Journal of Positive School Psychology
2022, Vol. 6, No. 8, 8233-8248 http://journalppw.com

Measurement And Analysis Of The Determinants Of Super Efficiency: An Applied Study On A Sample Of Companies Listed The Iraqi Stock Exchange For The Period 2018-2020

Ameer Mukram Bashir Al Obiady[1] ,
Dr. Prof. Wissam Hussein Al-Anezi[2]

[1]Research Scholar, College Of Administration And Economics, University Of Anbar, Iraq.
[2] Dr. Prof., College Of Administration And Economics, University Of Anbar, Iraq.
Email: [1]ame20n3004@uoanbar.edu.iq , [2] wisamali@uoanbar.edu.iq

Abstract

This research aims to measure and analyze the determinants of super-efficiency for companies listed on the Iraqi Stock Exchange for the period (2018-2020) using the super-efficiency model with input guidance and by means of the MES program version 1.3, the model's inputs were (total expenses, working capital, debt ratio) And the outputs (total revenues, net short-term investments, number of shares traded), it was proven that there were 18 companies that achieved high efficiency during the year (2018), 14 during the year (2019), and 11 during the year (2020) out of 35 sample companies For the research, the panel data model was used by the method of ordinary least squares (DOLS) to estimate the determinants of super-efficiency, as it was proven that working capital and net profit directly and insignificantly affect super efficiency, while trading volume, market value, salaries and wages had no clear effect, and all factors took their indications. Corresponding to economic theory.

Keywords: Super Efficiency, Data Envelope Analysis, Dynamic Ordinary Least Squares.

I. INTRODUCTION

The goal of achieving efficiency of its various types is the most important challenge for companies to keep pace with modern developments and ensure growth and continuity, as it shows decision makers the extent of optimal exploitation of the facility or economic unit of its available resources and its impact on the level of production. Increasing outputs is a goal that every institution or facility seeks to achieve in order to enhance its position in competition among other companies.

The importance of the research lies in determining the extent to which the current resources can be optimally used in order to maximize the current outputs of the companies listed in the Iraqi Stock Exchange and the ability of these companies to achieve high levels of efficiency in the coming period, as well as determining the amount of waste or waste in each input and failure areas. Or the deficit in each of the outputs of the companies under consideration, and thus giving the decision-makers an opportunity to remedy the matter and make appropriate corrections to combat the factors that

contributed to the extravagance of the inputs or the deficit in the outputs according to the results shown by the models of high efficiency, as the companies listed in the Iraqi market lack papers Finance to a specific policy through which it is possible to reach the optimal use of resources, develop work patterns and introduce new technology that will raise the level of high efficiency for these companies, which leads to the wasteful use of the resources available to companies and their distance from the level of optimal use.

The aim of the research is to apply the input-directed super-efficiency model using (total expenses, paid-in capital, debt ratio) as inputs, and (total revenues, net short-term investments, number of shares traded) as outputs, in order to measure super efficiency indicators for a sample of listed companies In the Iraqi Stock Exchange during the period (2018-2020), with the aim of determining the factors affecting the super efficiency of these companies using the highly efficient dynamic ordinary least squares (DOLS) method in estimating long-term relationships.

2. Reference review

Study (Bakir, and Al-Jaludi, 2019) This study aimed to evaluate insurance companies in Jordan by measuring the technical efficiency of these companies, and the degrees of efficiency were estimated using the data envelope analysis method and then estimating the determinants of technical efficiency. The most important determinants that directly affect the efficiency of companies, followed by technical provisions and then general and administrative expenses have an adverse effect. It was noted that companies with high efficiency focus on one type of insurance, unlike companies with low efficiency that have a diversified insurance portfolio.

Study (Al-Ani, 2021) This study aimed to apply the data envelope analysis method in determining the optimal investment portfolio by relying on the high-efficiency model with internal orientation. Variable for the period 2017-2019.

Study (Tone, 2001) The study aimed to propose a high-efficiency measure to measure the super efficiency of a group of multi-activity Japanese companies, as it distinguished between two types of efficiency calculation methods, the first depends on stagnation in inputs / outputs, and the second is the traditional radial measurement method. The effectiveness of the proposed model and its applicability in similar studies.

A study (Jean feeing, 2010) The study aimed to determine the factors affecting the financial efficiency of food industry companies in Taiwan during the year (2009) using super-efficiency models, and concluded that the food industry plays an important role in the Taiwanese economy and that working capital and total expenditures on employees The most important factors affecting the super efficiency of these companies.

3. Methodology

The super-efficiency model aims to make an additional classification to rank the companies that have a degree of efficiency equal to one, and re-classify them again with degrees of efficiency higher than the correct one (**Al-Ani, 2022: 23**).

The difference between the super-efficient DEA model and the traditional DEA model is that when Evaluation of a particular company from a group of companies The restriction that the ratio of the company's outputs to the inputs is less than or equal to one is deleted (**Batal, 2012:64**), we assume that there are n group of companies (j = 1,2,…,n), and that Each firm consumes a set of inputs Yij(i=1,2,…,m), to produce a set of outputs Yrj(r=1,..,s), to find a vector λ for the outputs and the inputs in measuring the super-efficiency of input-directed variable returns to scale. (**William, 2011, 77**):

$$\textbf{Min } \boldsymbol{\theta_0}^{\boldsymbol{VRS-SUPER}}$$

$$\text{s.t} \quad \sum_{\substack{j=1 \\ j\neq 0}}^{n} \boldsymbol{\lambda_j x_{ij}} \leq \boldsymbol{\theta_0^{VRS-SUPER}}\ \boldsymbol{x_0} \ \ldots\ldots (1)$$

$$i = 1، 2، \ldots\ldots.، m$$

$$\sum_{\substack{j=1 \\ j\neq 0}}^{n} \boldsymbol{\lambda j y j} \ \geq \boldsymbol{Y0}$$

$$r = 1، 2، \ldots\ldots.، s$$

$$\sum_{\substack{j=1 \\ j\neq 0}}^{n} \boldsymbol{\lambda j} = \mathbf{1}$$

$$\boldsymbol{\theta^{VRS-SUPER}} \ \geq \mathbf{0}$$

$$\lambda j \geq 0 \qquad (j \neq 0)$$

When:

n: Total Companies , m: Represent The Inputs , s: Represent The Outputs

$\boldsymbol{\lambda}$: Companies Weight Factor , $\boldsymbol{\theta}$: Super Efficiency Index.

