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An Analysis on Financial and Stock Market Performance of Banks in Borsa Istanbul

Fevzi Serkan ÖZDEMİR (*)
Mehpare KARAHAN GÖKMEN (**)
Oguzcan AKDEMİR (***)

Abstract: *Theoretically, it is expected that the stock market performances of companies whose stocks are traded in organized stock markets will be affected by the financial performance indicators obtained with the help of the financial statements that are publicly available. For this reason, there are a number of studies in the literature that focus on the relationship between financial performance and stock return (yield) or stock market performance. These kinds of analysis are being done quite frequent also particularly for banks. On the other hand, it is seen that the studies carried out by different methods such as TOPSIS, Fuzzy AHP Method, ELECTRE, Grey Relation Analysis, PROMETHEE, etc. In addition, comparisons between public and private banks are also done in pre- and post-crisis periods. The purpose of this study is to evaluate the financial statements of banks disclosed publicly in terms of years' financial performance and stock market performance comparatively. Stock market performance is considered to be correlated with the financial performance of companies, the relative effect of the financial performance on the stock market performance will be explained. Regarding its purpose, panel data analysis is applied in the study unlike the other studies in the literature.*

Keywords: *Banks, Borsa Istanbul, Financial performance.*

Borsa İstanbul'da İşlem Gören Bankaların Finansal ve Borsa Performanslarına Dair Bir İnceleme

Öz: *Teorik olarak, hisseleri teşkilatlanmış borsalarda işlem gören şirketlerin borsa performanslarının, kamuoyuna sundukları finansal raporlar yardımıyla elde edilen finansal performans göstergelerinden etkilenmesi beklenir. Bu nedenle literatürde, finansal performans ile hisse senedi getirilerini veya borsa performansı arasındaki ilişkiyi konu edinen çok sayıda çalışmaya rastlanılmaktadır. Bankalar özelinde de bu türlü incelemeler oldukça sıktır. Öte yandan yapılan çalışmalarda TOPSIS, Bulanık AHP, ELECTRE, Gri İlişkisel Analiz, PROMETHEE gibi farklı yöntemler ile değerlendirmeler yapıldığı görülmektedir. Ayrıca kamu ve özel bankalara dönük karşılaştırmalar ile kriz öncesi ve sonrası dönemlere dair karşılaştırmalar öne çıkmaktadır. Bu çalışmanın amacı da bankaların kamuoyu ile paylaşılan finansal raporlarının yıllar itibariyle mukayeseli olarak değerlendirilmesi, finansal performanslarının ve borsa performanslarının karşılaştırmalı olarak irdelenmesidir. Borsa performansının, işletmelerin finansal performansı ile doğru*

*) Doç. Dr., Türkiye Büyük Millet Meclisi (e-posta: fsozdemir@gmail.com) ORCID ID. https://orcid.org/0000-0002-0641-6352

**) Dr. Öğr. Üyesi, Ondokuz Mayıs Üniversitesi İktisadi ve İdari Bilimler Fakültesi Uluslararası Ticaret ve Lojistik Bölümü (eposta: mehparekarahan@gmail.com) ORCID ID. https://orcid.org/0000-0002-0317-0924

***) Arş. Gör., İzmir Demokrasi Üniversitesi İktisadi ve İdari Bilimler Fakültesi İşletme Bölümü (eposta: oguzcanakdemir@gmail.com) ORCID ID. https://orcid.org/0000-0002-9085-8195

ilişkili olduğu düşünüldüğünde, bu değerlendirme neticesinde bankaların borsa performanslarındaki seyirde finansal performanslarının göreli etkisi de ortaya konulmuş olacaktır. Bunun için literatürde sıklıkla başvurulan tekniklerden farklı olarak panel veri analizi yapılmıştır.

Anahtar Kelimeler: *Bankalar, Borsa İstanbul, finansal performans*

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I. Introduction

Financial statement analysis can be made in various ways and numerous decision maker parties benefit financial analysis while making their economic decisions. These analyses give idea about a company's aspects such as profitability, liquidity, managerial success. Financial ratios, that are simply showing the relations between two or more financial statement items, are vital tools in financial statement analysis. While calculating financial ratios, financial statements are primary source of information. A company's financial performance may be captured with financial ratios during a period or within company or intercompany comparisons may be made for a specific point of time. Banks that are important part of economy are no exception. Financial ratio analysis provides valuable inferences for banks. It may just be noted that due to their operational distinctness banks are subject to some sector-specific ratios beside commonly applied ratios.

