

Evaluating the Consistency of Bull-Bear Market Classification Between the IHSG and LQ45 in Indonesia

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ABSTRACT: Market classifications are widely used in financial industries to support investment analysis and portfolio decision-making. In Indonesia, two commonly used indices as benchmarks are the Indonesia Composite Index (IHSG) and the LQ45 Index. Though their consistency in representing market conditions has received limited attention. This study evaluates whether the IHSG and LQ45 Index market classification are consistent. Using the quarterly returns from Q1 2023 to Q4 2025. Market conditions were classified according to the result of quarterly log returns into bullish and bearish markets, and evaluated using a contingency table, Cohen's Kappa coefficient, and McNemar's test. The result indicates that the two indices generate identical market classification with 83.3% agreement rate. The Cohen's Kappa coefficient of 0.636 indicates the two indices have substantial agreement, while McNemar's test shows no statistically significant systematic difference between the classifications. Among the twelve observation periods, only two quarters show divergence in Q1 and Q2 2023. During these two quarters, the IHSG indicated bearish conditions while the LQ45 remained bullish. An exploratory sectoral analysis suggests that various sectoral performances may have contributed to the divergence periods. Overall, the findings implied that the IHSG and the LQ45 may serve as comparable benchmarks for broad market classification. The divergence quarters should be interpreted with consideration of sectoral market conditions.

KEYWORDS: market classification, IHSG, LQ45, Cohen's Kappa, Sectoral analysis

I. INTRODUCTION

Financial market conditions are not always the same. The market always alternates between expansion and contraction conditions. Expansion condition or bullish market is the condition where the market has a constant positive return, asset prices, and investors are optimistic. In contrast, a contraction or bearish market condition is a market characterized by declining prices, negative returns, and high market uncertainty (Hamilton, 1989; Pagan & Sossounov, 2003).

Since investment risk and return vary across these market conditions, accurately identifying market regimes has become an important aspect of financial market analysis and investment decision-making. Market condition information enables investors to adjust portfolio strategies and asset allocation according to changes in the economic and financial environment (Ang & Bekaert, 2002; Perold & Sharpe, 1988). Similarly, Guidolin and Timmermann (2007) demonstrated that asset allocation strategies can benefit from incorporating multiple market regimes, further emphasizing the importance of accurately identifying market conditions.

Previous studies have been developed to identify the different market conditions. The earlier study applied regime-switching models to capture structural changes in financial markets (Hamilton, 1989). Other studies suggested other methods based on return dynamics, turning points, and duration characteristics (Turner et al., 1989; Maheu & McCurdy, 2000; Pagan & Sossounov, 2003). A recent study introduced another approach using a top-down approach and a more practical method to classify market states to identify bull and bear conditions (Hanna, 2018; Zegaldo, 2022). The approaches demonstrate that market regime identification remains an important area of financial research due to the implications for investment analysis and financial decision-making.

In Indonesia, the Indonesia Composite Index (IHSG) and the LQ45 Index are among the most widely used benchmarks for evaluating stock market performance. The IHSG represents the overall performance of all companies listed on the Indonesia Stock Exchange, whereas the LQ45 Index consists of the most liquid and highly capitalized stocks. Although both indices reflect the Indonesian equity market, differences in their constituent composition may result in different market condition classifications during certain periods. However, limited attention has been given to evaluating whether different benchmark indices representing the same equity market produce consistent market classifications.

Although the literature on bull and bear market identification is quite comprehensive, previous studies have primarily focused on developing classification methods or investment strategies across different market regimes. Little attention has been given to evaluating whether different benchmark indices represent the same equity market and produce consistent market classifications.

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Assessing market consistency is important because benchmark indices serve as references for market analysis, investment evaluation, and empirical financial research by investors, researchers, and practitioners.

This study examines the consistency between two Indonesian market indices in representing market conditions through bull and bear market classification. Using quarterly data on the IHSG and the LQ45 Index from 2023 - 2025, market conditions are classified based on quarterly log returns. The consistency between the two benchmark indices is then evaluated using a contingency table, Cohen's Kappa coefficient, and McNemar's test. Furthermore, when a quarter has a different result of market classification results, the quarter is then examined through sectoral performance analysis to provide a broader understanding of the factors contributing to these differences. The results of the study are expected to provide empirical evidence on the consistency of market classification between the IHSG and LQ45 indices, as well as understanding how sectoral market dynamics could influence the market classification results.

II. RESEARCH METHODOLOGY

A. Research Design

This study employed a quantitative descriptive research design to evaluate the bullish and bearish market classification using the Indonesia Composite Index (IHSG) and the LQ45 Index. Market conditions were classified into bullish and bearish market condition using the quarterly log returns. The research was conducted in two stages. The first stage starts with data collection until the process of classification market. The classification of the market using both indices then is evaluated using contingency table, Cohen's Kappa coefficient, and McNemar's test. The second stage is where the exploratory sectoral analysis conducted to describe the market condition during the period when the market is in disagreement.

Research framework for this study is shown in Figure 1.

