IMPACT OF INVESTOR'S ATTENTION ON STOCK MARKET RETURNS: A STUDY OF EMERGING STOCK MARKETS

Thesis Submitted for the Award of the Degree of

DOCTOR OF PHILOSOPHY

in

Commerce

By

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2024

DECLARATION

I, hereby declare that the presented work in the thesis entitled "**Impact of Investor's Attention on Stock Market Returns: A Study of Emerging Stock Markets**" in fulfillment of degree of **Doctor of Philosophy (Ph. D.)** is outcome of research work carried out by me under the supervision of Dr. Rupinder Katoch, working as Professor, in the Mittal School of Business of Lovely Professional University, Punjab, India. In keeping with general practice of reporting scientific observations, due acknowledgements have been made whenever work described here has been based on findings of other investigator. This work has not been submitted in part or full to any other University or Institute for the award of any degree.

Rupinder

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CERTIFICATE

This is to certify that the work reported in the Ph. D. thesis entitled "Impact of Investor's Attention on Stock Market Returns: A Study of Emerging Stock Markets" submitted in fulfillment of the requirement for the award of degree of **Doctor of Philosophy (Ph.D.)** in the Mittal School of Business is a research work carried out by Sheenam (42000331) is bonafide record of his/her original work carried out under my supervision and that no part of thesis has been submitted for any other degree, diploma or equivalent course.

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Name of supervisor: Dr. Rupinder Katoch

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Abstract

The stock market is one of the world's most active financial markets, actively contributing to economic growth. Investor focus is a significant factor influencing the stock market. Because behavioral finance is a rapidly growing field that can help academics better understand investor behavior, preferences, and the impact they have on the global stock market, academic experts are becoming more and more concerned about how investor attention is affecting the international stock market. Consequently, the basis of this study is an analysis of the relationship among investor attention and the stock market. This study uses secondary data, which is secondary in nature, for analysis. After going over numerous research papers, some gaps became apparent; these gaps show how widely the topic of investor attention analysis has been studied. The first research gap is the dearth of studies on the interaction between stock market returns and investor attention. The second disparity is that the majority of research on investor focus on the stock market has been conducted in the US, UK, and Japanese markets, but emerging stock markets have been ignored, and there is no effective research on the Indian stock exchange. The third gap is that additional research focuses primarily on the oil and foreign exchange markets. Few studies were based on the stock market, or they were limited to a few countries and a short period of time, with a small number of countries as a sample. Investigating the link between investor attention and stock market, both in the short and long run, as well as the effect of investor attention on the stock market, is the goal of the current study. Every emerging market benchmark stock index is taken into account when conducting analysis. Furthermore, the study's objectives are; 1. To analyze the causality between investor's attention and emerging stock markets, 2. To test the cointegration between investor's attention and emerging stock markets, 3. To examine the impact of investor's attention on emerging stock markets. With the hypothesis; 1. H_{01} = There is no significant short-run relationship between investor's attention and emerging stock markets, 2. H_{02} = There is no significant long-run relationship between investor's attention and emerging stock markets, 3. H_{03} = There is no significant impact of investor's attention on emerging stock markets. The MSCI (Morgan Stanley Capital International) Emerging Markets Index 2021 list is the basis for the selection of all emerging stock markets for the

analysis. Data on return series is gathered from the Bloomberg terminal for each of the 26 Emerging Stock Markets. The top-ranked stock index worldwide is used as a benchmark index that is extremely reflective. To represent the market in a given country, the analysis uses benchmark indexes of all countries. Since Google Trends data is only available as of January 1, 2004, the sample data period spans from January 1, 2004, to June 30, 2022. Additionally, time series data on investor attention was obtained using Google Trends and the Google Search Volume (GSV) index. For the third objective, all significant crisis periods are evaluated using structural break analysis, and sample periods are closely matched with existing research. The Global Financial Crisis (GFC) is defined, in accordance with Mollah et al. (2016), as having two distinct periods: the calm period before the GFC crises, which ran from 1-1-2004, to 8-8-2007, and the GFC crisis, which ran from 9-8-2007, to 31-12-2009 (Bello et al., 2022). Calm period and crisis period for the European Debt Crisis (EDC) are 1-1-2010, to 1-5-2010, and May 2, 2010, to June 9, 2013. Calm period and crisis period for the Chinese crash are June 10, 2013, to June 11, 2015, and June 12, 2015, to December 31, 2015. Following Aristeidis and Elias (2018), the Brexit crisis is characterized by 2 different time periods: the calm period, from 1-1-2016, to 23-6-2016, and the Brexit crisis period, from June 24, 2016, to September 30, 2017, all of which coincide with noteworthy economic events associated with Brexit. The COVID-19 crisis has two phases: a calm period from 1-10-2019, to 31-12-2019, and a crisis period from 1-1-2020, to 31-3-2020, in accordance with Okorie and Lin (2021). Last but not least, in order to reduce the influence of outside events, the Russia-Ukraine War has two periods: the calm period before war, which runs from January 1, 2020, to February 24, 2022, and crisis period, which runs from February 25, 2022, to June 30, 2022.