In this study, it is attempted to find out to what extend financial performance of banks are reflected in market performance. Market performance of companies is especially important for investors. Because investors make their decision depending on available financial information and their risk perception. At this point financial ratios that are providing an indicator of financial performance are taking role. Another contribution of this study is to apply panel data analysis in order to discover any meaningful relationship between financial performance and market performance.

Remaining of the study discusses literature on performance measurement of banks and then empirical study on the relation between financial ratios and market performance of selected banks in Turkey is provided. Lastly findings of the study is interpreted in conclusion.

II. Literature Review

Shah and Jan (2014) found that assets management ratio is in a positive relation with the bank size and operational efficiency. On the contrary, they cleared up that bank size and operational efficiency have a negative relationship with ROA in their study. In addition to these arguments they also found out that operational efficiency had a negative relation with the interest income. On the other hand, interest income and asset management is in a positive relation with the bank size.

Doğan (2013) were compared the participation and traditional banks financial performances operates in the Banking Sector of Turkey between the years 2005-2011 in his study. With the help of profitability, liquidity, riskiness, solvency and capital adequacy ratios, performance of the traditional and participation banks measured in the research. In empirical analysis the t-test was used to determine the difference between the banks. As a result of the analysis, this research found out that the conventional banks liquidity, solvency and capital adequacy are higher and their risk ratio is less compared with the participation banks. In addition; this research also argued that there was no statistically significant difference between the participation and traditional banks profitability.

Çalışkan and Eren (2016) used the first twenty public, private, and foreign capital banks according to their capital size in 2014 are used in their study. Their financial performance in the period of 2010-2014 is compared with the help of ten selected financial ratios by using the multi-criteria decision making methods named as AHP and PROMETHEE. The financial ratios used in the study are listed below. Loans acquired / total assets, total loans and receivables / total assets, non-performing loans (net) / total loans and receivables, financial assets (net) / total assets, liquid assets / total assets, net profit (loss) / total assets, net profit (loss) / shareholders' equity, interest income / total assets, net interest income after special provisions / total operation revenues, net operating profit (loss) / total assets. There are some differences in the rankings that are measured as weighted or weightless, and these differences formed by the effect of the priority status of the criteria. The highest weight measurement, also the criteria's' that are considered to be the most effective according to the experts shows that why the customers preferred these banks. This study shows that how the performances of banks ranked according to these weighted criteria evaluated in the cases under the subjective decisions.

Uçkun and Girginer (2011) tried to determine the financial performance of the public and private capital banks in the Turkish Banking System by using selected financial ratios with the Grey Relation Analysis (GRA). In this study, they argued that, the most effective financial ratios that detected the financial success of the public banks is the ratios related about profitability. On the hand, ratios that defined the asset quality had occurred the private banks financial performance significantly. The analysis sorted the public banks according to their financial performance as Ziraat Bank, Vakıflar Bank and Halkbank. In the analysis made for private banks, are sorted the top five banks according to their financial performance as Anadolubank, Turkish Bank, Akbank, Garanti Bank and Şekerbank.

Ünal and Yüksek (2017) analyzed the financial performance and stock returns of the banks listed in Borsa Istanbul Sustainability Index in this study. In the analysis, PROMETHEE method that is one of the multi-criteria decision making methods is used. The data handled in the research covered the years 2015, 2016 and the first six months of 2017, due to updates in the index, the number of banks increased over years. The first results in the analysis revealed that Akbank ranked as first according to financial performance in the entire periods examined. On the other hand, it could not be said that stock returns fully confirm these results. Despite its financial performance, Akbank ranked as the first bank, only in the 2016 in terms of stock returns. In the other two periods, Vakıfbank ranked first in terms of stock returns. In addition to this, correlation analysis made in this study showed that there is no statistically significant relation between financial performance and stock returns.

Güney and Saka Ilgın (2015), with the CAMELS model analyzed and evaluated the effects of financial crises to traditional bank groups performances as of 2002-2012 period using TBB data in this study. Analysis showed that the performance of foreign capital banks was the best in terms of financial performance and private capital banks are the group with the lowest performance in the period under review. They argued that capital banks became more cautious against crisis due to their proportions like high capital adequacy and liquidity that they had after 2001 crisis. The result reached are showed that capital banks managed to overcome the 2008 economic crisis with minor abrasions like most of the sector player in the banking ecosystem.

