

The Evaluation of The Impact of The Covid-19 Pandemic Period on Performance of Porfolio Management Companies ¹

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Abstract

The purpose of this study is to evaluate the relative performance of the portfolio management companies traded on BIST. Using data envelopment analysis, the study covers the period between 2019 and 2022. In the study investigating the impact of the COVID-19 pandemic period on the performance of portfolio management companies, the period of 2019 is considered as pre-COVID-19 pandemic, the years 2020 and 2021 as the COVID-19 pandemic period, and the year 2022 as the post-COVID-19 pandemic period. Within the scope of data envelopment analysis, outout oriented BCC and CCR models based on constant and variable returns to scale were used in the study and efficient firms were identified. According to the results of the CCR model based on constant returns to scale, 31% of the firms in the pre-pandemic period, 24% in the pandemic period and 17% after the pandemic achieved full efficiency. According to the results of the BCC model based on variable returns to scale, 51% of the analyzed firms continued their activities effectively before and during the pandemic, while this rate decreased to 31% in the post-pandemic period. In this context, it has been concluded that the COVID-19 pandemic period had an impact on the relative performance of portfolio management companies.

Keywords: Portfolio Management Companies, Data Envelopment Analysis, Efficiency, COVID-19 Pandemic

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Covid-19 Pandemi Döneminin Portföy Yönetim Şirketlerinin Performansına Etkisinin Değerlendirilmesi

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Öz

Bu çalışmanın amacı BIST’te işlem gören portföy yönetim şirketlerinin görece performansının değerlendirilmesidir. Veri zarflama analizinin kullanıldığı çalışma, 2019-2022 arası dönemi kapsamaktadır. COVID-19 pandemi döneminin portföy yönetim şirketlerinin performansına etkisinin araştırıldığı çalışmada, 2019 dönemi COVID-19 pandemi öncesi, 2020 ve 2021 yılları COVID-19 pandemi dönemini, 2022 yılı ise COVID-19 pandemi sonrası dönem olarak ele alınmıştır. Çalışmada, veri zarflama analizi kapsamında, çıktıya yönelik ölçüğe göre sabit ve değişken getiriyi esas alan BCC ve CCR modelleri kullanılmış olup ölçüğe göre etkin firmalar tespit edilmiştir. Ölçüğe göre sabit getiriyi esas alan CCR modeli sonuçlarına göre pandemi öncesi dönemde ele alınan firmaların %31’i, pandemi döneminde %24’ü ve pandemi sonrasında da %17’si tam etkinliğe ulaşmıştır. Ölçüğe göre değişken getiriyi esas alan BCC modeli sonuçlarına göre, analiz kapsamına alınan firmaların %51’i pandemi öncesi ve pandemi süresince faaliyetlerini etkin bir şekilde sürdürmüşken, bu oran pandemi dönemi sonrasında %31’e gerilemiştir. Bu doğrultuda, COVID-19 pandemi döneminin portföy yönetim şirketlerinin görece performansına etkisi olduğu sonucuna varılmıştır.

Anahtar Kelimeler: Portföy Yönetim Şirketleri, Veri Zarflama Analizi, Etkinlik, COVID-19 Pandemisi

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Introduction

The phenomenon of globalization can be characterized by increased integration among financial markets, economies, and trade, alongside increased mobility in economic factors and significant technological changes in information technology, enabling the widespread dissemination of knowledge across the globe. The globalization and liberalization of financial markets bring about a series of changes as well as opportunities and risks in both economies and financial systems all over the world (Erçel, 2020, p. 3). The swift proliferation of financial instruments in both the currency and capital markets, accompanied by the widespread adoption of derivative products, has resulted in investment decisions becoming increasingly complex. Consequently, individual and institutional investors seeking to yield high returns through securities investments find it imperative to seek guidance and services from knowledgeable and proficient individuals and entities. Portfolio management companies, which are specialized institutions with sufficient knowledge about capital market instruments and investment areas, follow national and international developments and use their knowledge and experience on behalf of investors (Erol, Güçlü and Alparslan, 2005, p. 2).

In the following section of the study, a detailed overview of portfolio management companies are presented, emphasizing their role in assessing savers' accumulations through different investment instruments while considering risk and return expectations. Additionally, a review of research within the literature pertaining to the performance analysis of these firms are incorporated, highlighting the distinctive contribution and originality of this study. In the methodology section, decision-making units, inputs and outputs are mentioned and the results of the analysis are given in the findings section. In the last part of the study, conclusions and recommendations are given in line with the findings obtained from the analysis and the study is concluded.

Portfolio Management Companies

Portfolio management companies, established in the form of a joint-stock company, specialize in the primary activities of establishing and managing funds in the capital market. In addition to their core activities of fund establishment and management, portfolio management companies, upon obtaining an authorization document from the Capital Markets Board (CMB), are also eligible to engage in investment advisory services. In addition, portfolio management company that meet the required equity capital requirement can provide consultancy services related to capital markets by notifying the CMB. It may also provide loans or credits and foreign exchange services limited to investment services and activities. In addition, it may conduct investment research and financial analysis or provide general advice on transactions related to capital market instruments. Portfolio management companies, possess the capability to establish and oversee foreign collective investment institution exclusively marketed to individuals residing outside the country. Furthermore, they are authorized to offer portfolio management services to individuals based abroad and can exclusively establish and manage venture capital investment funds. It is also possible to establish and manage real estate investment funds and to establish and manage real estate and venture capital investment funds (Capital Markets Board [CMB], 2023).

Portfolio management companies, which manage mutual funds, pension funds and investment trusts, also provide individual portfolio management services to real and legal investors. As of end-2022, the activities of portfolio management companies are presented in Table 1.

Table 1
Portfolio Management Operations (2022/12)

	Number of Organizations	Number of Funds/Clients	Portfolio Size (TRY million)
Mutual Fund	54	1,441	799,078
Pension Mutual Fund	24	384	433,534
Individual Portfolio Management	34	16,242	335,020
Co-funding	7	14	1,373
Total	56	18,081	1,569,005

Kaynak:TCMA, 2023: 19

As of the close of 2022, there are a total of 59 portfolio management companies, with 8 new firms commencing operations during the year. One of these newly established entities operates under the status of a limited activity portfolio management company. Among these recent entrants, only 5 have initiated portfolio management activities. At the end of 2022, out of the 56 entities engaged in portfolio management, it is noteworthy that 10 are classified as limited activity firms, focusing solely on the management of real estate and/or venture capital investment funds. The size of the portfolio managed by these firms increased by 140% from 2021 to 2022, reaching nearly TL 1.6 trillion. According to Table 1, there are 54 firms managing mutual funds as of December 2022. The number of mutual funds increased from 467 to 1,441, while the total portfolio size increased by 145% to TL 799 billion. Among firms managing investment funds, the first five firms (Ziraat, Akbank, Yapı Kredi, İş Bankası, and Garanti) collectively oversee 53% of the total managed investment funds. According to Central Securities Depository & Trade Repository of Türkiye data, the total number of investment fund investors has increased by 377 thousand individuals compared to the end of 2021, approaching 3.6 million. Domestic retail investors, who constitute a significant portion of these investors, account for 53% of the total mutual fund portfolio size. Mutual funds are composed of securities mutual funds, real estate mutual funds, venture capital mutual funds, exchange-traded funds and hedge funds. The growth in the size of the securities mutual fund portfolio, which constitutes the largest part of the mutual fund portfolio, was 87% in 2022. In this period, the size of pension mutual funds, including automatic enrollment system (AES) funds, increased by 77% compared to the end of 2021 and approached TL 433 billion. The first five institutions (Ziraat, Akbank, İş Bankası, Garanti, and Yapı Kredi Portföy) collectively manage 84% of the total pension mutual funds. Precious metals funds hold the largest share among types of pension mutual funds. While the share of equity funds was around 4% at the end of 2021, it reached 11% by the end of 2022. Foreign equities are monitored under foreign securities and the share of this instrument in the fund portfolio is around 2%. As of December 2022, there are 34 institutions providing individual portfolio management services. During the specified period, portfolio management firms manage a total portfolio worth 335 billion TL, encompassing 15,518 individual and 724 corporate investors. In this timeframe, 70% of investors availing individual portfolio management services from portfolio management companies allocate their investments to Yapı Kredi and Ak Portföy. In terms of portfolio size, Ziraat Portföy stands as the largest institution in individual portfolio management, managing 49% of the portfolio. Currently, out of 55 investment trusts, 14 receive portfolio management services from 7 portfolio management companies. The portfolio size of investment trusts managed by portfolio management companies has approached 1.4 billion TL at the end of 2022, reflecting a 49% increase compared to the end of 2021. Securities investment trusts constitute 74% of the total portfolio managed by investment trusts (Turkish Capital Markets Association,[TCMA] 2023).

