innovations determine how societies evolved in time. Therefore, understanding historical change in the institutions is the suggested point for starting.

Institutions played an active role in the development of countries and societies throughout history and they have been apparent in the countries and societies where the central state is more important and stronger. On the other side, human behaviors and culture are constituted devised constraints that affect the political, economic, and social structure. These are both formal and informal constraints. Codes of conduct, culture, customs, sanctions, taboos, and traditions belong to the group of informal constraints. Formal rules can be described as constitutions, laws, and property rights (North, 1991, p. 97). Because people depend on customs as much as they are rational, as claimed by modern economic theory. Therefore, contrary to what institutional economics claims, concepts such as liberalism, free market and democracy alone do not provide economic development. In other words, economic development can be achieved in countries where the rules are clearly defined and the authority is strong.

Bromley (1999) mentions six main sections for state's authority: (1) clear lines of authority and the division of responsibility among government units, (2) clarity and precision in legal rules, (3) mechanisms and processes for the protection of property rights, (4) procedures that offer stability and predictability, (5) a sense of fairness focused on law as a process rather than outcome, (6) accessibility of laws and regulations to the public.

Tabellini (2005) formulates the economic development process like Historical institutions => Culture => Economic development. It is very accurate that the economic miracle was closely related to Japanese social character. Japan is known as a mono-cultural society. Japan also is separated neighboring countries from its pre-modern feudal institutions and its modern economic miracle. Japan has its own original institutions and cultural structure that affects completely the economic, social, and political developments. Imperial tradition made Japan state-interventionist, unlike other developed countries. For example, the Japanese Empire has shown

outstanding development with the help of a powerful central government of the Meiji Era (Chalmers, 1987, p. 137). Like a late Mercantilist state, protectionism and government interference in certain economic areas were the determiners of Japan's great economic development (Akkemik, 2009; Niizeki, 2015, p. 61). Such imperial heritage and its traditions gave shape to the different forms of the trade market in Japan. These differences come from Japan's unique and mono-cultural structure. Japan has a homogeneous natural community, and this mono-racial state was accepted by government policies, intellectual establishment, and public consensus (McCormack, 2001, p. 1). The monocultural structure of Japan and monoracial status created convenience at identifying common goals. Japan's example demonstrates that a society's economic growth process is reasonably effective when its citizens have a common objective and successful economic outcomes may be attributed to appropriate institutional modifications. Japan has not resisted the requirement for change that has arisen throughout the course of history and has instead taken steps to maintain its own culture and values while being relevant to the modern day.

THE RICE FIELD REFORMS IN FEUDAL JAPAN

The Shogunate (bakufu-幕府) is one of the most prominent agents of Japanese economic and political history. It can be described as the dominator of lands and the hereditary military dictator of Japan from 1192 to 1867 (De Bary, Keene, Donald, Tanabe & Varley, 1983, p. 250). The central government was not able to collect taxes directly and rule all Japanese lands during the Shogunate times like other empires (Schubert, 2020). Japan's central government used local nobles and governors to take control of the country (Nakabayashi, 2009, p. 1). At the same time the local governors tried to avoid directly being ruled under the imperial government. Because, even if the Shogunates had wide powers, all Japanese lands belonged to the emperor. There was no property right about the land. Therefore, all taxes belonged to the central government indirectly (Steele, Paik & Tanaka, 2017, p. 357). Nonetheless, local leaders, the essential decision-makers of agricultural development, did not hold any residual claim over the rent from any piece of land. So that they did not have appropriate incentives to develop and manage paddy fields and farms. Thus, paddy fields and farms were naturally devastated and could not use effectively (Nakabayashi, 2009, p. 3). This devastation also shows the failure of economic development that only depends on agriculture.

All these reasons revealed the need of an institutional change in the understanding of administration in Japan around the middle of the 15th century. This new institutional search was end with the establishment of the manorial system (Reischauer, 1937, p. 78). All lands still belonged to the emperor in this new system. However, the taxes and other rental incomes were started to collect by intermediary agents. The new system encouraged local leaders to develop paddy lands and other farms. The samurai (侍) who was responsible for the security of paddy lands collected 9 litters of rice per 1,200 square meters of a field (Nakabayashi, 2009, p. 4). The production was raised with this new institutional logic. There was going to be a new transformation of the land system. The property rights started to be composed while the manorial system was getting worse, and the central government was losing its ruling power. As it said, no one had proprietary and heritage right under the former system. On the other hand, this method decreased the operation costs for collecting taxes for the state.

The Shogunate reigned from the 12th to the 19th centuries (De Bary et al., 1983, p. 417). This period is known also as the Feudal Period of Japan (Reischauer, 1989, p. 94). The military caste was at the top of the political hierarchy during this feudal period. The Imperial Dynasty was kept, and the emperor had been the titular head of the empire during that period (Aoki, 2008). Between these centuries, there were three rather effective feudal regimes. The last of these governments was the Tokugawa (1603–1867) and the main reforms were made under the Tokugawa management (Wolferen, 1989, p. 86-88). The central government gave the local lords the authority of ruling in their territories. There were about three hundred local authorities. The financial power of the empire depended on taxes that came from farmers. The feudal lords collected these agricultural taxes. The lords were under the central government, but they were independent on political and financial issues. However, the Tokugawa had faced some difficulties stemming from out of Japan (Duus, 1976). The Meiji Era began as a result of these changes, and Japan's tremendous transformation began. This system is also similar to the Ottoman *tımar* (fief) system[4]. But this is the subject of a different study.

TERRITORIAL INSTITUTIONALIZATION AND INDUSTRIALIZATION WITH THE MEIJI PERIOD

The Meiji period (1868-1912) brought about the rapid modernization of Japanese economic, political (Inoguchi, 2002, p. 113), and social institutions (Esenbel,

[4] The timar system is the land system that the Ottomans inherited from the Seljuks. Thanks to this system, while the tax system is being regulated, the needs of the state in terms of military personnel are also met.

2018, p. 9), which resulted in Japan's attaining the status of the leading country in Asia and a world economic and political power (Paine, 2017, p. 23). The Meiji government set up a central authorization, reformed the feudalistic system entirely, and benefited from the experience of prior times. The main aim was development and growth, and the fundamental transformation about the administration was arrangement at dividing the territories (Nakamura, 1966, p. 428-429). These territories were called hu (府), han (半), and ken (県). The central government managed important territories called hu. The less important lands were called ken. The local lords also managed the territories, called han. The central government tried to take control of these *han* territories, but local lords stood against the central authority in 1869. Finally, the central government took control, and these lords appointed as governors of their territories.

The local lords were responsible for collecting tax and other military issues at first, but after the centralization, the Meiji government transformed these territories as ken. The central authority started to appoint the governors. Therefore, there was a centralization in Japan in these years (Kitaoka, 2018, p. 7). As an administrative development, the government established the distribution systems consist of the cities, towns, and villages. Japan was divided into prefectures and then prefectures were subdivided into counties and cities. Counties were divided into towns and villages (Aoki, 2008) where the autonomy of prefectures is stronger. Thus, a system established for security and military purposes formed the basis of a long-term development period in economic terms.

As the main discussion of this paper, the novel system in Japan was formulated over the previous period. Old habits and their sense of rule did not exclude them while they have been constantly reforming. For example, the Meiji government took over the Tokugawa government tax system as the fiscal aspect (Beasley, 1960, p. 255; Bird, 1977, p. 166). Okazaki stated in a historical institutional analyzing work about the crucial role of the merchant coalition as (kabunakama - 株仲間); "*Economic growth in Japan started around 1790, before the Meiji Restoration. At the same time, public enforcement of contracts was poorly implemented*" (Okazaki, 2005, p. 198). However, the government needed some reforms to stabilize the revenue. The government stabilized the tax rate at three percent of the land price and started to collect it cashes in 1873 and gave a land certificate to every farmer to establish land ownership.

Moreover, the Meiji government also permitted freedom for her citizen to establish companies basically in any field. Capitalists were allowed to produce any product they like and to set the price freely for their products and merchandise as well as sell them in any place they like. Even foreign capitals were invited to invest in Japan, especially in the field of the electric industry. For where big companies like General Electric came to invest in this period (FEPC, 1972). In addition to this, Japan also sent attaches for observing the US and European countries' economies, education, laws, and systems. The attaches had a mission that gave the Japanese the opportunity to change and transform Japan and made foreign countries believe in the inability of Japan for achieving enlightenment (Keene, 2002, p. 207). It was a method followed in other states of this period as well. For example, the Ottomans also tried to transfer beneficial practices by sending attaches to Western countries during this period. That was, interestingly, the beginning of the IPEZ logic's evolution based on accumulated experiences. The adaptability of the Japanese economic philosophy facilitated the transition for society and the state. This resulted in higher production and growth (Table 1), and Japan was able to maximize the productivity of its workforce from 1886 to 1913 with the assistance of the enterprise booms during the time. In addition, the consistency and continuity in the growth and development are highly distinctive.

The lifetime employment attempted during this period was also quite successful. Ito & Weinstein (1996) claims that lifetime employment had a great effect on this high production. This lifetime employment also provides labor mobility along with sectors. Moreover, the educated and unionized labor force made private-sector firms' rationale for adapting economic conditions. The workers exposed to market competition and the big companies had to co-operate (Suzuki, 2000, p. 91)[5].

[5] Education is the main vector behind the qualified labor forces. Historical records of the Tokugawa and Meiji periods tell us that there were developments and reforms in education too (Kobayashi, 1965). High literacy rates of these periods provided human resources for development. However, following WWII, Japan faced a lack of human resources, and the experience of the education system in Japan closed the gap in a short time. Kimura (2009) stressed the quantitative growth of Japan's educational system until the 1970s, the illiteracy rate was quite low, and elementary and high school education was enough to give basic skills. The university admissions process was always competitive (Ito & Weinstein, 1996, p. 228). These are the primary characteristics of Japan's educational system, which delivered highly qualified people resources through compulsory schooling. This education also created a conscious working class. They established labor unions and started to make their demands accepted. They became energetic and committed to the job and wanted to work long hours with their new skills (Gordon, 2003, p. 249). And the zaibatsu and keiretsu were their state-sponsored and unwavering employers.

Table 1. GDP Growth Rates during the Industrial Revolution of Japan (1886-1913)

Terms	GDP Growth		GDP Year on Year Growth Rate		Per Capita GDP Growth		Rate of Population Increase (%)
	Nominal	Real	Nominal (%)	Real (%)	Nominal (%)	Real (%)	
Overall (1886-1913, average)	6,33	1,98	6,25	2,55	5,27	1,52	1
Mid Meiji (1886-1899, average)	2,89	1,55	7,13	3,4	6,31	2,54	0,9
Late Meiji (1900-1913, average)	2,1	1,3	5,37	1,69	4,23	0,51	1,2
First enterprise boom (1886-1889)	1,19	1,16	4,09	4,96	3,38	4,25	0,7
Second enterprise boom (1896-1899)	1,39	1,09	9,42	2,06	8,43	0,99	1,1
Third enterprise boom (1906-1909)	1,14	1,09	4,99	2,21	4,01	1,21	1

Source: *Compiled by the authors from Byoungki, 2006; Fukao & Settsu, 2021.*

The industrialization of a nation is more accurately described as a process than an event. Thus, it can be seen said that Japanese industrialization was a process that began in the late Edo Period and continued after WWII (Clawson, 1995). This era is known as the age of the industrial revolution for Japan (Table 1). Japan's economy shifts upward in this revolution era (Nakamura, 2015, pp. 26-27). This era provided capital accumulation for the years between 1909 and WWII and knowledge for an economic miracle after the war. As shown, the Meiji industrialization era served as a staging ground for the postwar economic miracle. Table 1 shows clearly that the Meiji Period and its reforms were behind the Japanese economic success (overall growth was 6.3%). In this period Japan was able to find a political agenda to collect knowledge from the West (Paine, 2017, p. 23) and use it for economic growth and development. As a result of such a well-planned transformation process, Meiji and its reforms laid the groundwork of the Japanese economical and unique development since the last quarter of the 19th century.

Kimura and Yamada found Japan's growth narrative remarkable because of its geographical position. Japan was able to escape from colonization and imperial activities (Yamada, 2021, p. 2-3) of the West. It started Meiji Restoration and established a modern nation-state. It took a long time to applied new reforms from the 1850s to 1910s (Kimura, 2009, p. 1). In addition, Japan began fast industrialization, modernization, and Westernization in social and economic life. Therefore, the capitalist mentality and structure penetrated and diffused in economic structure (Okazaki, 2005, p. 189). The entrepreneurs and capital owners developed in this period and became one of the main driving forces in Japanese economic welfare. At the same time, as part of their capitalist activity, members of the middle-class group tacitly and openly declared their differentiation from and superiority to other classes in terms of values, everyday habits, and technical expertise. In order to implement the policies and practices they saw essential to achieve the dual goals of national progress and self-empowerment, new groups of professionals tried to capture key sectors of public opinion and create coalitions with governmental institutions. Furthermore, this process determined not only the late Meiji era but also imperial Japan's whole history (Ambaras, 1998, p. 30).

The other important feature of this period is that Japan did not transfer only technology but also Western institutions (Yukichi, 1860; 1866). This institutional transformation in social and cultural values happened under the legacy of the isolation (sakoku-鎖国) strategy of the Tokugawa government until 1854 (Tunçoku, 2013, p. 11-12) and the suspicion of the conservationists of the Meiji Era Japanese. There were also other states that evolved in the same period as the Japanese Empire. For example, the Ottoman Empire used the comprehensive framework and concept of "the millet system"[6] (Aviv, 2016) to identify common goals for that multinational Sultanate. The Great Britain used commercial ideas and objectives for providing harmony between the state's

[6] The Millet System is the system in which the Ottomans, who ruled over a very wide geography, governed all religious, ethnic and cultural subgroups living in the country with tolerance.

goals and the expectations of the people. In this way, identification of all citizens' savings and industrialization culture was one of the most important factors that affected the development and increased efficiency of workers. The same situation applied in the Meiji era. The Meiji era transformed the Japanese people's everyday life. The methods of making farms even changed and transformed. The traditional land ownership system was altered, and the Japanese development stage was beginning to evolve into an industrious spirit by huge holdings (zaibatsu). Moreover, in this making a new civilization era, Japanese people were tending to make undesirable racial research to build a modern-nation-building (Morris-Suzuki, 2001, pp. 86-87), and they were faced with its tragic result in WWII.

WORLD WAR(S), REFORMS AND TRANSFORMATION OF ZAIBATSU

The triumph of the Russo-Japanese War (1904-1905) provided immediate confirmation of the Meiji restoration's enormous impact (Kazuo, 1966, p. 537). For the first time, an eastern power challenged western power, once Russia was defeated by Japan (Ringmar, 2019; Aydın, 2007, pp. 14-88–90). After this victory, Japan focused on the state-promoted development model which means the military-oriented war/defense industry at that time (Schiltz, 2012). This expansion in the industry brought need into raw materials. Thus, big loan debt had been one of the agendas of the Japanese Emperor. Meanwhile, the help of the Grand Strategy of Japan (Kösebalaban, 1998) that is being next to Hegemonic powers (in that time was Great Britain) gave a chance to take the helm of the colonies of Germany. Economic and industrial progress achieved in the interwar period will be the "know-how" of the post-war period. The large Japanese family companies (Mitsui, Sumitomo, etc.), whose owners were grandsons of the rice field landowners of the Tokugawa period, called zaibatsu were in the background of it (Nakamura & Morck, 2003, p. 6). Although there are similar companies in many countries, which make the Japanese economic model different from the others is that they have a story dating back to the Tokugawa Era. *"The merchant class, which happened to also be the lowliest and most frowned-upon social class in Tokugawa Japan, formed the backbone of the primitive economy that existed during the Edo period"* (Addicot, 2017, p. 3). Thus, this merchant class can be correlated with zaibatsu, which is historically backed and keeps these financial backbones strong in modern times. This proves the need for leading groups and companies for the development of countries.

As illustrated in Figure 1, there is a steady increase from 1890 to 1990 except the period of 1945-1950 (Kōsai & Goble, 1989), and this growth should be addressed in order to understand Japan's advancements in the context of the zaibatsu's institutionalization. As can be seen, the growth trend before the destruction caused by the war was caught again by Japan.

Throughout WWI, Japan's foreign and balance policies kept it out of devastating conflicts. The production facilities were transformed for military objectives before and during WWII while colonialism and industrialization policies coexisted. Despite its free enterprise and market economies, the Japanese government gained its influence and weight following the Great Depression which began in 1929 and continued until the late 1930s. Before and throughout WWII, it was a paradigm in which all vital sectors and industries were preserved under government control (Morley, 1971). The Japanese government again played a significant role in the change and growth of the economy, such as during the Meiji period. However, by the end of WWI, the country had developed into a significant colonial power, and the cost of keeping control over the captured lands had risen as well (Shizume, 2009).

The colonial expansion policy resulted in ultimate devastation and the production factors and other production mechanisms were destroyed by the atomic bombs and with other attacks during WWII. However, the Japanese economic miracle resurfaced shortly after WWII, and the country swiftly recover the economy. Despite of the heavy defeat of Japan, the allied forces did not avoid applying reforms (Reconstruction of Japan, 2010) in Japan after the war. Some of these reforms are outlined as follows; 1) anti-trust measures prevented collecting capital in the hands of a limited class, 2) land reforms protected middle-class rights, 3) labor democratization is provided by union law, 4) education system is emulated to the American system, 5) governmental reform made the status of the emperor as a symbol.

