

UNDERGRADUATE THESIS

**TECHNICAL ANALYSIS OF STOCK PRICE MOVEMENTS WITH
STOCHASTIC AND MOVING AVERAGE INDICATORS ON THE LQ45
INDEX**



Submitted to Complete the Requirements for Obtaining a Bachelor's Degree in
Management

By:

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MANAGEMENT

FACULTY OF ECONOMICS AND BUSINESS

LAMBUNG MANGKURAT UNIVERSITY BANJARMASIN

2025

VALIDITY SHEET

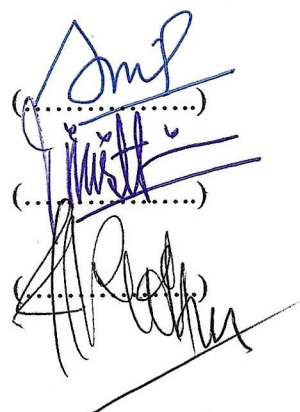
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: 13.00 WITA- 15.00 WITA

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LEGALITY SHEET

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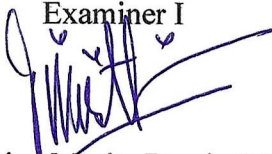
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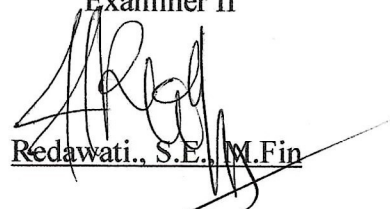
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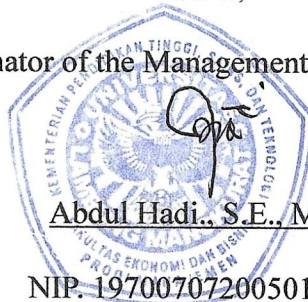


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Hereby, we have made improvements to the thesis based on the suggestions of the Examining Team.

Thus the minutes of thesis revision that have been approved by the Examiner Team.

Banjarmasin, 6 March 2025

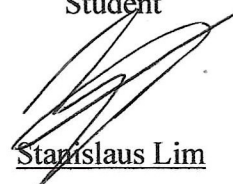
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STATEMENT OF ORIGINALITY

I, the undersigned, hereby declare that this thesis is the result of research that I have conducted. All quotes and assistance from various sources have been disclosed as appropriate. This thesis has never been published for any other purpose by anyone. If it turns out in the future that this statement is not true, then I am willing to accept the consequences of the falsehood of this statement.

Banjarmasin, March 6, 2025

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FOREWORD

Praise and Gratitude the researcher prays to God Almighty, it is thanks to His Grace that the researcher was able to prepare research and complete this thesis with the title "**Technical Analysis of Stock Price Movements with Stochastic and Moving Average Indicators on the LQ45**".

This Thesis was written to fulfill the requirements for obtaining a bachelor's degree in management at Lambung Mangkurat University and can be a means of channeling theories and research carried out by researchers during their lecture periods. The researcher realizes that due to the limitations of the researcher's abilities and knowledge, this research is far from perfect. Therefore, researchers expect criticism and suggestions from all parties.

During the research period, the researcher was grateful for the support, both moral and material, from various parties. Therefore, on this occasion, researchers would like to thank:

1. Mr. Prof. Dr. Ahmad Yunani, S.E., M.Si as Dean of the Faculty of Economics and Business, Lambung Mangkurat University.
2. Mr. Abdul Hadi, S.E., M.Si as Coordinator of the Undergraduate Management Study Program, Faculty of Economics and Business, Lambung Mangkurat University.
3. Mr. Dr. Asrid Juniar, S.E., M.M as Supervisor was very patient in providing direction, guidance, motivation, suggestions and requirements in preparing this thesis.

4. Mrs. Dr. Dian Masita Dewi, S.E., M.M as Examining Lecturer I and Mrs. Redawati, S.E., M.Fin as Examining Lecturer II who have provided suggestions and input in the preparation of this thesis.
5. All Mr. and Mrs. Lecturers at the Faculty of Economics and Business, Lambung Mangkurat University.
6. Mr. Lim Suhaidy, S.E., M.M and Mrs. Aryani as parents whom the researcher loves and respects. Thank you for the love, prayers, advice, patience, and all the good things that have been given to researchers so that researchers can reach this Thesis.
7. Mr A. Wensy Wowor, S.E., M.B.A and Felice Catharine Lim as Uncle and Sister researchers who provided motivation during the process of preparing this thesis.
8. The entire research family for all the support, prayers and love that have been given to the researcher.
9. Close friends and research friends Randy Christian Timpal, Muhammad Adam Farid, and Aufa Habibie for all their help in the form of input, warnings and advice.
10. Colleagues in the International Class of 2021 Bachelor of Management, Faculty of Economics and Business, Lambung Mangkurat University.
11. All supporting parties who cannot be mentioned one by one.

