



# Discovering the Link between Investor Attention and Trade Volume in the Philippine Stock Exchange

## Introduction

Investors regard trade volume as a crucial technical indicator that can confirm trends, predict trend reversals, and determine liquidity (Westerhoff, 2006; Mahender et al., 2014). Trade volume is reported throughout the current trading day as often as once an hour; however, the reported hourly and end-of-the-day trade volumes are merely estimates. Actual and final trade volumes are reported the following day. Given the relative inconsistency of reported trade volumes and uncertainty of future trade volumes, investors miss the opportunity to better reinforce their trading decisions through the trade volume indicator.

Since trade volume is heavily influenced by investors' reaction towards their exposure to information (Barber & Odean, 2011), an alternative proxy to investor attention, such as Internet search data, may have the capacity to help explain trade volume (Da et al., 2011; Bank et al., 2011; Bordino et al., 2012; Takeda & Wakao, 2014; Nguyen et al., 2020). Although there is a large amount of literature on this topic that applies this to developed financial markets, there is a shortage of its application in emerging financial markets, which are less informationally efficient and may have different investor behavior than its developed counterparts. Thus, there is a need to test further the veracity of Internet search data as an accessible supplementary indicator that can help investors verify trade volume estimates and predict future trade volumes in emerging financial markets, such as the Philippines, where retail investors represent the majority of investor accounts and where there is rapid growth in the Internet penetration rate and uniform use of a single search engine. This study aims to provide retail investors in the Philippine Stock Exchange

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(PSE) with a supplementary indicator when trading in the stock market by testing the power of three different search keyword categories to verify the use of Internet search data as a proxy for investor attention.

## Recommendations

The main objective of this study is to provide retail investors in the PSE with a supplementary stock indicator that can validate and anticipate stock market trade volumes. However, aside from giving recommendations to retail investors, we believe that the implications of this study can also provide valuable insights for financial platform providers and policymakers in the Philippines.

### 1. Incorporate Investor Attention Measures to Trading Strategies

Because our study confirms that Google search volume can verify and anticipate stock market movements, we recommend that retail investors in the PSE should consider rethinking their trading strategies by incorporating investor attention measures to these strategies. Given the rapid growth of Internet penetration and retail investor participation in the Philippines, it is highly likely that investor attention will become a more significant determinant of movements in the Philippine stock market. The utilization of investor attention-based trading strategies could become more relevant and practical.

### 2. Include the Option to View Search Volume Relevant to a Stock in Financial Platforms

Given the potential usefulness of using Google search volume as a supplementary stock indicator, financial platform providers, such as financial data platform and stock screener platform providers, should consider adding an option to view the search volume relevant to a stock. Additional features that allow editing of keywords in use, time-frequency, and location are likely to fine-tune results accordingly. These features will make search volume-based indicators even more accessible to retail investors and, at the same time, promote its usage in trading and investment analysis.

### 3. Implement Investor Attention Measures in Monitoring Market Liquidity and Anticipating Market-Wide Liquidity Shocks

Given the ability of search volume to predict stock market liquidity, we further recommend that policymakers consider using measures of investor attention to monitor market liquidity and anticipate market-wide liquidity shocks. This will help policymakers act more promptly when there is a need for market intervention.

## Motivation of the Study

In recent literature, investor attention proxies have been classified as either indirect or direct (Han et al., 2017). Indirect proxies of investor attention, such as trade volume, are a more traditional way of measuring investor attention than direct proxies. They are acceptable measures because they can explain market dynamics, and thus, they can help investors form and reinforce their investment decisions (Kaniel et al., 2012; Alanyali et al., 2013). However, these indirect proxies fail to accurately and consistently indicate whether investors actually show interest in corresponding financial instruments or whether news presented by the media is genuinely noticed by investors (Barber & Odean, 2008; Gervais et al., 2001; Kaniel et al., 2012). This means that although investors can use indirect proxies to supplement their trading decisions, the information that indirect proxies provide has the possibility of being inaccurate and untimely.