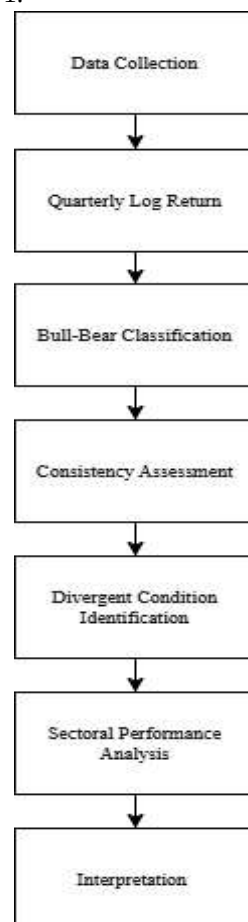


Figure 1. Research Framework

B. Data Collection

This study employed secondary data of quarterly prices of the Indonesia Composite Index (IHSG) and the LQ45 Index covering the period from Q4 2022 to Q4 2025. Using the quarterly log return to classify the market condition, to get an observation period from Q1 2023 to Q4 2025. The price data were obtained from Investing.com.

The exploratory analysis uses the quarterly sectoral index data, which are collected from the *IDX Quarterly Statistics* from the Indonesia Stock Exchange (IDX). The observation period was selected based on the availability of the sectoral data from IDX,

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supporting the comparison between the market classification results and sectoral performance condition when there is disagreement between the IHSG and LQ45 market condition.

C. Research Process

The research process consisted of several steps.

1. Quarterly log returns were calculated from the quarterly closing price of the IHSG and LQ45 indices.
2. Market conditions were classified as bullish when the quarterly log return was greater than or equal to zero ($R_t \geq 0$) and bearish when the quarterly log return was less than zero ($R_t < 0$).
3. The consistency between the two market classifications generated by both indices was then evaluated using a 2x2 contingency table, Cohen's Kappa coefficient, and McNemar's test.
4. The period where disagreement between IHSG and LQ45 market classification appears then examined through exploratory sectoral analysis using quarterly sectoral performance data.

III. RESULT AND DISCUSSION

A. Bull and Bear Market Classification Results

Figure 2 shows the result of quarterly bull and bear market classification of the IHSG and LQ45 indices from Q1 2023 to Q4 2025. From twelve quarters, the IHSG was classified as a bullish market in seven out of the twelve quarters (58.3%), while the remaining five quarters were classified as a bearish market. For the LQ45, nine out of the twelve quarters (75%) were classified as bullish markets, and the other three quarters were classified as bearish markets. In general, both benchmark indices have similar market classification, with differences only in two quarters, Q1 2023 and Q2 2023, where the IHSG was classified as a bearish market, and the LQ45 was classified as a bullish market.

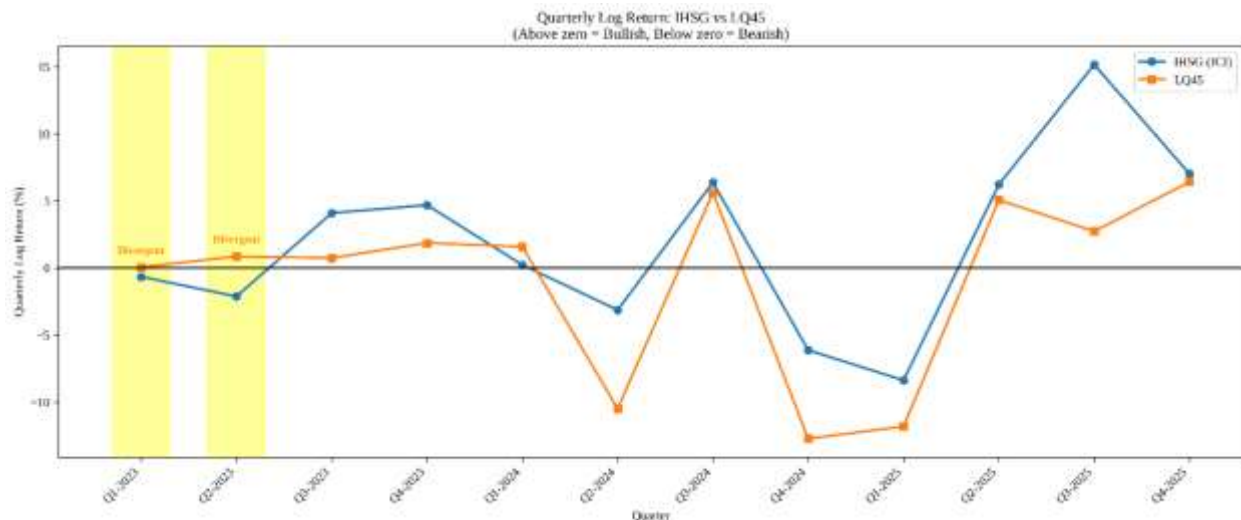


Figure 2. Bullish - Bearish Market Classification

B. Consistency Assessment

The consistency between the bullish - bearish market classifications was evaluated using a 2x2 contingency table, Cohen's Kappa coefficient, and McNemar's test. In Table I, both indices generate identical classifications in 10 of the 12 quarterly observations, corresponding to an agreement of 83.3%. The results show that out of twelve quarters, seven quarters were consistently classified as bullish markets, while the other three quarters were classified as bearish markets. The different results of market classification occurred in two quarters, in which IHSG indicated as bearish while the market condition of the LQ45 remained bullish.