We note from Equation No. (1) that the radial model with an input orientation of the variable returns to scale seeks to reduce the inputs regardless of the level of production, and this is done by excluding the company under evaluation from the border efficiency curve and then measuring the graphical distance to the location of the new point that represents the indicator The super efficiency of that unit (**Glenn, 2009: 47**), that the units that are highly efficient will have an efficiency index greater than the correct one, and using these models it will be easy to classify the efficient units according to the performance criterion, in addition to that these models show the areas of waste in the inputs If any, and the shortfalls in the outputs, which prevented the efficiency index from rising for the economic units, and finally it became clear to what extent the economic unit can increase its inputs or reduce its outputs in case of unsuitable conditions, and remains within the ranks of the efficient units (**Mohamed, 2003: 16**), as The estimation using the panel data gives more realistic results because it takes into account the time dimension information in the time series and the sectional dimension information in different companies, hence it must be emphasized that The data panel) has two main dimensions: the time dimension (time series) and the cross-sectional dimension of the data of the companies under consideration (Morris, 2005:43), and in general, a panel model can be written in the following form (**Glenn, 2009:74**):

$$\boldsymbol{y_{it}} = \boldsymbol{B_{0(i)}} + \sum_{\boldsymbol{i=1}}^{\boldsymbol{k}} \boldsymbol{B_j} + \boldsymbol{X_{j(it)}} + \boldsymbol{\varepsilon_{it}} \;\ldots\ldots(1-7)$$

$$i = 1,2,\ldots..N \qquad t = 1,2,\ldots\ldots T$$

Table (1) Super Efficiency Results during (2018)

When:

$\boldsymbol{y_{it}}$: the value of the dependent variable of the company i during time t .

$\boldsymbol{X_{it}}$: the value of the independent variable of the company i during time t .

$\boldsymbol{B_{0(i)}}$: the constant value, $\boldsymbol{B_j}$: regression line direction.

$\boldsymbol{\varepsilon_{it}}$: error value of the company i during time t.

Super Efficiency Results

The high efficiency with input guidance was measured using the radial model for high efficiency and by means of the program (MES version 1.3) for the research sample consisting of a group of companies listed on the Iraqi Stock Exchange during the period (2017-2020), looking at the company that achieves an efficiency index greater than the correct one

It is an efficient company from the point of view of super-efficiency models, as these companies can increase their inputs or reduce their outputs to a certain extent in case of unsuitable conditions and this does not fundamentally affect their efficiency. It is inefficient, and it has to increase its outputs or reduce its inputs to a certain extent in order for it to become highly efficient (Robert, 2011: 66):

2018								
Companies	RANK	**SE**	S1	S2	S3	OS1	OS2	OS3
V ZAF	7	1.99	0.78	0.16	0.06	0.00	0.22	0.00
V MES	8	1.81	0.31	0.07	0.62	0.00	0.00	0.00
V WIF	13	1.18	0.29	0.66	0.05	0.00	0.77	0.00
AISP	3	3.67	0.00	0.35	0.65	6.48	0.00	0.00
AAHP	22	0.85	0.14	0.40	0.46	0.00	0.00	0.05
AIRP	5	2.38	0.28	0.72	0.00	0.00	0.62	0.07
AIPM	32	0.45	0.62	0.29	0.09	0.24	0.00	0.10
AMEF	12	1.22	0.04	0.69	0.27	0.00	0.00	0.00
INCP	24	0.82	0.09	0.91	0.00	0.36	0.00	1.04
IICM	4	2.84	0.53	0.47	0.00	0.00	0.00	2.79
IMIB	35	0.24	0.20	0.73	0.06	0.00	0.00	0.07
IBPM	14	1.13	0.63	0.23	0.14	0.27	0.00	0.00
IKLV	18	1.01	0.02	0.78	0.20	0.00	0.41	0.73
IIEW	27	0.62	0.31	0.61	0.08	0.08	0.00	0.02
IMOS	21	0.88	0.50	0.39	0.11	0.33	0.00	0.06
IMAP	34	0.35	0.44	0.50	0.06	0.14	0.00	0.10
IITC	2	3.86	0.02	0.68	0.30	0.00	2.36	0.00
IIDP	30	0.52	0.04	0.96	0.00	0.00	0.54	0.15
IMCL	1	26.55	0.00	0.88	0.12	27.62	0.00	0.00
NAME	29	0.60	0.27	0.60	0.12	0.00	0.46	0.05
NGIR	28	0.60	0.46	0.41	0.13	0.00	0.44	0.06
NDSA	25	0.71	0.23	0.67	0.10	0.20	0.74	0.00
NAHF	31	0.51	0.41	0.41	0.18	0.11	0.00	0.08
SAEI	23	0.82	0.41	0.41	0.18	0.63	0.00	0.00
SBAG	33	0.36	0.41	0.55	0.03	0.00	0.18	0.16
SKTA	20	0.91	0.03	0.92	0.05	0.00	0.00	0.50
SNUC	16	1.11	0.39	0.61	0.00	0.94	0.00	0.00
SMRI	17	1.04	1.00	0.00	0.00	0.15	0.04	0.10
SBPT	19	0.99	0.25	0.73	0.02	0.52	0.71	0.04
HBAY	6	2.34	0.63	0.37	0.00	2.00	1.02	0.02
HBAG	11	1.29	0.95	0.04	0.01	1.17	0.00	0.00
HNTI	15	1.13	0.24	0.64	0.13	0.00	1.09	0.00
HMAN	26	0.65	0.79	0.07	0.14	1.08	0.00	0.00
HKAR	10	1.74	0.92	0.00	0.08	0.00	0.58	0.07
HISH	9	1.79	0.54	0.46	0.00	1.81	1.18	0.00

Source: *Test results using MES version 1.3 and Appendix (1)*

It is noted from Table (1) that there are 18 companies that achieved high efficiency indicators during the year (2018), for example, (IMCL) company that achieved the highest efficiency index of (26.55), as this company can increase its inputs by (0.00) (0.88). (0.12) for each of the total expenses, paid-up capital and the debt ratio, respectively, or their outputs decrease by 27.62 of the total revenues in case of unsuitable conditions, yet they remain among the list of efficient companies, and it is also noted that there are 17 companies that failed to achieve indicators of super efficiency And that (IMIB) company achieved the lowest super-efficiency index of (0.24), and this company should reduce its inputs by (0.20) (0.73) (0.06) for each of the total expenses, paid-in capital and debt ratio, or increase its outputs by (0.07) from The number of shares traded in order to join the highly efficient companies in that year.

