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PERFORMANCE MEASUREMENT OF BROKERAGE FIRMS AND ITS APPLICATION IN TURKEY VIA GREY RELATIONAL ANALYSIS

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Abstract

Brokerage firms play a crucial role in capital market. Operation of these firms in an efficient and fruitful manner leads to an increase in investment volume notably in capital market. Competitiveness is a matter among brokerage firms as in other sectors. The brokerage firms try to get an advantage over competitiveness by means of commission rates, quality of their service, and variety in investment tools. The quality of service is of the utmost importance among these issues since these firms are in service industry. As the performances of brokerage firms increase, their service quality will increase in turn, and therefore they could have superiority over others in terms of competitiveness. In this study, the performances of brokerage firms were measured in Istanbul Stock Exchange (BIST). Grey Relational Analysis was used as a performance measurement method. Three-year financial tables of these brokerage firms between 2011 and 2013 were used. The financials tables were assessed to financial analysis with 15 ratios which show, liquidity, turnover, financial structure and profitability criteria. As a result of performance evaluation, 'Info Menkul Değerler' ranked the first, 'Gedik Menkul Değerler' was second, 'Global Menkul Değerler' was third, İş Menkul Değerler was fourth and Osmanlı Menkul Değerler came in fifth.

Keywords: Brokerage Firms, Performance in Brokerage Firms, Performance Measurement, Grey Relational Analysis, Istanbul Stock Exchange (BIST)

INTRODUCTION

According to Capital Market Law's second chapter fourth article, "Intermediation is purchase and sale with trading purpose of capital market tools by competent bodies within the law on their behalf and account, on behalf of others and their account." According to the law, brokerage firms are allowed to carry out each and every action stated below on the condition of having certificate of authority:

a) The exportation of capital market tools or selling them via public offering,

b) Purchase and selling of the capital market tools which were previously,

c) They can play intermediary roles separately or as a whole in purchase and selling of derivative instruments based on economic and financial indicators, capital market tools, commodity, including future deliveries and option contracts based precious metals and foreign currency.

In addition, by acquiring necessary certificate of authorities the brokerage firms can

a) Purchase and selling of capital market tools with reuptake or reselling commitment (repo-reverse repo),

b) Investment consultancy,

c) Portfolio management actions.

One of the most significant factors contributing to the development of national economy is the increase in investment volume in the country. As the confidence of the investors in markets increase, turning their saving ratios into investment will increase in parallel. The brokerage firms explain investment opportunities and protection methods for risks in the market to the investors and orient to the investments. As the number of investors who are knowledgeable about the market and ratios of investments, domestic funding required for the national economy will scale up. The fact that brokerage firms continue their operations in an efficient and productive manner is more important than other companies because in the case of financial difficulty not only the brokerage firms but also the investors suffer and their confidence in the market will decrease in turn.

The brokerage firms idiosyncratic risks. These risks stem from this industry's own nature. (Kidwell, Peterson and Blackwell, 1993:623). Apart from them, undertaking and transaction risks during their public offering are described as the main risk factors. (Saunders and Walter, 1994:170). The efficiency of brokerage firms in risk management depends on standardization of capital adequacy and risk management (Coşkun, 2010: 74).

Performance measurement is of pivotal importance in these companies. Performance measurement reveals the strong and weak aspects of brokerage firms. Especially that the brokerage firms which were closed due to effect of economic crisis in 1994 negatively affected

the investments led to an increase in the regulation of these organizations (Lokman and Yılmaz 2001, p: 39). Performance measurement provides useful information for a company to sustain its operations in a more effective and productive manner. The managers could take more efficient decisions thanks to this acquired knowledge (Osborne and Gaebler,1992, p:64).

Thanks to the performance measurement the efficiency of the plans followed by the managers are measured as well. The success of the manager in making and applying these plans is put forward by this measurement. Thus, the weak and strong aspects of the manager are revealed. By so doing, the manager has the opportunity to identify these weak points by strengthening them (Poister,2003, p:162). Since not only the performance of the managers but also the whole business is evaluated by performance measurement, the opportunity to reach a more efficient and competitive position could be created by resolving halting aspects in a business (Diamond, 2005p: 28).