To measure the level of agreement between two classifiers after taking into account the possibility of agreement occurring by chance, this study uses the Cohen's Kappa coefficient. The result of Cohen's Kappa coefficient was 0.636, which, according to classification by Landis and Koch (1977), indicates substantial agreement between the two indices. While there are two quarters with different results, the Kappa statistic suggests that the observed consistency between the two benchmark indices exceeds the level of agreement expected by chance.

Table I. Contingency Table of Bull-Bear Market

	LQ45 Bullish	LQ45 Bearish
IHSG Bullish	7	0
IHSG Bearish	2	3

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Additionally, to evaluate whether one index has a systematic tendency to produce a different classification than the other indexes, the McNemar test is used. The exact McNemar test resulted in a p-value of 0.500, while the corrected McNemar test produced a p-value of 0.4795. Since both values exceed the 5% significance level, no statistically significant difference was found between the market classifications, which means that the results show that there is no evidence that the IHSG and LQ45 have a systematic tendency to produce different classifications.

C. *Exploratory Analysis of Divergence Periods*

To provide additional context for the two divergence episodes identified in Q1 2023 and Q2 2023, an exploratory sectoral performance analysis was conducted. This analysis is intended to describe the market conditions accompanying the inconsistent classifications rather than establish causal relationships. An exploratory sectoral performance analysis was conducted to explain additional context about the market environment with inconsistent classification during two divergence periods, Q1 2023 and Q2 2023.

In Q1 2023, the IHSG was classified as contraction, while the LQ45 was classified as expansion. At the same time, the performance in the sectors were mix. Several sectors show a positive performance, for example, Consumer Non-Cyclicals (+15.07%), Transportation & Logistics (+7.67%), and Industrials (+1.21%), in contrast Technology (-61.32%), Financials (-29.10%), Healthcare (-24.55%), Properties (-24.36%), Infrastructure (-6.88%), and Energy (-7.72%) experience substantial declines.

A similar condition still happened in the next quarter. In Q2 2023, the IHSG continued to indicate bearish market conditions while the LQ45 remained bullish. Compared to the previous quarter, several sectors showed signs of recovery: Consumer Cyclicals (+25.32%), Financials (+2.77%), and Properties (+2.22%). Healthcare (-83.36%), Energy (-23.76%), Basic Materials (-18.35%), Transportation & Logistics (-13.47%), Technology (-7.40%), and Infrastructure (-2.09%) continued to record negative performance in the second quarter. The sectoral condition during the divergence period suggests that market performance varied across industries and may have contributed to the disagreement between the IHSG and LQ45 indices.

The exploratory analysis does not establish causality, but it provides contextual evidence that temporary differences in sectoral performance may result in inconsistencies during market classification between the benchmark indices. The coexistence of strengthening and weakening sectors indicates that market performance was uneven across industries. Such heterogeneous sectoral movements may have contributed to the different market signals generated by the broad-market IHSG and the more concentrated LQ45 index.

D. *Discussion*

The result of the study shows that both indices generally provide consistent market conditions, as reflected by the result of Cohen's Kappa coefficient and McNemar's test. Although the two indices have different compositions, the results of the market classification were identical in most quarterly observations. Indicating that both benchmarks captured similar broad market movements during the observation.

During the observation time, where two quarters, Q1 2023 and Q2 2023 contradict, it coincides with divergence in sectoral performance in the same quarters. Some sectors record positive returns, while others experience declines. These conditions influence the IHSG and LQ45 in different ways. Therefore, the differences in sector composition could lead to temporarily different market classifications.

From the practical side, a high percentage agreement rate between the two indices suggests that both benchmarks provide similar representations of market conditions. Nevertheless, the two different quarters indicate that benchmark selection is more relevant when the market performance varies between industries. The exploratory analysis also suggests that both divergence periods coincided with the sectoral performance, which varies at the same time. This suggests that temporary differences in market conditions may be reflected differently by two indices.

CONCLUSIONS

This study evaluated the consistency between the IHSG and LQ45 in representing market conditions in the Indonesian equity market using the IHSG and LQ45 indices. The result shows that the two benchmark indices generally have an identical market classification in 10 out of 12 observation periods, with an agreement rate of 83.3%. Furthermore, Cohen's Kappa result indicated that the two indices have substantial agreement, while McNemar's test showed no statistically significant systematic difference between the market classification from the IHSG and LQ45.

Altogether, the findings suggest that both Indonesia market indices, the IHSG and LQ45, provide comparable representations of Indonesia's equity market conditions in general. Therefore, either benchmark may be appropriate for broad market classification. Future studies may extend this analysis by incorporating another market classification method, longer observation time, or using another benchmark index to examine the robustness of market classification consistency further.

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