> *In the economic dimension, Japanese industrial power was weakened by the break-up of the zaibatsu (pre-war industrial conglomerates) which were at the economic heart of the war effort. Land reform was implemented in the countryside in order to destroy the feudal system of land tenure, creating a new stratum of small-time, land-owning farmers in its place. Social, educational and other reforms were carried out, as in the purging of militarist teachers and the revision of school textbooks that had been used to indoctrinate the youth into the militarist ethos and loyalty to the emperor and state" (Hook, Gilson, Hughes, & Dobson, 2011, p. 85).*

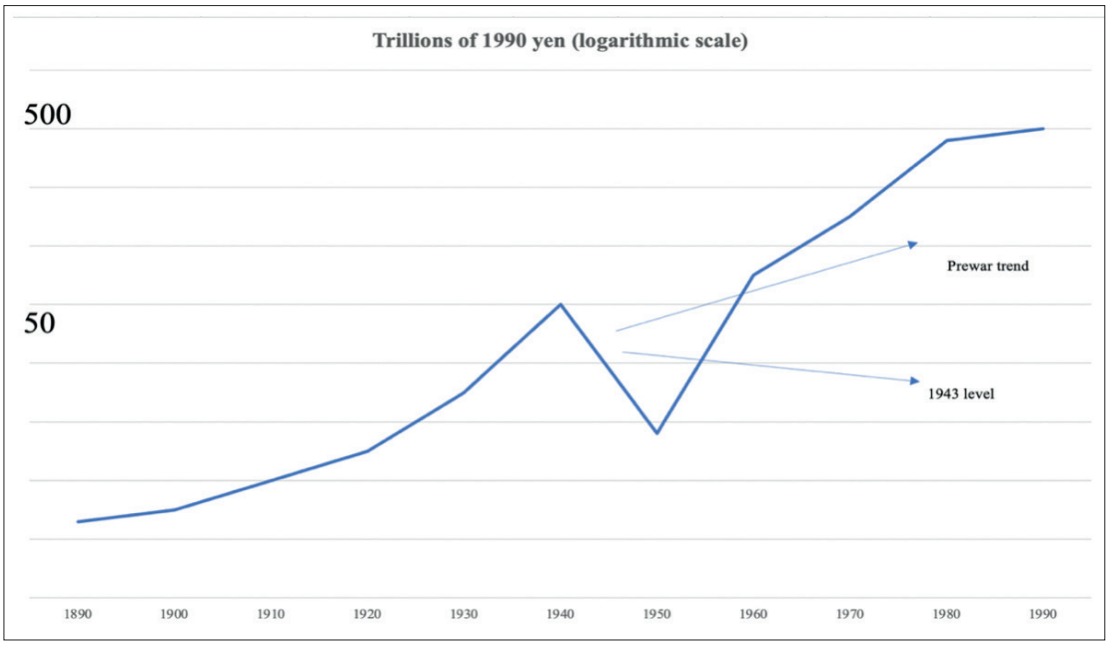

Figure 1. Real GDP of Japan, 1880-1995 (Ito & Weinstein, 1996, p. 208).

That is, economic development is possible with a total movement. Changes cannot be imposed on the society without bringing awareness of reform in schools at a younger age. Japan has also initiated a wide and multidimensional transformation process to implement this. At the change stated above, these reforms, which can call as the second stage of the zaibatsu, were not only economics but they were also political, and there was a transformation in the understanding and philosophy of zaibatsu. The colonial and militarist perception of zaibatsu has evolved into modern economic corporatization. The militaristic mindset was forced abandoned, and following WWII's multilateral accords, the US military was stationed on Japanese territory to assume responsibility for the country's defense (Johnson, 1990; Funabashi, 1992; George, 1992). Japan, which started calling as a peaceful nation (heiwa kokka-平和国家) (Miyaoka, 2011), only had a legitimate defense force for logistical support. Because Japan has renounced its right of war with the constitution revision and article 9, turned into a pacifist state[7] . According to Gordon (2003), one of the reasons for Japan's economic miracle is that the Japanese did not have to bear hefty defense costs. Yet, this opinion is quite narrow to explain the economic miracle of Japan. The U.S. wanted to restrict the military power of Japan in 1945s, and then Japan was described as a "civil power" (Pehlivantürk & Demirtaş, 2018, p. 3-4). Shortly after, when the Korean War (1950-1953) began, the United States wanted the Japanese to have additional capacity to fight the socialist menace in this region. Prime Minister Shigeru Yoshida (1948-1954) and his developmental economy-based doctrine provided direction to the country's political economy during the time (Dower, 1979). It is well known that the government is again one of the most important players in fast economic development after WWII in Japan. The government did lead and restore many industrial sectors (mainly dominated by zaibatsu) and successfully brought about the economic development of the country to the level of one of the most powerful economic powers of the modern world (Imagawa, 1993, p. 35).

Following WWII, the politicization increased its importance because the two economic and political views, socialism/communism and capitalism/liberalism, separated the world into two parts. These two sides can be compared with their economies. While the other economies in East Asia had more governmental control over the economy, Japan was able to arrange a kind of best-mix of state intervention in the economy and free-market economic system that accepted the most favorable pattern for economic development in almost all countries in the present world (Imagawa, 1993, p. 50). As Leonard Lynn analyzed in his paper:

> *Researchers have drawn conflicting conclusions about Japan's experience with government controls over technology imports in the 1950s and 1960s.*

[7] Article 9: Aspiring sincerely to an international peace based on justice and order, the Japanese people forever renounce war as a sovereign right of the nation and the threat or use of force as means of settling international disputes. In order to accomplish the aim of the preceding paragraph, land, sea, and air forces, as well as other war potential, will never be maintained. The right of belligerency of the state will not be recognized. Constitution of Japan," Prime Minister of Japan and His Cabinet, accessed June 14, 2020. https://japan.kantei.go.jp/constitution_and_government_of_japan/constitution_e.html

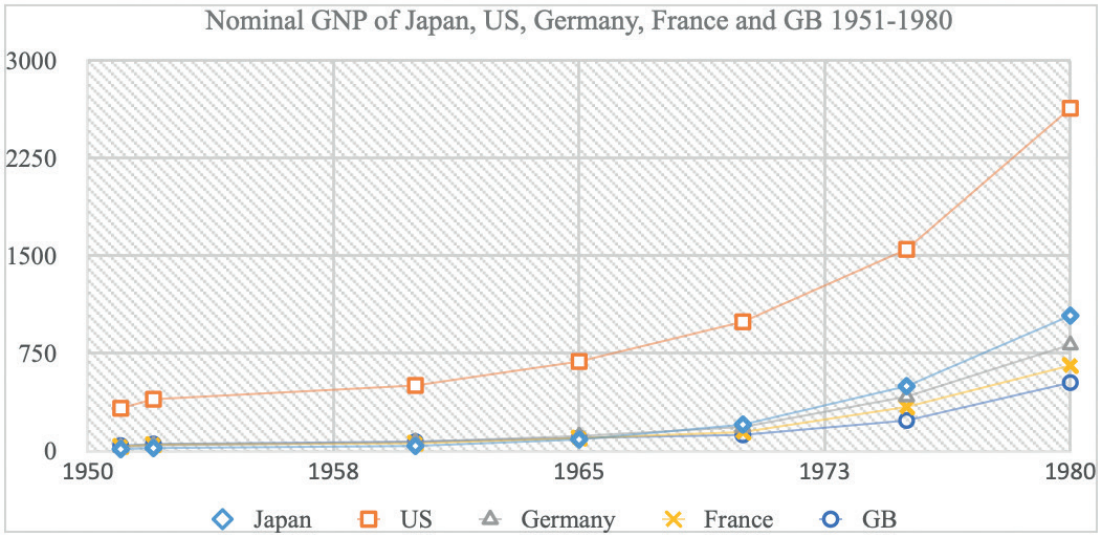

Figure 2. Nominal GNP of Five Major Nations, 1951–80 (amounts in $U.S. billion) (Gordon, 2003, p. 248)

> *Some suggest that these controls helped Japan get foreign technology at a low cost. The imports of basic oxygen steelmaking and various computer technologies seem to support this position (Lynn, 1994, p. 16).*

The Fiscal Investment and Loan Program (FILP) was a way of government intervention in the economy. This program has a historical context. The founder of the Japanese postal system Hisoka Maejima (1835-1919) applied postal savings and money remittance services in 1875. The main objective was providing thrift to Japanese people. The government *put saving education* into the school curriculum in 1885. The Deposit Bureau was founded in the Ministry of Finance in the beginning. The Deposit Bureau started to include direct loans to the national treasury's accounts in 1907. This structure was composed of the main origin of FILP that was started after WWII (Tanaka, 2010). Thus, the government made interventions to savings and investments directly. The FILP has been used in Japan since 1951.

The Japanese economic miracle is neither entirely attributable to the free market and liberal system nor does it result from the US-Japan agreement. It was also about the distinctive effect of the state on the economy in Japan. Yet, it cannot be said that the system was similar to a communist or a socialist system like the Soviet's command economy model. The management of the state developed naturally before and during the war even in postwar periods. It is necessary to state here that the Japanese governments did not interfere in the economic system directly. The state worked with trading institutions like zaibatsu that give direction to the market with a comforting influence. Government policies were more equal than in other industrialized nations, and growth rates were higher than in the United States, the United Kingdom, France, and Germany (figure 2). Japan was certainly not similar to the classical *laissez-faire* type of capitalism (Krämer, 2013, p. 133) while directing the industry with zaibatsu. As seen in Figure 2, Japan could follow a growth path as rich western countries.

The state also dealt with the unemployment issue using the *'soft authoritarian capitalism'* strategy (Johnson, 1987, p. 137), which was a comparable interventionism method prior to WWII. To combat unemployment, the government devised a Japanese-style policy tool. These programs included tax breaks and incentives for Japan's traditional major enterprises (zaibatsu) that were battling unemployment. Following WWII, the Japanese government and businesses did not implement progressive unemployment policies, instead of relying on conventional answers to current challenges. Despite low-wage worker exploitation in the 1950s, these strategies produced knowledge for production and capital accumulation during the postwar era (Kazutoshi, 2004, p. 217).

The Role of Private Property Rights in the Institutionalization of Zaibatsu and Keiretsu

Throughout history, the protection of private property rights has resulted in long-term economic growth and progress. Property rights that are well established are one of the most essential aspects that contribute to economic freedom. Thus, economic freedom and decentralized decision-making authority based on private property ownership are possible explanatory variables for Japan's and other East Asian nations' different economic performance (Weede, 2004, p. 73).

Table 2. The Structure of Keiretsu (Watkins, 2016).

Industry	Mitsui	Mitsubishi	Sumitomo	Fuyo	Sanwa	DKB
Banking	Sakura Bank	Bank of Tokyo-Mitsubishi Bank	Sumitomo Bank	Fuji Bank	Sanwa Bank	Dai-ichi Kangyo Bank
Trust Banking	Mitsui Trust & Banking	Mitsubishi Trust & Banking	Sumitomo Trust & Banking	Yasuda Trust & Banking	Toyo Trust & Banking	
Life Insurance	Mitsui Mutual Life	Meiji Mutual Life	Sumitomo Mutual Life	Yasuda Mutual Life		Fukoku Mutual Life Asahi Mutual Life
Marine & Fire Insurance	Mitsui Marine & Fire	Tokio Marine & Fire	Sumitomo Marine & Fire	Yasuda Marine & Fire		Nissan Marine & Fire Taisei Marine & Fire
Trading Company	Mitsui Bussan	Mitsubishi Shoji	Sumitomo Corporation	Marubeni	Nissho Iwai	Itochu
Steel	Japan Steel Works	Mitsubishi Steel Manufacturing	Sumitomo Metal Industries		Nakayama Steel Works Nisshin Steel	Kawasaki Steel Kobe Steel
Chemicals	Mitsui Toatsu Chemical	Mitsubishi Gas Chemicals	Sumitomo Chemical	Kureha Chemical Industries	Sekisui Chemical	Asahi Chemical Industries

Farmers and villagers had no private property right in the early medieval period in Japan. The farmers who wanted residual claims in Japan were quite a few, and they had to make contracts of taxation with the governors (Nakabayashi, 2009, p. 8). The most well-known Shogunate that managed the feudalistic land system was Tokugawa. The system provided stable growth in the economy with agricultural development during this period. This legacy of private property rights not only became institutionalized and constituted the cornerstone of Meiji modernization, but it also provided opportunities to promote private business and firms after WWII. Private firms in Japan expanded quickly and they were permitted to borrow large sums of money from banks. Private banks and government banks collected individuals' savings and transferred these savings to private companies from small ones to big ones. The ratio of debt for a normal Japanese company became 75 percent in the rapid growth era. This rate was 40 percent before WWII. Thus, they were able to repay their debt because of the quick expansion of output and revenue (Gordon, 2003, p. 248).

There was a successful harmony between the state and private sectors, especially in the second half of the 20th century. The state organized the private sector relationship between each firm. This relationship provided the institutionalization to the and zaibatsu (財閥) and keiretsu[8] (系列). The zaibatsu were mainly large family-owned businesses, but the keiretsu were more professional and mostly founded after WWII. They were pioneers of growth and main factor of Japanese economic success. Under the Keiretsu structure, Table 2 shows the primary heading firm and business groups. They operate in the banking, insurance, trading, steel, and chemical industries, which drive the Japanese economy internationally. It should be recalled that these organizations played a leading role at the beginning of the twenty-first century in Japan. In accordance with the times, their working style and organizational structure underwent a process of evolution (Akkemik, 2022, p. 29-30).

It can be seen in Table 2 that the main keiretsu formed the backbone of the private sector and also the economy. The banks located in the center and other sectors spread around, and they were in cooperation (Watkins, 2016). The companies decreased the asymmetric information and moral hazard problems by professionalism with this structure and nested size. Thus, trust between states and

[8] Keiretsu is a business network composed of manufacturer supply chain partners, distributors and financiers who remain financially independent but work closely together to ensure each other's success. In Japanese, the word keiretsu means "group". In business, the word is often used as a synonym for partnership, alliance, or extended enterprise.

Table 3: Growth rate (%) of GNP for Japan (Byoungki, 2006).

Development Phase	Gross Investment Rate of GDP	GNP per Capita	Communication	**Electricity**	**Transportation**
1887-1904	9,7	1,5	-	-	10,1
1904-1919	14,8	2,1	16,7	15,3	5,1
1919-1938	18,4	3,5	6,5	16,5	9,7
1954-1965	27,0	8,6	11,6	11,3	8,9
1965-1975	33,4	5,1	15,4	7,5	5,6
1975-2001	29,3	2,4	2,4	3,2	0,8
TOTAL	**21,7**	**3,4**	**9,0**	**10,2**	**6,2**

enterprises allowed for the establishment of a healthy market system. The guarantors of these companies were Japanese administrations. The system in the country has been transparent and the laws have given confidence that can call as regulatory capitalism. Except for WWII, the Japanese government was able to avoid all political moves that would hinder these companies and their profits. In Japan, the government continues to lead the industry with its own guiding role until now (Johnson, 1982). In other words, the institutionalization in the economy strengthened with assistance to private property with economy-centered wisdom.

Infrastructure as an Area of Continuous Economic Restructuring

It is known that the reconstruction of Japanese economic infrastructure is one of the important factors provided by the USA and the World Bank after WWII like the Marshall Plan (Tarnoffi, 2018). However, manufacturing knowledge was also vital for recovery and is referred to as know-how. Byoungki (2006) divided Japan's GDP developments into six periods and five sectors comparatively to show how fast and continuous reconstruction it was (Table 3). The growth rate of electricity is higher than other sectors. It shows the improvements in production sector.

Japan gives importance to the competition of the private sectors very early after the Meiji term for infrastructure works. The first electricity service began in 1886 and the private sectors (mostly zaibatsu, table 2) started to give this service in 1890. This enabled further growth of the economy through capital accumulation, and absorbed surplus labor in rural areas, as well as raising the real wage rates of laborers (Byoungki, 2006, p. 18). This increase has brought not only growth but also development.

Table 3 and Figure 3&4 show the growth rate of demand for infrastructure is very high in the early development period. It can also be understood from figure 3 that the accumulative growth rate of electricity, communication, and transportation was growing each period. On the other hand, the demand for electricity had a much higher rate than others. Byoungki (2006) interprets this situation as there is a strong relationship between the demand for

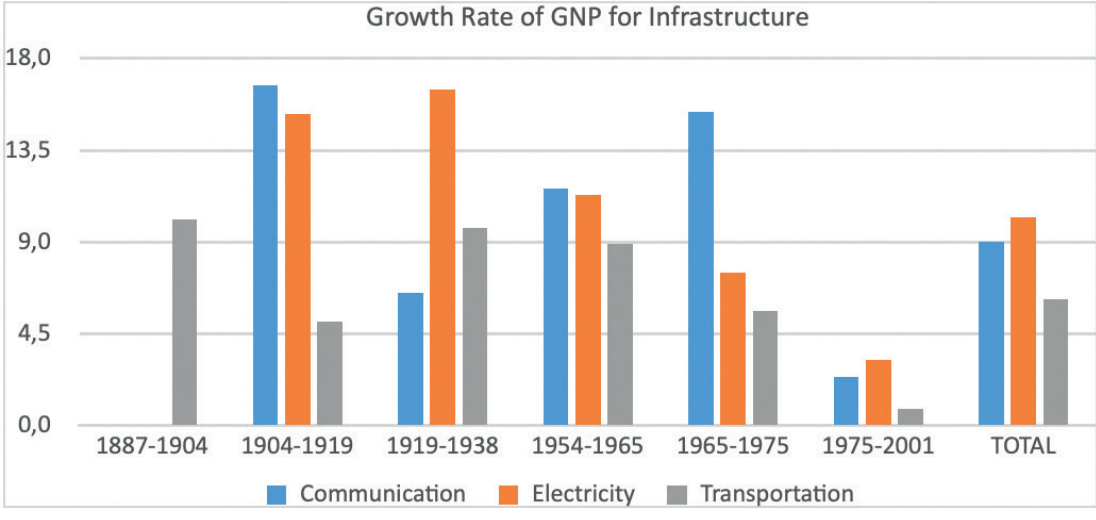

Figure 3. Growth Rate (%) of GNP for Infrastructure of Japan (Byoungki, 2006)

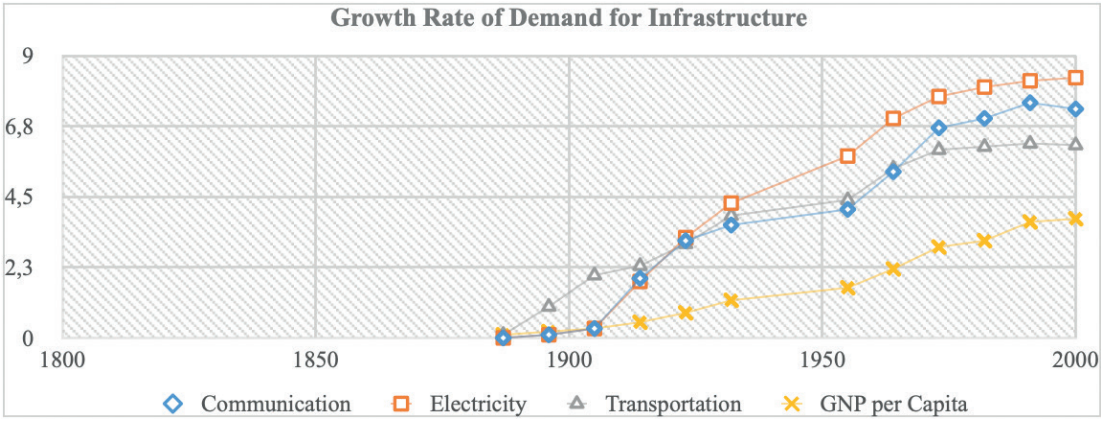

Figure 4. Growth rate of (%) demand for infrastructure in Japan (Byoungki, 2006).

infrastructure and the growth rate of GNP per capita so economic growth rate.