Table (2) Super Efficiency Results during (2019)

Source: *Test results using MES version 1.3 and Appendix (2)*

2019								
Companies	RANK	**SE**	S1	S2	S3	OS1	OS2	OS3
VZAF	8	**2.36**	0.94	0.01	0.04	0.00	0.00	1.44
VMES	14	**1.03**	0.23	0.76	0.00	0.00	0.02	0.00
VWIF	1	8.66	0.38	0.54	0.08	0.00	8.03	0.00
AISP	6	**2.67**	0.00	0.98	0.02	4.81	0.00	0.00
AAHP	20	**0.63**	0.02	0.69	0.30	0.00	0.00	0.00
AIRP	5	**3.32**	0.45	0.55	0.00	0.84	0.02	0.00
AIPM	32	**0.35**	0.51	0.49	0.00	0.30	0.00	0.07
AMEF	13	**1.11**	0.08	0.92	0.00	0.00	0.00	0.00
INCP	26	**0.53**	0.00	0.31	0.69	0.05	0.00	0.52
IICM	4	**5.30**	0.34	0.66	0.00	0.00	0.00	6.33
IMIB	35	0.17	0.45	0.50	0.05	0.08	0.00	0.07
IBPM	10	**1.73**	0.00	0.23	0.77	0.00	0.00	0.00
IKLV	24	**0.54**	0.00	0.51	0.49	0.11	0.05	0.48
IIEW	29	**0.45**	0.29	0.54	0.16	0.00	0.00	0.00
IMOS	23	**0.55**	0.40	0.60	0.00	0.40	0.00	0.08
IMAP	33	**0.29**	0.01	0.99	0.00	0.00	0.00	0.25
IITC	2	**7.51**	0.00	0.43	0.57	7.02	0.10	0.00
IIDP	28	**0.47**	0.00	1.00	0.00	0.11	0.61	0.45
IMCL	3	**6.25**	0.00	1.00	0.00	5.30	0.00	0.00
NAME	17	**0.93**	0.00	0.47	0.53	0.04	0.00	1.19
NGIR	31	**0.36**	1.00	0.00	0.00	0.00	0.06	0.03
NDSA	21	**0.60**	0.00	0.23	0.77	0.70	0.11	0.00
NAHF	30	**0.37**	0.29	0.67	0.03	0.00	0.03	0.01
SAEI	22	**0.57**	0.95	0.01	0.03	0.37	0.00	0.00
SBAG	34	**0.23**	0.38	0.60	0.03	0.07	0.02	0.14
SKTA	19	**0.68**	0.17	0.81	0.02	0.16	0.00	0.28
SNUC	15	**0.97**	0.31	0.69	0.00	0.86	0.00	0.00
SMRI	18	**0.72**	1.00	0.00	0.00	0.00	0.07	0.11
SBPT	11	**1.52**	1.00	0.00	0.00	0.00	2.73	0.62
HBAY	9	**2.15**	0.00	0.96	0.04	2.03	1.33	0.00
HBAG	7	**2.55**	1.00	0.00	0.00	2.77	0.00	0.00
HNTI	25	**0.54**	0.84	0.07	0.09	0.47	0.00	0.00
HMAN	27	**0.50**	0.42	0.58	0.00	0.47	0.00	0.00
HKAR	12	**1.36**	0.96	0.00	0.04	0.00	0.00	0.00
HISH	16	**0.96**	0.00	1.00	0.00	2.70	0.00	0.00

It is noted from Table (2) that there are 14 companies that achieved high efficiency indicators during the year (2019), for example, (VWIF) company, which achieved the highest efficiency index of (8.66), as this company can increase its inputs by (0.38) (0.54).) (0.08) for each of the total expenses, paid-up capital and debt ratio, respectively, or their output decreases by (8.03) of net short-term investments in case of unsuitable conditions, yet it remains among the list of efficient companies, and it is also noted that there are 21 companies that failed to achieve indicators Super efficiency, and that (IMIB) company achieved the lowest super-efficiency index of (0.17), and this company must reduce its inputs by (0.45) (0.50) (0.05) for each of the total expenses, paid-up capital and debt ratio, or increase its outputs by (0.08).) (0.07) for each of the total revenues and the number of shares traded in order to join the highly efficient companies in that year.

Table (3) Super Efficiency Results during (2020)

	2020							
Companies	RANK	**SE**	S1	S2	S3	OS1	OS2	OS3
VZAF	6	**2.04**	1.00	0.00	0.00	0.00	0.32	0.00
VMES	9	**1.51**	0.43	0.00	0.57	0.00	0.00	0.00
VWIF	14	**0.97**	0.74	0.23	0.02	0.00	0.89	0.00
AISP	1	8.82	0.00	1.00	0.00	14.92	0.00	0.00
AAHP	19	**0.69**	0.28	0.29	0.43	0.00	0.00	0.00
AIRP	7	**1.82**	0.50	0.50	0.00	0.00	0.12	0.00
AIPM	33	**0.16**	0.05	0.95	0.00	0.03	0.00	0.07
AMEF	11	**1.17**	0.04	0.96	0.00	0.00	0.00	0.00
INCP	20	**0.68**	1.00	0.00	0.00	0.67	0.04	0.49
IICM	3	**5.26**	0.89	0.11	0.00	0.00	0.00	7.47
IMIB	35	0.09	0.06	0.94	0.00	0.01	0.00	0.02
IBPM	16	**0.83**	0.35	0.57	0.07	0.00	0.00	0.11
IKLV	30	**0.33**	1.00	0.00	0.00	0.46	0.07	0.02
IIEW	29	**0.33**	0.53	0.37	0.10	0.00	0.00	0.00
IMOS	24	**0.52**	0.07	0.88	0.05	0.00	0.00	0.11
IMAP	21	**0.63**	0.03	0.97	0.00	0.00	0.09	0.72
IITC	4	**5.03**	0.00	0.27	0.73	1.14	0.00	0.00
IIDP	15	**0.85**	0.06	0.94	0.00	0.00	0.75	0.17
IMCL	2	**5.76**	0.00	1.00	0.00	5.83	0.00	0.25
NAME	28	**0.36**	0.40	0.06	0.54	0.00	0.00	0.21
NGIR	22	**0.58**	0.75	0.25	0.00	0.00	0.48	0.04
NDSA	17	**0.72**	0.00	0.14	0.86	0.66	0.17	0.00
NAHF	26	**0.50**	0.83	0.16	0.01	0.00	0.42	0.03
SAEI	23	**0.57**	0.41	0.00	0.59	0.00	0.00	0.04
SBAG	25	**0.51**	0.64	0.36	0.00	0.01	0.29	0.20
SKTA	12	**0.99**	0.05	0.88	0.07	0.00	0.00	0.58
SNUC	13	**0.97**	0.09	0.91	0.00	0.00	2.06	0.00
SMRI	27	**0.49**	0.29	0.51	0.20	0.00	0.00	0.08
SBPT	5	**2.76**	1.00	0.00	0.00	0.00	2.47	0.29
HBAY	8	**1.67**	0.34	0.66	0.00	1.96	0.00	0.00
HBAG	31	**0.20**	0.45	0.46	0.09	0.00	0.00	0.03
HNTI	18	**0.69**	1.00	0.00	0.00	0.53	0.00	0.02
HMAN	32	**0.16**	0.07	0.93	0.00	0.06	0.00	0.00
HKAR	10	**1.40**	0.30	0.00	0.70	0.00	0.00	0.79
HISH	34	**0.14**	0.06	0.94	0.00	0.06	0.00	0.00