LITERATURE REVIEW

Grey Relational Analysis has been used in designing airway networks (Hsu and Wen, 2000), comparative studies concerning financial indicators of corporations (Feng and Wang, 2000), sales forecasting (Lin and Hsu, 2002) and many other sectors. This section summarizes the comparative studies of financial indicators using GRA. In his study, Chang (2006) investigated the relationship between business perception and financial performance in 15 banks in Taiwan and benefitted from GIA. In the study, the author used the liquidity, profitability, growth and capital structure ratios of the banks. In a study comparing three banks, Ho and Wu (2006) used 53 ratios among liquidity, profitability, financial leverage, growth, active usage and stock performance. They compared GIA and financial situation analysis in the analyses and showed that GIA provided the best results. Benefiting from 23 financial ratios, Ho and Wu (2006) compared three banks operating in Australia by using GIA. The results of the study suggested that the banks which had better liquidity had better performance. Yuan (2007) compared the performances of 6 corporations using ratios of liquidity and profitability. As a result of this study using 10 financial ratios and GRA, Yuan found that the most important factor in measuring corporation performance is profitability ratios. Wang (2009) measured financial performances of corporations operating in transportation sector in Taiwan using GRA. Uçkun and Girginer (2011) conducted a study, aiming to determine financial performances of both state and private banks through the help of these banks' financial ratios via GIA. In the study, three state, 10 private underwent GIA with regards to 14 financial ratios, and they were ordered within the group in terms of their financial performances. As a result of GIA, "Ziraat Bankası" came first among state banks and "Anadolu Bank" was the first among private banks concerning financial

performance. Girginer and Uçkun (2012) used GIA approach in a study in which the effects of financial crisis on Turkish banks. According to the findings, the banks were ranked as state, foreign, and private during the period of 2005-2009. Elitaş et al. (2012) determined financial performances of insurance companies which are traded in ISE in the years 2010-2011 by using GIA. 10 financial ratios have been used in the study and performance measurement has been carried out with the help of liquidity, leverage and profitability ratios. On the other hand, Doğan (2013) evaluated the performances of 10 banks in Istanbul Stock Exchange (IMKB) by using GIA. The results showed that "Akbank" was the forerunner whereas "Yapı Kredi Bankası" was the last. Ecer (2013) compared the financial performances of the Turkish private banks during the period of 2008-2011 by using Grey Relation Analysis (GRA) approach. He found that the most important financial indicators in financial achievement are active quality for private banks. In their study, Altan and Candoğan (2014) investigated the applications on participation banks operating in Turkey.

GREY RELATIONAL ANALYSIS

Grey System Theory which involves Grey Relational Analysis was developed by Julong Deng in 1982. Grey System Theory makes it easy to decide in situations when there is an unclear, deficient or no information (Deng, 1989). In this system, colour white refers to the situation which is fully acknowledged, black denotes to the fact that there is no information whatsoever, and grey describes the situation in between. The aim of this system is to convey information to the system in order to change the colour black situation in which there is no information into the colour grey (Feng and Wang, 2000, p:136).

Grey relational analysis is one of the multi-criteria decision-making methods. Easier solutions could be found in comparison with mathematical solutions when it comes to atmosphere of uncertainty (Üstünışık, 2007).

The calculation steps of grey relational analysis method are given below (Wen, 2004):

Step 1: The Formation Of Decision Matrix:

$$X_i = \begin{bmatrix} x_1(1) & x_1(2) & \cdots & x_1(n) \\ x_2(1) & x_2(2) & \cdots & x_2(n) \\ \vdots & \vdots & \ddots & \vdots \\ x_n(1) & x_n(2) & \cdots & x_n(n) \end{bmatrix}$$

Step 2: The Formation Of Reference Series:

Reference series $x_0 = (x_0(1), x_0(2),...,x_0(j),...,x_0(n))$

This series is stated as given above. The criterion of 0x (j) , j. refers to the biggest value within the criteria's normalized values. Reference matrix is acquired by writing it in the first line of reference series.