Finally, the researcher hopes that this thesis can be of benefit to all parties.

Banjarmasin, February 2025

Researcher,

Stanislaus Lim

Abstract

Stanislaus Lim (2025), Technical Analysis of Stock Price Movements with Stochastic and Moving Average Indicators on the LQ45 Index.

Supervisor: Asrid Juniar

This research aims to analyze the differences in buy and sell signals produced by the Stochastic Oscillator and Moving Average indicators on the share prices of mining companies in the LQ45 index for 5 and 10 days before and after the announcement of the Fed's interest rate cut on September 19 2024. Of the 45 companies listed on the LQ45 index, 6 companies were selected as samples using a purposive sampling technique. Data analysis was carried out using different tests, namely the paired T test and the Wilcoxon test using the SPSS version 21 program.

The results of this research found that there were differences in residual data results in the form of the Stochastic Oscillator having a normal residual and the Moving Average having an abnormal residual, and there were differences in the buy and sell signals produced by the Stochastic Oscillator and Moving Average indicators on the shares of mining companies included in the LQ45 index during the period 5 days before after and 10 days before after the announcement of the Fed's interest rate cut on 19 September 2024. In addition, the research results also showed that there were differences between the use of the Stochastic Oscillator and Moving Average in identifying buy signals and moving averages. selling is related to share price movements.

Keywords : Stock price movements, technical analysis, Stochastic Oscillator, Moving Average.

Abstraksi

Stanislaus Lim (2025), Analisis Teknikal Pergerakan Harga Saham dengan Indikator Stochastic dan Moving Average pada Indeks LQ45

Pembimbing: Asrid Juniar

Penelitian ini bertujuan untuk menganalisis perbedaan sinyal beli dan jual yang dihasilkan oleh indikator Stochastic Oscillator dan Moving Average pada harga saham perusahaan pertambangan di indeks LQ45 selama 5 dan 10 hari sebelum serta sesudah pengumuman penurunan suku bunga The Fed pada 19 September 2024. Dari 45 perusahaan yang terdaftar di indeks LQ45, sebanyak 6 perusahaan dipilih sebagai sampel menggunakan teknik purposive sampling. Analisis data dilakukan menggunakan uji beda yaitu uji paired T dan uji wilcoxon dengan menggunakan program SPSS versi 21.

Hasil pada penelitian ini menemukan adanya perbedaan hasil residual data berupa Stochastic Oscillator memiliki residual normal dan Moving Average memiliki residual tidak normal, serta terdapat perbedaan sinyal beli dan jual yang dihasilkan oleh indikator Stochastic Oscillator dan Moving Average pada saham perusahaan pertambangan yang tergabung dalam indeks LQ45 selama periode 5 hari sebelum sesudah dan 10 hari sebelum sesudah pengumuman penurunan suku bunga The Fed pada 19 September 2024. Selain itu, hasil penelitian juga menunjukkan adanya perbedaan antara penggunaan Stochastic Oscillator dan Moving Average dalam mengidentifikasi sinyal beli dan jual terkait dengan pergerakan harga saham.

Kata Kunci: *Pergerakan Harga saham, Analisis Teknikal, Stochastic Oscillator, Moving Average.*