Source: *Test results using MES version 1.3 and Appendix (3)*

It is noted from Table (3) that there are only 11 companies out of 35 that achieved super efficiency indicators during the year (2020). The highest super-efficiency index reached (8.82), as this company can increase its inputs by (1.00) of the paid-in capital or decrease its outputs by (14.92) of the total revenues in case of unfavorable conditions, yet it remains among the list of efficient companies, and it is also noted that There are 24 companies that failed to achieve high efficiency indicators, and (IMIB) company achieved the lowest high efficiency indicator of (0.17), and this company must reduce its inputs by (0.06) (0.94) (0.00) for each of the total expenses, paid-in capital and debt ratio Or increase its output by (0.01) (0.02) for each of the total revenues and the number of shares traded in order to join the highly efficient companies in that year.

Standard Model Regression

The balanced panel data model will be tested using the dynamic ordinary least squares (DOLS) method, in order to estimate and analyze the determinants of the super efficiency of the companies listed on the Iraqi Stock Exchange. The determinants of super-efficiency are presented in the following table:

Several tests have been employed to detect the reliability between the cross-sections, the most important of which are (Pesaran, 2004) as well as (De-Hoyos and Sarafidi, 2006), and that these tests suggest the emergence of dependence between the cross-sections (N) of the panel data, and the null hypothesis is (null) that there is no dependence between the cross sections (Al-Anezi, 2019: p. 133), and the Pesaran statistic can be calculated according to the following formula (Morris, 2005: 109):

Table (4) included in the standard form

variable name	Variable type	variable symbol	Relationship
Super Input Efficiency	dependent	SEI	-
Working capital	independent	CW	Direct effect
Market value of the market	independent	MV	Direct effect
share market value	independent	MVS	Direct effect
salaries and wages	independent	SG	Reverse effect
Net profit	independent	NF	Direct effect
stock trading volume	independent	TV	Direct effect

Source: *From the researcher's work based on economic theory*

$$CD = \sqrt{\frac{2T}{N(N-1)}\left[\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\hat{\rho}_{ij}\right]} \ldots\ldots (2)$$

When: $\hat{\rho}_{ij}$: represents the error correlation for each i and j .
N: the length of time of the cross section, T: the length of the series.

Table (5) Results of the Basran (CD) test for cross-chain independence

	LOG_CW			LOG_MV			LOG_MVS		
Test	Statistic	d.f.	Prob.	Statistic	d.f.	Prob.	Statistic	d.f.	Prob.
Breusch-Pagan LM	2578.206	1035	0.0000	10350	1035	0.0000	1956.505	1035	0.0000
Pesaran scaled LM	33.91867		0.0000	204.7376		0.0000	20.25408		0.0000
Bias-corrected scaled LM	31.36312		0.0000	202.1821		0.0000	17.69853		0.0000
Pesaran CD	28.43865		0.0000	101.7349		0.0000	11.79838		0.0000
	LOG_TV			LOG_NF			LOG_SG		
Test	Statistic	d.f.	Prob.	Statistic	d.f.	Prob.	Statistic	d.f.	Prob.
Breusch-Pagan LM	1827.273	1035	0.0000	2591.598	1035	0.0000	10350	1035	0.0000
Pesaran scaled LM	17.41364		0.0000	34.21301		0.0000	204.7376		0.0000
Bias-corrected scaled LM	14.85809		0.0000	31.65745		0.0000	202.1821		0.0000
Pesaran CD	7.875521		0.0000	9.090578		0.0000	101.7349		0.0000
	SEI								
Test	Statistic	d.f.	Prob.						
Breusch-Pagan LM	1371.251	1035	0.0000						
Pesaran scaled LM	7.390587		0.0000						
Bias-corrected scaled LM	4.835031		0.0000						
Pesaran CD	2.51266		0.0120						

Source: *Eviews 12th Edition output*

Table (5) shows the results of the Basran test for the independence of the cross sections. What the LM and CD values show and is confirmed by the statistic value.

Static or unit root tests for panel data series were adopted by applying the tests of LLC (Levin, Lin & Chu, 1992) and (Pesaran, 2004) and Phillips and Peron (PP) tests, in order to determine whether the variables are static and integral with the same order or not. After conducting the tests, the results were shown in the following table:

Table (6) Results of static tests for panel data

variable	LOG-CW		LOG-MV		LOG-MVS	
Method	Statistic	Prob.**	Statistic	Prob.**	Statistic	Prob.**
Levin, Lin & Chu t*	-25.8793	0.0000	-11.8196	0.0000	-8.90866	0.0000
Method						
Im, Pesaran and Shin W-stat	-3.42496	0.0003	-3.49079	0.0002	-4.01384	0.0000
Method						
ADF - Fisher Chi-square	116.805	0.0414	130.694	0.0050	159.144	0.0000
Method						
PP - Fisher Chi-square	123.061	0.0169	181.37	0.0000	180.584	0.0000
variable	LOG-NF		LOG-SG		LOG-TV	
Method	Statistic	Prob.**	Statistic	Prob.**	Statistic	Prob.**
Levin, Lin & Chu t*	-8.19948	0.0000	-12.1958	0.0000	-4.43192	0.0000
Method						
Im, Pesaran and Shin W-stat	-2.31799	0.0102	-3.28939	0.0005	-9.90142	0.0000
Method						
ADF - Fisher Chi-square	121.47	0.0215	152.391	0.0001	436.494	0.0000
Method						
PP - Fisher Chi-square	120.708	0.0240	162.764	0.0000	304.862	0.0000
variable	SEI					
Method	Statistic	Prob.**				
Levin, Lin & Chu t*	-25.3744	0.0000				
Method	-5.01633	0.0000				
Im, Pesaran and Shin W-stat						
Method						
ADF - Fisher Chi-square	211.849	0.0000				
Method						
PP - Fisher Chi-square	258.965	0.0000				

Source: *Eviews 12th Edition output*

The data in Table (6) indicates that the null hypothesis cannot be rejected at the original level for all variables, and thus it can be said that all the variables are integrated from the zero order I(0).
The presence or absence of a long-term equilibrium relationship between the model variables will be tested using co-integration tests, as these tests in the panel data differ from their counterparts in the regular time series, and there are several tests, some of which depend on one statistic such as the (Kao) test (Ghazi,2017:21), and the hypothesis of this test can be formulated as follows:

- H_0: no Cointegrating.
- H_1 : the presence of co-integration.