Step 3: Operation Of Normalization And Forming Normalization Matrix:

In this step, data set is normalized and three possible situations are encountered:

I. Utility status: If the purpose is to obtain a better or higher value, number 2 formula is used. Number 2 formula is:

$$x_i^* = \frac{x_i(j) - \min_j x_i(j)}{\max_j x_i(j) - \min_j x_i(j)|}$$

II. Cost status: If the purpose is to obtain a smaller or less value, number 3 formula is used. Number 3 formula is:

$$x_i^* = \frac{\max_j x_i(j) - x_i(j)}{\max_j x_i(j) - \min_j x_i(j)}$$

III. Optimal status: If the purpose is to acquire an optimal value, number 4 formula is used. Number 4 formula is:

$$x_i^* = \frac{|x_i(j) - x_{0b}(j)|}{\max_j x_i(j) - x_{0b}(j)}$$

In this formula $X_{ob}(j)$, j is the target value of the criteria and takes place within the range of:

$$\max_j x_i(j) \geq x_{0b}(j) \geq \min_j x_i(j)$$

After these operations, the decision matrix in number (1) becomes as shown below: Number 5 formula is:

$$X_i^* = \begin{bmatrix} x_1^*(1) & x_1^*(2) & \cdots & x_1^*(n) \\ x_2^*(1) & x_2^*(2) & \cdots & x_2^*(n) \\ \vdots & \vdots & \ddots & \vdots \\ x_n^*(1) & x_n^*(2) & \cdots & x_n^*(n) \end{bmatrix}$$

Step 4: The Formation Of Absolute Value Table: Number 6 formula is:

The absolute value $\Delta_{oi}(j)$ between x_0^* and x_i^* is acquired as below:

$$\Delta_{0i}(j)=\left|x_0^*(j)-x_i^*(j)\right|=\begin{bmatrix}\Delta_{01}(1) & \Delta_{01}(2) & \cdots & \Delta_{01}(n)\\ \Delta_{02}(1) & \Delta_{02}(2) & \cdots & \Delta_{02}(n)\\ \vdots & \vdots & \ddots & \vdots\\ \Delta_{0m}(1) & \Delta_{0m}(2) & \cdots & \Delta_{0m}(n)\end{bmatrix}$$

Step 5: The Formation Of Grey Relational Coefficient Matrix: Number 7 formula is:

$$\gamma_{0i}(j)=\frac{\Delta\min+\xi\Delta\max}{\Delta_{0i}(j)+\xi\Delta\max}$$

In this formula ξ is distinguishing coefficient and gets a value in the range of [0, 1], yet it is advised to take it as 0.5 in operations. Moreover, it is calculated as:

$$\Delta\max=\max_i\max_j\Delta_{oi}(j) \qquad \Delta\min=\min_i\min_j\Delta_{oi}(j)$$

Step 6: The Calculation Of Degree Of Relation: Number 8 formula is:

$$\Gamma_{oi}=\frac{1}{n}\sum_{j=1}^{n}\gamma_{oi}(j)$$

In this formula T_{oi}, i. illustrates the degree of grey relation of the element and is used when criteria are accepted to be equally important. If different weights of criteria are in question, number 9 formula is used:

$$\Gamma_{oi}=\sum_{j=1}^{n}[W_i(j)\gamma_{oi}(j)]$$

METHODOLOGY

In this study, the performances of brokerage firms in Istanbul Stock Exchange (BIST) were analysed by means of Grey Relational Analysis used as a performance measurement method. There are 5 brokerage firms in Brokerage Firms Industry. Three-year financial tables of these brokerage firms between 2011 and 2013 were used. Especially during these periods were selected. The reason for this most recent period at the time of the study because the selection

of the reliable data that belong to these years. The financials tables were assessed to financial analysis with 15 ratios which show turnover, financial structure, liquidity and profitability criteria.