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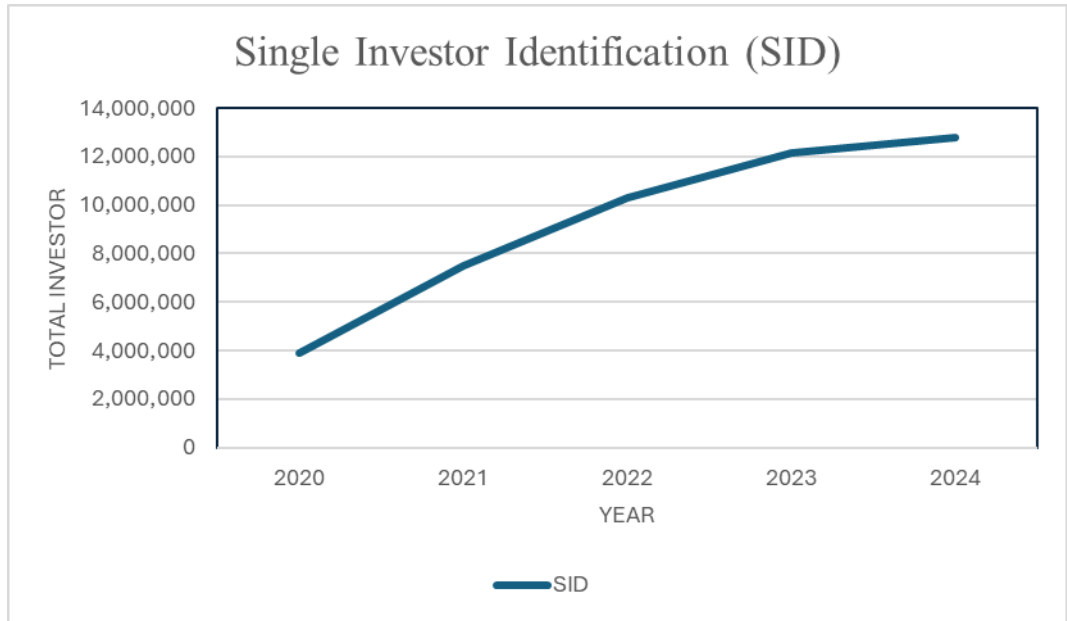
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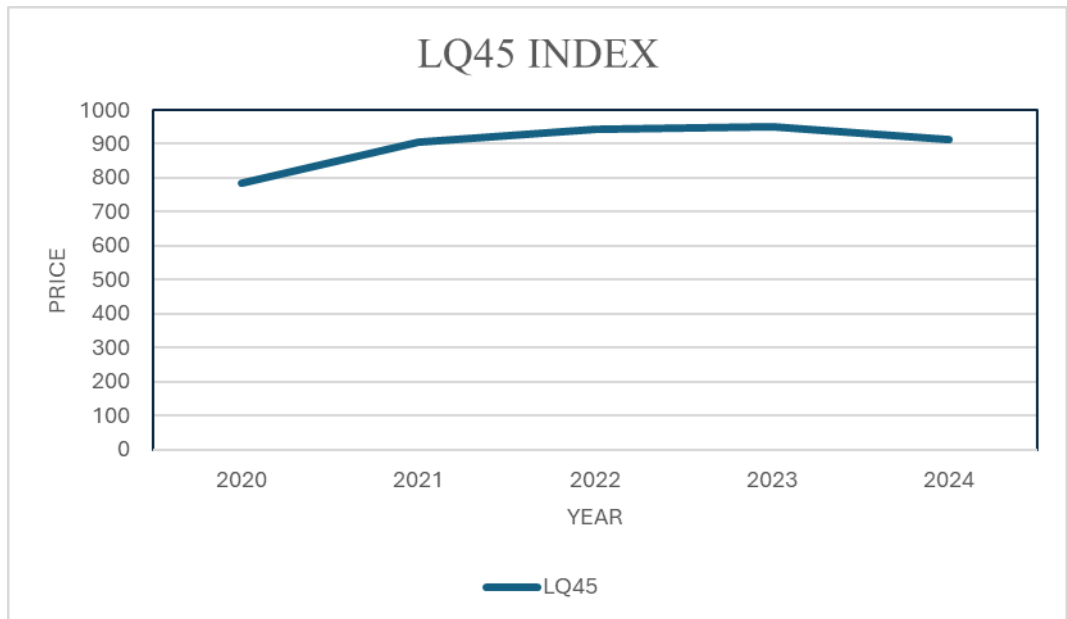
Appendix I