The sector portfolios, characterized by a highly liquid structure, are predominantly consisted of current portfolios. Portfolio management companies derive their main revenue streams from three key sources: portfolio management fees, investment advisory fees, and investment fund sales revenues. Among these, commission income stands out as the most crucial component (TCMA, 2023).

Numerous studies in both domestic and foreign literature have investigated the performance of banks (Acar, Erkoç and Yılmaz, 2015; Andries and Cocris, 2010; Bektaş, 2013; Milenkovic, Radovanov, Kalas and Horvat, 2022), insurance firms (Abdin, Prabantarikso, Fahmy and Farhan, 2022; Ansah-Adu, Andoh and Abor, 2012; Çiftçi, 2004; Iqbal and Awan, 2015; Saad and Idris, 2011), pension firms (Acer, Genç and Dinçer, 2020; Barros and Garcia, 2006; Karakaya, Kurtaran and Dağlı, 2014; Küçükıralı and Aydın, 2022; Ova, 2018; Roman, Toma and Tuchılış, 2018; Seran, Suchahyo, Atahau and Supramono, 2023) investment trusts (Anderson, Fok, Zumpano and Elder, 1998; Çıtak, 2008; Çorak and Göker, 2023; Nourani, Kweh, Lu and G., 2022), and financial leasing and factoring firms (Bağcı and Esmer, 2016; Fiordelisi and Molyneux, 2004; Gülcan, 2022; Kiracı and Asker, 2019), all of which are integral components of the financial system. Studies on the efficiency of portfolio management companies, which are established to utilize the savings of savers and create added value and have an important role in the functioning of the financial system, are not found in the foreign literature, and the studies conducted in Turkey are quite limited. These studies are summarized below.

Vatansever and Avşarlıgil (2017) investigated the performance of portfolios management companies that were continuously traded on the BIST in 2014 and 215 with data envelopment analysis. The inputs of the study are general administrative expenses, financial investments and paid-in capital, while the outputs are income from investing activities, revenue, earnings before interest and tax and profit for the period. In the data envelopment analysis, only input efficiency was considered, and it was found that 9 portfolio management companies achieved full efficiency in both years. These firms are Ak Portföy, Fiba Portföy, Gedik Portföy, Hsbc Portföy, İş Portföy, Oyak Portföy, Perform Portföy, Vakıf Portföy, and Yapı Kredi Portföy. Fokus Portföy, Rhea Portföy, and Ünlü Portföy, despite effectively utilizing their inputs in 2014, were not successful in achieving efficiency in 2015. On the other hand, Hedef Portföy and Magna Capital, although they did not reach full input efficiency in 2014, managed to achieve complete input efficiency in 2015.

Tezergil (2018) in his study examined the performance of portfolio management companies operating in the Borsa Istanbul (BIST) financial sector between 2014 and 2016 using the grey relational analysis method. The sample consisted of 50 firms. The study identified cost of sales, marketing and sales distribution expenses, general management expenses, personnel expenses, and other expenses as input variables. The output variables include sales revenues, other operating incomes, operating profit/loss, and total portfolio size. The analysis results indicate that, especially in the years 2015-2016, the efficiency rankings varied, but İş Portföy, Garanti Portföy, Yapı Kredi Portföy, Ak Portföy, and Oyak Portföy consistently demonstrated performance within the top five. While Oyak Portföy's performance ranking was notably lower in 2014, it rose to the 5th position in 2015 and 2016. Tezergil (2018) further noted in his study that the firms ranking first in terms of performance were affiliated with banks, whereas those at the bottom performed poorly in terms of liquidity and profitability.

Kılıçarslan and Sucu (2021) examined the performance of portfolio management companies operating in the Turkish capital markets using four different methods: TOPSIS, MULTIMOORA, ARAS, and VIKOR. The study's sample covers data from 28 portfolio management companies that have been consistently traded on the BIST between 2016 and 2020. Performance evaluation was conducted using 13 different indicators, including short-term liquidity position, cash level, net working capital level, borrowing level, financial leverage level, operating profit margin, net profit margin, asset turnover ratio, equity turnover ratio, operating profitability, operating profitability of assets, and asset profitability. According to the VIKOR results, among the top five firms between 2016 and 2020, there are private sector organizations, and there are no bank-affiliated firms within the top 10. In contrast to the VIKOR method, firms affiliated with banks have consistently been in the

top 10 over the five years in the ARAS and MULTIMOORA methods. According to the TOPSIS method, Perform has consistently been in the top five over the five years, while Logos has been in the bottom five except for the year 2017. In general, the study indicates that firm performance rankings vary depending on the methods used.

The studies and contents conducted to determine portfolio management activities in Turkey are mentioned above. It is observed that common results are obtained despite the limited number of designs (Vatansever and Avşarlıgil, 2017; Tezergil, (2018). Kılıçarslan and Sucu, 2021); different variables, time intervals, and speeds are used. In particular, in the studies of Vatansever and Avşarlıgil (2017) and Tezergil (2018), the effectiveness of the Granti Portfolio, Yapı Kredi Portfolio, Ak Portfolio, and Oyak Portfolio was found to be at a high level. The studies of Vatansever and Avşarlıgil (2017) are similar to the effectiveness of Perform Portfolio in the study of Kılıçarslan and Sucu (2021). Tezergil (2018) used the grey relational analysis to determine the activity, and Kılıçarslan and Sucu (2021) used the Aras and Multimoora method. The subsidiaries of the bank are the ones that rank first in activity.

While there are numerous studies in both domestic and international literature focusing on the performance evaluation of various financial institutions such as banks and insurance firms, the number of studies specifically conducted on portfolio management companies, which are considered a crucial component of the financial structure, remains quite limited in Turkey.

It has been examined in studies in the international literature on portfolio management companies. Scherer (2012) examined the direct relationship between portfolio management revenues and market returns and found that US portfolio management companies' revenues are associated with market risk. Consequently, he suggested that portfolio management firms should overhaul their risk management functions and implement an approach to manage the firms' revenue risks. Byrne (2015) examined the impact of portfolio management companies on the city level in his study. The most general conclusion from the study is that portfolio management companies influence cities in terms of the combination of finance and real estate. Bigelli and Manuzzi (2019) empirically assessed 50 listed portfolio management companies in the United States and Europe. As a result of the study, which examined the period from 2008 to 2017, they obtained results that are consistent with the companies' market values. They also found that European portfolio management companies had higher wage levels and net profit margins than U.S. companies. Pandey (2022) conducted a qualitative analysis in his study by presenting classification criteria used in various valuations of portfolio management companies. He presented a cross-country assessment by examining the positive and negative view of the various classification characteristics. The fact that the portfolio sizes of portfolio management companies have increased by 140% between 2021/12 and 2022/12, approaching TL 1.6 trillion, that the net profit has increased by 136% in the same period and exceeds TL 3.5 billion, and that the return on equity has increased by 15 points to 93% with the increase in profit (TCMA, 2023), proves that they are essential for the development and growth of the financial system. Considering their future growth potential, conducting an efficiency analysis of the portfolio management companies was deemed important.

Unlike other studies, this study evaluates the performance of portfolio management companies separately before, during and after the Covid-19 pandemic and interprets the outputs comparatively. Again, unlike the literature, the "cash and cash equivalents" variable, which is one of the current asset items that make up almost the entire portfolio structure of portfolio management companies (TCMA, 2023: 27), is included in the analysis as an input. These differences contribute to the uniqueness of the study. The findings of this research will provide investors to be interested in evaluating their portfolios through various investment instruments with the opportunity to compare firms offering portfolio management services in terms of their efficiency. This, in turn, will play a significant role in making informed investment decisions.

Method

In this study, the relative performance of portfolio management companies is evaluated using data envelopment analysis. In the study analyzing the 2019-2022 period, 2019 represents the pre-COVID-19 pandemic period, 2020-2021 represents the COVID-19 pandemic period, and 2022 represents the post-COVID-19 pandemic period. Thus, the relative performance of portfolio management companies is analyzed for the pre-pandemic, pandemic and post-pandemic periods.