Figure 4 shows that the government invested a very big share of the budget for the development of infrastructure in the development period, 1887-1973. The infrastructure policies of Japan increased domestic demand and provided continuity in economic growth. According to the figures, the help received for economic restructuring during WWII increased economic growth and institutionalization. However, there is no starting from scratch here. From the beginning of the Meiji, it is known that the Japanese state communicated with the other world countries and it has remained open to technology and inventions (Hayashi, 1984). This situation brought the Japanese to become users of technology even in the most difficult times of war (IDE-JETRO, 2008). Behind the aforementioned infrastructure and equipment, the government promised to constantly prioritize these areas, and technology was at the center of Japanese economic policies even in the most difficult times.

Integration to the World Trade with Zaibatsu

Japan experienced many economic crises in history and was one of the most affected countries of WWII. Because Japan met depression in the supply of goods that was caused by decreased capital stock demilitarization of industries, and shortages in raw materials and equipment in1940s (Kimura, 2009, p. 3). Macroeconomic stability is one of the important factors to provide sustainable economic development and growth (Belostecinic, 2013, p.21). With these problems, it is common to experience a loss of stability. However, the allied forces occupied Japan and applied an economic stability plan after WWII. This plan foresaw a disciplined budget and provided macroeconomic stability (Komiya & Itoh, 1988, p. 176).

The banking system, led by zaibatsu/keiretsu, played essential roles in the macroeconomic stability of Japan. The banking systems were created by national and institutional memory of the zaibatsu which is elucidated above. For example, banks gave instructions to firms because the bank met firms that had difficulties in surviving. Thus, the banks found a chance to understand these economic issues and problems for development and helped firms. Even, they have sent a managerial team for firms (Ito & Weinstein, 1996, p. 224). The existence of institutional harmony behind every economic success cannot be denied. The reason for economic success for Japan is the badge of harmony between many sectors and institutions.

Thus, the process of incorporating enterprises that are developing in tandem with the country's economic harmony and stability into global commerce has begun. International trade is one of the factors that helped the economic development of Japan, yet Japan had trouble with it after WWII. After regaining independence, it implemented a new tariff system. In terms of economic policy, Japan has shifted to a more pragmatic axis. It began using GATT regimes in 1953 (Özşahin, 2017, p. 112) and essentially pioneered regional free trade agreements (Uyar & Taniguchi, 2013). Zaibatsu, the country's largest financial clique, backed foreign commerce, and it was seeking to integrate the country into world trade.

CONCLUSION

Japan has a distinct economic development structure and is regarded as the first non-western country to reach such high levels of industrialization. Japan also owes its evolutionary industrialization to a strong institutional political economy rooted in the Tokugawa period. Trying to conceptualize the distinctive implications of the zaibatsu in the Japanese economy helped to figure out six striking causalities; (i) The industrialization of Japan is

a long process, and the wars were temporal slowdown in this process, (ii) There is no rupture or an inexplainable miracle in the Japanese economic model. On the contrary, there is a historical development starting from the shogunate, (iii) The importance of high technology in industrialization was realized for successful economic development in the Meiji Era. The private sector was promoted by the incentives and assistance of free trade agreements to bring and produce technology constantly after the Edo Era, (iv) The strong education system and high literacy rate provided opportunities to grasp the reforms and development. The process which started with the Rice Field Property Reform continued with the institutionalization of the zaibatsu.

The original contribution of this paper is in objectively demonstrating the economic institutionalization success of Japan. Japan's economic success has not always resulted in a good way. Unfortunately, the economic progress of societies after uniting around a shared aim did not ensure world peace. Many economic advances that have disrupted the world's equilibrium have resulted in terrible conflicts. Japanese economic institutionalization is important in that they portray a community centered on a single aim of growth. The international economy perspective of the new century, after the global disruptions and outbreaks, is seeking ways for countries to attain self-sufficiency in all aspects of their lives. As a result, the political economy of Japan, which has uniquely allowed the nation to improve its institutional economic structure from history to the present, sets as a model for other countries to follow.

Statements and Declarations

Funding and/or Conflicts of interests/Competing interests

The authors declare no competing interests in any part of paper and research period.

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Analysing the Relationship Between Postmodernism and Digital Age Governance with Entropy and Mabac Methods: The Case of the 2022 EU Digital Economy and Society Index (DESI) Report

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ABSTRACT

Postmodernism has affected institutions and systems with its rejection of traditional, macro, and hierarchical approaches. Accordingly, it has also affected the structuring of public administration by popularising two new concepts: new public management (NPM) and digital age governance (DAG). Public administration systems have sought to escape the rigid confines of modernism with the understanding of NPM, which has evolved into a system in which governance is strengthened together with an understanding of DAG. In this sense, data-based digital governance approaches are being adopted in the postmodernist era, and states, citizens, and the private sector actively participate in digital platforms. Information and communication technologies have become increasingly important for countries in the framework of DAG. Along these lines, the European Commission publishes its Digital Economy and Society Index (DESI) Report every year to evaluate the digital transformation performance of EU countries. The aim of this study is to examine the effects of postmodernism on public administration through NPM and DAG and to evaluate the digital governance performances of EU countries in the postmodern era using the entropy and MABAC methods. The dataset used in this research consists of 5 sub-criteria of the Digital Public Service (DPS) criterion included in the 2022 DESI Report. As a result of this analysis, the sub-criterion with the highest importance is found to be 'Digital Public Services for Business', while the sub-criterion with the least importance is 'Pre-Filled Forms'. It is seen that the EU countries with the strongest performance according to the DPS criterion are Estonia, the Netherlands, and Finland, respectively.

Keywords: Postmodernism, Digital Age Governance, DESI, Entropy, MABAC.

JEL Classification Codes: D73, N40, O38.

INTRODUCTION

Postmodernism, which inherently entails breaking away from modernism, has deeply affected social, economic, and political structures around the world. This process of change, which started with Lyotard (1984), has influenced thinkers and systems on a global scale. Postmodernism criticises modernism and offers a different perspective in contrast to institutions and structures built with a modernist perspective. Contrary to modernism, postmodernism advocates pluralism, micro versus macro perspectives, and innovation versus traditional approaches (Best & Kellner, 2011). In this way, postmodernism, which prioritises multiculturalism, the inclusion of differences, and the digitalisation of societies (Baudrillard, 1976), has had transformative effects on institutions and structures. Public administration structures have also been affected by these changes and, in many cases, they have undergone a two-stage transformation.

The first period of the postmodern approach to public administration began in the late 1970s and was shaped by the concept of 'new public management' (NPM). Prior to this period, the understanding of public administration was strictly hierarchical and centralised, far removed from active citizenship, and highly traditional in line with the teachings of modernism. However, with the understanding of NPM, concepts of governance and active citizenship began to come to the fore (Gruening, 2001; Greve, 2010). The second period of postmodern public administration has been driven by the concept of 'digital age governance' (DAG). DAG, which began exerting notable impacts after the beginning of the 2000s, brings with it digitalised democratic ideas such as accountability, transparency, open government, and e-participation. Citizens, the private sector, and other stakeholders have begun participating in public management without limitations of time or space thanks to the DAG approach. This has been made possible with the advancement of information and communication

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technologies (ICT) and the evolution of social structures into data-based digital platforms (Dunleavy et al., 2005).

The digitalisation of countries and the importance they place on governance have become evaluation criteria that are emphasised by the European Commission, which regularly evaluates EU countries with its annual reports and evaluation texts. The annual Digital Economy and Society Index (DESI) Report is one such report in which evaluations of the digitalisation processes of EU countries are published (European Commission, 2020, 2022). The aim of this study is to explore the effects of postmodernism on public administration within the dimensions of NPM and DAG and to analyse the digital governance performances of EU countries in the postmodern era using the entropy and multi-attributive border approximation area comparison (MABAC) methods. The data used in this analysis are taken from the DESI Report published by the European Commission for the year 2022 (European Commission, 2022). For the 27 EU Member States, the importance levels of the DESI criteria were evaluated using the entropy method for 5 sub-criteria ('E-Government Users', 'Pre-Filled Forms', 'Digital Public Services for Citizens', 'Digital Public Services for Business', and 'Open Data') that constitute the Digital Public Service (DPS) criterion. Subsequently, using the MABAC method, the performances of EU countries were analysed within the framework of the DPS criterion and countries were ranked according to their performance levels.

There are no studies in the literature to date that directly examine the relationship between DAG and postmodernism; this area of research is very limited. As the scarcity of relevant resources constitutes a limitation of the present study, the contributions that this study will make to the limited body of literature are all the more important. In this context, the usage of the 2022 DESI Report also increases the importance of the study in terms of allowing for a unique contribution via determination of the performance of EU countries in the framework of the DPS criterion.

In the next section of this study, postmodernism is explained in general terms together with the transformations it facilitated in public administration and the concept of NPM is emphasised. In the following section, DAG is explained and the transition from an understanding of NPM to the implementation of DAG is described. In the fourth section, different understandings of NPM and DAG are explained using a comparative method and they are evaluated within the framework of the concept of postmodernism. In the fifth section, the analytical procedures are presented and the entropy and MABAC methods are explained in detail. In the sixth section, the application steps and the dataset are introduced and the findings are presented. In the final section of the study, the findings are interpreted and suggestions are made.

POSTMODERNISM AND POSTMODERN PUBLIC ADMINISTRATION

Postmodernism was first defined in 1979 in a book by J.F. Lyotard titled *The Postmodern Situation*. For Lyotard, postmodernism meant 'the end of metanarratives'. Lyotard's view of postmodernism was shaped by a framework in which critiques of modernism were embodied. According to him, postmodernism does not contain metanarratives, such as ideologies or beliefs, that are outcomes of modernism. While modernism rationalises by standardising, postmodernism undermines those standards (Lyotard, 1984). Lyotard did not trust metanarratives because he found metanarratives to be legitimising. As he described it, metanarratives make the commodities that they legitimise become unshakable and rational. Metanarratives have emerged over time due to the nature of modernism, and they are legitimised and disseminated through modern science and institutions. Therefore, while fields such as science and education should foster liberation by enabling individuals to govern themselves, they instead become oppressive by legitimising metanarratives (Lyotard & Brugger, 2001).

It is seen that postmodernism criticises modernism, looking at it with suspicion and critiquing the establishment of legitimacy among individuals with metanarratives. Wallerstein (2001) criticised modernism in the same way, arguing that modernism leaves the individual sterile in the positivist paradigm of science; convinces him of material, empirical, and singular truths; and is anti-libertarian. According to Hayek (1937), individuals exist in rational states stemming from pure logic and can thus be thought to be completely rational. However, thoughts and actions are not based entirely on empirical elements; they are also related to the ways in which individuals perceive the outside world. According to Jameson (1984), modernism tried to gather individuals under an umbrella of universal thought by creating a universal framework. However, in the 'post-industrial' age, when postmodernism emerged, universality was fragmented and dispersed. Postmodernism created a major breaking point for modernism, reducing the big to the small and the central to the local. Along these lines, Lyotard (1984) explained that with postmodernism,

the local started to come to the fore and the micro perspective rather than the macro gained importance.

Another thinker who questioned the universal nature of modernism was Foucault (1994), who criticised the production and dissemination of knowledge in association with the freedom of the individual. According to Foucault, knowledge is a tool that is valid only in the period to which it belongs and it serves the power relations of that specific period. It is not a truth, because it is created in and for the period to which it belongs. Knowledge becomes a tool with the power of control over the masses when it is applied by the power structure, functioning as a sort of power technology. For this reason, Foucault took scepticism and questioning in postmodernist thought to the extreme and rejected the common discourses, knowledge, massiveness, and centrism of the period. Deleuze and Guattari (1987), following Foucault, stated that in the postmodern era, capitalism has transitioned to a 'post-Fordist/post-industrial' digital society stage. In this society, the information and technology tools that spread throughout society are highly effective on the masses. Therefore, in digital societies, the singularity of individuals remains at risk in the face of the majority. Modernism acquired traditionally organised masses and institutions as a result of certain knowledge clusters, and according to Deleuze and Guattari (1987), postmodernism has deconstructed those stereotyped and fixed foundations.

Baudrillard, who dealt with the digital aspects of postmodern societies, criticised the structure of information society by emphasising the role of hyper-reality. Increasing innovation and technological developments in digital societies lead to changes in perceptions of reality (Baudrillard, 1976). While this situation is negative in terms of the inability of individuals to perceive their own realities, it also offers opportunities to create spaceless time and timeless space. For this reason, considering the 'decentralised' structure of postmodernism, it can be said that possibilities exist for areas in which individuals can act individually.

Table 1. Model of Change in Approaches to Public Administration

Criteria	Traditional (Modern) Administration	Innovative (Postmodern) Administration
Structures	Strict bureaucratic structure Hierarchy Strong centralisation	Narrow centre Wide, unlimited environment Localisation
Systems	Central control Detailed auditing	Performance targets Pricing centres Domestic markets
Staffing	Large volume of personnel Fixed, perpetual Centralised bargaining	Narrow, qualified personnel Flexible, wide environment Localised bargaining
Administrative Culture	Inflexible administration Legal and financial reliability Professionalism Quantity in service delivery	Flexible administration/ participants Cost-benefit analysis Customer/citizen demands Quality in service delivery

Source: Toprak Karaman, 1997.

When the qualities of a digital society come together with the benefits of postmodernism, it is inevitable that the evolving social structure will have an impact on public administration and bureaucracy. In contrast to the singularism, universalism, and traditionalism of modernism, postmodernism advocates pluralism and the rejection of the universal and traditional (Best & Kellner, 2011). This emphasis steers the structure of public administration away from traditional patterns. The modern understanding of public administration, which is centralised, macro-level, and hierarchical, has expanded to take into account micro-level perspectives and individuals within a decentralised framework. Public administration has undergone a postmodern transformation with the advancing of technology and increases in the availability of information/data-based platforms (Bogason, 2005; Fox & Miller, 1995). This has eliminated the restrictions of time and space and centralised administrative structures have been weakened with the help of technology (Harvey, 1992).

The characteristics of modern and postmodern public administration are given in Table 1. As detailed below, postmodern public administration, which we can describe as the exact opposite of the modernist approach to public administration, has adopted the characteristics of the postmodernist period and developed an understanding that is locally focused, decentralised, and governance-oriented and considers the individual.

The most important prerequisite for postmodern public administration to become individual-oriented is technology, which is the main actor of the postmodern period. With the spread of technology and broadband global network services in today's societies, hierarchical relations have changed in postmodern public administration and vertical, horizontal, and cross-cutting organisations have developed (Spicer, 1997; Demirel, 2014). Thus, the understanding of governance has also changed in comparison to traditional public administration approaches, and opportunities for individuals to participate directly in management processes via the internet, regardless of time or place, have emerged. With this micro-level network-type governance, hierarchical information flows have been disrupted and an interrogative/supervisory framework has emerged with service demands moving from the bottom up (Bogason, 2008; Şener, 2005).

Due to the fact that governance elements and communication technologies are at the centre in postmodern administration, communications between states and citizens have strengthened (Genç, 2015; Gül, 2018; Cavalcante & Lotta, 2022). The understanding of modern public administration, together with the post-Fordist economy model, renewed itself by giving up the central and cumbersome bureaucratic structuring of previous years in a process known as 'new public management' (NPM) (Gruening, 2001). Since the late 1970s, with the NPM model, the understanding of modern public administration has shifted away from state monopolies to take on a structure of governance that includes citizens, civil society, and market actors (Olsen, 2005). Public administration in the digital age shows similarities with private sector management styles in terms of NPM, as it aims to ensure that citizens actively participate in administrative processes. The focus of postmodernism on the individual has become increasingly effective in the structuring of public administration (Greve, 2010; Zanetti and Carr, 1999). At the same time, the understanding of inclusiveness of differences at the micro level, which is another result of the postmodernist paradigm, is reflected in the inclusion of differences in administration and governance by postmodern public administrations. For this reason, the traces of deliberative democracy in the Habermasian sense have begun to be seen in postmodern public administration (King, 2005; Beniger, 1986; Barber, 2003).