Data on Growth in Number of Investors 2020-2024

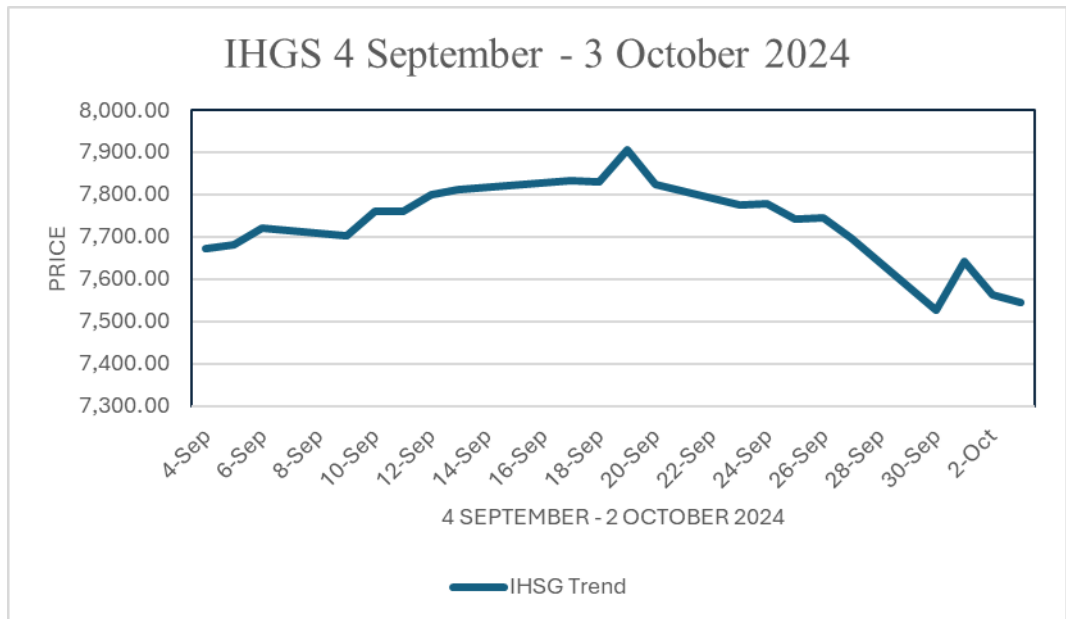


Appendix II

LQ45 Increase Data 2020-2024



Appendix III



Appendix IV

Company Profile

No	Company Code	Company Name	Date of Establishment	Sector
1	ANTM	PT Aneka Tambang Tbk	5 July 1968	Mining of Gold, nickel, bauxite, silver, ferronickel, and coal
2	INCO	PT Vale Indonesia Tbk	25 July 1968	Coal Mining
3	PTBA	PT Bukit Asam Tbk	2 March 1981	Coal Mining
4	ITMG	PT Indo Tambangraya Megah Tbk	2 September 1987	Coal Mining
5	HRUM	PT Harum Energy Tbk	12 October 1995	Coal Mining
6	ADRO	PT Adaro Energy Indonesia Tbk	28 July 2004	Coal Mining

Appendix V

SPSS Output Data

Descriptive Statistics Output

Moving Average 5 days before and after

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Sebelum MA 5	30	1317.3	26965.0	6548.710	1674.8518	9173.5411
Sesudah MA 5	30	1351.1	26446.7	6578.720	1646.0364	9015.7126
Valid N (listwise)	30					

Moving Average 10 days before and after

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Sebelum MA10	60	1331.7	27434.5	6633.070	1196.2781	9266.3300
Sesudah MA10	60	1345.9	26457.7	6615.978	1158.7050	8975.2907
Valid N (listwise)	60					

Stochastic Oscillator 5 days before and after

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Sebelum SO 5	30	8.7	74.2	34.035	3.3236	18.2043
Sebelum SO 5	30	17.4	100.0	70.953	4.0252	22.0471
Valid N (listwise)	30					

Stochastic Oscillator 10 days before and after

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Sebelum SO 10	60	.0	80.0	31.415	3.0871	23.9125
Sesudah SO 10	60	6.0	100.0	72.115	3.0875	23.9154
Valid N (listwise)	60					

SPSS Output Classical Assumption Test

Kolmogorv-Smirnov Test

5 days before (Moving Average and Stochastic Oscillator)

One-Sample Kolmogorov-Smirnov Test

		moving average	stochastic oscillator
N		30	30
Normal Parameters ^{a,b}	Mean	6548.7100	34.0350
	Std. Deviation	9173.54106	18.20434
Most Extreme Differences	Absolute	.456	.106
	Positive	.456	.106
	Negative	-.284	-.089
Kolmogorov-Smirnov Z		2.497	.581
Asymp. Sig. (2-tailed)		.000	.889

5 days after (Moving Average and Stochastic Oscillator)

One-Sample Kolmogorov-Smirnov Test

		Moving Average	Stochastic Oscillator
N		30	30
Normal Parameters ^{a,b}	Mean	6578.720	70.9533
	Std. Deviation	9015.7126	22.04706
Most Extreme Differences	Absolute	.451	.140
	Positive	.451	.094
	Negative	-.281	-.140
Kolmogorov-Smirnov Z		2.469	.768
Asymp. Sig. (2-tailed)		.000	.597

10 days before (Moving Average and Stochastic Oscillator)