Direct proxies of investor attention, such as Internet search data, aim to address the issues presented by indirect proxies. Direct proxies assume that investors interested in certain security will also use Internet search engines to gather information related to it. This gives direct proxies the advantage of encompassing investor attention in a more accurate and timely way. Previous studies have revealed that direct proxies are correlated with indirect proxies of investor attention, which opens the opportunity to use direct proxies as a supplementary indicator alongside indirect proxies to help investors better reinforce their investment decisions (Bank et al., 2011; Preis et al., 2013). However, direct proxies require a careful

keyword selection to adequately capture investor attention, such that popular keyword categories are stock tickers, company names, and terms related to financial markets.

## Data Strategy

This study uses the Google search volume data of the PSE listed stocks, obtained from Google Trends, as a proxy for investor attention from January 2015 to December 2019. The relationship between search volume and trade volume in the PSE is examined through the use of three search keyword categories—company names (e.g. Jollibee Foods Corporation), stock tickers (e.g. JFC), and stock tickers—with the subsequently added word “stock” (e.g. JFC stock), which represent the first, second, and third keyword categories, respectively. Each keyword category utilizes a unique keyword selection process, which provides a final sample size of 134, 95, and 49 stocks for the first, second, and third keyword categories, respectively. The two main variables utilized in this study are search intensity and trade volume. Consequently, search intensity is quantified by three different indicators.

Furthermore, this study examines whether investor sentiment would affect the relationship between search volume and trade volume by sorting the samples based on its investor sentiment. In this case, aggregate sentiment based on the current state of the economy is captured by using the current quarter confidence levels from the Bangko Sentral ng Pilipinas’ Consumer Expectation Report.

## Discussion

The study’s findings reveal that the more investors search for a stock’s company name or ticker, the more likely that there will be an increase in that stock’s trade volume the following day. This implies that Google searches using a stock’s company name and ticker can successfully serve as proxies for investor attention and aid in predicting trade volumes in the PSE. Furthermore, this study finds that Google searches that add the subsequent word “stock” to a stock’s ticker are found not to be associated with the stock’s trade volume the following day. As such, these

Google search parameters cannot be used as a proxy for investor attention and cannot aid in predicting trade volume in the PSE.

The implications of this study’s findings on Google searches using a stock’s company name and ticker support our theory that the arrival of new information can lead to investor reactions that generate informational search activity, which retail investors can utilize as a signal that can influence their investment decisions by helping them anticipate stock market movements. In contrast, the implications of this study’s findings on Google searches that add the subsequent word “stock” to a stock’s ticker does not support our theory, as mentioned earlier. This result could be due to the possibility that investors searching for more information on a particular stock are unlikely to search for the stock’s ticker and append the word “stock” after it.

Adding further nuance to our investigation on Google search volume as a measure of investor attention, we incorporate sentiment analysis at the aggregate level. We find that accounting for sentiment does not substantially impact the power of Google searches using a stock’s company name and ticker with the added word “stock” as an indicator. On the other hand, we observe the opposite for Google searches using a stock’s ticker, such that these Google searches are more likely to be associated with the stock’s trade volume during periods of high consumer confidence. The findings of Google searches using a stock’s ticker may be explained by the loss aversion phenomenon, which ultimately implies that Internet search activity is more likely to be translated to actual trades during periods of high consumer confidence, causing more frequent and significant search volume-based signals.

## Concluding Remarks

In emerging financial markets, such as the Philippines, there is a rapid growth of Internet penetration and retail investor participation. Because of this, it is highly likely that the Philippine Stock Exchange will become significantly more susceptible to investor attention-based transactions. This means that the utilization of attention-based stock market indicators is now a more relevant topic than ever before.

This study reinforces the importance of retail investors adopting new trading strategies that can effectively account for investor attention and the consideration of policymakers to utilize measures of investor attention to monitor market liquidity and anticipate market-wide liquidity shocks. Furthermore, this study highlights the critical role that financial platform providers play in promoting the integration of investor attention to trading and investment analysis.

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