DIGITAL AGE GOVERNANCE

The understanding of 'good governance' has become globalised as a result of the state-level pressures of international organisations such as the World Bank and OECD. For this reason, certain characteristics of good governance have become global principles (Aguilera & Cuervo-Cazurra, 2009). Governance can be broadly defined as effective governmental actions that enable state or non-state actors to interact in relationship dynamics and decision-making processes (Howlett & Ramesh, 2014; Weiss, 2000; Grimmelmann, 2015; Rhodes, 1996). When it was first defined in this way, governance was discussed in terms of factors such as transparency, political stability, information sharing, open financial reports, government effectiveness, and corruption control (O'Shea, 2005; Fukuyama, 2013; Gavelin et al, 2009). However, in the postmodern period, the concept began to be expanded and discussed in light of different factors.

With the use of technology and telecommunication services in political and administrative systems, transitions from governance to meta-governance have become desirable, and local and central government bodies have been asked to make such transitions (Gjaltema et al., 2019; Fransen, 2015). NPM is pluralistic and has the aim

of sharing public service and management processes among actors. Therefore, meta-governance fulfils the criteria specific to the NPM understanding (Osborne, 2006; Fukuyama, 2013). New public governance can accordingly be defined as comprising self-organising inter-organisational networks (Rhodes, 1997). Within this framework, it is desired to increase the extent of factors such as accountability, monitoring, and auditing of the public sector like that of the private sector, with increased transparency and participation (Grindle, 2004). At the same time, factors such as freedom of expression, political participation, and democratic governance have also gained importance in new public governance as aspects of digital communications (Gorwa, 2019).

The foundations of DAG were first put forward by Dunleavy and Margetts in 2000. In the most general terms, digital governance entails a digital management paradigm that has emerged as a result of the shift of information in the field of management to virtual networks based on data and technology and requiring technologically equipped governing bodies and a digitalised society (Dunleavy & Margetts, 2000). DAG aims to interact with citizens by developing user-centred services, building open government policies with crowdsourcing, and creating transparent, accountable, and effective digital administration structures (Aitken, 2018). The digitalisation of administrative bodies is based on administrative reintegration and needs-based integration efforts. The simplification of relations between different administrative actors is sought, as is the provision of wide participation opportunities, to prevent the time and cost losses of hierarchy and bureaucracy and to ensure fast and flexible governance (Dunleavy et al., 2005).

When governance and digital technology come together in public bodies, digital governance is born, and e-Government is becoming a particularly important tool of digital governance (Janowski, 2016; Stanimirovic & Vintar, 2013). As one of the most critical tools in the digitalisation of administrations, e-Government stands out in terms of facilitating sustainable growth, the integration of different actors, and the provision of public services. It is seen as the main driving force of digital transformation in terms of strengthening the principles of transparency, efficiency, and accountability and increasing the quality of governance (Castro & Lopes, 2021; von Haldenwang, 2004).

ICT technologies are a key factor at this point because they are necessary for both the development of e-Government technologies and for citizens to participate in administration digitally. Thus, in countries with well-developed ICT, the rate of digital governance is increasing together with the rate of digitalised citizens (Tianru, 2020; Simons et al, 2020). Within the framework of DAG, the private sector and citizens act together with the state. According to DAG, citizens are not only consumers; they are also producers of public policy (Dunleavy et al., 2005). Citizens need technology developed for this function in order to actively apply digital participation mechanisms (Chocan & Hu, 2020). Directives should be created by standardising the relevant policies and procedures, and these directives should be embedded in technological information spheres because this is also a type of 'network governance' with an understanding of open government (Melin & Wihlborg, 2018).

The technological process referred to as the second wave of DAG started in 2010, and the evolution of society to a more advanced form with virtual network structures has accelerated accordingly (Dunleavy & Margetts, 2010). With the development of ICT, investments in this field have been increased to enable the private sector and citizens to become digitally interactive. The hierarchical order has disappeared completely and the concept of 'do-it-yourself government' has come into play. As citizen are seen as customers, quality has started to gain more importance in public services (Scupola & Zanfei, 2016).

DAG, which swiftly followed the NPM understanding in the development of governance, requires states to be 'digital states'. In this context, countries have been involved in DAG processes by developing projects to gain momentum in this area. European Union Member States began being structured and organised together with Framework Programme projects (Daves, 2009). The European Union now gives importance to criteria such as the digitalisation of public administration and the strengthening of digital governance, the treatment of citizens as customers, the spread of ICT in all areas of society and administration, and the training of specialised personnel. In this context, a data repository for many criteria has been created from relevant reports and analyses (European Commission, 2013, 2020, 2022).

The rapid development and spread of DAG continues to increase. In particular, states that lagged behind in digitalisation processes have entered the stage of resolving the lack of technical knowledge and equipment with radical changes. Attempts are being made to ensure adaptation in this area by establishing digital transformation institutions and expanding their working areas up to the digital adaptation of citizens and other participation actors. In addition, governance

processes are being enriched with applications such as e-Government and m-Government, and new structures are being developed in which citizen are both consumers and producers as data providers. Previous structures that were developed very rapidly underwent serious transformations with the experiences of the COVID-19 pandemic, which has constituted a trigger of transformation on a global scale. On a social basis, states, private sectors, non-governmental organisations, and citizens all began a rapid and compulsory adaptation to digitalisation. This situation shows that participation in DAG will continue to be increased and administrative structures will evolve with supportable dimensions.

POSTMODERN PUBLIC ADMINISTRATION AND DIGITAL AGE GOVERNANCE

DAG has created an administrative transformation based on democracy with characteristics such as accountability, transparency, open government, and e-participation. It has created a basis for actors such as citizens and the private sector to become participants in governance processes. These digital networks and data-based processes have begun to share responsibilities and duties among actors (Karvalics, 2008; He, 2020). It can be stated that postmodernism affects understandings of public administration firstly via the concept of NPM and then subsequently via DAG.

Postmodernism, with its sceptical approach, has caused technologies of power to be questioned (Foucault, 1994) and has strengthened principles such as openness, transparency, and accountability. Along with the rejection of traditional approaches, the idea of society as an actor on the digital plane, separated from the idea of the masses, is a product of postmodernism (Deleuze & Guattari, 1987). As stated above, postmodernist thought, in which the local gains importance, has continued to shake modernism and has launched discussions of the hyper-reality of digital societies with the transformation of hierarchical, centralised, and traditional concepts.

The understanding of governance in the digital age entails efforts to keep up with these processes of change and to include all actors in society (citizens, private sector, etc.) as major players. This allows everyone to exert control over themselves, each other, and their governing bodies. ICT, developed to help achieve all this, has facilitated a global network system that has gradually spread throughout society. As a result, society is increasingly digitalised and this process brings democracy to the forefront (Gil-Garcia et al., 2018). It can be said that the integration of democracy and pluralism with DAG is closely related to the establishment of postmodernist identities, so much so that individuals who are familiar with the pluralistic and multicultural structures of postmodernism are flexible, decentralised, and adaptable to change. They want to exist with their own identities and

Table 2. Relationship Between Postmodern Public Administration and Digital Age Governance

Postmodern Public Administration	**Digital Age Governance**
Horizontal (broad) organisation	Cross-cutting (horizontal-vertical) and temporary organisations
Horizontal, flexible hierarchy	Person-centred, flexible hierarchy
Decentralised	Decentralised (virtual network structures)
Participation: Private sector and civil society Governance after 1990: Individual participation	After 2000: Digital governance Involvement of all actors, from the state to the individual
The individual is the consumer of the service; individuals take part in the production of services without being aware of it (indirectly and partially) via participation in civil society	At the point where the individual is the consumer of the service, he or she also takes on a role as a (direct) service producer
Transparency and accountability are on the rise	
State control of self and individual	Control of the individual and the state

Source: Created by the authors.

do not want to be attached to a specific group or do not feel a sense of belonging to previously emphasised social categories (Kellner, 1992). Postmodernism, which broke away from time-and-space cycles in terms of accepting differences and Others, has contributed to the development of democracy in this regard (Harvey, 1989). This is one of the factors that contribute to the activeness of individuals in digital governance.

The determinativeness of postmodernism in DAG can be seen in the understanding of postmodern public administration. It is clear that there is an evolutionary relationship between understandings of postmodern public administration and DAG, and the existence of major differences in terms of period and method has also been revealed.

RELATED STUDIES

The entropy method is widely used for calculating criterion weights in applications of multi-criteria decision-making methods. In recent years, it has been observed that the entropy method is particularly popular in studies conducted in different fields of the social sciences. Although there is wide variety among multi-criteria decision-making methods, the entropy method can be used with almost all of them. For the present work, a literature review of studies using the entropy method supported by the MABAC method was conducted.

Yong et al. (2022) carried out a two-stage study to determine whether abandoned coal mines could be used as underground power storage stations and, in doing so, they applied SWARA and the entropy-based MABAC method. Altıntaş (2022a), on the other hand, identified the countries that contributed the most to energy innovation globally based on the 2021 Global Energy Innovation Index Report and using MABAC and MARCOS as multi-criteria decision-making methods. According to that study, while the European countries with the highest global energy innovation performances are Finland, Denmark, and Sweden, the ones with the lowest performance are Poland, Greece, and Estonia. In another study, Altıntaş (2022b) measured cyber security performances based on the 2020 Global Cyber Security Index parameters of the G7 countries with the entropy-supported MABAC method. He found that the cyber security performances of the USA and UK are far ahead of those of other countries. Çınaroğlu (2020) evaluated innovation activities on a sectoral basis using the entropy-supported MABAC method. In subsequent research, Çınaroğlu (2022) measured the digital transformation performances of EU countries in 2021 based on the EU Commission's DESI Report with the entropy-supported MABAC method. The EU countries with the highest digital transformation performances were found to be Denmark and Finland, and those with the lowest performance levels were Greece, Bulgaria, and Romania. Meng et al. (2021) used entropy and FDEMATEL-supported MABAC to determine high-risk factors in digging foundation pits. Biswas and Saha (2019) used the TOPSIS and MABAC methods as multi-criteria decision-making methods to evaluate the criteria that working women pay attention to when purchasing scooters. Biswas et al. (2019), on the other hand, carried out a two-stage research project to calculate the risk-return ratios of investments to be made in mutual funds, and they used the entropy-supported MABAC method in the second stage. Ayçin and Çakın (2019) calculated the innovation performance values of countries with the MABAC method in their study and determined the weights of selected variables such as innovation, financing and support, and intellectual assets using the entropy method. In that study, the European countries with the highest innovation performance levels were Switzerland, Sweden, and Denmark, while the countries with the lowest performances were Ukraine, Romania, and Macedonia. Ulutaş (2019), on the other hand, aimed to determine the most suitable marketing manager for a furniture workshop with the entropy-supported MABAC method. Biswas and Das (2018) evaluated the variables that hybrid vehicle users pay attention to in vehicle selection with the entropy-supported MABAC method.

The present study makes a unique contribution to the literature by using the entropy-supported MABAC method to evaluate DAG applications at the EU level in digital public services.

RESEARCH METHOD

In this study, the entropy and MABAC methods were used since the aim of the research was to analyse the performance of EU countries in terms of DAG according to the digitalisation rates of administrative mechanisms in order to offer digital governance in the postmodern era. More specifically, the entropy method was used because it allows criterion weights to be determined objectively over a decision matrix. The importance levels of the selected sub-criteria were determined together with criterion weights obtained by the entropy method. The MABAC method, on the other hand, was selected because it is a multi-criteria decision-making method used to determine the best criterion among various criteria using criterion weights.

The data used in this research were taken from the DESI Report published by the European Commission for the year 2022. The DESI Report is published annually

Table 3. Criteria and Codes

Digital Public Service (DPS) Sub-criteria	Sub-criteria Codes	Directions of Sub-criteria	Source of Data
E-Government Users	DPS-1	Maximisation	Digital Economy and Society Index (DESI), 2022 Report (available at https://digital-strategy.ec.europa.eu/en/library/digital-economy-and-society-index-desi-2022)
Pre-Filled Forms	DPS-2	Maximisation	
Digital Public Services for Citizens	DPS-3	Maximisation	
Digital Public Services for Business	DPS-4	Maximisation	
Open Data	DPS-5	Maximisation	

by the European Commission to evaluate the digital transformation performances of EU Member States. Data are published for each EU country within the four main categories of 'Human Capital', 'Connectivity', 'Integration of Digital Technology', and 'Digital Public Services', with sub-criteria included for each of these criteria (European Commission, 2022). The main criterion considered in this research for each EU country is Digital Public Services (DPS), which has five sub-criteria. The reason for selecting DPS as the criterion of interest is that it encompasses data relevant to the concepts of digital transformation of administration and digital governance, as described above.

The entropy and MABAC methods were applied to determine the EU countries with the highest performances in this field by analysing the outcomes of EU countries for the five sub-criteria of DPS. In this process, it was aimed to determine the levels of importance given to the selected sub-criteria by the countries in question in the field of digitalisation of administration in the postmodern age. The main criterion, sub-criteria, directions, and codes used in this study are given in Table 3. Subsequently, the steps and application findings of the entropy and MABAC methods are given in detail.

Entropy Method

The entropy method, which was first defined by Rudolph Clausius in the middle of the nineteenth century, was originally used to express measures of uncertainty in systems (Zhang et al., 2011: 444). Today, the method is used for both qualitative and quantitative criteria, incorporating Shannon's adaptation to information theories from 1948 (Zou et al., 2006: 1020). The purpose of using the entropy method is to determine the weights of criteria. By using a decision matrix, the weights and importance levels of criteria are determined. For this reason, the obtained criteria importance levels are objective. The entropy method consists of a total of five steps as detailed below (Deng et al., 2020; Kapur, 1982; Yin, 2019; Wu et al., 2011).

Step 1: Creating the Decision Matrix

In the first step, $m^{\times}n$ decision matrix tables are created with m criteria and n alternatives. In this matrix, i = alternative and j = criteria for $x_i(j)$. The decision matrix is shown in Eq. (1).

$$X = \begin{bmatrix} x_1(1) & x_1(2) & \dots & x_1(m) \\ x_2(1) & x_2(2) & \dots & x_2(m) \\ \vdots & \vdots & \ddots & \vdots \\ x_n(1) & x_n(2) & \dots & x_n(m) \end{bmatrix} \quad (1)$$

Step 2: Normalisation of Decision Matrix

Alternatives are calculated with i, criteria with j, utility values with a_{ij}, and normalised values with p_{ij}.

$$\mathbf{p_{ij}} = \frac{\mathbf{a_{ij}}}{\sum_{\mathbf{i=1}}^{\mathbf{m}} \mathbf{a_{ij}}}; \forall_{\mathbf{j}} \quad (2)$$

Step 3: Calculating Entropy Values

In the equation below, r_{ij} represents the normalised values, e_j represents the entropy value, and k represents the entropy coefficient.

$$\mathbf{e_{j=-k}} \sum_{\mathbf{j=1}}^{\mathbf{m}} \mathbf{r_{ij} ln}\left(\mathbf{r_{ij}}\right) \quad (3)$$

Step 4: Calculating Weight Values

The degree of importance of the criteria is calculated with Eq. (4). Significance weight levels w_j are then obtained using Eq. (5).

$$\mathbf{d_j} = 1 - \mathbf{e_j}\ ;\ \forall_{\mathbf{j}} \tag{4}$$

$$\mathbf{w_j} = \frac{\mathbf{d_j}}{\sum_{\mathbf{j=1}}^{\mathbf{n}} \mathbf{d_j}};\forall_{\mathbf{j}} \tag{5}$$

MABAC Method

The multi-attributive border approximation area comparison (MABAC) method is a multi-criteria decision-making method introduced in the literature by Pamučar and Ćirović (2015). The values of the functions of the criteria are calculated for each decision alternative and the distances of these values to the boundary proximity area are determined. Then, by determining the distances of the criterion functions, the decision alternatives are ranked and the best alternative is selected (Wei et al., 2019; Ji et al., 2018). The MABAC method consists of a total of seven steps, which are detailed below (Pamučar & Ćirović, 2015; Gigovic et al., 2017; Ayçin, 2018).