In the application phase of data envelopment analysis, it was deemed appropriate to use output-oriented models in terms of profit maximization due to the importance of the service element in portfolio management companies. Accordingly, output-oriented BCC and CCR models based on constant and variable returns to scale have been employed. In the study, both BCC and CCR models are established to evaluate the relative performance of portfolio management companies in detail. The BCC model is set up based on the variable return assumption with respect to the scale, while the CCR model is set up based on the fixed return assumption concerning the scale. The BCC model is used to determine technical efficiency, and the CCR model is employed to identify total efficiency. The total efficiency determined by the CCR model is obtained by multiplying technical efficiency and scale efficiency.

For the application phase of data envelopment analysis, decision-making units, inputs and outputs were first identified, followed by the estimation of models. In this section of the study, the decision-making units, input and output variables and finally the findings are presented.

Identification of Decision-Making Units

The decision-making units of the study consist of portfolio management companies traded on the Borsa Istanbul (BIST) during the period 2019-2022. Accordingly, a total of 29 portfolio management companies with continuously accessible data for the relevant years were examined. The decision-making units considered in the study and their symbols are presented in Table 2.

Table 2
Decision-Making Units

Symbol	Firm name	Symbol	Firm name
AKPORT	AK PORTFÖY YÖNETİMİ A.Ş.	IS	İŞ PORTFÖY YÖNETİMİ A.Ş.
AKTIF	AKTİF PORTFÖY YÖNETİMİ A.Ş.	KT	KT PORTFÖY YÖNETİMİ A.Ş.
ALBARAKA	ALBARAKA PORTFÖY YÖNETİMİ A.Ş.	MARMARA	MARMARA CAPITAL PORTFÖY YÖNETİMİ A.Ş.
ARZ	ARZ GAYRİMENKUL VE GİRİŞİM SERMAYESİ PORTFÖY YÖNETİMİ A.Ş.	MEKSA	MEKSA PORTFÖY YÖNETİMİ A.Ş.
ATA	ATA PORTFÖY YÖNETİMİ A.Ş.	METRO	METRO PORTFÖY YÖNETİMİ A.Ş.
ATLAS	ATLAS PORTFÖY YÖNETİMİ A.Ş.	NEO	NEO PORTFÖY YÖNETİMİ A.Ş.
AURA	AURA PORTFÖY YÖNETİMİ A.Ş.	OSMANLI	OSMANLI PORTFÖY YÖNETİMİ A.Ş.
AZIMUT	AZİMUT PORTFÖY YÖNETİMİ A.Ş.	OYAK	OYAK PORTFÖY YÖNETİMİ A.Ş.
DENİZ	DENİZ PORTFÖY YÖNETİMİ A.Ş.	QINVEST	QINVEST PORTFÖY YÖNETİMİ A.Ş.
FİBA	FİBA PORTFÖY YÖNETİMİ A.Ş.	STRATEJİ	STRATEJİ PORTFÖY YÖNETİMİ A.Ş.
GARANTI	GARANTİ PORTFÖY YÖNETİMİ A.Ş.	TACIRLER	TACIRLER PORTFÖY YÖNETİMİ A.Ş.
GLOBAL	GLOBAL MD PORTFÖY YÖNETİMİ A.Ş.	TEB	TEB PORTFÖY YÖNETİMİ A.Ş.
HEDEF	HEDEF PORTFÖY YÖNETİMİ A.Ş.	UNLU	ÜNLÜ PORTFÖY YÖNETİMİ A.Ş.
INVEO	INVEO PORTFÖY YÖNETİMİ A.Ş.	ZIRAAT	ZİRAAT PORTFÖY YÖNETİMİ A.Ş.
İSTANBUL	İSTANBUL PORTFÖY YÖNETİMİ A.Ş.		

* It is not operational as of the year 2023.

Identification of Inputs and Outputs

In this study, inputs and outputs were determined by analyzing the studies in the literature and presented in Table 3 with their symbols.

Table 3
Inputs and Outputs

Inputs	Symbol	Outputs	Symbol
General Administrative Expenses	GYG	Net Profit	NK
Cash& Equivalents	NB	Profit Before Interest and Taxes	FVÖK
Financial Investments	FY	Revenue	HS

In Table 3, inputs and outputs represented by the symbols GYG, FY, FVÖK, and HS were included in the study by referring to the works of Vatansever and Avşarlıgil (2018) and Tezergil (2018). The financial statements data of portfolio management companies obtained from the Public Disclosure Platform were utilized in the study.

Findings

In the study, the relative performance of portfolio management companies between 2019 and 2022 was applied using the output-oriented CCR model, and the findings are presented in Table 4.

Table 4
Efficiency Values According to the CRR Model

Firm	2019	2020	2021	2022
AKPORT	0.63	0.72	0.52	0.24
AKTIF	0.48	0.43	0.18	0.07
ALBARAKA	1.00	1.00	0.75	0.33
ARZ	1.00	1.00	1.00	1.00
ATA	0.69	0.59	0.56	0.11
ATLAS	0.71	0.79	0.29	0.23
AURA	0.69	0.76	0.39	0.14
AZIMUT	1.00	0.59	0.22	0.16
DENIZ	0.99	0.32	0.13	0.15
FIBA	0.61	1.00	0.47	0.99
GARANTI	0.60	0.55	0.31	1.00
GLOBAL	0.37	0.45	0.19	0.04
HEDEF	1.00	1.00	1.00	1.00
INVEO	0.67	0.59	1.00	1.00
IS	0.45	0.42	0.33	0.15
ISTANBUL	0.80	0.43	0.47	0.25
KT PORTFOY	0.99	0.56	0.70	1.00
MARMARA	0.97	0.97	0.64	0.48
MEKSA	0.56	0.69	0.79	0.96
METRO	0.90	0.81	0.53	0.86
NEO	1.00	1.00	0.53	0.70
OSMANLI	0.85	0.46	0.37	0.42
OYAK	1.00	1.00	1.00	0.75
QINVEST	0.11	0.24	0.41	0.11
STRATEJI	1.00	1.00	1.00	0.67
TACIRLER	1.00	1.00	0.39	0.28
TEB	0.91	0.84	1.00	0.11
UNLU	0.63	0.45	0.45	0.05
ZIRAAT	1.00	1.00	1.00	0.20
Average	0.78	0.71	0.57	0.24

Upon reviewing Table 4, it is observed that in the year 2019, 9 firms, namely ALBARAKA, ARZ, AZIMUT, HEDEF, NEO, OYAK, STRATEJI, TACIRLER, and ZIRAAT, demonstrate relative efficiency. The efficiency values of DENIZ, KT PORTFOY, and MARMARA have also approached full efficiency.

In the year 2019, representing the pre-COVID-19 period, the average efficiency value of the examined firms was calculated as 0.78. During this period, QINVEST had the lowest efficiency value.

In the year 2020, ALBARAKA, ARZ, FIBA, HEDEF, NEO, OYAK, STRATEJI, TACIRLER, and ZIRAAT, a total of 9 firms, were found to be efficient. In 2020, representing the COVID-19 pandemic period, the average efficiency value of the firms was calculated as 0.71. Therefore, there has been a decrease in the average efficiency value during the pandemic period compared to the pre-pandemic period. Similarly to the year 2019, QINVEST was the firm with the lowest efficiency value during this period.

In the year 2021, the efficiency of 7 firms, namely ARZ, HEDEF, INVEO, OYAK, STRATEJI, TEB, and ZIRAAT, were determined. In 2021, representing the COVID-19 pandemic period, the average efficiency value of the firms was calculated as 0.57. Accordingly, it was observed that the average efficiency value decreased compared to the years 2019 and 2020. DENIZ was the firm with the lowest efficiency value for the year 2021.

In the year 2022, the efficiency of 5 firms, namely ARZ, GARANTI, HEDEF, INVEO, and KT PORTFOY, were determined. In 2022, representing the post-COVID-19 pandemic period, the average efficiency value of the firms was calculated as 0.24. This calculated value for the year 2022 was observed to be the lowest average efficiency value among the years examined in the study. In other words, the lowest average efficiency value was obtained in the period after the COVID-19 pandemic. The firm with the lowest efficiency value in 2022 is GLOBAL.

According to the CCR model results of the study, 31% of the firms in the pre-pandemic period, 24% in the pandemic period and 17% after the pandemic reached full efficiency. In this context the pandemic period clearly seems to have an impact on the relative performance of portfolio management companies. Additionally, when examining the average efficiency values of firms over the years, it is observed that the highest level (0.78) was reached in the pre-COVID-19 pandemic period, and it declined to the lowest level (0.24) in the post-pandemic period. However, it is found that the firm with the lowest efficiency score in the respective years is GLOBAL with an efficiency value of 0.04 in 2022. Furthermore, ARZ and HEDEF firms have achieved full efficiency in all the years under consideration.