Ratio analysis is quite an effective and common method to analyse actions of a business by using financial ratios (Erdoğan,2011:8). This method, which takes the ratios to each other rather than direct financial table items into account, is very effective in examining the internal dynamic of the financial table. For this reason, financial ratios are commonly used in evaluating the efficiency and productivity of business organizations (Akgüç,2006:361). 15 financial ratios are manifested in Table 1.

Table 1: Financial Ratios Used In Grey Relational Analysis Method

l1	Current Assets / Short-Term Liabilities
l2	Current Assets- Inventories / Short-Term Liabilities
l3	Liquid Assets / Short-Term Liabilities
t1	Net Sales / Total Assets
t2	Net Sales / Current Assets
t3	Operating Expenses / Net Sales
t4	Net Sales / Tangible Fixed Assets
f1	Shareholders Equity / Total Assets
f2	Shareholders Equity / Tangible Fixed Assets
f3	Current Assets / Total Assets
f4	Long-Term Assets / Total Assets
p1	Net Profit (loss) / Net Sales
p2	Net Profit (loss) / Shareholders Equity
p3	Net Profit (loss) / Gross Profit (loss)
p4	Net Profit (loss) / Total Assets

In the above table…

l is for liquidity,

t for turnover,

f for financial structure,

And **p** is used for profitability.

GLMBD for Global Menkul Değerler, ISMEN for İş Menkul Değerler and OSMEN is used for Osmanlı Menkul Değerler.

Step 1: The Formation of Decision Matrix: There are financial ratios of the banks in the Table 2 below.

Table 2: Financial Ratios by Years

	LIQUIDITY			TURNOVER			
2011	**l1**	**l2**	**l3**	**t1**	**t2**	**t3**	**t4**
GEDİK	1,76	0,96	1,8	2,81	3,17	4,06	190,86
GLMBD	2,37	0,44	2,39	78,46	99,08	0,33	7.342
INFO	3,6	1,71	3,6	11,77	11,62	1,35	1.265
ISMEN	1,25	0,75	1,26	13,74	15,47	0,33	5.275
OSMEN	1,23	0,05	1,24	79,23	76,64	0,93	5.494

	FINANCIAL STRUCTURE				PROFITABILITY			
2011	**f1**	**f2**	**f3**	**f4**	**p1**	**p2**	**p3**	**p4**
GEDİK	42,74	26,43	97,48	2,52	2,54	18,34	6,46	7,84
GLMBD	61,33	49,96	90,96	9,04	0,03	4,45	0,36	2,73
INFO	36,95	40,74	98,74	1,26	0,7	21,63	1,73	7,99
ISMEN	13,06	45,77	97,26	2,74	0,11	13,1	0,5	1,71
OSMEN	20,7	15,12	98,14	1,86	-0,24	-86,51	0,73	-17,9

	LIQUIDITY			TURNOVER			
2012	**l1**	**l2**	**l3**	**t1**	**t2**	**t3**	**t4**
GEDİK	1,42	0,78	1,42	1,56	1,52	6,78	120,61
GLMBD	1,82	0,4	1,82	93,08	92,23	0,25	6.087
INFO	2,59	0,75	2,59	20,38	21,61	0,77	2.110
ISMEN	1,23	0,68	1,24	9,26	9	0,53	1.779
OSMEN	1,33	0,15	1,33	33,98	32,33	1,36	3.218

	FINANCIAL STRUCTURE				PROFITABILITY			
2012	**f1**	**f2**	**f3**	**f4**	**p1**	**p2**	**p3**	**p4**
GEDİK	28,93	23,41	97,88	2,12	2,62	13,5	9,7	3,9
GLMBD	46,98	32,52	95,37	4,63	0,01	1,72	0,24	0,81
INFO	59,49	66,89	86,87	13,13	0,21	6,75	0,93	4,01
ISMEN	11,04	22,62	96,43	3,57	0,19	14,78	0,86	1,65
OSMEN	27,35	28,34	96,04	3,96	0,08	9,05	1,42	2,48