Step 1: Creating the Decision Matrix

An initial decision matrix with *m* decision alternatives and *n* criteria is created**.**

$$X = \begin{bmatrix} x_1(1) & x_1(2) & \dots & x_1(m) \\ x_2(1) & x_2(2) & \dots & x_2(m) \\ \vdots & \vdots & \ddots & \vdots \\ x_n(1) & x_n(2) & \dots & x_n(m) \end{bmatrix} \tag{6}$$

Step 2: Normalisation of Decision Matrix

$$\mathbf{n_{ij}} = \frac{\mathbf{x_{ij}} - \mathbf{x_i^-}}{\mathbf{x_i^+} - \mathbf{x_i^-}} \tag{7}$$

$$\mathbf{n_{ij}} = \frac{\mathbf{x_{ij}} - \mathbf{x_i^+}}{\mathbf{x_i^-} - \mathbf{x_i^+}} \tag{8}$$

Step 3: Weighting the Decision Matrix

The criterion weights, previously calculated by another method, are now calculated with the help of Eq. (9).

$$\mathbf{v_{ij}} = \mathbf{w_i} \cdot \left(\mathbf{n_{ij}} + 1\right) \tag{9}$$

Step 4: Creating the Boundary Proximity Field Matrix

Boundary proximity field values are calculated using Eq. (10). Thus, the g_i value for all considered criteria is obtained.

$$\mathbf{v_{ij}} = \mathbf{w_i} \cdot \left(\mathbf{n_{ij}} + 1\right) \tag{10}$$

Step 5: Calculating the Distances (Q) of the Decision Alternatives to the Boundary Proximity Area

The difference between the elements of the weighted decision matrix and the boundary proximity matrix elements is taken.

$$Q = V - G = \begin{bmatrix} v_{11} - g_1 & v_{12} - g_2 & \dots & v_{1n} - g_n \\ v_{21} - g_1 & v_{22} - g_2 & \dots & v_{2n} - g_n \\ \dots & \dots & \dots & \dots \\ v_{m1} - g_1 & v_{m2} - g_2 & \dots & v_{mn} - g_n \end{bmatrix} \tag{11}$$

Step 6: Determining the Status of Decision Alternatives According to the Boundary Proximity Area

For each decision alternative, situations are determined using Eq. (12) according to the border proximity area. The upper affinity is denoted by G^+ and the lower affinity by G-.

$$\mathbf{A_i} = \begin{cases} \mathbf{G^+ \text{ if } q_{ij} > 0} \\ \mathbf{G \text{ if } q_{ij} = 0} \\ \mathbf{G^- \text{if } q_{ij} < 0} \end{cases} \tag{12}$$

Step 7: Ranking of Decision Alternatives

The criterion functions of each decision alternative are calculated using Eq. (13).

$$\mathbf{v_{ij}} = \mathbf{w_i} \cdot \left(\mathbf{n_{ij}} + 1\right) \tag{13}$$

RESULTS

Table 4. Creating the Decision Matrix

Sub-criteria EU Countries	DPS-1	DPS-2	DPS-3	DPS-4	DPS-5
Criterion Direction	Max.	Max.	Max.	Max.	Max.
Germany	55.000	42.000	76.000	80.000	89.000
Austria	79.000	71.000	76.000	81.000	92.000
Belgium	74.000	73.000	72.000	81.000	55.000
Bulgaria	34.000	58.000	59.000	76.000	78.000
Czechia	76.000	41.000	75.000	81.000	74.000
Denmark	93.000	86.000	83.000	89.000	91.000
Estonia	89.000	87.000	92.000	98.000	94.000
Finland	92.000	90.000	90.000	93.000	86.000
France	87.000	47.000	69.000	80.000	98.000
Croatia	55.000	38.000	69.000	68.000	84.000
Netherlands	92.000	94.000	85.000	88.000	92.000
Ireland	92.000	59.000	80.000	100.00	95.000
Spain	73.000	78.000	87.000	94.000	95.000
Sweden	93.000	85.000	85.000	88.000	84.000
Italy	40.000	48.000	67.000	79.000	92.000
Cyprus	63.000	31.000	56.000	86.000	91.000
Latvia	84.000	77.000	87.000	86.000	77.000
Lithuania	70.000	92.000	82.000	93.000	89.000
Luxembourg	79.000	69.000	93.000	97.000	66.000
Hungary	81.000	60.000	64.000	74.000	58.000
Malta	72.000	87.000	100.00	97.000	51.000
Poland	55.000	74.000	57.000	70.000	95.000
Portugal	59.000	76.000	79.000	82.000	66.000
Romania	17.000	19.000	44.000	42.000	76.000
Slovakia	62.000	45.000	65.000	75.000	50.000
Slovenia	77.000	68.000	69.000	84.000	92.000
Greece	69.000	45.000	52.000	48.000	82.000

Steps and Findings of the Entropy Method

The decision matrix used in the entropy and MABAC applications is shown in Table 4. The entropy weights of the sub-criteria were determined based on the decision matrix.

Table 5. Normalisation of Entropy Decision Matrix

Sub-criteria EU Countries	DPS-1	DPS-2	DPS-3	DPS-4	DPS-5
Germany	0.0288	0.0241	0.0378	0.0362	0.0406
Austria	0.0413	0.0408	0.0378	0.0367	0.0420
Belgium	0.0387	0.0420	0.0358	0.0367	0.0251
Bulgaria	0.0178	0.0333	0.0293	0.0344	0.0356
Czechia	0.0397	0.0236	0.0373	0.0367	0.0338
Denmark	0.0486	0.0494	0.0412	0.0403	0.0415
Estonia	0.0465	0.0500	0.0457	0.0443	0.0429
Finland	0.0481	0.0517	0.0447	0.0421	0.0392
France	0.0455	0.0270	0.0343	0.0362	0.0447
Croatia	0.0329	0.0178	0.0278	0.0389	0.0415
Netherlands	0.0288	0.0218	0.0343	0.0308	0.0383
Ireland	0.0481	0.0540	0.0422	0.0398	0.0420
Spain	0.0481	0.0339	0.0397	0.0452	0.0433
Sweden	0.0382	0.0448	0.0432	0.0425	0.0433
Italy	0.0486	0.0489	0.0422	0.0398	0.0383
Cyprus	0.0209	0.0276	0.0333	0.0357	0.0420
Latvia	0.0439	0.0443	0.0432	0.0389	0.0351
Lithuania	0.0366	0.0529	0.0407	0.0421	0.0406
Luxembourg	0.0413	0.0397	0.0462	0.0439	0.0301
Hungary	0.0424	0.0345	0.0318	0.0335	0.0265
Malta	0.0377	0.0500	0.0497	0.0439	0.0233
Poland	0.0288	0.0425	0.0283	0.0317	0.0433
Portugal	0.0309	0.0437	0.0392	0.0371	0.0301
Romania	0.0089	0.0109	0.0219	0.0190	0.0347
Slovakia	0.0324	0.0259	0.0323	0.0339	0.0228
Slovenia	0.0403	0.0391	0.0343	0.0380	0.0420
Greece	0.0361	0.0259	0.0258	0.0217	0.0374

The entropy normalisation matrix was created using Eq. (2).

Table 6. Calculation of Entropy and *k* Values

Sub-criteria EU Countries	DPS-1	DPS-2	DPS-3	DPS-4	DPS-5
Germany	-0.1021	-0.0899	-0.1237	-0.1201	-0.1301
Austria	-0.1317	-0.1305	-0.1237	-0.1212	-0.1331
Belgium	-0.1259	-0.1330	-0.1191	-0.1212	-0.0925
Bulgaria	-0.0717	-0.1134	-0.1035	-0.1159	-0.1187
Czechia	-0.1282	-0.0883	-0.1226	-0.1212	-0.1144
Denmark	-0.1471	-0.1486	-0.1315	-0.1294	-0.1321
Estonia	-0.1428	-0.1498	-0.1410	-0.1382	-0.1351
Finland	-0.1460	-0.1532	-0.1389	-0.1333	-0.1270
France	-0.1406	-0.0976	-0.1156	-0.1201	-0.1389
Croatia	-0.1125	-0.0718	-0.0996	-0.1263	-0.1321
Netherlands	-0.1021	-0.0835	-0.1156	-0.1071	-0.1250
Ireland	-0.1460	-0.1577	-0.1336	-0.1284	-0.1331
Spain	-0.1460	-0.1147	-0.1282	-0.1401	-0.1360
Sweden	-0.1247	-0.1392	-0.1358	-0.1343	-0.1360
Italy	-0.1471	-0.1475	-0.1336	-0.1284	-0.1250
Cyprus	-0.0809	-0.0990	-0.1133	-0.1191	-0.1331
Latvia	-0.1373	-0.1380	-0.1358	-0.1263	-0.1176
Lithuania	-0.1211	-0.1554	-0.1304	-0.1333	-0.1301
Luxembourg	-0.1317	-0.1280	-0.1421	-0.1372	-0.1055
Hungary	-0.1339	-0.1161	-0.1096	-0.1137	-0.0961
Malta	-0.1235	-0.1498	-0.1491	-0.1372	-0.0875
Poland	-0.1021	-0.1343	-0.1009	-0.1093	-0.1360
Portugal	-0.1073	-0.1368	-0.1271	-0.1222	-0.1055
Romania	-0.0420	-0.0493	-0.0836	-0.0753	-0.1166
Slovakia	-0.1112	-0.0945	-0.1109	-0.1148	-0.0862
Slovenia	-0.1294	-0.1267	-0.1156	-0.1243	-0.1331
Greece	-0.1199	-0.0945	-0.0944	-0.0832	-0.1229

The k value was determined using Eq. (3).

Table 7. Table of d_j Values

dj	1.0220	1.0138	1.0373	1.0387	1.0375

The criterion entropy values were calculated using Eq. (4).

Table 8. w_j Criterion Weight Coefficients Table

Sub-criteria	DPS-1	DPS-2	DPS-3	DPS-4	DPS-5	TOTAL
wj	0.19847	0.19689	0.20144	0.20171	0.20149	1

The criterion weight coefficients were obtained using Eq. (5). According to the results, the sub-criterion with the highest level of importance among the DPS sub-criteria is DPS-4. In contrast, the sub-criterion with the least importance is DPS-2.

Steps and Findings of the MABAC Method

The initial decision matrix used for the entropy and MABAC applications is the same matrix, as shown in Table 4. Since it is necessary to determine and integrate the criteria weights in these applications, criteria weights were determined first and then the MABAC application was started. The application steps are given in detail below. In the first step of this application, the decision matrix (Table 4) was normalised.

Table 9. Normalisation of the Decision Matrix

Sub-criteria EU Countries	DPS-1	DPS-2	DPS-3	DPS-4	DPS-5
Criterion Direction	Max.	Max.	Max.	Max.	Max.
Germany	0.5000	0.3067	0.5714	0.6552	0.8125
Austria	0.8158	0.6933	0.5714	0.6724	0.8750
Belgium	0.7500	0.7200	0.5000	0.6724	0.1042
Bulgaria	0.2237	0.5200	0.2679	0.5862	0.5833
Czechia	0.7763	0.2933	0.5536	0.6724	0.5000
Denmark	1.0000	0.8933	0.6964	0.8103	0.8542
Estonia	0.9474	0.9067	0.8571	0.9655	0.9167
Finland	0.9868	0.9467	0.8214	0.8793	0.7500
France	0.9211	0.3733	0.4464	0.6552	1.0000
Croatia	0.5000	0.2533	0.4464	0.4483	0.7083
Netherlands	0.9868	1.0000	0.7321	0.7931	0.8750
Ireland	0.9868	0.5333	0.6429	1.0000	0.9375
Spain	0.7368	0.7867	0.7679	0.8966	0.9375
Sweden	1.0000	0.8800	0.7321	0.7931	0.7083
Italy	0.3026	0.3867	0.4107	0.6379	0.8750
Cyprus	0.6053	0.1600	0.2143	0.7586	0.8542
Latvia	0.8816	0.7733	0.7679	0.7586	0.5625
Lithuania	0.6974	0.9733	0.6786	0.8793	0.8125
Luxembourg	0.8158	0.6667	0.8750	0.9483	0.3333
Hungary	0.8421	0.5467	0.3571	0.5517	0.1667
Malta	0.7237	0.9067	1.0000	0.9483	0.0208
Poland	0.5000	0.7333	0.2321	0.4828	0.9375
Portugal	0.5526	0.7600	0.6250	0.6897	0.3333
Romania	0.0000	0.0000	0.0000	0.0000	0.5417
Slovakia	0.5921	0.3467	0.3750	0.5690	0.0000
Slovenia	0.7895	0.6533	0.4464	0.7241	0.8750
Greece	0.6842	0.3467	0.1429	0.1034	0.6667

Since all considered sub-criteria are maximisation-oriented, a normalisation decision matrix was created using Eq. (7).

Table 10. Weighted Normalised Decision Matrix

Sub-criteria EU Countries	DPS-1	DPS-2	DPS-3	DPS-4	DPS-5
Germany	0.2977	0.2573	0.3165	0.3339	0.3652
Austria	0.3604	0.3334	0.3165	0.3373	0.3778
Belgium	0.3473	0.3386	0.3022	0.3373	0.2225
Bulgaria	0.2429	0.2993	0.2554	0.3200	0.3190
Czechia	0.3526	0.2546	0.3130	0.3373	0.3022
Denmark	0.3969	0.3728	0.3417	0.3652	0.3736
Estonia	0.3865	0.3754	0.3741	0.3965	0.3862
Finland	0.3943	0.3833	0.3669	0.3791	0.3526
France	0.3813	0.2704	0.2914	0.3339	0.4030
Croatia	0.2977	0.2468	0.2914	0.2921	0.3442
Netherlands	0.3943	0.3938	0.3489	0.3617	0.3778
Ireland	0.3943	0.3019	0.3309	0.4034	0.3904
Spain	0.3447	0.3518	0.3561	0.3826	0.3904
Sweden	0.3969	0.3702	0.3489	0.3617	0.3442
Italy	0.2585	0.2730	0.2842	0.3304	0.3778
Cyprus	0.3186	0.2284	0.2446	0.3547	0.3736
Latvia	0.3734	0.3491	0.3561	0.3547	0.3148
Lithuania	0.3369	0.3885	0.3381	0.3791	0.3652
Luxembourg	0.3604	0.3281	0.3777	0.3930	0.2686
Hungary	0.3656	0.3045	0.2734	0.3130	0.2351
Malta	0.3421	0.3754	0.4029	0.3930	0.2057
Poland	0.2977	0.3413	0.2482	0.2991	0.3904
Portugal	0.3082	0.3465	0.3273	0.3408	0.2686
Romania	0.1985	0.1969	0.2014	0.2017	0.3106
Slovakia	0.3160	0.2651	0.2770	0.3165	0.2015
Slovenia	0.3552	0.3255	0.2914	0.3478	0.3778
Greece	0.3343	0.2651	0.2302	0.2226	0.3358

A weighted normalised decision matrix was created using Eq. (9).

Table 11. Table of *gi* Values

Sub-criteria	DPS-1	DPS-2	DPS-3	DPS-4	DPS-5
gj	0.33490	0.31132	0.30733	0.33656	0.32612

The g_i values were calculated using Eq. (10). For each sub-criterion, the distance to the boundary proximity area was determined.

Table 12. Distance to Boundary Proximity Matrix, *Si* Criterion Functions, and Rankings of Countries

Sub-criteria EU Countries	DPS-1	DPS-2	DPS-3	DPS-4	DPS-5	Si	Ranking
Germany	-0.0372	-0.0541	0.0092	-0.0027	0.0391	-0.0456	17
Austria	0.0255	0.0221	0.0092	0.0008	0.0517	0.1092	11
Belgium	0.0124	0.0273	-0.0052	0.0008	-0.1036	-0.0683	19
Bulgaria	-0.0920	-0.0121	-0.0519	-0.0166	-0.0071	-0.1797	24
Czechia	0.0177	-0.0567	0.0056	0.0008	-0.0239	-0.0565	18
Denmark	0.0621	0.0615	0.0344	0.0286	0.0475	0.2340	4
Estonia	0.0516	0.0641	0.0668	0.0599	0.0601	0.3024	1
Finland	0.0594	0.0720	0.0596	0.0425	0.0265	0.2600	3
France	0.0464	-0.0409	-0.0160	-0.0027	0.0769	0.0637	14
Croatia	-0.0372	-0.0646	-0.0160	-0.0444	0.0181	-0.1440	23
Netherlands	0.0594	0.0825	0.0416	0.0251	0.0517	0.2603	2
Ireland	0.0594	-0.0094	0.0236	0.0669	0.0643	0.2047	7
Spain	0.0098	0.0405	0.0488	0.0460	0.0643	0.2093	5
Sweden	0.0621	0.0588	0.0416	0.0251	0.0181	0.2057	6
Italy	-0.0764	-0.0383	-0.0232	-0.0062	0.0517	-0.0923	20
Cyprus	-0.0163	-0.0829	-0.0627	0.0182	0.0475	-0.0963	21
Latvia	0.0385	0.0378	0.0488	0.0182	-0.0113	0.1320	9
Lithuania	0.0020	0.0772	0.0308	0.0425	0.0391	0.1916	8
Luxembourg	0.0255	0.0168	0.0704	0.0564	-0.0575	0.1116	10
Hungary	0.0307	-0.0068	-0.0340	-0.0236	-0.0910	-0.1246	22
Malta	0.0072	0.0641	0.0955	0.0564	-0.1204	0.1028	12
Poland	-0.0372	0.0300	-0.0591	-0.0375	0.0643	-0.0396	16
Portugal	-0.0267	0.0352	0.0200	0.0043	-0.0575	-0.0247	15
Romania	-0.1364	-0.1144	-0.1059	-0.1348	-0.0155	-0.5071	27
Slovakia	-0.0189	-0.0462	-0.0304	-0.0201	-0.1246	-0.2401	26
Slovenia	0.0203	0.0142	-0.0160	0.0112	0.0517	0.0814	13
Greece	-0.0006	-0.0462	-0.0771	-0.1140	0.0097	-0.2282	25

As shown in Eqs. (11) and (12), the matrix of distances to the boundary proximity area was obtained. Finally, the alternatives were ranked from 1 to 27 based on the *Si* values obtained by calculating sub-criterion functions using Eq. (13). The highest criterion value signifies the most preferred alternative. According to the results of the analysis, the countries with the highest DPS performance levels in 2022 were Estonia, the Netherlands, and Finland, respectively. The countries with the lowest performances were Romania, Slovakia, and Greece, respectively.

CONCLUSION

Postmodernism has affected the structure of public administration in two dimensions. First of all, it has changed the understanding of public administration, which was a product of modernism, by introducing the concept of 'new public management'. Subsequently, it yielded the concept of 'digital age governance'. The digitalisation of administration and the strengthening of governance mechanisms on the country-level have also been important issues for EU Member States. The DESI Report annually published by the European Commission on digitalisation performances of EU countries includes many criteria and sub-criteria for success in digitalisation.

In this study, the digitalisation performances of EU countries were evaluated based on the 'Digital Public Services' (DPS) criterion of the 2022 DESI Report. In this way, it was aimed to identify the EU country with the highest performance in terms of administrative digital transformation. The maximisation-oriented DPS sub-criteria of 'E-Government Users', 'Pre-Filled Forms', 'Digital Public Services for Citizens', 'Digital Public Services for Business', and 'Open Data' were included in the analysis. The weights of the listed sub-criteria were determined by the entropy method and their importance levels were calculated. The MABAC method, which is a multi-criteria decision-making method, was then used to rank the 27 EU Member States from 1 to 27 in line with the weighted sub-criteria.

As a result of the analysis, it was determined that the three EU countries with the highest levels of performance within the scope of the DPS sub-criteria are Estonia, the Netherlands, and Finland, respectively. The EU countries with the lowest levels of performance are Romania, Slovakia, and Greece, respectively. According to the entropy analysis, in which the importance levels of the considered sub-criteria were determined, the most important DPS sub-criterion is Digital Public Services for Business. The sub-criterion with the least importance is Pre-Filled Forms. The ranking of the sub-criteria according to their importance levels was obtained as follows, from most to least important: Digital Public Services for Business, Open Data, Digital Public Services for Citizens, E-Government Users, and Pre-Filled Forms.