Table (7) Co-integration test results using (Kao) test

Kao Residual Cointegration Test						
Series: SEI LOG_CW LOG_MV LOG_MVS LOG_NF LOG_SG LOG_TV						
Date: 08/16/22 Time: 12:14						
Sample: 2011 2020						
Included observations: 460						
Null Hypothesis: No cointegration						
Trend assumption: No deterministic trend						
User-specified lag length: 1						
Newey-West automatic bandwidth selection and Bartlett kernel						
			t-Statistic	Prob.		
ADF			-3.60188	0.0002		
Residual variance			95.14904			
HAC variance			37.3599			

Source: *Based on Eviews version 12 and Appendix (4)*

It is noticed from Table (7) that the statistical value of ADF is significant at a level less than (5%), and this confirms the existence of a long-term equilibrium relationship between the variables of the standard model.
Dynamic Ordinary Least Squares (DOLS) method is used in panel data models, which is one of the latest and most powerful methods because of its performance in small samples. Different but still co-integrated orders, a method proposed by (Phillips, 1988), later developed by (Saikkonen, 1992), and (Stock and Watson 1993), which depends on the leads shift period and the slowed periods Lags for the variables (Jeffery 2019:60), the results of the assessment were as follows:

Table (8) Outputs of the dynamic ordinary least squares method (DOLS)

Dependent Variable: SEI						
Method: Panel Dynamic Least Squares (DOLS)						
Date: 08/25/22 Time: 00:19						
Sample: 2018 2020						
Periods included: 3						
Cross-sections included: 35						
Total panel (balanced) observations: 105						
Panel method: Pooled estimation						
Cointegrating equation deterministics: C						
Static OLS leads and lags specification						
Coefficient covariance computed using default method						
Long-run variance (Bartlett kernel, Newey-West fixed bandwidth) used						
for coefficient covariances						
Variable	Coefficient	Std. Error	t-Statistic	Prob.		
LOG_CW	18.84484	11.18144	1.685367	0.0068		
LOG_MV	0.669575	7.288772	0.091864	0.9271		
LOG_MVS	1.750253	1.553136	1.126915	0.264		
LOG_NF	1.060664	9.398412	0.112856	0.0105		
LOG_SG	3.041466	1.706844	1.781924	0.0795		
LOG_TV	1.49916	2.998078	0.50004	0.6188		
R-squared	0.638808	Mean dependent va		1.696266		
Adjusted R	0.413063	S.D. dependent va		2.987513		
S.E. of reg	2.288788	Sum squared resid		335.2671		
Long-run v	2.450638					

Source: *Based on Appendix 4 and using Eviews*

The results of the estimation show that all the variables have their expected theoretical sign, which confirms the existence of a statistically significant relationship between the super efficiency of the inputs and each of the determinants affecting them. The test results also showed that the value of the coefficient of determination amounted to (0.63), and the coefficient of corrected determination reached (0.41), Based on the results of Table (8), the following is found:

- There is a significant direct effect between the super efficiency of the inputs and the working capital CW, when the working capital increases by one unit, this leads to an increase in the super-efficiency of companies by (18.8%).

- There is an insignificant direct effect between the super efficiency of the inputs and the market value of the market as a whole MV, which means the higher the market value, the higher the index of the super-efficiency of the inputs.

- There is an insignificant direct effect between the input super-efficiency and the stock's market value MVS, which means the higher the stock's market value index for the company, the higher the super-efficiency index.

- There is a significant direct effect between the super efficiency of the inputs and the net profit NF, which means the higher the net profit, the higher the super-efficiency of the companies. When the net profit increases by one unit, this leads to an increase in the super-efficiency by (1.06%).

- There is a non-significant negative effect between the super efficiency of the inputs and the sum of salaries and wages SG, and this applies with the economic theory, while the lack of morale is due to the stability of the work element.

- There is an insignificant direct effect between the super efficiency of the inputs and the trading volume of TV stocks.

4. Conclusions

18 companies achieved super efficiency in (2018), 14 in (2019) and 11 in (2020), as these companies were able to achieve the optimal

use of their inputs as required during the research period, while 17 companies failed to achieve high efficiency in In (2018), 21 in (2019) and 24 in (2020), it is clear that IMIB achieved the lowest indicators throughout the research period, and it was proven from the practical side that working capital and net profit are among the most important factors affecting efficiency The trading volume, the market value of the stock, the sum of salaries, wages and market value did not have a strong impact on the super efficiency of the companies listed in the Iraq Stock Exchange.

5. REFERENCS

1. Al-Ani, Enas Shaker (2022), The Optimum Investment Portfolio and Modern Applications in Employing Mathematical Models, First Edition, Dar Al-Doctor for Administrative and Economic Sciences, Baghdad, Iraq.
2. Battal, Ahmed Hussein (2012), Measuring and analyzing the performance of private banks in Iraq using the data envelope analysis technique, PhD thesis, Department of Economics, College of Administration and Economics, University of Baghdad, Iraq.
3. Al-Enezi and Wissam Hussein (2019), measuring and analyzing dynamic productivity and its impact on banking sustainability, an applied study on the Iraqi private banking sector for the period (2010-2017), PhD thesis, Department of Economics, College of Administration and Economics, University of Anbar, Iraq.
4. Al-Fahdawi, Hisham Mehdi Saleh (2021), Estimating the optimal size of the company and its impact on financial performance indicators: An applied study on a sample of companies listed on the Iraqi Stock Exchange for the period 2010-2019, an unpublished master’s thesis, Department of Economics, College of Administration and Economics, Anbar University, Iraq.
5. Cooper, William & Lawrence M. Seiford And Joe Zhu (2011), Data Envelopment Analysis, University Of Michigan, red MC COMBs school of business, university of Texas, USA.
6. Hubbar, Glenn (2009), the Financial System And The Economy, First Edition, University Of Florida, USA.
7. Shukur, Ghazi (2017), Some Liu Type Estimators For The Dynamic OLS Estimator: With An Application To The Carbon Dioxide Kuznets Curve For Turkey, Istanbul, Turkey.
8. Taormina, j. Robert (2011), factors influencing work efficiency in china, university macaw, china.
9. Wooldridge, m. Jeffrey (2019), econometric analysis of cross section and panel data, edition first, university Cambridge, London, England .
10. Kumar, S. (2022). A quest for sustainium (sustainability Premium): review of sustainable bonds. Academy of Accounting and Financial Studies Journal, Vol. 26, no.2, pp. 1-18
11. Allugunti V.R (2022). A machine learning model for skin disease classification using convolution neural network. International Journal of Computing, Programming and Database Management 3(1), 141-147
12. Mumani, Mohamed (2003), the relative efficiency of Saudi banks: research in accounting, finance and sciences, (VOL 3, NO3), KSA .
13. Goldstein, L. Morris (2005), what might the next emerging market financial crisis look like, Peterson institute for international economic, England.