	LIQUIDITY			TURNOVER			
2013	**l1**	**l2**	**l3**	**t1**	**t2**	**t3**	**t4**
GEDİK	1,42	0,62	1,42	6,08	6,26	1,81	543,65
GLMBD	1,9	0,44	1,91	92,61	94,57	0,29	7497
INFO	2,92	1,45	3,41	4,45	4,43	3,47	625
ISMEN	1,21	0,63	1,22	14,18	14,77	0,36	7934
OSMEN	1,64	0,05	1,64	35,51	36,58	0,88	3385

	FINANCIAL STRUCTURE				PROFITABILITY			
2013	**f1**	**f2**	**f3**	**f4**	**p1**	**p2**	**p3**	**p4**
GEDİK	30,12	27,23	96,08	3,92	0,66	13,12	2,45	3,95
GLMBD	50,43	49,96	93,16	6,84	0	-0,08	0,26	-0,04
INFO	63,64	40,74	98,33	1,67	0,81	5,51	4,25	3,51
ISMEN	10,9	45,77	97,2	2,8	0,1	13,66	0,5	1,48
OSMEN	41,49	15,12	95,41	4,59	0,05	4,59	0,87	1,9

As can be seen from Table 2 Info has the highest rate with regards to liquidity in 2011. When its Turnover is seen from a general perspective, GLMBD is better than the other firms. As to the Financial Structure rates, GLMBD is of the highest rates. When profitability rates are evaluated, Gedik has the highest values among others.

In 2012, Info has the highest rate in terms of liquidity. Viewed from a general perspective, Turnover, GLMBD is again better than the other firms. Info is better than the others when its Financial Structure rates are compared. When profitability rates are concerned, Info has the highest values.

Info has the highest liquidity in 2013. Concerning Turnover Global Menkul Değerler (GLMBD) is in a better situation in comparison with other firms. When Financial Structure values are evaluated, the values of Info and GLMBD are higher than other firms. When profitability rates are investigated, Gedik has the highest rates as in capital adequacy values.

Table 3: Decision Matrix

	LIQUIDITY			TURNOVER			
AVERAGE	**l1**	**l2**	**l3**	**t1**	**t2**	**t3**	**t4**
GEDİK	1,53	0,79	1,55	3,48	3,65	4,22	285,04
GLMBD	2,03	0,43	2,04	88,1	95,3	0,29	6975,3
INFO	3,04	1,30	3,2	12,2	12,5	1,86	1333,6
ISMEN	1,23	0,69	1,24	12,4	13,1	0,41	4996,2
OSMEN	1,4	0,08	1,40	49,6	48,5	1,06	4032,6

	FINANCIAL STRUCTURE				PROFITABILITY			
AVERAGE	**f1**	**f2**	**f3**	**f4**	**p1**	**p2**	**p3**	**p4**
GEDİK	33,9	25,7	97,2	2,85	1,94	15	6,2	5,23
GLMBD	52,9	41,8	93,2	6,84	0,01	2,03	0,29	1,16
INFO	53,4	66,4	94,6	5,35	0,57	11,3	2,3	5,17
ISMEN	11,6	42,9	96,9	3,04	0,13	13,8	0,62	1,61
OSMEN	29,8	27,9	96,5	3,47	-0,04	-24,3	1,01	-4,5

As can be inferred from the table, Info has the highest values for liquidity. Viewed from a general perspective, GLMBD is in superior position to the other firms concerning turnover. Financial Structure rates are concerned, GLMBD and Info are of the highest values. When the profitability rates are evaluated, Gedik has the highest values.

Step 2: The Formation of Reference Matrix

Reference matrix was formed by using the highest ratios as reference.