The relative performance of portfolio management companies between 2019 and 2022 is applied with the output-oriented BCC model and the findings are presented in Table 5.

Table 5
Efficiency Values According to BCC Model

Firm	2019	2020	2021	2022
AKPORT	1.00	1.00	1.00	0.63
AKTIF	0.63	0.47	1.00	0.76
ALBARAKA	1.00	1.00	0.90	1.00
ARZ	1.00	1.00	1.000	1.00
ATA	1.00	0.65	0.85	0.69
ATLAS	1.00	1.00	0.35	0.71
AURA	0.74	0.84	0.46	0.92
AZIMUT	1.00	1.00	0.96	1.00
DENIZ	1.00	0.45	0.21	0.99
FIBA	0.67	1.00	0.54	0.91
GARANTI	0.85	0.83	0.54	0.70
GLOBAL	1.00	0.46	0.27	0.37
HEDEF	1.00	1.00	1.00	1.00
INVEO	0.68	0.61	1.00	0.97
IS	0.84	0.75	0.83	0.54
ISTANBUL	0.85	0.60	0.61	0.94
KT PORTFOY	1.00	0.64	0.74	0.99
MARMARA	0.98	1.00	1.00	0.98
MEKSA	0.58	1.00	1.00	0.96
METRO	0.97	0.81	1.00	0.92
NEO	1.00	1.00	0.72	1.00
OSMANLI	0.91	0.72	0.48	0.94
OYAK	1.00	1.00	1.00	1.00
QINVEST	0.25	0.30	0.42	0.46
STRATEJI	1.00	1.00	1.00	1.00
TACIRLER	1.00	1.00	0.63	1.00
TEB	0.93	1.00	1.00	0.97
UNLU	0.67	0.56	0.51	0.94
ZIRAAT	1.00	1.00	1.00	1.00
Averages	0.88	0.81	0.76	0.87

Table 5 reveals that in the year 2019, 15 firms, including AKPORT, ALBARAKA, ARZ, ATA, ATLAS, AZIMUT, DENIZ, GLOBAL, HEDEF, KT PORTFOY, NEO, OYAK, STRATEJI, TACIRLER, and ZIRAAT, achieved full relative efficiency, while 14 firms were relatively inefficient. For the pre-pandemic period (2019), the average efficiency value for the examined firmss was calculated as 0.88. QINVEST had the lowest efficiency value during this period.

In 2020, 15 firms, including AKPORT, ALBARAKA, ARZ, ATLAS, AZIMUT, FIBA, HEDEF, MARMARA, MEKSA, NEO, OYAK, STRATEJI, TACIRLER, TEB, and ZIRAAT, achieved full relative efficiency, while 14 firms were relatively inefficient. For the pandemic period (2020), the average efficiency value for the examined firms was calculated as 0.81. In this context, there was a decrease of 0.07 in the average efficiency value during the pandemic period compared to the pre-pandemic period. Similar to 2019, QINVEST had the lowest efficiency value in this period.

In 2021, 12 firms, including AKPORT, AKTIF, ARZ, HEDEF, INVEO, MARMARA, MEKSA, METRO, OYAK, STRATEJI, TEB, and ZIRAAT, achieved full relative efficiency, while 17 firms were relatively inefficient. For the pandemic period (2021), the average efficiency value for the examined firms was calculated as 0.76, indicating a decrease compared to 2019 and 2020. DENIZ was the firm with the lowest efficiency value in 2021.

In 2022, 9 firms, including ALBARAKA, ARZ, AZIMUT, HEDEF, NEO, OYAK, STRATEJI, TACIRLER, and ZIRAAT, were relatively fully efficient, while 20 firms were relatively inefficient. The average efficiency value for firms in the post-pandemic period (2022) was calculated as 0.87. The value calculated for 2022 was high compared to the COVID-19 pandemic period (2020 and 2021) but remained close to the pre-pandemic period. During this period, the average efficiency level increased compared to the COVID-19 pandemic era, but the number of relatively fully efficient firms decreased.

According to the results of the BCC model in the study, while 51% of the analyzed firms were operating efficiently both before and during the pandemic, the rate of efficient firms decreased to 31% after the pandemic. In this context, the COVID-19 pandemic period can be said to have an impact on the relative performance of portfolio management companies.

According to the results of the BCC model in the study, when the average efficiency values of the firms have been examined over the years, it is observed that the highest level (0.88) was reached before the COVID-19 pandemic, decreased over the years, and increased after the COVID-19 pandemic compared to the pandemic period. However, the firm with the lowest efficiency score over the respective years was DENIZ, with an efficiency value of 0.21 in 2022.

In addition, it has been observed that ARZ, HEDEF, OYAK, STRATEJI, and ZIRAAT firms consistently demonstrated full efficiency performance throughout the examined years from 2019 to 2022. The relative performance of portfolio management companies has been evaluated in terms of scale efficiency, and the findings are presented in Table 6.

Table 6
Scale Efficiency Values

Firm	2019	2020	2021	2022
AKPORT	0.63	0.72	0.52	0.24
AKTIF	0.76	0.91	0.18	0.83
ALBARAKA	1.00	1.00	0.84	0.83
ARZ	1.00	1.00	1.00	1.00
ATA	0.69	0.90	0.65	0.50
ATLAS	0.71	0.79	0.83	0.50
AURA	0.92	0.90	0.85	0.58
AZIMUT	1.00	0.59	0.22	0.20
DENİZ	0.99	0.71	0.64	0.90
FIBA	0.91	1.00	0.86	0.99
GARANTI	0.70	0.66	0.57	1.00
GLOBAL	0.37	0.97	0.71	0.04
HEDEF	1.00	1.00	1.00	1.00
INVEO	0.97	0.96	1.00	1.00
IS	0.54	0.56	0.39	0.22
İSTANBUL	0.94	0.72	0.77	0.29
KT PORTFOY	0.99	0.87	0.95	1.00
MARMARA	0.98	0.97	0.64	0.54
MEKSA	0.96	0.69	0.79	0.96
METRO	0.92	0.99	0.53	0.86
NEO	1.00	1.00	0.73	0.70
OSMANLI	0.94	0.64	0.76	0.42
OYAK	1.00	1.00	1.00	0.96
QINVEST	0.46	0.80	0.98	0.94
STRATEJİ	1.00	1.00	1.00	0.71
TACIRLER	1.00	1.00	0.61	0.54
TEB	0.97	0.84	1.00	0.52
ÜNÜ	0.94	0.81	0.87	0.65
ZIRAAT	1.00	1.00	1.00	0.36
Ortalama	0.87	0.86	0.75	0.24

When Table 6 is examined, it is determined that in 2019, 9 firms, namely ALBARAKA, ARZ, AZIMUT, HEDEF, NEO, OYAK, STRATEJİ, TACIRLER, and ZIRAAT, exhibited scale efficiency. Thus, 31% of the companies considered in 2019 have scale efficiency. The average efficiency value for this year was calculated as 0.87. The firm with the lowest efficiency value in this period was GLOBAL.

In 2020, 9 firms, namely ALBARAKA, ARZ, FIBA, HEDEF, NEO, OYAK, STRATEJİ, TACIRLER, and ZIRAAT, were determined to be scale-efficient. Accordingly, 31% of the firms considered in this year achieved scale efficiency. The average efficiency value for this year was calculated as 0.86. The average efficiency was observed to have decreased compared to the pre-COVID-19 pandemic period (2019). The firm with the lowest efficiency value in this period was IS.

In 2021, 7 firms, namely ARZ, HEDEF, INVEO, OYAK, STRATEJİ, TEB and ZIRAAT, were found to be scale efficient. Accordingly, 24.1% of the 29 firms analyzed in 2021 achieved scale efficiency. In the relevant year, the average efficiency value was calculated as 0.75. This value was observed to have decreased compared to 2019 and 2020. AKTIF has the lowest efficiency value in this period.

In 2022, 5 firms, namely ARZ, GARANTI, HEDEF, INVEO, and KT PORTFOY, were identified to have scale efficiency. Accordingly, the percentage of firms with scale efficiency in 2022 was 17.2%. The average efficiency value for this year was calculated as 0.24 marking a substantial decrease compared to previous periods. In this regard, while the average scale efficiency value reached its highest level in 2019, it remained at the lowest level in 2022. However, the firm with the lowest efficiency score in the relevant years was GLOBAL with an efficiency value of 0.22 in 2022. Moreover, ARZ and HEDEF firms showed fully efficient performance in all the years considered.