Güneysu, Er and Ar (2015) analyzed the financial performance of commercial banks operating in the Turkish Banking system during the period 2010-2014 by using 16 financial ratios with Multi Criteria Decision Making (MCDM) methods. In this study, at first Analytical Hierarchy Process (AHP) method used for determining the weights of criteria (financial ratios). After AHP analysis, profitability ratios are defined as one of the main criteria for evaluating the performance of banks. The capital adequacy standard ratio is assigned as one of the most important sub-criteria. On the other hand, in the second stage The Grey Relation Analysis (GRA) method was used to sort banks according to their financial performance. The results obtained clarified that Ziraat Bank is ranked as the first bank among the state-owned banks, Adabank is sorted as the first bank among the private capital banks and JPMorgan Chase Bank is ranked as the first bank among the banks that had foreign capital.

Öndeş, Çalı, Aydın and Muti (2020) compared the participation banks and commercial banks financial performance with each other. Performance indicators that are utilized before in the literature used in order to measure the performance of banks with ELECTRE method. The analysis revealed the results written below. KuveytTurk Bank which is located in the participation banks had higher performance against Türkiye Finans Bank and Şekerbank. AlbarakaTurk Bank had higher performance against Şekerbank. Türkiye Ekonomi Bank had higher performance against Türkiye Finans Bank. ING Bank had higher performance against Türkiye Finans Bank.

Oktay Akın and Erdinç Dinçsoy (2019) analyzed commercial banks that owned by the state in terms of their financial structure and activity performance before their capital transferred to Turkey Wealth Fund (SWF) in this study. Accordingly, during the years 2010-2016, Halkbank, Vakıfbank and Ziraat Banks' financial and income statements examined by using vertical, horizontal and ratio analysis method. Evaluation that is made for the research claimed that current financial structures of state banks could provide financial contribution to the Turkey Wealth Fund with their potential. However, these three state-owned banks are blow in terms of active profitability ratio according to the average of Turkey. High financial leverage ratio is another bad situation that they face. Authors mentioned that, Halkbank and Vakıfbank's follow-up credits ratios is too high. And they added that it should be considered as a significant point.

III. Empirical Research

As set forth previously the aim of this study is to examine the relationship between financial and market performance of banks operating in Turkey. In contrast to many other studies panel data methodology is employed in order to find out a potential relationship among variables. Sample selection and details of analysis is given in the following section.

IV. Data and Variables

In accordance with objective of the study, selected banks need to be traded in Borsa Istanbul. Although there were 10 banks in Turkey fulfilling this requirement, Albaraka Türk Participation Banks is excluded from sample due to missing data for some periods. Time period begins from the year 2008 in which inflation accounting ceased to be applied and ends by the year of 2016. Quarterly market performance ratios and financial accounting data are used in the study for the years of 2008-2016.

Two groups of variables are available in the study. The first group represents the market performance of banks and dependent variables for the study. Price-earnings ratio and book value / market value are two ratios that are commonly used in the literature as proxies of market performance. The second group is composed of some financial accounting data that represents the financial performance of banks. Latter one is determined as independent variables whose impact on market performance is be examined.

V. Methodology

As literature on the relationship between market performance and financial performance measures is analyzed, it may be seen that there are many methods employed such as TOPSIS, Fuzzy AHP Method, Electre, Grey Relation Analysis, Promethee and so on. In order to contribute the literature with an alternative method, panel data analysis is devised in the study. Panel data analysis is very useful owing to inclusion of both cross sectional and times series data in a single model. Therefore, instead of analyzing a single company for multiple years or many companies for a single year, a number of companies for a long period time may be examined in terms of relationship between variables.

In the model both fixed effect and random effect models are estimated. Fixed effect model estimates the relationship between predictor and dependent variables for each cross sectional unit which are banks for this study. As fixed effect model explores the relationship within banks, time variance is also removed from the estimation model. Additionally, fixed effect model assumes that error terms for different banks are not correlated therefore in existence of such a circumstance, fixed effect model would not be appropriate.