Appendix (1) Inputs and outputs of companies for the year (2018)

Companies	Year	input 1	input 2	input 3	output 1	output 2	output 3
VZAF	2018	55.91	1150.00	1.54	26.90	1119.97	11.85
VMES	2018	134.63	1000.00	0.09	45.76	586.56	1.17
VWIF	2018	132.13	2000.00	0.21	160.55	1835.89	15.82
AISP	2018	27621.98	10500.00	0.54	15166.26	16034.67	1789.58
AAHP	2018	179.98	575.00	33.06	198.48	54.13	72.48
AIRP	2018	66.42	360.00	36.91	90.26	842.09	30.42
AIPM	2018	658.81	5000.00	58.97	1119.23	471.28	701.31
AMEF	2018	418.07	300.00	25.92	481.30	881.36	1.22
INCP	2018	3384.86	15187.50	43.15	3564.95	2072.01	7882.78
IICM	2018	889.83	7590.00	24.98	613.27	-1843.61	7590.00
IMIB	2018	1283.08	5000.00	21.34	307.39	-2799.89	485.30
IBPM	2018	117.97	1080.00	0.58	137.86	247.57	4.42
IKLV	2018	1425.48	5940.00	10.78	1478.22	4560.34	3147.30
IIEW	2018	308.48	1500.00	8.99	257.46	153.11	43.60
IMOS	2018	516.61	1000.00	12.27	1071.85	1737.78	124.79
IMAP	2018	2246.98	6469.27	33.01	2332.73	2791.77	1180.65
IITC	2018	665.57	500.00	0.04	1017.82	2073.03	72.61
IIDP	2018	5993.80	17250.00	69.66	2864.09	13775.41	1725.02
IMCL	2018	7879.72	180.00	0.50	7988.72	2870.72	0.01
NAME	2018	586.54	3819.31	4.80	694.96	3326.38	229.66
NGIR	2018	436.31	2000.00	41.60	640.73	2483.02	170.64
NDSA	2018	1349.66	5000.00	1.66	1382.35	5719.66	35.56
NAHF	2018	332.12	2500.00	1.46	212.63	227.52	127.31
SAEI	2018	301.79	6960.00	1.40	855.28	2484.21	52.49
SBAG	2018	2028.48	14000.00	51.18	1669.78	5247.30	2200.12
SKTA	2018	1080.01	1000.00	10.23	1074.44	-19.25	562.32
SNUC	2018	1081.89	1000.00	37.01	2707.43	1858.00	42.70
SMRI	2018	65.82	2065.52	22.69	70.68	1498.85	66.29
SBPT	2018	7765.49	22780.00	3.50	8942.64	24450.76	3059.72
HBAY	2018	894.38	2000.00	13.79	3954.34	7037.63	127.61
HBAG	2018	440.25	3844.80	17.00	2527.24	3058.92	43.50
HNTI	2018	682.93	6253.18	5.31	1835.59	9584.43	177.00
HMAN	2018	7367.71	2923.20	33.37	6766.47	665.31	84.70
HKAR	2018	85.31	7500.00	0.17	37.69	2492.06	117.91
HISH	2018	7252.11	3500.00	63.72	9717.10	10444.36	52.00

Appendix (2) Inputs and outputs of companies for the year (2019)

Companies	Year	input 1	input 2	input 3	output 1	output 2	output 3
VZAF	2019	68.97	1150.00	1.54	11.19	1062.20	891.42
VMES	2019	130.00	1000.00	0.08	33.52	498.16	47.18
VWIF	2019	104.42	2000.00	0.03	167.27	17890.46	330.00
AISP	2019	3212.47	10500.00	4.42	13133.48	18080.38	1789.58
AAHP	2019	191.45	575.00	21.71	212.22	120.43	15.90
AIRP	2019	41.75	360.00	14.60	367.10	1027.68	31.92
AIPM	2019	822.81	5000.00	62.91	1444.94	302.62	429.24
AMEF	2019	491.35	300.00	30.86	422.12	740.39	2.29
INCP	2019	3871.34	15187.50	37.74	4771.60	1362.60	4613.33
IICM	2019	883.56	7590.00	36.32	771.92	-1848.39	7590.00
IMIB	2019	1146.57	5000.00	23.17	512.53	-3220.40	485.32
IBPM	2019	109.09	1080.00	0.02	131.15	245.85	44.05
IKLV	2019	2027.93	5940.00	14.42	2851.76	4980.55	1843.70
IIEW	2019	438.88	1500.00	8.23	419.10	18.25	11.21
IMOS	2019	590.36	1000.00	8.74	981.33	1927.87	129.61
IMAP	2019	1419.97	6469.27	36.78	-540.55	814.68	1682.19
IITC	2019	405.65	500.00	0.04	1154.33	2440.21	49.77
IIDP	2019	5764.02	17250.00	71.34	5847.47	14261.93	2859.09
IMCL	2019	3379.82	180.00	9.54	3337.72	2938.14	7.40
NAME	2019	571.67	3819.31	4.80	598.16	1554.24	1731.49
NGIR	2019	133.47	2000.00	41.60	173.01	2333.98	113.55
NDSA	2019	3765.70	7000.00	1.66	3928.07	7422.47	105.55
NAHF	2019	500.09	2500.00	2.13	229.26	2016.26	335.30
SAEI	2019	305.76	6960.00	0.43	474.56	2426.17	112.81
SBAG	2019	2619.27	14000.00	52.84	1262.59	5198.49	2408.93
SKTA	2019	843.99	1000.00	10.09	878.19	59.61	353.30
SNUC	2019	1067.38	1000.00	37.64	2852.17	2683.75	47.20
SMRI	2019	69.01	2065.52	22.69	55.51	1488.36	246.80
SBPT	2019	189.82	22780.00	3.50	190.46	23325.58	713.35
HBAY	2019	2253.54	2000.00	3.30	6399.40	11193.66	88.37
HBAG	2019	225.46	3844.80	17.99	2515.88	3512.09	46.40
HNTI	2019	1089.33	6253.18	4.51	2375.57	8907.25	229.30
HMAN	2019	4909.94	2923.20	23.66	5401.35	679.10	28.00
HKAR	2019	73.69	7500.00	0.14	69.78	2488.61	113.27
HISH	2019	8271.00	3500.00	68.24	7477.10	10772.04	2.00