Table 4: Reference Matrix

	LIQUIDITY			TURNOVER			
AVERAGE	**l1**	**l2**	**l3**	**t1**	**t2**	**t3**	**t4**
Referans	*3,04*	*1,30*	*3,2*	*88,1*	*95,3*	*4,22*	*6975,3*
GEDİK	1,53	0,79	1,55	3,48	3,65	4,22	285,04
GLMBD	2,03	0,43	2,04	88,1	95,3	0,29	6975,3
INFO	3,04	1,30	3,2	12,2	12,5	1,86	1333,6
ISMEN	1,23	0,69	1,24	12,4	13,1	0,41	4996,2
OSMEN	1,4	0,08	1,40	49,6	48,5	1,06	4032,6

	FINANCIAL STRUCTURE				PROFITABILITY			
AVERAGE	**f1**	**f2**	**f3**	**f4**	**p1**	**p2**	**p3**	**p4**
Referans	*53,4*	*66,4*	*97,2*	*6,84*	*1,94*	*15*	*6,2*	*5,23*
GEDİK	33,9	25,7	97,2	2,85	1,94	15	6,2	5,23
GLMBD	52,9	41,8	93,2	6,84	0,01	2,03	0,29	1,16
INFO	53,4	66,4	94,6	5,35	0,57	11,3	2,3	5,17
ISMEN	11,6	42,9	96,9	3,04	0,13	13,8	0,62	1,61
OSMEN	29,8	27,9	96,5	3,47	-0,04	-24,3	1,01	-4,5

Step 3: Operation of Normalization and Formation of Normalization Matrix

Table 5: Normalized Matrix

	LIQUIDITY			TURNOVER			
AVERAGE	**l1**	**l2**	**l3**	**t1**	**t2**	**t3**	**t4**
GEDİK	0,18	0,58	0,16	0	0	1	0
GLMBD	0,44	0,28	0,41	1	1	0	1
INFO	1	1	1	0,10	0,1	0,41	0,1567
ISMEN	0	0,49	0	0,11	0,13	0,03	0,7042
OSMEN	0,09	0	0,08	0,54	0,49	0,19	0,5602

	FINANCIAL STRUCTURE				PROFITABILITY			
AVERAGE	**f1**	**f2**	**f3**	**f4**	**p1**	**p2**	**p3**	**p4**
GEDİK	0,53	0	1	0	1	1	1	1
GLMBD	0,99	0,4	0	1	0,03	0,67	0	0,58
INFO	1	1	0,37	0,63	0,31	0,91	0,34	0,99
ISMEN	0	0,42	0,95	0,05	0,09	0,97	0,06	0,63
OSMEN	0,44	0,05	0,85	0,15	0	0	0,12	0

Normalized matrix was formed by using reference values for ratios.

Step 4: The Formation of Absolute Values

Table 6: Absolute Values Table

	LIQUIDITY			TURNOVER			
AVERAGE	**l1**	**l2**	**l3**	**t1**	**t2**	**t3**	**t4**
GEDİK	0,82	0,42	0,84	1	1	0	1
GLMBD	0,56	0,72	0,59	0	0	1	0
INFO	0	0	0	0,90	0,9	0,59	0,8433
ISMEN	1	0,51	1	0,89	0,87	0,97	0,2958
OSMEN	0,91	1	0,92	0,46	0,51	0,81	0,4398

	FINANCIAL STRUCTURE				PROFITABILITY			
AVERAGE	**f1**	**f2**	**f3**	**f4**	**p1**	**p2**	**p3**	**p4**
GEDİK	0,47	1	0	1	0	0	0	0
GLMBD	0,01	0,6	1	0	0,97	0,33	1	0,42
INFO	0	0	0,63	0,37	0,69	0,09	0,66	0,01
ISMEN	1	0,58	0,05	0,95	0,91	0,03	0,94	0,37
OSMEN	0,56	0,95	0,15	0,85	1	1	0,88	1

Absolute Values Table was formed by using number 6 Formula.