Table 7 presents the number of firms taken as reference according to the BCC and CCR model.

Table 7
The Number of Firms Referenced

Year	2019		2020		2021		2022	
	BCC	CCR	BCC	CCR	BCC	CCR	BCC	CCR
AKTIF	-	-	-	-	1	-	-	-
AKPORT	3	-	4	-	5	-	5	-
ALBARAKA	2	4	-	-	-	-	-	-
ARZ	3	5	12	16	17	22	17	24
ATA	1	-	-	-	-	-	-	-
ATLAS	1	-	4	-	-	-	-	-
AZIMUT	4	1	2	-	-	-	-	-
FIBA	-	-	-	1	-	-	1	-
GARANTI	-	-	-	-	-	-	-	5
GLOBAL	1	-	-	-	-	-	7	-
HEDEF	4	10	11	15	7	11	7	9
INVEO	-	-	-	-	3	5	2	4
KT PORTFOY	-	-	-	-	-	-	2	1
NEO	9	11	4	4	-	-	1	-
MARMARA	-	-	-	-	2	-	-	-
MEKSA	-	-	2	-	-	-	-	-
METRO	-	-	-	-	4	-	5	-
OSMANLI	-	-	-	-	-	-	1	-
OYAK	2	4	-	-	1	1	-	-
STRATEJI	6	11	5	9	9	4	-	-
TACIRLER	3	6	3	6	-	-	-	-
TEB	-	-	1	-	3	4	-	-
ZIRAAT	9	8	4	7	5	4	-	-
Total	48	60	52	58	57	51	48	43

Table 7, reveals that all portfolio management companies identified as efficient according to the BCC and CCR models in 2019 were referenced by other firms. The firms with the highest number of references for that year were NEO and STRATEJI.

In 2020, according to the BCC model, ALBARAKA, FIBA, MARMARA and OYAK were found to be relatively efficient, but not cited as reference firms. In the same year, according to the CCR model, although ALBARAKA was relatively efficient, it was not cited as a reference. ARZ and HEDEF were the most frequently cited firms for the relevant year.

In 2021, according to the BCC model, although MEKSA was relatively efficient, it was not cited as a reference. According to the CCR model, all portfolio management companies that were found to be efficient were cited as references to other firms. In this year, ARZ and HEDEF were the most frequently referenced firms.

In 2022, according to the BCC model, ALBARAKA, AZIMUT, OYAK, TACIRLER, and ZIRAAT, despite being relatively efficient, were not referenced. However, according to the CCR model, all portfolio management companies identified as efficient were referenced by other firms. The firm which was referenced the most in that year is ARZ.

As a result, the most frequently cited portfolio management companies between 2019 and 2022 were ARZ and HEDEF firms. Table 8 presents the firms and intensity values that inefficient firms should take as reference in order to become efficient according to the BCC model.

Table 8
Reference Set and Intensity Values for the Year 2022 According to the BCC Model

Firm	BCC			
AKTIF	ARZ (0.52)	HEDEF(0.02)	GLOBAL(0.36)	INVEO(0.09)
ALBARAKA	AKPORT(0.02)	ARZ(0.97)		
ATA	GLOBAL(0.16)	ARZ(0.20)	INVEO(0.63)	
ATLAS	GLOBAL(0.81)	METRO(0.04)	HEDEF(0.01)	ARZ(0.12)
AURA	METRO(0.39)	ARZ(0.14)	GLOBAL(0.45)	
AZIMUT	AKPORT(0.36)	ARZ(0.63)		
DENIZ	ARZ(0.93)	KT(0.06)		
IS	HEDEF(0.02)	AKPORT (0.47)	ARZ(0.50)	
ISTANBUL	HEDEF (0.37)	ARZ(0.62)		
MARMARA	GLOBAL(0.84)	ARZ(0.15)		
OYAK	ARZ(0.37)	KT(0.23)	FIBA(0.39)	
QNVEST	ARZ(0.63)	METRO(0.36)		
STRATEJ	GLOBAL(0.28)	ARZ(0.06)	METRO(0.64)	
TACIRLER	ARZ (0.82)	HEDEF(0.17)		
TEB	HEDEF(0.12)	ARZ(0.87)		
UNLU	OSMANLI (0.30)	ARZ(0.23)	GLOBAL (0.43)	NEO(0.01)
ZIRAAT	AKPORT (0.34)	ARZ(0.65)		

In Table 8, for the firms where efficiency could not be reached according to the BCC model, the firms they should take as an example to become efficient are shown. For example, AKTIF, ARZ, HEDEF, GLOBAL, and INVEO firms can be effectively combined by merging with weights of 0.52, 0.02, 0.36, and 0.09, respectively. Similarly, ALBARAKA, AKPORT, and ARZ firms can be effectively combined by merging with weights of 0.02 and 0.97, respectively. Within the scope of the BCC model, the GLOBAL firm is the reference unit with the highest value in the reference set. Therefore, it is the most comparable unit.

Table 9 presents the firms that ineffective firms need to reference and their intensity values to become effective according to the CCR model.

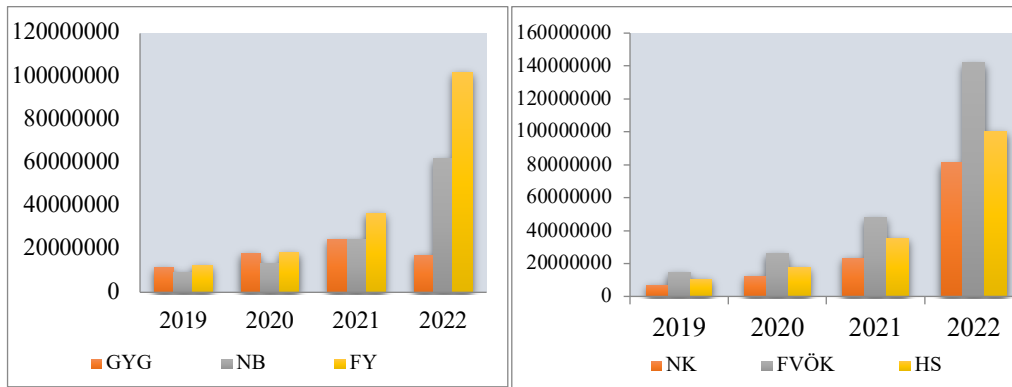
Table 9
Reference Set and Intensity Values for 2022 According to CCR Model

Firm	CCR	
AKPORT	ARZ(4.53)	HEDEF(0.43)
AKTIF	HEDEF(0.05)	ARZ(0.59)
ALBARAKA	ARZ(1.19)	
ATA	ARZ(0.5)	
ATLAS	HEDEF(0.05)	ARZ(0.22)
AURA	ARZ(0.26)	
AZIMUT	ARZ(5.19)	HEDEF(0.05)
DENIZ	INVEO(1.61)	ARZ(0.93)
FIBA	INVEO(1.51)	ARZ(0.03)
GLOBAL	ARZ(0.12)	HEDEF(0.04)
IS	ARZ(4.48)	HEDEF(0.30)
ISTANBUL	GARANTI(0.09)	ARZ(4.34)
MARMARA	ARZ(0.28)	
MEKSA	GARANTI(0.19)	ARZ(0.14)
METRO	ARZ(0.07)	HEDEF(0.04)
NEO	GARANTI(0.03)	ARZ(0.21)
OSMANLI	ARZ(0.17)	GARANTI(0.02)
OYAK	INVEO(1.41)	ARZ(0.39)
QNVEST	ARZ(0.67)	
STRATEJ	ARZ(0.14)	HEDEF(0.05)
TACIRLER	ARZ(1.73)	KT(1.34) INVEO(1.80)
TEB	GARANTI(0.03)	ARZ(2.06)
UNLU	HEDEF(0.01)	ARZ(0.38)
ZIRAAT	ARZ(2.93)	

When Table 9 is examined, for the firms where efficiency cannot be reached according to the CCR model, the firms they should take as examples to become efficient are seen. In this regard, for example, AKPORT, ARZ, and HEDEF firms can be effectively combined by merging them as equivalent units with weights of 4.53 and 0.43, respectively. Similarly, AKTIF, HEDEF, and ARZ firms can be effectively combined by merging them as equivalent units with weights of 0.05 and 0.59, respectively. Within the CCR model, the ARZ firm is the equivalent unit with the highest value in the reference set. Therefore, it is the most comparable unit.