Appendix (3) Inputs and outputs of companies for the year (2020)

Companies	Year	input 1	input 2	input 3	output 1	output 2	output 3
VZAF	2020	16.99	1150.00	5.78	8.56	454.78	0.76
VMES	2020	31.89	1000.00	2.56	20.53	221.56	11.77
VWIF	2020	101.67	2000.00	2.56	99.45	1766.98	0.46
AISP	2020	2667.99	10500.00	6.89	9443.79	10575.78	633.70
AAHP	2020	66.90	575.00	23.67	139.57	14.78	6.10
AIRP	2020	36.87	360.00	19.54	244.88	447.83	10.20
AIPM	2020	668.29	5000.00	56.85	878.45	106.69	389.80
AMEF	2020	120.68	300.00	33.75	108.67	44.88	2.10
INCP	2020	405.78	15187.50	37.96	998.45	565.78	3908.40
IICM	2020	255.78	7590.00	37.79	496.11	-2040.99	7590.00
IMIB	2020	944.77	5000.00	235.79	434.90	-3490.55	92.20
IBPM	2020	74.78	1080.00	3.85	98.66	141.88	157.20
IKLV	2020	989.47	5940.00	16.98	1665.89	2445.88	304.40
IIEW	2020	264.86	1500.00	11.88	301.67	9.57	10.21
IMOS	2020	669.34	1000.00	9.87	774.98	1020.56	125.40
IMAP	2020	390.45	6469.27	37.44	529.56	520.67	3230.10
IITC	2020	101.89	500.00	0.55	989.44	1443.88	51.60
IIDP	2020	1841.22	17250.00	78.33	2776.83	11757.00	2030.70
IMCL	2020	1989.55	180.00	13.49	2050.55	1774.99	45.30
NAME	2020	323.68	3819.31	7.55	220.77	343.67	524.50
NGIR	2020	119.53	2000.00	44.68	111.90	1120.34	91.80
NDSA	2020	1776.90	7000.00	1.99	2200.78	3998.23	10.60
NAHF	2020	229.46	2500.00	2.45	155.87	1778.99	130.20
SAEI	2020	90.45	6960.00	3.86	122.66	445.79	96.60
SBAG	2020	423.79	14000.00	54.90	776.85	2997.31	1948.30
SKTA	2020	443.89	1000.00	13.87	306.78	40.44	676.60
SNUC	2020	271.82	1000.00	41.65	676.89	1889.95	17.90
SMRI	2020	64.88	2065.52	24.78	43.98	243.78	205.80
SBPT	2020	111.74	22780.00	6.84	133.76	6887.34	731.50
HBAY	2020	1020.78	2000.00	5.87	3978.44	2554.32	19.90
HBAG	2020	423.87	3844.80	20.56	667.82	980.45	208.30
HNTI	2020	107.90	6253.18	13.87	667.99	740.33	68.90
HMAN	2020	623.98	2923.20	27.69	887.45	220.56	28.00
HKAR	2020	54.86	7500.00	3.98	46.88	101.67	805.10
HISH	2020	801.45	3500.00	69.73	989.32	1062.60	2.00

Appendix (4) Determinants of ultra-high efficiency used in the standard model

company	Year	Sei	LOG-CW	LOG-SG	LOG-NF	LOG-MVS	LOG-MV	LOG-TV
VZAF	2018	1.9899	4.57	1.71	4.06	2.62	7.05	5.37
	2019	2.3606	4.57	1.68	4.06	2.58	7.07	5.22
	2020	2.0413	4.57	1.65	4.06	2.58	7.14	5.37
VMES	2018	1.8091	4.57	1.68	4.06	2.95	7.05	5.37
	2019	1.0307	4.57	1.61	4.06	2.95	7.07	5.22
	2020	1.5098	4.56	1.59	4.06	2.95	7.14	5.37
VWIF	2018	1.1767	4.58	2.68	4.06	3.25	7.05	5.37
	2019	8.6593	4.74	1.76	4.06	3.11	7.07	5.22
	2020	0.9709	4.58	1.74	4.06	3.11	7.14	5.37
AISP	2018	3.6724	4.72	3.28	4.18	4.25	7.05	5.37
	2019	2.6662	4.74	3.41	4.17	4.25	7.07	5.22
	2020	8.8229	4.67	3.29	4.14	5.00	7.14	5.37
AAHP	2018	0.8496	4.56	1.35	4.06	2.84	7.05	5.37
	2019	0.6331	4.56	1.34	4.06	2.80	7.07	5.22
	2020	0.6904	4.56	1.28	4.06	2.94	7.14	5.37
AIRP	2018	2.3845	4.57	2.07	4.05	3.50	7.05	5.37
	2019	3.3162	4.57	2.02	4.07	3.64	7.07	5.22
	2020	1.8195	4.57	1.99	4.06	3.66	7.14	5.37
AIPM	2018	0.4543	4.57	2.56	4.08	4.52	7.05	5.37
	2019	0.3487	4.57	2.63	4.08	4.31	7.07	5.22
	2020	0.1608	4.56	2.61	4.06	4.36	7.14	5.37
AMEF	2018	1.2161	4.57	2.21	4.06	3.44	7.05	5.37
	2019	1.1095	4.57	2.12	4.06	3.42	7.07	5.22
	2020	1.168	4.56	2.08	4.06	3.46	7.14	5.37
INCP	2018	0.8159	4.59	3.33	4.08	3.99	7.05	5.37
	2019	0.525	4.58	3.34	4.10	3.52	7.07	5.22
	2020	0.6791	4.57	3.34	4.06	4.51	7.14	5.37
IICM	2018	2.8411	4.54	2.72	4.05	3.31	7.05	5.37
	2019	5.3004	4.54	2.76	4.06	3.31	7.07	5.22
	2020	5.2582	4.54	2.71	4.06	3.31	7.14	5.37
IMIB	2018	0.2422	4.53	2.82	4.02	3.94	7.05	5.37
	2019	0.1684	4.52	2.82	4.04	3.15	7.07	5.22
	2020	0.0906	4.52	2.81	4.05	3.11	7.14	5.37
IBPM	2018	1.1342	4.56	1.85	4.06	3.15	7.05	5.37
	2019	1.7326	4.56	1.83	4.06	3.33	7.07	5.22
	2020	0.8307	4.56	1.75	4.06	3.33	7.14	5.37
IKLV	2018	1.0102	4.61	2.72	4.06	3.87	7.05	5.37
	2019	0.5438	4.62	2.76	4.09	4.00	7.07	5.22
	2020	0.3285	4.59	2.76	4.06	3.91	7.14	5.37
IIEW	2018	0.6162	4.56	1.99	4.06	3.07	7.05	5.37
	2019	0.4508	4.56	1.99	4.06	3.09	7.07	5.22
	2020	0.3311	4.56	1.91	4.06	3.09	7.14	5.37
IMOS	2018	0.88	4.58	2.49	4.08	3.60	7.05	5.37
	2019	0.5548	4.58	2.48	4.07	3.81	7.07	5.22
	2020	0.515	4.57	2.30	4.06	3.82	7.14	5.37
IMAP	2018	0.3476	4.59	2.65	4.06	3.62	7.05	5.37
	2019	0.2939	4.57	2.57	3.98	3.79	7.07	5.22
	2020	0.6306	4.57	2.48	4.06	3.97	7.14	5.37
IITC	2018	3.8612	4.59	2.38	4.07	3.60	7.05	5.37
	2019	7.5149	4.59	2.36	4.08	3.65	7.07	5.22
	2020	5.0253	4.58	2.33	4.08	3.70	7.14	5.37
IIDP	2018	0.5245	4.70	3.23	3.92	4.38	7.05	5.37
	2019	0.4739	4.71	3.25	4.06	4.38	7.07	5.22
	2020	0.848	4.68	3.17	4.06	4.32	7.14	5.37
IMCL	2018	26.5499	4.59	2.43	4.06	4.03	7.05	5.37
	2019	6.2467	4.60	1.99	4.06	4.26	7.07	5.22
	2020	5.763	4.58	1.94	4.06	4.05	7.14	5.37