In conclusion, the DPS sub-criteria are parameters that show how levels of communication are increasing between states and citizens with digitalisation. In this framework, it can be said that Estonia, the Netherlands, and Finland are the EU countries with the most successful applications of DAG today. This study could be repeated for different years or for different sub-criteria. The DESI criteria can also be considered together with other criteria in this field in the coming years and countries can be evaluated with multi-criteria decision-making methods in terms of their digital transformation performances.

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Volatility Spillover, Hedging and Portfolio Diversification Between Oil Market and S&P Sectoral Indices

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ABSTRACT

The study aims to analyze the volatility spillover between the oil market (WTI) and the S&P (Stand and Poor's) Energy, Financial, and Industry sector indices through conditional correlation and variance causality. The DCC-GARCH (Dynamic Conditional Correlation- Generalized Autoregressive Conditional Heteroscedasticity) and Hafner-Herwartz (2006) Variance Causality models were used to analyze the daily data for the period between January 3, 2012 and December 31, 2019. The results indicate a positive time-varying conditional correlation between the oil market and sector indices. In addition, the hedge ratios and risk-minimizing portfolio weights (which are vital for investors) have been calculated based on these data. The cheapest hedging transaction with the oil market occurs in the financial sector, while the most expensive one occurs in the energy sector. It has also been determined that volatility is transmitted from the sector indices to the oil market. This situation means that the S&P sector indices play a leading role (resource of information- emit information) in volatility spillover. The results provide important information to researchers, investors, and policymakers.

Keywords: Oil Market, Sector Indices, Multivariate GARCH, Variance Causality, Spillover.

JEL Classification Codes: C58, G11, Q40

INTRODUCTION

While the global markets are affected by many factors (such as economic, political, and social events), economic developments, which are reflected by specific indicators, play a key role in influencing the markets. Some vital economic indicators include stock indexes, securities-based futures, exchange rates, and the value of gold and oil in commodity prices.

Crude oil is both an essential resource of energy and raw material. Crude oil is an indispensable source of energy that directly or indirectly affects the economic activities of many countries. Many studies have shown the oil market's numerous macro and micro effects on the economy. Increasing oil prices lead to higher input costs and so higher output prices (cost inflation). These situations cause less output quantity and consumption, so the GDP rate (Gross Domestic Product) decreases. During these processes, unemployment and interest rates go up. In addition, increasing oil prices induces decreasing cash flows (except for companies that benefit from higher oil prices), therefore stock prices also decline. Moreover, increasing interest rates shifts the investor's preference from risky assets (stocks) to fixed-income securities, leading to stock prices falling (Pindyck,1980; Brown and Yucel; 2002: Basher and Sadorksy,2006; Soytas and Oran, 2011).

In addition to its effects on the economy, the financialization of commodity markets (Domanski and Heath, 2007) and increasing integration between commodity and financial markets have made the price of oil much more significant for policymakers and investors in recent years.

Previous studies analyzing crude oil's impact on the economy have generally focused on price (level) or return relationships (see Balabanoff, 1995; Ferderer, 1996; Hooker, 1996; Jones and Kaul,1996, etc) because the VAR (Vector Autoregression) model, the VAR based Classical Granger Causality model, the VECM (Vector Error Correction) based Granger Causality model, the Engle-Granger Cointegration model and the Toda-Yamamoto

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Causality model allow the level values or first moment of series. These models are not useful for high-frequency data. However, some studies have also indicated a potential relationship between volatilities (second moment of series, conditional variance). The literature defines the relationship between variables' volatilities as the volatility spillover or volatility transmission effect.

The volatility notion is important because it is considered a risk measure (Yu, 2002) which contains information (Ross,1989) and expectations (Kalotychou and Staikouras, 2009). Investors can utilize volatility within efficient risk management strategies (diversification and hedging). Additionally, examining the volatility structure of stocks and commodities provides information about substitution strategies (Creti et al., 2013). When the variables are negatively correlated (uncorrelated), this situation indicates a strong (weak) hedging process. The vital hedging process is known as a safe haven if the financial markets are in a period of turmoil. Positively correlated variables reflect the diversification property but are not considered perfect (Baur and Lucey, 2010; Baur and McDermott, 2010). In addition, policymakers pay attention to volatility to avoid the negative consequences of large fluctuations in the financial markets (Wang et al., 2020). This is because volatility is considered a measurement of the sensitivity and stability of financial markets and the economy (Yu, 2002; Poon and Granger, 2003).

This study provides a significant and original approach to the topic by exploring the risk management property of sector-based stock market indexes against the oil market. Sector-based stock market indexes are of interest because several studies have found that sectoral diversification effectively reduces risk (Cavaglia et al., 2000). In addition, using them removes the offsetting effect of aggregate stock market indexes (Soytas and Oran, 2011). We calculated the hedging ratios and optimal portfolio weights to observe the risk management property of sector-based equity indexes. This paper also contributes to the literature by analyzing the spillover direction in the context of causality. To achieve the paper's aim we utilized the DCC-GARCH and Hafner Herwartz Variance Causality methods.

This paper has shown that there are positive time-varying correlations between the oil market and the equity sector indices (Energy, Industry, and Financial), with the highest average correlation observed between the oil market and the energy sector. In addition, there are volatility spillovers from the equity sector indices to the oil market. Following this brief introduction, this paper is organized as follows: Literature Review (section 2), Data Set and Methodology (section 3), Results and Discussion (section 4), and Conclusion.

LITERATURE REVIEW

This section indicates the studies investigating the relationship between crude oil and the economy. This part of the paper consists of two subtitles in the form of (1) Macro-Level Interaction, and (2) Micro-Level Interaction. Moreover, both subtitles are also discussed for developing and developed countries.

Macro-Level Interaction

The macro-level interaction remarks the relationship between the growth rate, inflation rate, exchange rate, employment rate, and crude oil. A seminal work by Hamilton (1983) has shown that the changes in oil prices substantially affect the real output and production in the US. The majority of studies indicate that a rise in oil price shocks leads to a slower growth rate and higher inflation rate (see Huang et al., 2005; Rahman and Serletis, 2009; Bala and Chin, 2018; Bawa et al., 2021, etc). However, these linkages can vary from a developing country to a developed country and from an oil-importing country to an oil-exporting country.

Many papers have analyzed the relationship between crude oil and economic growth in developing countries. For example, Farzanegan and Markwardt (2009) indicate a significantly positive link between crude oil prices and the GDP (Gross Domestic Product) of Iran by using the Vector Error Correction Model (VECM) and Variance Decomposition Analysis (VDC). Contrary to Farzanegan and Markwardt (2009), Jbir and Zouari-Ghorbel (2009) remark no direct links between oil price shocks and economic indicators in Tunisia. Kumar (2009) shows that oil price shock is influenced negatively by the growth rate of industrial production in India. That said, oil price shocks positively affect inflation and interest rates. Akinlo and Apanisile (2015)(20 sub-Saharan countries) and Quero-Virla (2016) (Colombia) reveal that the crude oil market has a statistically significant and positive effect on economic growth. Trang et al. (2017) indicate the positive impact of increasing crude oil prices on inflation and the budget deficit for Vietnam. Nyangarika et al. (2018) show a strong correlation between crude oil prices and GDP growth in oil-producing nations. Akinsola and Odhiambo (2020) specify a statistically significant negative effect of oil prices on economic growth for seven low-income oil-importing sub-Saharan African nations by employing the Non-linear Autoregressive Distributed Lag (NARDL)

approach. A further study by Syaharuddin et al. (2021) provides evidence of a positive transmission from oil prices to growth, exchange rates, and inflation rates. Finally, Liaqat et al. (2022) show crude oil price shocks prevent short- and long-term economic growth, in Pakistan.

The papers considering the impact of crude oil on the economic growth of developed countries are as follows: Mork et al., (2013) show the negative transmission effects of oil price shocks on GDP growth within seven members of the OECD. Similarly, Eyden et al. (2019) confirm the statistically significant and negative effect on economic growth for OECD countries. Bu using VAR (Vector Autoregressive) model, Alekhina and Yoshino (2018) indicate the positive impact of crude oil on GDP growth, inflation, interest rates, and exchange rates for oil-exporting nations. Aka (2020) shows a spillover from crude oil prices to economic growth in Turkey.There are also several studies only conducted on the relationship between oil price shocks and inflation. For instance, Bala and Chin (2018) (Nigeria) and Bawa et al. (2021) (OPEC) reveal the impact of negative crude oil shocks on inflation. LeBlanc and Chinn (2004), Sek et al. (2015), Choi et al. (2018), Kilian and Zhou (2021), and Wen et al. (2021) considered the impacts of crude oil on inflation in developed countries.

The literature is also replete with studies of the effects of crude oil prices on exchange rate markets. By using VAR-GARCH (Vector Autoregression- Generalized Autoregressive Conditional Heteroscedasticity) model, Salisu and Mobolaji (2013) remark on the bi-directional volatility spillover transmission between oil and the exchange markets for Nigeria. Mishra and Debasish (2016) also corroborate Salisu and Mobolaji's (2013) result. By considering MENA (Middle East, North Africa) countries, Nouira et al. (2019) indicate substantial evidence of volatility spillovers from crude oil markets to exchange rate markets. There are plethora of further studies (Basher et al., 2012; Abed et al., 2016; Bangura et al., 2021; Geng and Guo, 2021; Huang and Li, 2022) which dive into the volatility transmission between the price of crude oil and the exchange rate across numerous nations.

The studies covering developed countries are as follows: Jawadi et al. (2016) show a negative link between oil prices and the U.S. dollar/Euro exchange rate. Ji et al. (2019) reveal a statistically significant spillover from crude oil prices to the exchange rate markets in the U.S. and China. By considering major oil-exporting and oil-importing nations, Malik and Umar (2019) indicate the connectedness relationship between oil price shocks and the exchange rate, which was significantly positive and high after the financial crisis. By considering major oil exporter and importer countries, Hameed et al. (2021) remark that the exchange rate has a more volatile spillover effect on oil-exporting countries than on oil-importing countries. Finally, Adi et al. (2022) demonstrate a bi-directional volatility spillover and shock impact between the exchange rate and crude oil. The other studies considering developed countries are Wu et al. (2012), Mokengoy (2015), Siami-Namini (2019), Liu et al. (2020).

When we assess the literature mentioned above, we see that crude oil shocks' economic impacts are different for oil-importing and oil-exporting countries. In oil-importing countries the links are negative, but in oil-exporting countries are positive. In the following section, we will present the micro-level interaction.

Micro-Level Interaction

This interaction shows the relationship between crude oil and stock markets. As is known, crude oil impacts on stock markets can occur in different channels: (1) Cash flow, (2)Discount rate, and (3) Investors' demand shifting.

Some of the studies have considered the level and/or return value of the data set. For instance, Papapetrou (2001) remarks on the importance of crude oil in explaining Greece's stock market change, by using the VAR model. Eryigit (2012) shows that crude oil shocks have an impact on stock market index return in Turkey, by using the VAR model. Dagher and Hariri (2013) indicate that there is only uni-directional Granger causality from crude oil to the Lebanese stock market. By using panel cointegration and causality models, Li et al. (2012) reveal the long- run impact of oil prices on sectoral stock indices and causality from crude oil to the stock market of China. Halac et al. (2013) remark on a positive connection and significant cointegrated relationship between oil prices and the Turkish stock market. Broadstock et al. (2014) indicate that crude oil shocks have a direct impact on the stock markets in Asia-Pacific Countries. Gil-Alana and Yaya (2014) reveal the positive relationship between crude oil and the Nigerian stock market. Sensoy and Sobacı (2014) demonstrate the existence of volatility spillover between bond and stock markets in Turkey. Aydogan and Berk (2015) suggest that oil price variations significantly and rationally affect the Turkish stock market, by utilizing the VAR model. Similarly, Toparlı et al. (2019) reveal the impact of crude oil shocks on the Turkish stock market, but they show that this impact is less than the exchange rate and interest rate. Çatık et al. (2020) indicate the

significant impact of crude oil on energy-dependent sector indices. Caporale et al. (2022) show that the crude oil market has a significantly positive (negative) effect on energy sectors (financial sectors) by considering BRICS (Brazil, Russia, India, China, and South Africa). Lastly, Le and Do (2022) specify that crude oil has a positive (negative) impact on oil-exporting (oil-importing) Asian countries' stock markets.

The works of literature covering developed countries are as follows: By using the structural VAR model, Kang and Ratti (2013) show that the oil market's typical demand shocks harm stock returns in the U.S. Kang et al. (2015) found similar results corroborating this study. Balcilar and Ozdemir (2013) indicate that there is no Granger causality in different regimes between crude oil and S&P 500. By focusing on Central and Eastern European Countries, Asteriou and Bashmakova (2013) remark on the impact of crude oil price changes on the stock market. Cunado and Gracia (2014) show the negative impact of the crude oil market on some European Countries. Moreover, they specify that the effects become different in underlying causes of oil price changes. Reboredo and Rivera-Castro (2014) indicate that oil price changes did not affect aggregate and sector indices in the pre- 2008 financial crisis period in Europe and U.S. Jiang et al. (2020) demonstrate no significant correlation between crude oil and the stock market in G7 (Group of Seven) countries. Finally, Akdeniz et al. (2021) remark on the changing of the positive impact of crude oil to a negative impact during the pandemic period.Many studies also investigate the volatility spillover relationship between oil and stock markets. Table 1 below summarizes the methodology and key findings of the literature reviewed in this section.

DATA SET AND METHODOLOGY

While the daily sector indices (energy-SP5EENE, industrial-SP5EIND, and financial-SP5FIN) have been obtained from Thomson Reuters Datastream, crude oil (WTI) was obtained from EIA (U.S. Energy Information

Table 1. Literature Review

Author	Data and Sample Period	Methodology	Key Findings
Malik and Hammoudeh (2007)	S&P 500, BSE, KSE, Tadawul WTI Crude Oil, Daily Data (1994-2001)	BEKK-GARCH	Indirect shock spillover is determined from the S&P 500 and Tadawul indices to the oil market. Volatility transmission from the oil market to BSE, KSE, and Tadawul indices is detected.
Malik and Ewing (2009)	Dow Jones Financial, Technology, Consumer Service, Health Care, Industrials Indices, WTI Crude Oil Weekly Data (1992-2008)	BEKK-GARCH	Volatility spillover from the oil market to the financial sector is not determined. Indirect shock and volatility spillover from the oil market to the technology sector is identified. Bi-directional volatility spillover is observed between the consumer service sector and the health sector and the oil market. Volatility spillover is determined from the industry sector to the oil market.
Arouri et al. (2011)	Dow Jones Stoxx 600 S&P 500 Sector Indices BRENT Oil Weekly Data (1998-2009)	CCC-GARCH, DCC-GARCH, BEKK-GARCH, VAR-GARCH,	It is determined that the volatility spillover has a one-way effect from the oil market to the European stock market indices. A bi-directional effect was found between the oil market and U.S. stock market indices of volatility spillover.
Chang et al. (2013)	FTSE 100, NYSE, Dow Jones, S&P 500 WTI, and Bent Oil Daily Data (1998-2009)	CCC-GARCH, DCC-GARCH, VARMA-GARCH,	No volatility spillover between the crude oil spot prices and stock indices was determined in this study. A slight volatility spillover between crude oil forward and future prices and stock indices has occurred.
Mensi et al. (2013)	S&P 500 WTI and BRENT Oil Daily Data (2000-2011)	VAR-GARCH	Volatility spillover is determined from the past shocks of S&P 500 Index to WTI crude oil, and from the past volatility of S&P 500 to WTI and Brent crude oil. In addition, volatility spillover is detected from past WTI and Brent crude oil shocks to S&P 500.
Mollick and Assefa (2013)	S&P 500, Dow Jones, NASDAQ, Russell 2000 WTI Crude Oil Daily Data (1999-2011)	DCC-GARCH GARCH	Before the financial crisis, stock returns were affected negatively by the oil market. During the crisis, it was determined that the oil market's stock returns were positively affected.
Maghyereh et al. (2016)	U.S, Canada, UK, India, Mexico, Japan Sweeden, And Oil Implied Volatility Indices Daily Data (2008-2015)	Diebold-Yılmaz	It is determined that there is a bi-directional volatility spillover between the stock and oil markets. Such a condition that the oil market is dominant in these relations.