The other model used in the study random effect model in which the relationship between predictor and dependent variable is estimated between units. Differences among banks are reflected in a random effect model. And in contrast to fixed effect model time variant variables are included in a random effect model.

Although both fixed effect and random effect models are estimated, as discussed above one of the models would be more appropriate for exploring a relationship. Hausman test statistic is used in order to make a selection among fixed effect and random effect models. If Hausman test statictic is significant which means that probability is lower than 0.05, then fixed effect model should be preferred. Otherwise, random effect model should be used. In the study both models are estimated, but only the appropriate model according Hausman test is reported.

A. Results

There are two models estimated in the study that are formed as in the following.

Model 1

$$PE_{it} = \alpha + \beta\ logTA_{it} + \beta \log NI_{it} + \beta \log NII_{it} + \beta\ CB/E_{it} + \beta\ ROE_{it} + \beta IncDepo_{it} + \beta\ LiqA/TA_{it} + u_{it} + \varepsilon_{it}$$

Model 2

$$MTB_{it} = \alpha + \beta\ logTA_{it} + \beta \log NI_{it} + \beta \log NII_{it} + \beta\ CB/E_{it} + \beta\ ROE_{it} + \beta IncDepo_{it} + \beta\ LiqA/TA_{it} + u_{it} + \varepsilon_{it}$$

PE	:Price – Earnings Ratio
MTB	: Market to Book Ratio
log TA	:Log of Total Assets
log NI	:Log of Net Income
log NII	:Log of Net Interest Income
CB/E	:Credits Borrowed divided by Equity
ROE	:Return on Equity
IncDepo	: Increase in Deposits
LiqA/TA	:Liquid Assets divided by Total Assets
α	:constant
u	:between entity error
ε	:within entity error

As explained above both fixed effect and random effect estimations are made for the models and then in order to select one of those models Hausman test statistic is used. Hausman test statistics is 0.9992 for the first model and 0.9938 for the second models. Being test statistics higher than 0.05, random effect is selected for both models. Test results including z value and p values in parenthesis are reported in the following table.

Table 1: Test results for the examination of financial accounting data on market performance of banks

	Dependent Variable	
Predictors	PE Ratio	MTB Ratio
Log of Total Assets	-0.15 (0.879)	-0.05 (0.963)
Log of Net Income	-2.45 (0.014)**	-2.43 (0.015)**
Log of Net Interest Income	2.43 (0.015)**	2.39 (0.017)**
Credits Borrowed /Equity	-2.02 (0.043)**	-1.53 (0.125)
Return on Equity	0.04 (0.970)	0.29 (0.769)
Increase in Deposits	0.15 (0.881)	0.23 (0.822)
Liquid Assets /Total Assets	1.75 (0.080)*	2.21 (0.027)**
Test statistics are shown in the table. P values are given parenthesis. *,**,*** represents significances at the confidence levels of 10%, 5% and 1% respectively.		

For the initial model net income, net interest income, credits borrowed/equity and liquid assets /total assets found to be significant. While net income and liquid assets /total assets have a positive impact on price earnings ratio, it is concluded that net interest income and credits borrowed /equity have a negative impact on price earnings ratio. Similar results are also obtained for the second model. Same predictors except for credits borrowed /equity found to be insignificant for the latter model. Direction of the relationship is also similar. Net income and liquid assets /total assets affects positively market to book ratio and additionally it is reached that net interest income has a negative impact on market to book ratio. Total assets variable which is included in the model in order to examine the impact of size on market performance found to be have no impact on both market performance measures. Likewise return on equity and increase in deposits do not affect price earnings ratio and market to book ratio.

VI. Conclusion

Market performance of companies is important for security investors. While they are making their investment decision, they depend on all available financial information. Then they take a position in the market at the level of their risk perception. Financial statement analysis, particularly financial ratios, provides helpful tools for investors.

The aim of this study is to set forth the impact of financial performance which is measured by financial ratios on market performance of banks in Turkey. Market performance is proxied by price earnings and market-to-book ratios. Results of the study indicate that while "net income" and "net interest income" has a positive significant relation with market performance, "net interest income" has a negative relation for both of the proxies. Additionally, "credits borrowed/equity" has a negative relation with price-earnings ratio. These results show that for banking industry sector specific ratios has greater importance except for "net income" which is a key indicator of financial performance for all type of companies. Investors should take into account these sector-specific ratios while they are making their investment decision.

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