Ameer Mukram Bashir Al Obiady 8248

NAME	2018	0.5985	4.60	2.19	4.06	3.06	7.05	5.37
	2019	0.9271	4.58	2.26	4.06	3.31	7.07	5.22
	2020	0.3593	4.57	2.23	4.06	3.34	7.14	5.37
NGIR	2018	0.6023	4.59	1.77	4.07	3.03	7.05	5.37
	2019	0.363	4.59	1.72	4.06	3.03	7.07	5.22
	2020	0.5781	4.57	1.70	4.06	3.16	7.14	5.37
NDSA	2018	0.7064	4.62	2.40	4.06	3.40	7.05	5.37
	2019	0.5976	4.64	1.25	4.07	3.66	7.07	5.22
	2020	0.7226	4.61	1.24	4.07	3.82	7.14	5.37
NAHF	2018	0.5108	4.56	2.19	4.06	3.00	7.05	5.37
	2019	0.3746	4.59	2.15	3.94	3.06	7.07	5.22
	2020	0.5031	4.58	2.14	4.04	3.05	7.14	5.37
SAEI	2018	0.8247	4.59	2.06	4.08	3.76	7.05	5.37
	2019	0.5692	4.59	2.11	4.07	3.68	7.07	5.22
	2020	0.5687	4.57	2.08	4.06	3.69	7.14	5.37
SBAG	2018	0.3568	4.62	2.89	4.05	4.00	7.05	5.37
	2019	0.2302	4.62	2.96	4.01	4.32	7.07	5.22
	2020	0.5063	4.60	2.95	4.06	4.34	7.14	5.37
SKTA	2018	0.9102	4.56	2.06	4.06	3.62	7.05	5.37
	2019	0.6771	4.56	2.07	4.06	3.68	7.07	5.22
	2020	0.9892	4.56	2.05	4.06	3.64	7.14	5.37
SNUC	2018	1.1087	4.58	2.70	4.12	4.20	7.05	5.37
	2019	0.9714	4.59	2.67	4.12	4.26	7.07	5.22
	2020	0.9742	4.58	2.66	4.07	4.27	7.14	5.37
SMRI	2018	1.0379	4.58	1.62	4.06	2.82	7.05	5.37
	2019	0.7243	4.58	1.64	4.06	2.94	7.07	5.22
	2020	0.4858	4.56	1.61	4.06	2.92	7.14	5.37
SBPT	2018	0.9895	4.78	1.94	4.10	4.63	7.05	5.37
	2019	1.5177	4.78	1.97	4.06	4.60	7.07	5.22
	2020	2.7554	4.64	1.95	4.06	4.84	7.14	5.37
HBAY	2018	2.3397	4.64	2.38	4.16	4.95	7.05	5.37
	2019	2.1477	4.68	2.43	4.19	5.18	7.07	5.22
	2020	1.6686	4.59	2.41	4.08	5.19	7.14	5.37
HBAG	2018	1.294	4.60	2.02	4.14	4.52	7.05	5.37
	2019	2.5523	4.60	2.01	4.14	4.51	7.07	5.22
	2020	0.1954	4.57	2.00	4.06	4.49	7.14	5.37
HNTI	2018	1.1339	4.66	2.49	4.10	4.64	7.05	5.37
	2019	0.5433	4.66	2.60	4.11	4.76	7.07	5.22
	2020	0.6926	4.57	2.57	4.07	4.69	7.14	5.37
HMAN	2018	0.654	4.57	3.40	4.07	4.55	7.05	5.37
	2019	0.5032	4.57	3.35	4.09	4.58	7.07	5.22
	2020	0.1634	4.56	3.31	4.06	4.42	7.14	5.37
HKAR	2018	1.7362	4.59	1.68	4.06	3.88	7.05	5.37
	2019	1.3644	4.59	1.68	4.06	3.80	7.07	5.22
	2020	1.399	4.56	1.65	4.06	3.77	7.14	5.37
HISH	2018	1.7887	4.67	3.54	4.15	4.54	7.05	5.37
	2019	0.9601	4.67	3.52	4.07	4.57	7.07	5.22
	2020	0.1419	4.57	3.49	4.05	4.57	7.14	5.37