One-Sample Kolmogorov-Smirnov Test

		Moving Average	Stochastic Oscillator
N		60	60
Normal Parameters ^{a,b}	Mean	6633.070	31.415
	Std. Deviation	9266.3300	23.9125
Most Extreme Differences	Absolute	.455	.157
	Positive	.455	.157
	Negative	-.284	-.094
Kolmogorov-Smirnov Z		3.525	1.215
Asymp. Sig. (2-tailed)		.000	.105

10 days after (Moving Average and Stochastic Oscillator)

One-Sample Kolmogorov-Smirnov Test

		Moving Average	Stochastic Oscillator
N		60	60
Normal Parameters ^{a,b}	Mean	6615.978	72.115
	Std. Deviation	8975.2907	23.9154
Most Extreme Differences	Absolute	.445	.122
	Positive	.445	.122
	Negative	-.279	-.113
Kolmogorov-Smirnov Z		3.447	.944
Asymp. Sig. (2-tailed)		.000	.335

SPSS Output Paired T Test

Paired T Test

Stochastic Oscillator 5 days before and after

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Sebelum	34.035	30	18.2043	3.3236
	Sesudah	70.953	30	22.0471	4.0252

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Sebelum & Sesudah	30	.123	.516

Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	Sebelum - Sesudah	-36.9183	26.8034	4.8936	-46.9269	-26.9098	-7.544	29	.000

Stochastic Oscillator 10 days before and after

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Sebelum	31.4150	60	23.91254	3.08710
	Sesudah	72.1150	60	23.91539	3.08746

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Sebelum & Sesudah	60	-.162	.215

Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	Sebelum - Sesudah	-40.70000	36.46010	4.70698	-50.11864	-31.28136	-8.647	59	.000

SPSS Output Wilcoxon Test

Wilcoxon Test

Moving Average 5 days before and after

Wilcoxon Signed Ranks Test

		Ranks		
		N	Mean Rank	Sum of Ranks
Sesudah - Sebelum	Negative Ranks	3 ^a	28.00	84.00
	Positive Ranks	27 ^b	14.11	381.00
	Ties	0 ^c		
	Total	30		

- a. Sesudah < Sebelum
 b. Sesudah > Sebelum
 c. Sesudah = Sebelum

Test Statistics^a

	Sesudah - Sebelum
Z	-3.054 ^b
Asymp. Sig. (2-tailed)	.002

- a. Wilcoxon Signed Ranks Test
 b. Based on negative ranks.

Moving Average 10 days before and after

Wilcoxon Signed Ranks Test

		Ranks		
		N	Mean Rank	Sum of Ranks
SESUDAH - SEBELUM	Negative Ranks	17 ^a	35.29	600.00
	Positive Ranks	43 ^b	28.60	1230.00
	Ties	0 ^c		
	Total	60		

- a. SESUDAH < SEBELUM
 b. SESUDAH > SEBELUM
 c. SESUDAH = SEBELUM

Test Statistics^a

	SESUDAH - SEBELUM
Z	-2.319 ^b
Asymp. Sig. (2-tailed)	.020

- a. Wilcoxon Signed Ranks Test
 b. Based on negative ranks.

Difference before Moving Average 5 and before Stochastic Oscillators 5

Wilcoxon Signed Ranks Test

		Ranks		
		N	Mean Rank	Sum of Ranks
Stochastic Oscillator - Moving Average	Negative Ranks	30 ^a	15.50	465.00
	Positive Ranks	0 ^b	.00	.00
	Ties	0 ^c		
	Total	30		

- a. Stochastic Oscillator < Moving Average
 b. Stochastic Oscillator > Moving Average
 c. Stochastic Oscillator = Moving Average

Test Statistics^a

	Stochastic Oscillator - Moving Average
Z	-4.782 ^b
Asymp. Sig. (2-tailed)	.000

- a. Wilcoxon Signed Ranks Test
 b. Based on positive ranks.

Difference after Moving Average 10 and after Stochastic Oscillators 10

Wilcoxon Signed Ranks Test

		Ranks		
		N	Mean Rank	Sum of Ranks
Stochastic Oscillator - Moving Average	Negative Ranks	30 ^a	15.50	465.00
	Positive Ranks	0 ^b	.00	.00
	Ties	0 ^c		
	Total	30		

- a. Stochastic Oscillator < Moving Average
 b. Stochastic Oscillator > Moving Average
 c. Stochastic Oscillator = Moving Average

Test Statistics^a

	Stochastic Oscillator - Moving Average
Z	-4.782 ^b
Asymp. Sig. (2-tailed)	.000

- a. Wilcoxon Signed Ranks Test
 b. Based on positive ranks.