Singhal and Ghosh (2016)	S&P BSE SENSEX and Sector Indices Brent Crude Oil Weekly Data (2006-2015)	VAR-DCC GARCH	No volatility spillover from the oil market to the S&P, BSE, SENSEX index has been identified. Volatility spillover from the oil market to the auto, power and finance sectors is determined.
Wang and Liu (2016)	SSEC, FCHI, GDAXI, BSESN, NIKKEI 225, KS11, FTSE, S & P 500, TSX, TASI, SEWI, MXX, OSEAX, MICEX, SMSI, IBVC WTI Crude Oil Weekly Data (2000-2011)	BEKK-GARCH DCC-GARCH	Among oil-exporting countries, there is a volatility transmission to IBVC (Venezuela), OSEAX (Norway), and MICEX (Russia) indices from the oil market. Among the oil-importing countries, a volatility spillover from GDAXI (Germany), FTSE (UK) and S&P 500 indices to the oil market has occurred.
Liu et al. (2017)	S&P500, MICEX, WTI Crude Oil, Daily, Weekly, Bimonthly, Monthly Data (2003-2014)	Wavelet BEKK-GARCH	Before the crisis period, there was no volatility spillover between S&P 500 and WTI in daily data. During and after the crisis, there is a volatility transmission from S&P 500 to WTI in the daily data. There is a bi-directional volatility spillover in all periods when considering weekly data.
Çevik et al. (2018)	MSCI G7 Index, MSCI Emerging Market Index Brent and WTI Daily Data (1988-2018)	Cheung and Ng Mean and Variance Causality Test	The causality of variance from WTI and Brent crude oil prices to MSCI G7 has not been determined. The causality of variance has been detected from MSCI G7 to Brent oil.
Ashfaq et al. (2019)	MSCI G7 Index, MSCI Emerging Market Index Brent and WTI Crude Oil Daily Data (1988-2018)	BEKK-GARCH DCC-GARCH	There is a bi-directional volatility spillover between oil-exporting countries' stock markets and the oil market (namely, Saudi Arabia and Iraq). Additionally, it is determined that there is a volatility spillover from the oil market to the South Korean stock market, which is one of the oil-importing countries
Sarwar et al. (2019)	Shangai, Nikkei, Bombay WTI Crude Oil Daily Data (2000-2016)	BEKK-GARCH DCC-GARCH cDCC-GARCH GO-GARCH	No spillover of shock and volatility spillover was determined between the Shangai Index and the oil market. Bi-directional shock and volatility spillover is detected between the Nikkei Index and the oil market. The results indicate that there is a shock and volatility transmission from Bombai Index to the oil market
Belhassine (2020)	Eurozone Sectors Brent Oil Daily Data (2004-2015)	VAR-BEKK-GARCH	The results showed that the presence or direction (bi-directional, uni-directional) of volatility spillover varies according to the period analyzed.
Liu et al. (2020)	OVX and VIX Daily Data (2007-2018)	DCC-GARCH cDCC-GARCH GO-GARCH	It is determined that there is a positive conditional correlation relationship between OVX and VIX, depending on time. This relationship strengthened during the financial crisis with a bi-directional volatility spillover.
Mensi et al. (2021)	Chinese Sector Stock Market Indices, WTI Futures Daily Data (2005-2020)	Diebold-Yılmaz	The energy sector is the most affected sector by crude oil. The financial and industrial sectors are the other most affected sectors, respectively.
Tiwari et al. (2021)	S&P500, Crude Oil (1990-2017) Monthly Data	Barunik-Krehlik	There is a similar interaction between S&P 500 and crude oil in the short term (1-6 Months). The interactions between data set become very small after that period.
Hussain and Rehman (2022)	GCC Stock Indices, S&P Global Oil Index (2012-2022) Daily Data	Diebold-Yılmaz	There is no spillover (too small to be considered) between the data set.
Hernandez et al. (2022)	OVX and U.S Sector Indices (2007-2020) Daily Data	Diebold-Yılmaz Markov Regime Switching Granger Causality	There is a Granger causality from the oil volatility to the sector indices, and the causality's impact is stronger in high volatility regimes.

Administration). The study covers the period between January 1, 2012, and December 31, 2019. The paper aims to analyze the relationship between stochastic processes, so level values were converted to returns series with the formula ln (P_t/P_{t-1})x100.

Several techniques have been developed to analyze volatility spillover. These are as follows: (1) Multivariate Autoregressive Conditional Heteroscedasticity Models (CCC, DCC, VEC, VAR, VARMA BEKK, etc.), (2) Variance Causality Methods (Cheung and Ng, Hong, Hafner-Herwartz), and (3) Volatility Connectedness Model-(Diebold & Yılmaz and Barunik & Krehlik). We utilized DCC-GARCH and Hafner Herwatz Variance Causality.

Christodoulakis and Satchell (2002), Engle (2002), and Tse and Tsui (2002) developed the Constant Conditional Correlation GARCH (CCC-GARCH) model for a structure in which the conditional correlation matrix is time-dependent. These models are collectively known as the Dynamic Conditional Correlation GARCH (DCC-GARCH) model. The model which was suggested by Christodoulakis and Satchell (2002) can only be applied to models with two variables. On the other hand, the DCC-GARCH models suggested by Engle (2002) and Tse & Tsui (2002) can be applied to multivariate and high-dimensional data sets.

The DCC (Engle) model can be formulated as follows:

$$r_t|\zeta_{t-1} \sim N(0, D_t R_t D_t), \tag{1}$$

$$D_t^2 = diag\{\omega_i\} + diag\{\mathrm{K}_i\} \circ r_{t-1} r'_{t-1} + diag\{\lambda_i\} \circ D_{t-1}^2 \tag{2}$$

$$\varepsilon_t = D_t^{-1} r_t \tag{3}$$

$$Q_t = S \circ (\iota\iota' - A - B) + A \circ \varepsilon_{t-1}\varepsilon'_{t-1} + B \circ Q_{t-1} \tag{4}$$

$$R_t = diag\{Q_t\}^{-1} Q_t diag\{Q_t\}^{-1} \tag{5}$$

Within the equations: R_t refers to the symmetric positive matrix of correlations, S is the unconditional correlation matrix of ε_t, and A and B indicate non-negative scalar parameters, which must be lower than 1. If A=B=0, the Dynamic Conditional Correlation Model becomes the Constant Conditional Correlation Model (Wang and Liu, 2016).

Hafner and Herwartz (2006, 2008) have used the Lagrange Multiplier instead of the Portmanteau statistics model that Cheung and NG (1996) considered. As a result of their Monte Carlo simulation indicated that the test based on CCF (Cross-Correlation Function) has two shortfalls compared to the LM test. Firstly, if the conditional heteroskedastic process is leptokurtic, the Portmanteau test suffers from an oversizing problem. Secondly, $P_m = T\sum_{i=1}^{m} r_{ij,t}^2$ such that cross-correlation is the problem of correctly determining the *m* value. If *m* is determined too small, causality can be overlooked at high lags. If it is too large, the degree of freedom increases, and the strength of the test decreases.

The variance causality hypothesis put forward by Hafner and Herwatz (2006) is formulated as follows:

$$H_0: Var\left(\varepsilon_{it}|\mathrm{F}_{t-1}^{(j)}\right) = Var(\varepsilon_{it}|\mathrm{F}_{t-1}); \tag{6}$$

j=1,.....N, i≠ j

$$F_t^{(j)} = F_t(\varepsilon_{j\tau}, \tau \le t) \tag{7}$$

$$\varepsilon_{it} = \xi_{it}\sqrt{\sigma_{it}^2} g_t; g_t = 1 + z'_{jt}\pi = \left(\varepsilon_{jt-1}^2, \sigma_{jt-1}^2\right) \tag{8}$$

$$\lambda_{LM} = \frac{1}{4T}\left(\sum_{t=1}^{T}(\xi_{it}^2 - 1)z'_{jt}\right) V(\theta_i)^{-1} \left(\sum_{t=1}^{T}(\xi_{it}^2 - 1)z_{jt}\right) \tag{9}$$

The expression ξ_{it} in Equation 8 indicates the standardized residual of variable *i*, while σ_{it}^2 is the conditional variance of variable *i*. Expressions ε_{jt-1}^2 and σ_{jt-1}^2indicates the square of the error terms and the conditional variance of the series *j*, respectively (Nazlıoğlu et al, 2015:281). The Hafner and Herwatz Variance Causality Model tests the null hypothesis to ensure that there is no causality in variance. The following chapter will present and discuss the results.

RESULTS AND DISCUSSION

Before explaining the results, it is necessary to do a preliminary analysis of the data set. Figure 1 indicates the price (level) of the series.

Figure 1 shows that the WTI and the Energy Sector Index have moved on a similar upward trajectory. This situation became apparent after the year 2014. The period between 2014 and 2016 is crucial for the energy sector due to the following reasons (Investopedia; Eraydın, 2015; Ellwanger et al., 2017):

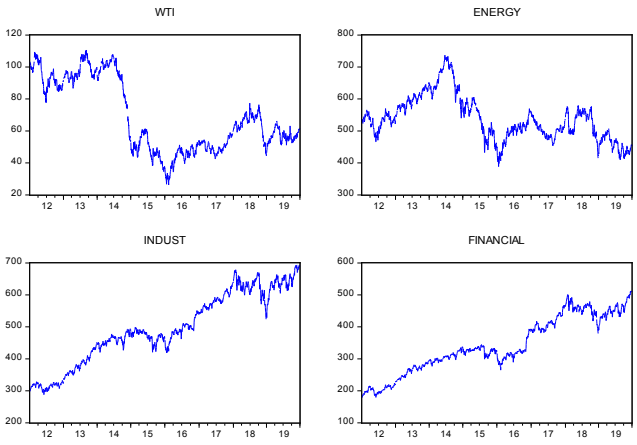

Figure 1. Price Series Graphs

- Due to rising oil prices, the U.S. and Canada increased their oil production and decreased imports.
- The growing trend after the global financial crisis (2008) didn't occur as expected.
- The economic slowdown in China caused a shrink in demand.
- The oil supply was not reduced by OPEC (The most Important Factor).
- Shale gas was used in the U.S.
- Increasing energy efficiency via technological advances.

Figure 1 displays a clear trend of increase in the Industry Sector Index and the Financial Sector Index, which is contrary to the WTI and the Energy Sector Index.

The data set has been converted to the return series with the formula ln (P_t / P_{t-1})x100. Figure 2 below represents the return series.

The results, as shown in Table 2, indicate that among the sector indices, the mean value is only negative in the energy sector, the highest risk is seen in the oil market, and the lowest risk is in the industry sector. The kurtosis value greater than 3 indicates a leptokurtic structure. This means that negative and positive outliers occur more frequently than normally distributed variables, and values scatter around the mean (Franke et al., 2007). While the sector indices are all skewed to the left, the crude oil market is skewed to the right. Left skewness indicates that negative values are more likely to occur. The skewness and kurtosis values of the data set reveal that the series has not been normally distributed. The Jarque-Bera test, which examines whether the series is normally distributed, also supports this result.

From the data presented in Table 3, the greatest correlation observed within the oil market occurs in the energy sector, while the lowest correlation is found within the financial sector.

While ADF and PP test the null hypothesis that the variables include unit roots, KPSS tests the null hypothesis that the series is stationary (Dickey and Fuller, 1981; Phillips and Perron, 1998; Kwiatkowski et al., 1992). In Table 4, it can clearly be observed that all series are stationary. ADF, PP, and KPSS are all traditional unit root models which ignore structural breaks. Because structural breaks may cause an acceptance of the null hypothesis even if they are false, researchers developed several unit root models which consider structural breaks. Zivot-Andrews (1992) is one such researcher.

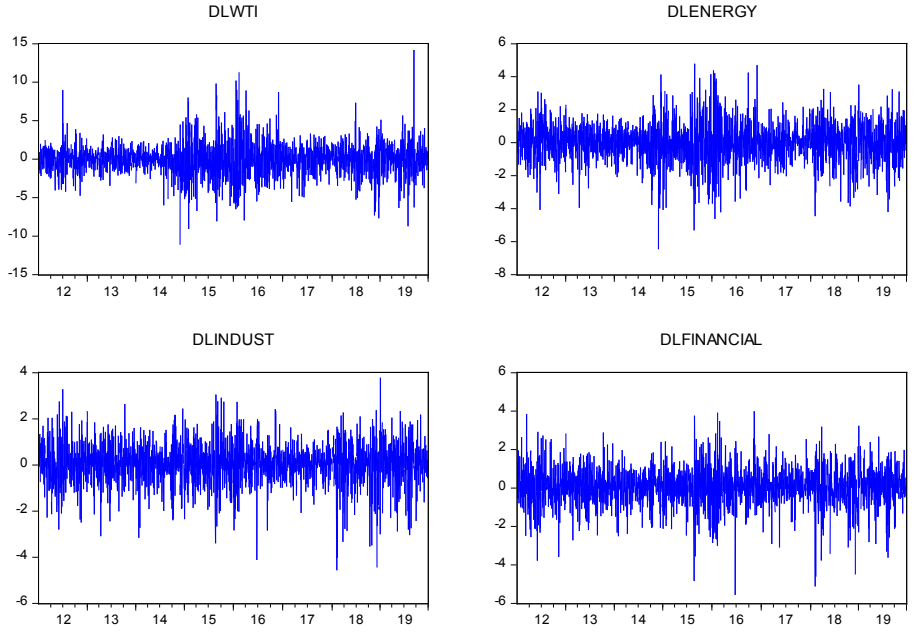

Figure 2. Return Series Graphs

Table 2. Descriptive Statistics of Return Series

	WTI	**ENERGY**	**INDUSTRY**	**FINANCIAL**
Mean	-0.025788	-0.007798	0.041303	0.051650
Maximum	14.17608	4.794393	3.778237	3.988712
Minimum	-11.12576	-6.469567	-4.562463	-5.558890
Std. Dev	2.104095	1.211535	0.915808	1.022031
Skewness	0.228042	-0.236570	-0.460161	-0.399910
Kurtosis	6.924854	4.754890	4.957872	5.314217
Jarque-Bera	1314.702***	278.1825***	394.1165***	504.8552***

Note: **** significance at %1*

Table 3. Correlation Table

	WTI	**ENERGY**	**INDUSTRY**	**FINANCIAL**
WTI	1	0.613449	0.276431	0.254263
ENERGY	0.613449	1	0.681491	0.634577
INDUSTRY	0.276431	0.681491	1	0.826177
FINANCIAL	0.254263	0.634577	0.826177	1

Table 4. Results of Unit Root Tests

	ADF		PP		KPSS	
	C	C + T	C	C + T	C	C + T
WTI						
Test Statistic	-48.22966	-48.23160	-48.20070	-48.20496	0.138728	0.066477
Test Critical (%5)	-2.862768	-3.412034	-2.862768	-3.412034	0.463000	0.146000
ENERGY						
Test Statistic	-18.86657	-18.87098	-44.63919	-44.63420	0.063265	0.039113
Test Critical (%5)	-2.862772	-3.412040	-2.862768	-3.412034	0.463000	0.146000
INDUSTRY						
Test Statistic	-21.57650	-21.57781	-44.41673	-44.41283	0.060401	0.025557
Test Critical (%5)	-2.862771	-3.412039	-2.862768	-3.412034	0.463000	0.146000
FINANCIAL						
Test Statistic	-21.77032	-21.77607	-45.75552	-45.75715	0.087273	0.041825
Test Critical (%5)	-2.862771	-3.412039	-2.862768	-3.412034	0.463000	0.146000

Table 5 shows that the null hypothesis of the Zivot–Andrews Unit Root Test (there is a unit root with a structural break in intercept and trend) is rejected. This indicates that the return series is a stationary process.

The DCC-GARCH (Engle Two-Step Procedure) model provides three kinds of information about the data set. These are as follows: (1) Univariate autoregressive conditional heteroscedastic structure of the series- *Panel A.*, (2) Existence of volatility spillover between series - *Panel B.,* and (3) The static and dynamic (time-varying) power of spillover.

Within the equation, ω (ω> 0), α (α ≥ 0), and β serving as the constant, the effect of shock on the volatility and the effect of volatility in the previous period on current

Table 5. Zivot–Andrews Unit Root Test

Variables	At level		At 1st difference	
	T-statistic	Time Break	T-statistic	Time Break
Ln WTI	-4.619 (1)	9/29/2014	-48.514 (0)*	2/12/2016
Ln ENERGY	-3.450 (0)	5/04/2015	-19.096 (5)*	1/21/2016
Ln INDUSTRY	-4.210 (0)	4/23/2013	-21.667 (4)*	1/26/2016
Ln FINANCIAL	-3.309 (5)	7/23/2015	-21.958 (4)*	2/12/2016

Note: ** indicates % 1 level of significance. The critical value at %1 is –5.57 and 5% is –5.08. Parenthesis represents the lag order.*

Table 6. DCC-GARCH Model

PANEL A	ω	α	β
ω_{wti}	0.036915^{*} [1.867]	α_{wti} 0.064668^{***} [4.946]	β_{wti} 0.928916^{***} [60.67]
ω_{energy}	0.024776^{**} [2.123]	α_{energy} 0.067040^{***} [4.330]	β_{energy} 0.916610^{***} [43.67]
$\omega_{industry}$	0.062236^{***} [2.705]	$\alpha_{industry}$ 0.115398^{***} [3.783]	$\beta_{industry}$ 0.812123^{***} [16.53]
$\omega_{financial}$	0.136221^{***} [3.900]	$\alpha_{financial}$ 0.160646^{***} [4.407]	$\beta_{financial}$ 0.712711^{***} [12.96]

PANEL B	ρ	α		β	
$\rho_{wti\text{-}energy}$	0.584879^{***}	$\alpha_{wti\text{-}energy}$	0.006242^{**}	$\beta_{wti\text{-}energy}$	0.989167^{***}
$\rho_{wti\text{-}indutry}$	0.259151^{***}	$\alpha_{wti\text{-}indutry}$	0.012739^{**}	$\beta_{wti\text{-}industry}$	0.980529^{***}
$\rho_{wti\text{-}financial}$	0.210281^{***}	$\alpha_{wti\text{-}financial}$	0.012369^{***}	$\beta_{wti\text{-}financial}$	0.981386^{***}

Note: *Panel A shows Univariate Generalized Autoregressive Conditional Heteroscedasticity Model to consider ARMA(1,0).*

The variance equation is $\sigma^2=\omega+\alpha\mu^2_{t-1}+\beta\sigma^2_{t-1}$.