Potential Improvement Values

According to the BCC model, the average realized values of the inputs and outputs of portfolio management companies are presented in Charts 1 and 2 by years.

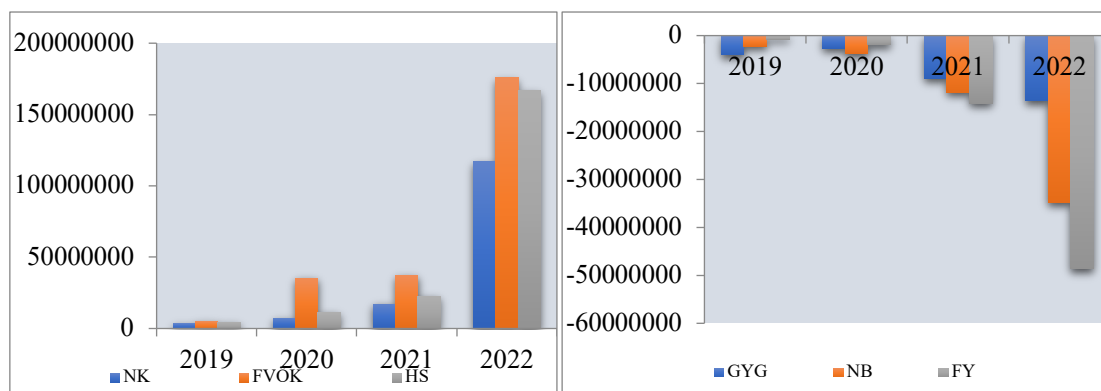


Graph 1. Average achieved values of outputs Graph 2. Average achieved values of inputs

Graph 1 displays the average achieved values of outputs over the years. Accordingly, the outputs of net profit (NK), earnings before interest, taxes, depreciation, and amortization (FVÖK), and revenue (HS) depicted through symbols, showed an increasing trend from 2019 to 2022.

Graph 2 displays the average achieved values of inputs over the years. In this context, general administration expenses, represented by the symbol GYG, showed an increasing trend from 2019 to 2021, with a decreasing tendency in 2022. Similarly, cash and equivalents, as well as financial investments, exhibited an increasing trend over the respective years.

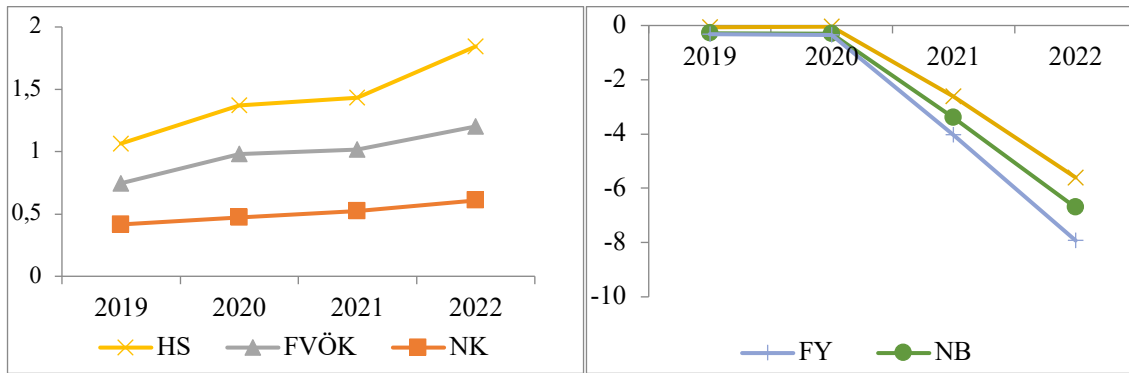
Graph 3 and Graph 4 present the average potential improvement values of inputs for portfolio management companies according to the BCC model over the years.



Graph 3. Average potential improvement of outputs Graph 4. Average potential improvement of inputs

In Graph 3, the average potential improvement values of the outputs utilized in the study are presented. Accordingly, the average potential improvement values, indicating the extent to which ineffective firms need to increase their outputs to achieve efficiency, increased in 2022 compared to the year 2019.

Graph 4 shows the average potential improvement values of the inputs used in the study. Accordingly, the average potential improvement values, which express the rate at which inefficient firms should reduce their inputs to achieve efficiency, increased in 2022 compared to 2019.



Graph 5. Average potential improvement rate of outputs Graph 4. Average potential improvement rate of inputs

Graph 5 and Graph 6 display the average improvement rates of the inputs and outputs in the study. The graphs reveal that the necessity to increase outputs and decrease inputs has increased proportionally over the years.

Conclusion and Recommendations

In the study, the relative performance of 29 portfolio management companies traded on BIST was evaluated. In the study analyzing the 2019-2022 period, the impact of the COVID-19 pandemic period on the performance of portfolio management companies was investigated. In this context, 2019 was analyzed as the pre-COVID-19 pandemic period, 2020 and 2021 as the COVID-19 pandemic period and 2022 as the post-COVID-19 pandemic period. Data envelopment analysis was used to determine the performance of the relevant firms. In the analysis, BCC and CCR models were used to measure aggregate and technical efficiency under the assumptions of constant and variable returns to scale. In addition, scale-efficient firms were also identified, and reference clusters and concentration values were determined for inefficient firms.

According to the results of the CCR model measuring total efficiency, it has been determined that 9 firms were fully efficient in the year 2019, 9 in 2020, 7 in 2021, and 5 in 2022. Based on the average efficiency values within the scope of the CCR model, it is observed that the efficiency was at its highest level in the pre-COVID-19 pandemic period and at its lowest level (0.24) in the post-COVID-19 pandemic period.

According to the results of the BCC model measuring technical efficiency, it has been determined that 15 firms were fully efficient in the year 2019, 15 in 2020, 12 in 2021, and 9 in 2022. Based on the average efficiency values within the scope of the BCC model, it is observed that the efficiency was at its highest level in the pre-COVID-19 pandemic period. During the COVID-19 pandemic years of 2020 and 2021, there was a decrease, but it rose again in the post-COVID-19 pandemic period, reaching the highest level (0.87).

The findings reveal that firms identified as fully efficient also exhibit scale efficiency. Accordingly, the number of scale efficient firms in 2019, 2020, 2021 and 2022 were 9, 9, 7 and 5 respectively, indicating that they operated at an optimal size. Examining the average scale efficiency values over the years, reveals that the period with the highest average scale efficiency value was the pre-COVID-19 pandemic year of 2019, and the lowest was the post-COVID-19 pandemic year of 2022.

In summary, it can be concluded that the COVID-19 pandemic period had an influence on the relative performance of portfolio management companies.

The findings related to the efficiency of firms obtained in the study pertain to the inputs and outputs utilized in the research. Therefore, the primary limitation of the study lies in the potential variation of results when employing different inputs and outputs.

In future studies, the performance of portfolio management companies can be evaluated comparatively by adding different methods, and the number of input and output variables can be increased. In addition, the performances of other institutions that are part of the financial system (banks, insurance companies, investment trusts, etc.) can be compared through various methods.