Step 5: The Formation of Grey Relational Coefficient Matrix:

Table 7: Grey Relational Coefficient Matrix

	LIQUIDITY			TURNOVER			
AVERAGE	**l1**	**l2**	**l3**	**t1**	**t2**	**t3**	**t4**
GEDİK	0,38	0,54	0,37	0,33	0,33	1	0,33
GLMBD	0,47	0,41	0,46	1	1	0,33	1
INFO	1	1	1	0,36	0,36	0,46	0,37
ISMEN	0,33	0,5	0,33	0,36	0,36	0,34	0,63
OSMEN	0,36	0,33	0,35	0,52	0,5	0,38	0,53

	FINANCIAL STRUCTURE				PROFITABILITY			
AVERAGE	**f1**	**f2**	**f3**	**f4**	**p1**	**p2**	**p3**	**p4**
GEDİK	0,52	0,33	1	0,33	1	1	1	1
GLMBD	0,98	0,45	0,33	1	0,34	0,60	0,33	0,55
INFO	1	1	0,44	0,57	0,42	0,84	0,43	0,99
ISMEN	0,33	0,46	0,92	0,34	0,35	0,95	0,35	0,57
OSMEN	0,5	0,35	0,76	0,37	0,33	0,33	0,36	0,33

Grey Relational Coefficient Matrix was formed by using number 7 Formula.

Step 6: The Degree of Relation Calculation

Table 8: The Degree of Relation

	LIQUIDITY		TURNOVER		FINANCIAL STRUCTURE		PROFITABILITY	
	Degree	**Rank**	**Degree**	**Rank**	**Degree**	**Rank**	**Degree**	**Rank**
GEDİK	0,43	**3**	0,5	**2**	0,55	**3**	1	**1**
GLMBD	0,45	**2**	0,78	**1**	0,7	**2**	0,46	**4**
INFO	1	**1**	0,39	**5**	0,75	**1**	0,67	**2**
ISMEN	0,39	**4**	0,42	**4**	0,51	**4**	0,56	**3**
OSMEN	0,35	**5**	0,48	**3**	0,5	**5**	0,34	**5**

	DEGREE OF RELATION	
GEDİK	**Degree**	**Rank**
GLMBD	**0,62**	**2**
INFO	**0,6**	**3**
ISMEN	**0,7**	**1**
OSMEN	**0,47**	**4**
	0,42	**5**

	LAST RANK
INFO	**1**
GEDİK	**2**
GLMBD	**3**
ISMEN	**4**
OSMEN	**5**

As can be understood from Table 8, among five Brokerage Firms Info is ranked as 1st, Gedik is 2nd , Global Menkul Değerler 3rd, İş Menkul Değerler 4rt and Osmanlı Menkul Değerler is ranked as 5th according to Grey Relational Analysis method.

CONCLUSION

Brokerage firms are crucial components of the capital market. Negative states occurring in these firms affect the capital market badly and cause losses. Therefore, it is very crucial to decrease these risks exposed by the brokerage firms by managing them in a successful manner. The risks exposed by the brokerage firms should be analysed well and strategies should be applied in this direction.

How successful the employed strategies are evaluated by means of performance measurement techniques. The preparation phase comes first while evaluating the strategies. Therefore, both the ones who prepare it, the managers in other words, and the ones who apply it, the employees, are evaluated. The positive and negative aspects of the strategy are evaluated and decisions are taken for helping the organization arrive a better position in the light of the information acquired from the evaluation results.

Grey Relational Analysis which is one of the multi-criteria decision making methods and comes up with better solutions in the environment of uncertainty compared to mathematical methods was used as a performance measurement method in our study. The financial tables of the brokerage firms which are traded at Istanbul Stock Exchange between 2011 and 2013 were analysed. 15 financial ratios were employed in order to examine the liquidity, profitability, financial state and capital adequacy of the brokerage firms.

According to the results acquired from Grey Relational Analysis method, Info Menkul Değerler comes on first whereas Gedik Menkul Değerler second, Global Menkul Değerler third, İş Menkul Değerler fourth and Osmanlı Menkul Değerler comes on fifth rank. Done in connection with the performance of brokerage firms contains important information for investors. Thanks to these studies, more investors choose a reliable brokerage firms. Further research,

which will be made after this study using other methods can examine the performance of these brokerage firms. So they can set out the consistency of the results of the method.

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