Note: *Panel B indicates the conditional correlation part of the DCC-GARCH Model.*

Note: **** significance at %1, ** significance at %5, * significance at %10.*

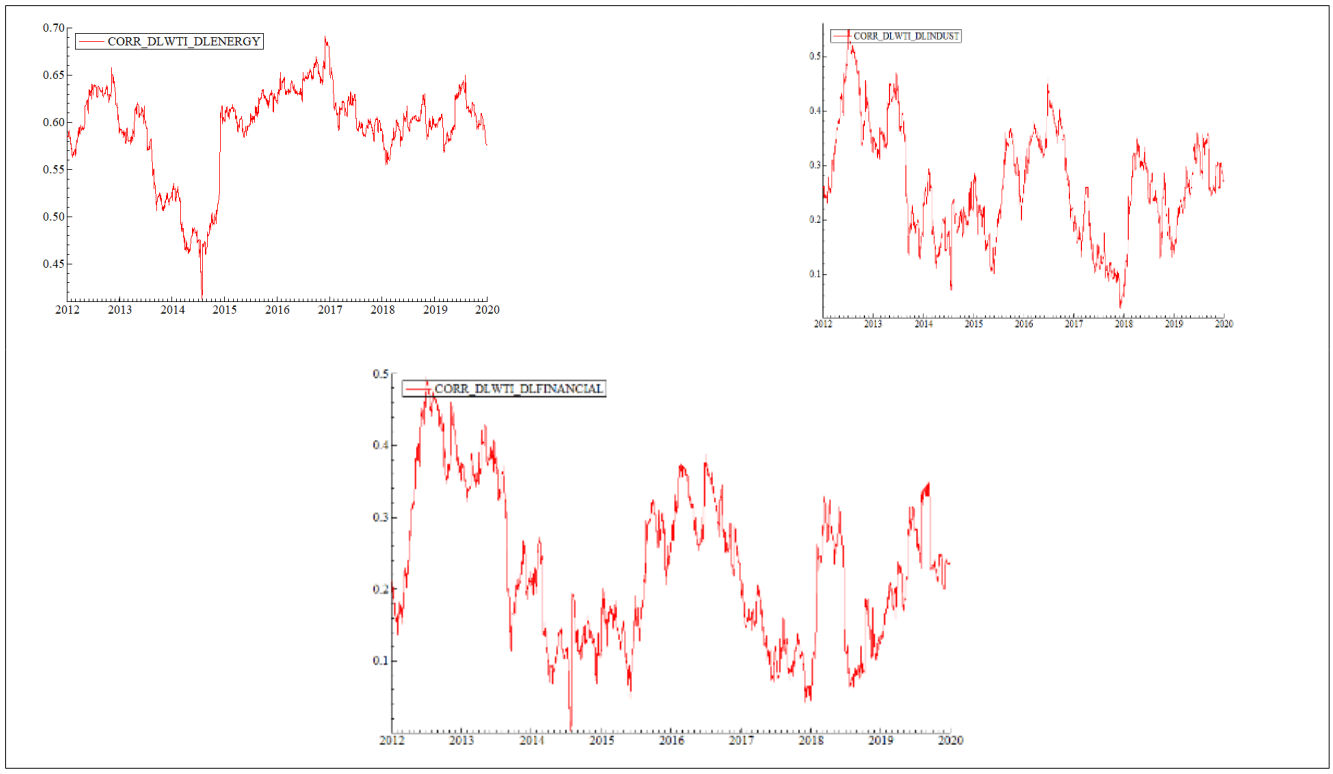

Figure 3. Time-Varying Conditional Correlation

Table 7. Results of Variance Causality

From/to	LM (prob)
WTI/ ENERGY	2.319(0.3137)
ENERGY/ WTI	11.121(0.0038)
WTI /INDUSTRY	3.281(0.1939)
INDUSTRY/WTI	6.852(0.0325)
WTI /FINANCIAL	2.191(0.3344)
FINANCIAL/ WTI	7.309(0.0259)
WTI/ ENERGY	2.319(0.3137)

H_{0a}: *There is no causality in variance from the oil market to the sector indices*

H_{0b}: *There is no causality in variance from the sectoral indices to the oil market*

volatility is determined, respectively. In addition, $\alpha + \beta$ indicates volatility persistence and must be less than 1. Persistence reveals whether the effect of the shock in the relevant data set is long or short. It can be seen from PANEL A in Table 6 that the highest volatility persistence is 0.99358 in WTI and the lowest is 0.873357 in the financial sector. The persistence of WTI leads researchers to consider long memory models (such as FIGARCH, FIEGARCH, FIAPARCH, and HYGARCH). The results of volatility spillover are shown in PANEL B (Table 6). Table 6 indicates that there is a volatility spillover (uni-directional or bi-directional) between the crude oil and the sector indices because ρ (average conditional correlation term), α (ARCH), and β (GARCH) are all statistically significant.

The interval of correlations between crude oil and the sector indices ranges from 0 to 0.7. This situation indicates that the sector indexes and crude oil do not have strong hedging and are not a safe haven instrument, but instead serve as a diversifier for each other over some period. As shown in Figure 3, the correlation between the WTI and the sector indices of industry and the financial sector increased from 0.2 to 0.5 in 2012. During this period, the price of crude oil increased from $80 to $100 per barrel. At the same time, the industry and financial sector indices were trending upward because of the global economic recovery after 2008. Therefore, we can infer that the recovery increased the demand for crude oil, which led to a demand-based volatility spillover (risk and information) from the sector indexes to crude oil. This indicates that during the recovery period of the economy, sector indexes should not be used as a risk management instrument for crude oil. In Figure 3, a clear downward correlation trend from 2013 to mid-2014 can be seen because the crude oil supply exceeded the demand. Despite this, OPEC did not reduce the supply. Therefore, the divergence between crude oil and the sector indexes (industry and financial) increased. This means that demand-based risk and information transfer from the sector indices to crude oil have decreased. The more surprising correlation occurred with the Energy Sector Index from 2013 to mid-2014. This occurred because the expectation was that there would be a tough divergence between crude oil and the energy sector. Two possible reasons for this are (1) Technological progress in clean energy and (2) Shale Gas. These assumptions (which have supply-side and demand-side effects) may have led the energy companies to not consider crude oil volatility (caused by a fall in the price) as an uncertainty and risk factor. Another crucial decrease in correlation is noticed from mid-2016 to 2018 (as shown in Figure 3). Although there was a supply-side effect (caused by lower global production and issues in oil fields, economic issues, the Zika virus in Venezuela, etc.), the divergence between the sector indices and crude oil increased. A possible explanation for this might again be the progression of clean energy technologies and the use of shale gas. Determining the existence of the volatility spillover lack of direction will be insufficient for investors, researchers, and policy makers. Detecting the presence of volatility spillovers without the direction of the relationship is insufficient for investors, researchers, and policy makers. Therefore, we utilized the variance causality model to capture the spillover direction. The results of the spillover direction are shown in Table 7.

Table 7 indicates that H_{0a} is not rejected for all the sector indices. That means there is no volatility spillover from the crude oil market to the sector indices. The statistical explanation of this result is that the past and current volatility of crude oil cannot be used to forecast the future volatility of stock

markets. That result implies that the crude oil market is not a useful information resource for determining the sector indices. The other null hypothesis *H0b* is rejected for all the sectoral indices, as seen in Table 7. This means that the past and current volatility of the stock markets can be used to forecast the future volatility of the crude oil market or in brief, sector indexes have a leading role against crude oil. From the economic point of view, we can say that the transmission between crude oil and S&P indices is related to the demand and supply side because the U.S. is one of the biggest oil importers and exporters. For instance, slowing economic growth leads to increased industry sector uncertainty, and this situation based on lower demand also affects the crude oil market uncertainty. In terms of the supply side, we can say that energy producers' uncertainty condition is useful information for crude oil market volatility. The variance causality results indicate that policy makers in the U.S. do not need to monitor the oil market when developing policies to curb the stock market's fragility, but policy makers in the crude oil market should consider the sector indices in the U.S. For investors, the existence of variance causality remarks on the possibility of a weak risk management process. To observe that clearly, the hedge ratio and the optimal portfolio weight should be calculated.

The DCC-GARCH model allows us to calculate the Hedge Ratio and the Optimal Portfolio Weight. Kroner and Sultan (1993) formulated the Hedge Ratio as follows:

$$b_t = h_{xy,t}/h_{yy,t} \quad (10)$$

In the equation, b_t , $h_{xy,t}$, $h_{yy,t}$ and denote hedge ratio, conditional covariance, and conditional variance at time t, respectively.

The hedge ratio represents the cost of hedge transactions. According to the hedge ratio, a $1 long position in one asset should be hedged (short position) in the other asset. As such, Table 8 indicates that a $1 long position in crude oil should be hedged 0.46 (0.60, 1.01) cents with the financial sector (Industry, Energy) and a $1 long position in the financial sector (Industry, Energy) should be hedged 0.12 (0.13, 0.36) cents with crude oil. These results coincide with the correlation relationships (0.58-Energy; 0.25-Industry; 0.21-Financial). This means that if the conditional correlation relationship rises (volatility spillover impact), the hedging transactions become more expensive. When Table 7 and Table 8 are considered together, the financial sector has the lowest demand-side effect, as expected. Table 8 also shows that cheaper hedging transactions occur if crude oil is in a short position. The short position is used as a hedging transaction when assets are falling in a downward trajectory. This situation (decreasing trend of crude oil) can be observed in Figure 1 above. The time-varying hedge ratios are illustrated in Figure 4 below.

In Figure 4, graphics on the right (left) side show the short position (long-position) of the crude oil. It is apparent from Figure 4 that generally a short position in crude oil is more beneficial than a long position while considering the hedging ratio's ranges. This inference is corroborated by Figure 1 because crude oil has had a continuously decreasing trend since 2012. For example in 2014, suitable hedging transactions occurred when the crude oil in short position. In 2014 the crude oil price decreased because of the OPEC decision, and the slowdown in China's economy, therefore short position in crude oil was appropriate. The divergence (decreasing conditional correlation) between crude oil and the sector indices peaked at that period, especially between crude oil and financial sector indices. Therefore, the cheapest hedge process occurred between crude oil and financial sector (so close to zero). In some periods, the relationship between the correlation and hedge ratios is interesting considering Baur and Lucey (2010) and Baur and McDermott (2010) because they determined that only negative correlations (uncorrelated) related to strong (weak) hedging transactions. However, this paper shows that the positive low correlation can lead to strong or weak hedge ratio.

Table 8. Descriptive Statistics of Hedge Ratio

Long/Short	Mean	Maximum	Minimum	Std.Dev
WTI/ENERGY	1.014838	1.921916	0.400338	0.278724
ENERGY/WTI	0.365447	0.804299	0.186468	0.078290
WTI/ INDUSTRY	0.603219	1.931511	0.057544	0.326856
INDUSTRY/WTI	0.131432	0.414067	0.020591	0.072093
WTI/FINANCIAL	0.465828	1.644864	0.005224	0.280090
FINANCIAL/WTI	0.128307	0.467909	0.001954	0.082798

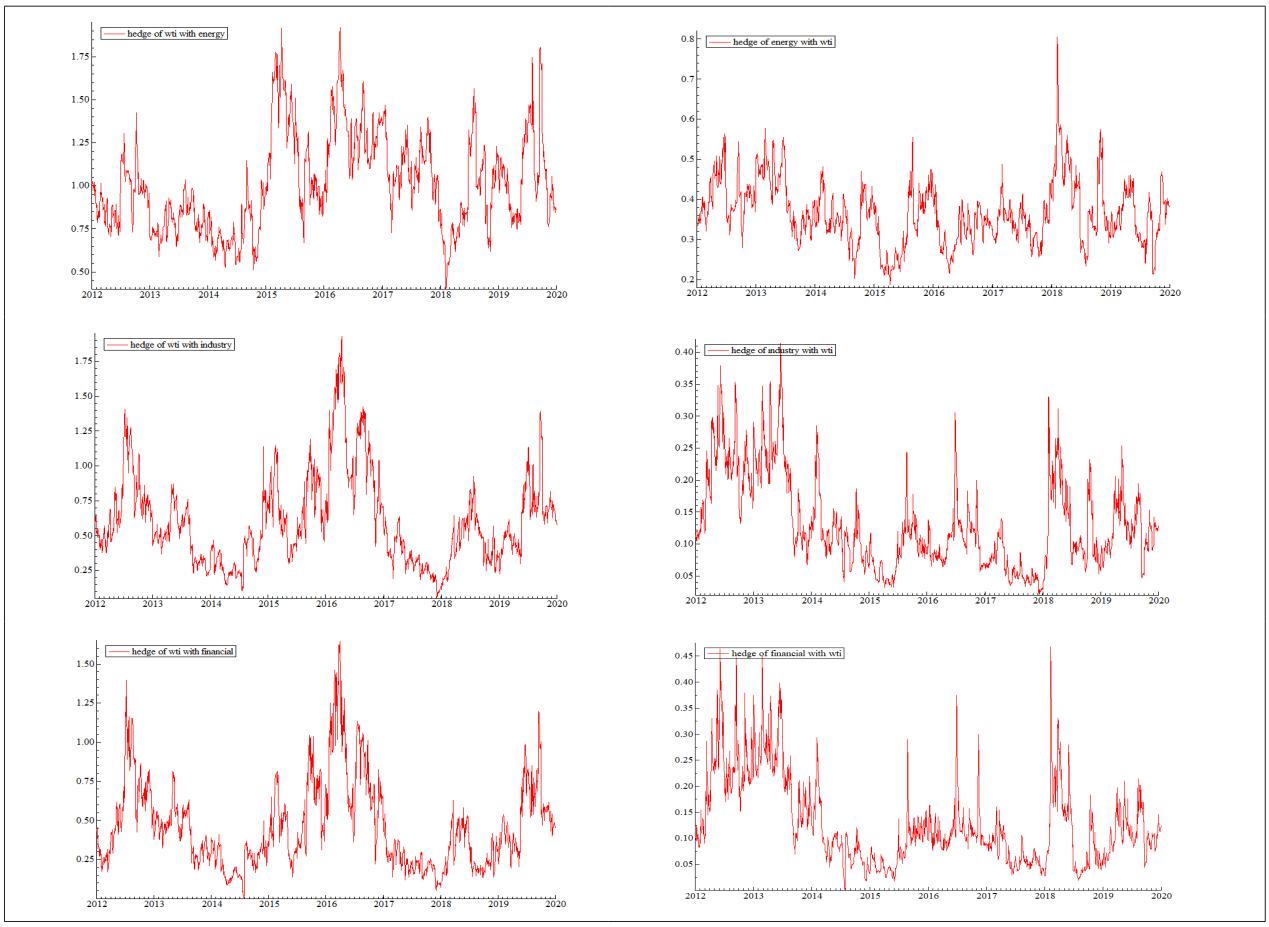

Figure 4. Time-Varying Hedge Ratio

The equation of risk-minimizing portfolio weight described by Kroner and Ng (1998) is as follows:

$$\omega_t = h_{yy} - h_{xy}/h_{xx} - 2h_{xy} + h_{yy} \quad (11)$$

$$\omega_t = \begin{cases} 0, if\, \omega_t < 0 \\ \omega_t, if 0 \leq \omega_t \leq 1 \\ 1, if\, \omega_t > 1 \end{cases} \quad (12)$$

In the equation, h_{xx} and h_{yy} relate to the conditional variance of asset x and asset y, while h_{xy} is the conditional ω_t covariance between asset x and asset y. In addition, remarks the portfolio weight of the first asset, while 1-ω_t states the second asset weight in the portfolio.

Table 9 indicates that in the \$1 portfolio, w_{jt} cents should be invested in j and 1- wjt cents in t. The WTI/ Financial portfolio is approximately 0.18. This reveals that in a portfolio of \$100,000, \$18,000 should be invested in crude oil, the remaining \$82,000 should be invested in the financial sector, or \$13,000 should be invested in crude oil, and the rest should be invested in the industry sector. While creating a bivariate portfolio consisting of crude oil and sector indices, investors should include sector indices, predominantly.

The results presented in this chapter indicate a volatility spillover from the sector indices to crude oil. Sector indices are the indicators of crude oil's information, risk, and uncertainty. The cheapest hedging cost occurs between crude oil and the financial sector because the financial sector has the lowest effect (inferred from conditional correlations and hedging theories) on crude oil. The hedging cost will increase if the sector indices are used in a short position. There may be two possible explanations for this result: (1) Being an indicator and (2) Showing bull market tendencies. These findings have important implications for developing strategies for risk management for investors. The present results are also significant for policymakers. Policymakers should, therefore, not consider crude oil a source of vulnerability for the sector indices. These results corroborate the findings of Malik and Ewing (2009) and Singhal and Ghosh (2016).

Table 9. Descriptive Statistics of Optimal Portfolio Weights

$w_{jt/1-}\ w_{jt}$	Mean	Maximum	Minimum	Std.Dev
WTI/ENERGY	0.084675	0.860259	0.000000	0.120698
WTI/INDUSTRY	0.128078	0.707930	0.000000	0.111657
WTI/FINANCIAL	0.177895	0.836605	0.000000	0.133819

CONCLUSION

Financial liberalization and developing technology cause increased integration between markets. This leads investors and policymakers to investigate volatility spillover. Volatility spillover can be defined as the effect of risk perception in one market on the risk perception of another market.

This paper has proposed the answers to two questions: (1) Are crude oil and the sector indices risk management instruments for each other? (2) Is crude oil a source of vulnerability and uncertainty for the stock markets? According to these questions, the WTI, energy, industry, and financial sector indices were considered. We utilized the DCC-GARCH and Hafner-Herwartz Variance Causality methods to tackle these research questions. This paper has five major findings: (1) There is a volatility spillover from sector indices to the crude oil market, (2) Volatility transmissions are positive (3) The minimum average positive conditional correlation occurs between crude oil and finance sector, so the cheapest hedge transaction occurs together, (4) To do cheaper hedge transaction, investors should take a short position in the crude oil market, and (5) The sector indices are the leading indicators of crude oil, while the energy sector is most important. The dependence between WTI and the Energy Sector Index was at its lowest level in 2014. Technological progress in terms of clean energy and the increased use of shale gas may be the reasons for this.

The findings of this study have three practical implications for investors. First, investors do not need to consider the changes in crude oil when investing in sector indices in the U.S. Instead, they should consider the sector indices when investing in crude oil. Second, investors should consider the leading and lagging properties of assets and the conditional correlation together. Risk management results are limited in this paper because hedge effectiveness has been disregarded. As hedge effectiveness allows investors to learn the best risk management strategies (hedge or portfolio diversification), further research into this topic is required. Another practical implication of this research affects policymakers. Policymakers do not need to consider crude oil when developing policies for the stock market's stability.

Future research should consider contemporary methodologies. These methodologies include: Risk Spillover (Hong, Copula), Frequencies Spillover (Breitung and Calderon, 2006), Quantile Causality, Fourier Causality, Wavelet Causality, and Connectedness Models (Diebold Yılmaz, Barunik, and Krehlik), and more.

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