References

- Abdin, Z., Prabantarikso, R. M., Fahmy, E. and Farhan, A. (2022). Analysis of the efficiency of insurance companies in indonesia. *Decision Science Letters*, 11(2), 105–112. doi: 10.5267/j.dsl.2022.1.002
- Acar, M. F., Erkoç, T. E. and Yılmaz, B. (2015). Türk bankacılık sektörü için karşılaştırmalı performans analizi. *Sosyal Bilimler Enstitüsü Dergisi*, 2(2), 1-11. Erişim adresi: <https://dergipark.org.tr/tr/download/article-file/166359>
- Acer, A., Genç, T. and Dinçer, S. E. (2020). Türkiye’de faaliyet gösteren bireysel emeklilik şirketlerinin performansının entropi ve copras yöntemi ile değerlendirilmesi. *İstanbul Gelişim Üniversitesi Sosyal Bilimler Dergisi*, 7(1), 153-169. doi: 10.17336/igusbd.560975
- Anderson, R. I., Fok, R., Zumpano, L. V. and Elder, H.W. (1998). Measuring the efficiency of residential real estate brokerage firms. *Journal of Real Estate Research*, 16(2), 139-158. Erişim adresi: <https://www.jstor.org/stable/44151020>
- Andries, A. M. and Cocris, V. (2010). A comparative analysis of the efficiency of Romanian banks. *Romanian Journal of Economic Forecasting*, (4), 54-75. Erişim adresi: <https://ideas.repec.org/a/rjr/romjef/vy2010i4p54-75.html>
- Ansah-Adu, K., Andoh, C. and Abor, J. (2012). Evaluating the cost efficiency of insurance companies in Ghana. *The Journal of Risk Finance*, 13(1), 61-76. doi: 10.1108/15265941211191949
- Bağcı, H. and Esmer, Y. (2016). Promethee yöntemi ile faktoring şirketi seçimi. *BUJSS*, 9(2), 116-129. doi:10.18221/bujss.14955
- Barros, C. P. and Garcia, M. T. M. (2006). Performance evaluation of pension funds management companies with data envelopment analysis. *Risk Management and Insurance Review*, 9(2), 165-188. Erişim adresi: <https://ideas.repec.org/a/bla/rmgtin/v9y2006i2p165-188.html>
- Bektaş, H. (2013). Türk bankacılık sektöründe etkinlik analizi. *Sosyoekonomi*, 19(19), 278-294. Erişim adresi: <https://dergipark.org.tr/tr/pub/sosyoekonomi/issue/21079/226955>
- Bigelli, M. and Manuzzi, F. (2019). The valuation of asset management firms. *Corporate Ownership & Control*, 16(4), 103-110. doi: 10.22495/cocv16i4art9
- Byrne, M. (2015). Bad banks: the urban implications of asset management companies. *Urban Research & Practice*, 8(2), 255–266. doi: 10.1080/17535069.2015.1050208
- Capital Markets Board. (2023). Portföy Yönetim Şirketleri. Erişim Adresi: <https://spk.gov.tr/kurumlar/portfoy-yonetim-sirketleri>
- Çıtak, L. (2008). Türkiye’deki menkul kıymet yatırım ortaklıklarının etkilerinin veri zarflama analizi ile değerlendirilmesi. *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, (31), 69-94. Erişim adresi: <https://dergipark.org.tr/tr/download/article-file/66511>

- Çiftçi, H. (2004). Türk sigorta sektörünün sorunları; DEA analizi ile Türk sigorta şirketlerinin etkinlik düzeylerinin belirlenmesi. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 13(1), 121-149. Erişim adresi: <https://dergipark.org.tr/tr/pub/cusosbil/issue/4369/59748>
- Çorak, K. and Güler, E. (2023). Gayrimenkul yatırım ortaklıklarının performans analizi: Türkiye örneği. *İşletme Akademisi Dergisi*, 4(1), 16-34. doi:10.26677/TR1010.2023.1205
- Erçel, G. (2020). *Küreselleşme ve uluslararası finansal gelişmeler*. (17. nci Asya Bankalar Birliği Genel Kurulu Raporu). Türkiye Cumhuriyet Merkez Bankası. Erişim adresi: <https://www.tcmb.gov.tr/wps/wcm/connect/a61d8cce-169a-4307-886a-53a4ebaa9af4/07Kuresellesme.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-a61d8cce-169a-4307-886a-53a4ebaa9af4-m3fBePt>
- Erol, S., Güçlü, H. and Alparslan, U. (2005). Portföy yönetim şirketi. Erişim adresi: file:///C:/Users/asus/Downloads/docspike.com_portfy-ynetim-irketleri.pdf
- Fiordelisi, F. and Molyneux, P. (2004). Efficiency in the factoring industry. *Applied Economics*, (36), 947-959. doi: 10.1080/00036884042000233177
- Gülcan, N. (2022). Finansal kiralama ve faktoring şirketlerinin finansal performans değerlendirmesinde vikor yönteminin uygulanması. *Ekonomi, Politika & Finans Araştırmaları Dergisi*, 7(Özel Sayı), 235-247. doi: 10.30784/epfad.1148935
- Iqbal, Q. and Awan, H. M. (2015). Technical, pure technical and scale efficiency analysis of insurance companies of Pakistan. *International Journal of Business and Management Review*, 3(4), 82-92. Erişim adresi: https://www.researchgate.net/publication/334317850_TECHNICAL_PURE_TECHNICAL_AND_SCALE_EFFICIENCY_ANALYSIS_OF_INSURANCE_COMPANIES_OF_PAKISTAN
- Karakaya, A., Kurtaran, A. and Dağlı, H. (2014). Bireysel emeklilik şirketlerinin veri zarflama analizi ile etkinlik ölçümü: Türkiye örneği. *Yönetim ve Ekonomi Araştırmaları Dergisi*, (22), 1-23. doi:10.11611/JMER213
- Kılıçarslan, A. and Sucu, M. Ç. (2021). Çok ölçütlü karar verme yöntemleri ile finansal performans sıralamaları: portföy yönetim şirketleri üzerine bir uygulama. *Erciyes Akademi*, 35(4), 1451-1480. doi: 10.48070/erciyesakademi.994546
- Kıracı, K. and Asker, V. (2019). Havaaracı leasing şirketlerinin performans analizi: Entropi temelli topsis uygulaması. *Uluslararası İktisadi ve İdari İncelemeler Dergisi*, (24), 17-28. doi: 10.18092/ulikidince.580420
- Küçükıralı, Z. and Aydın, U. (2022). Türkiye’de faaliyet gösteren bireysel emeklilik şirketlerinin etkinliği. *Verimlilik Dergisi*, (2), 289-304. doi: 10.51551/verimlilik.940655
- Milenkovic, N., Radovanov, B., Kalas, B. and Horvat, A. M. (2022). External two stage DEA analysis of bank efficiency in west balkan countries. *Sustainability*, 14(978),1-16. doi:10.3390/su14020978
- Nourani, M., Kweh, O.L., Lu, W. and Gurrib, I. (2022). Operational and investment efficiency of investment trust companies: Do foreign firms outperform domestic firms?. *Financial Innovation*, 8(79), 4-26. doi:10.1186/s40854-022-00382-1
- Ova, A. (2018). Türkiye’deki emeklilik şirketlerinin etkinlik analizi. *Muhasebe ve Finansman Dergisi*, (79), 139-152. doi: 10.25095/mufad.438867
- Pandey, A. (2022). A taxonomy of asset management companies. *Journal of Banking Regulation*, 23, 199-209. doi: 10.1057/s41261-021-00156-2

- Roman, M. D., Toma, G. C. and Tuchiluş, G. (2018). Efficiency of pension systems in the EU countries. *Romanian Journal of Economic Forecasting*, 21(4), 161-173. Erişim adresi: https://www.researchgate.net/publication/332168078_Efficiency_of_pension_systems_in_the_EU_countries
- Saad, N. and Idris, N. E. H. (2011). Efficiency of life insurance companies in Malaysia and Brunei: A comparative analysis. *International Journal of Humanities and Social Science*, 1(3), 111-122. Erişim adresi: <http://irep.iium.edu.my/3263/1/IJHSS.pdf>
- Seran, P., Suchahyo, U. S., Atahau, A. D. R. and Supramono S. (2023). The efficiency of Indonesian pension funds: A two-stage additive network DEA approach” *International Journal of Financial Studies*, 11(28), 1-19. doi: 10.3390/ijfs11010028
- Scherer, B. (2012). Market risks in asset management companies. *Quantitative Finance*, 12(10), 1547–1556. doi: 10.1080/14697688.2011.650185
- Tezergil, S. (2018). Portföy yönetim şirketlerinin finansal performanslarının gri ilişkisel analiz yöntemi ile değerlendirilmesi. *Sosyal Bilimler Enstitüsü Dergisi*, 39, 245-262. Erişim adresi: <https://dergipark.org.tr/tr/download/article-file/666933>
- Turkish Capital Market Association (2023). Gösterge Bahar 2023. Erişim Adresi: <https://tspb.org.tr/yayinlar/gosterge-bahar-2023/>
- Vatansever, K. and Avşarlıgil, N. (2017). Portföy yönetim şirketlerinin etkinlik ölçümü: Veri zarflama analizi uygulaması. *International Journal of Academic Value Studies*, 3(13), 227-233. doi :10.23929/jav.400

Genişletilmiş Özet

Amaç

Bu çalışmanın amacı, 2023 Kasım ayı itibariyle BİST’te işlem gören portföy yönetim firmalarının görece performanslarını COVID-19 pandemi dönemi öncesi (2019), pandemi süreci (2020-2021) ve pandemi sonrası (2022) olmak üzere üç ayrı dönem için değerlendirmektir.

Tasarım ve Yöntem

Çalışmada, Borsa İstanbul’da işlem gören portföy yönetim firmalarının görece performansı veri zarflama analizi (VZA) ile araştırılmıştır. Veri zarflama analizinin uygulanmasında kar maksimizasyonu açısından çıktıya yönelik modellerinin kullanılması uygun görülmüştür.

Çalışmada portföy yönetim şirketlerinin görece performansını detaylı bir biçimde değerlendirmek üzere çıktıya yönelik ölçüğe göre sabit ve değişken getiriyi esas alan BCC ve CCR modelleri kullanılmıştır.

BCC modeli ölçüğe göre değişken varsayımı doğrultusunda, CCR modeli ise ölçüğe göre sabit getiri varsayımı doğrultusunda hesaplanmaktadır. BCC modeli teknik etkinliğin tespitinde, CCR modeli toplam etkinliğin tespit edilmesinde kullanılmaktadır. CCR modeli ile tespit edilen toplam etkinlik, teknik etkinlik ile ölçek etkinliğinin çarpımı ile elde edilmektedir.

Çalışmada, her iki ölçüğe göre etkin olan firmalar tespit edilmiş ve etkin olmayan firmalar için referans kümeleri ile yoğunluk değerleri belirlenmiştir. Ayrıca ilgili yıllar itibariyle karar birimlerinin girdi ve çıktılarına ilişkin ortalama hedeflenen, gerçekleşen ve iyileştirme değerlerine ilişkin veriler ortaya koyulmuştur.

Çalışma örneğini, 2019-2022 zaman aralığında, verilerine tam olarak ulaşılabilen 29 firma oluşturmaktadır. Çalışmada, 2019 yılı COVID-19 pandemi öncesini, 2020-2021 yılları COVID-19 pandemi dönemini, 2022 yılı da COVID-19 pandemi sonrasını temsil etmektedir. Böylelikle portföy yönetim şirketlerinin görece performansı pandemi öncesi, pandemi dönemi ve pandemi sonrası için incelenmiştir.

Çalışmada Kamu Aydınlatma Platformu'ndan elde edilen portföy yönetim firmalarının yıllık bilanço ve gelir tablosu verileri kullanılmıştır. Bu firmalar aynı zamanda VZA analizinin karar verme birimleridir. Birimlerin belirlenmesinin ardından analizde kullanılacak girdi ve çıktı değişkenleri, literatürde yer alan çalışmalar referans alınarak tespit edilmiştir. Buna göre; genel yönetim giderleri, nakit ve benzeri, finansal yatırımlar çalışmada girdi değişkenleri olarak; net kar, faiz ve vergi öncesi kar, hasılat ise çıktı değişkenleri olarak kullanılmıştır.

Bulgular

VZA analizi kapsamında çıktıya yönelik BCC ve CCR modellerine göre etkin firmalar belirlenmiştir. CCR modeli sonuçlarına göre, 2019-2020 yıllarında 9, 2021 yılında 7, 2022 yılında ise 5 firma tam etkinliğe ulaşmıştır. 2019 pandemi öncesi ve 2020 pandemi döneminde en düşük etkinliğe sahip firma QInvest Portföy Yönetimi A.Ş. iken, 2021'de Deniz Portföy Yönetimi A.Ş., 2022'de Global Md Portföy Yönetimi A.Ş. olmuştur. Portföy yönetim firmalarının ortalama etkinlik değerlerinde ise 2019 yılından 2022 yılına kadar düzenli olarak düşüş yaşanmıştır. Genel olarak, CCR modeli sonuçlarına göre, pandemi öncesi dönemde ele alınan firmaların %31'i, pandemi döneminde %24'ü ve pandemi sonrasında da %17'si tam etkinliğe ulaşmıştır.

BCC modeli sonuçlarına göre, 2019 ve 2020 yıllarında 15 firmanın tam etkin olduğu, 2021'de 12, 2022 yılında ise bu sayısının 9'a düştüğü görülmüştür. 2019-2020 yıllarında en düşük etkinliğe sahip olan QInvest Portföy Yönetimi A.Ş. firması iken; 2021 ve 2022 yıllarında Deniz Portföy Yönetimi A.Ş. olmuştur. İncelenen yıllarda, tam etkin performans sergileyen firmalar ise Arz Gayrimenkul ve Girişim Sermayesi Portföy Yönetimi A.Ş., Hedef Portföy Yönetimi A.Ş., Oyak Portföy Yönetimi A.Ş., Strateji Portföy Yönetimi A.Ş. ve Ziraat Portföy Yönetimi A.Ş. olmuştur. Çalışmanın BCC modeli sonuçlarına göre, analiz kapsamına alınan firmaların %51'i pandemi öncesi ve süresince faaliyetlerini etkin bir şekilde sürdürmüşken, bu oran pandemi sonrasında %31'e gerilemiştir.

Ölçek etkinlik değerlerine bakıldığında, 2019 ve 2020 yıllarında 9 firmanın etkin olmakla beraber her iki dönemde ele alınan firmaların %31'i ölçek etkinliğine sahiptir. En düşük ölçek etkinliği 2019 yılında Global Md Portföy Yönetimi A.Ş., 2020 yılında da İş Portföy Yönetimi A.Ş. firmasına aittir. 2021 ve 2022 yıllarında ise, ölçek etkinliğine sahip olan firma sayısı diğer yıllara göre azalmıştır. Bu sayı 2021 yılı için 7, 2022 yılı için 5'tir. 2021 yılında en düşük ölçek etkinliği skoru Aktif firmasına, 2022 yılında ise Global'e aittir. Ayrıca, Arz Gayrimenkul ve Girişim Sermayesi Portföy Yönetimi A.Ş. ve Hedef Portföy Yönetimi A.Ş. firmaları ele alınan yılların tümünde tam etkin performans göstermiştir.

BCC ve CCR modellerine göre, en fazla referans alınma sayısı ele alınan tüm dönemler için Arz Gayrimenkul ve Girişim Sermayesi Portföy Yönetimi A.Ş. ve Hedef Portföy Yönetimi A.Ş. firmaları olmuştur. Sonuç olarak, portföy yönetim firmalarının görece performansı Covid-19 pandemi döneminden etkilenmiştir.

Sınırlılıklar

Çalışmada, BİST’ te işlem gören portföy yönetim firmalarının performansları VZA yöntemi ile değerlendirilmiş, belirlenen üç girdi (genel yönetim giderleri, nakit ve benzeri, finansal yatırımlar) ve çıktı (net kar, faiz ve vergi öncesi kar, hasılat) üzerinden BCC ve CCR modelleri kurulmuştur. Dolayısı ile elde edilen bulgular, bu kapsamda değerlendirilmelidir. Diğer bir ifadeyle, elde edilen sonuçların çalışmada ele alınan girdi ve çıktı değişkenleri ile 2019-2022 dönemini kapsamaktadır. Bu faktörler çalışmanın sınırlılıklarını ortaya koymaktadır.

Öneriler (Teorik, Uygulama ve Sosyal)

Bundan sonraki yapılacak çalışmalarda, portföy yönetim firmalarının performansları farklı yöntemlerin de eklenmesi ile karşılaştırmalı olarak değerlendirilebilir, girdi ve çıktı değişkenlerinin sayısı artırılabilir. Ayrıca, finansal sistemin birer parçası olan kurumların (banka, sigorta şirketleri, yatırım ortaklıkları vb.) performansları çeşitli yöntemler aracılığı ile mukayese edilebilir.

Özgün Değer

Yerli ve yabancı literatürde, çeşitli finansal kurumların performanslarını değerlendirmek üzere birçok çalışma yapıldığı görülmektedir. Finansal sistemin önemli bir parçası olan portföy yönetim firmalarının performans değerlendirme çalışmaları, Türkiye’de sınırlı sayıda kalmış, yabancı literatürde ise üzerine yapılmış herhangi bir araştırmaya rastlanılmamıştır. Türkiye’de yapılan çalışmalardan (Vatansever ve Avşarlıgil, 2017; Tezergil, 2018; Kılıçarslan ve Sucu, 2021) farklı olarak, portföy yönetim firmalarının performans değerlemesi Covid 19 pandemi dönemi öncesi, süreci ve sonrası dönemler için ele alınmış ve çıktılar karşılaştırmalı olarak ortaya konulmuştur. Çalışmanın diğer özgün yanı, portföy yönetim firmalarının dönen varlıklarının nerdeyse tamamını oluşturan “nakit ve benzeri” kaleminin girdi değişkeni olarak analize dahil edilmesidir.

Araştırmacı Katkısı: Hilal OK ERGÜN (%33,3), Zekiye AKTAŞ (%33,3), Ahmet KURTARAN (%33,3).