Therefore, to analyze the connection between the stock market and investor attention, this study employs the Toda Yamamoto test. Furthermore, the long-term relationship is examined using the ARDL Model, and finally, the impact of investor attention on the stock markets of 26 emerging nations is examined between January 2004 and June 2022 using the EGARCH model and Wavelet analysis. According to the Toda Yamamoto test, there may be a unidirectional or bidirectional relationship in some circumstances, but not in others. There is a unidirectional short-term relationship in ten

countries, among them in 5 countries the stock market influences the investor's attention, and also in 5 countries the investor's attention influences the stock returns. There are two countries where there is a bidirectional relationship. Furthermore, there are no short-term relationships in the remaining 14 nations. We discovered a long-term relationship in two countries using the ARDL Model. Furthermore, the influence of investor attention—whether favorable or unfavorable—on stock returns differs by country. Depending on the nation, the impact's strength and direction vary. According to the EGARCH model, investor attention to the stock market has a negative impact in 14 countries, a positive impact in 4, and no impact in the remaining 8 countries. Additionally, according to Wavelet analysis, there is a lot of volatility in all sample countries' investor attention (I) and stock return (R) series, especially during the GFC and COVID-19 crises. And the lead-lag relation is also found in mostly countries. In some cases, I is in lead, or in some cases R is in lead and I is lagging. Investors will be better able to make decisions about sector-specific investments, individual stocks, or indexes in the future by using the study's findings. Furthermore, by referring to the findings of this study, international trade partners and global financial institutions may be able to improve their risk diversification strategies, which could lead to more efficient risk management in the financial markets. Given that risk management in financial markets continues to be a major challenge, it is anticipated that the study's findings will enable investors to allocate their capital sensibly. Refinement of optimal portfolios by current investors may benefit from the research conducted both during and after the crisis. As a result, decision-makers and investors can draw important lessons to proactively get ready for the next crisis. Finally, the application of wavelet analysis to time frequency analysis can be highly advantageous to market participants. It draws attention to the high-power areas that, in spite of their low frequency, have significant influence. Each area of the market with high intensity variation is linked to a particular geopolitical event. Wavelet coherency indicates a lead-lag relationship among investor’s attention and stock returns at different scales.

Keywords: investor attention, stock market, behavioral finance, market volatility, stock returns, GSVI

Acknowledgment

Firstly, I am grateful to God and my family for providing me with the bravery and resilience needed to finish my thesis. Furthermore, I couldn't have completed my PhD without the help of many people in my life. I'm extremely grateful to my husband and my mother. It would not have been possible without my mother's outstanding assistance and support, and encouragement from my husband. I want to sincerely thank Professor Dr. Rupinder Katoch, my supervisor, for all of her guidance and support during my time at LPU. She is incredibly patient and kind, and she provided me with helpful critiques of my work as well as genuine academic guidance. I also have to thank my former mentor, Dr. Arpit Sidhu sir, for his help and advice. Particularly, the interest in the stock market is the motivation behind this research. Moreover, on August 31, 2024, the thesis is submitted.

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INTRODUCTION

The financial system describes a network of organisations, markets, and middlemen that make it easier for savers and borrowers to transfer money. It includes a variety of organisations, including banks, insurance firms, stock exchanges, mutual funds, and regulatory organisations (Chen et al., 2020). The financial system is made up of multiple significant components that interact to ensure its efficient operation:

- Financial Institutions: These consist of retirement savings plans, insurance firms, investment firms, credit unions, and the banking sector.
- Financial Markets: These include platforms where traders engage in the exchange of financial instruments like stocks, bonds, commodities, or currencies.
- Financial Instruments: These consist of the settlements which represent a financial right on an asset like, stocks, mutual funds, derivatives, etc.
- Regulatory Bodies: To supervise the financial system, uphold laws, and safeguard the interests of investors

1.1 FINANCIAL MARKET

The financial market is a marketplace where people and organisations trade financial assets. It is a subset of the financial system. It offers a venue for buyers and sellers to interact and conduct business, facilitating the distribution of capital (Pagano, 1993). The financial market is made up of a variety of applicants with different responsibilities:

- Investors: People or organisations that lend money by buying financial assets.

- Issuers: Organisations that sell financial assets to raise money, such as governments, businesses, or municipalities.
- Intermediaries: Institutions like banks, investment companies, brokers, and exchanges that help buyers and sellers conduct transactions.
- Regulators: Governmental organisations in charge of monitoring and controlling the financial market in order to preserve stability and fairness.

Financial market is essential to the efficient functioning of capitalist economies by managing resources. This market serves as a link between borrowers and lenders. Financial markets are extremely risky and volatile. Financial market has maximum weightage among all sectors, so this is a key sector to be monitored, briefly explained in Figure 2.1 according to the list of MSCI (Morgan Stanley Capital International) Emerging Markets Sector Weightage 2022. One of the most prominent kinds of financial markets is the stock market.

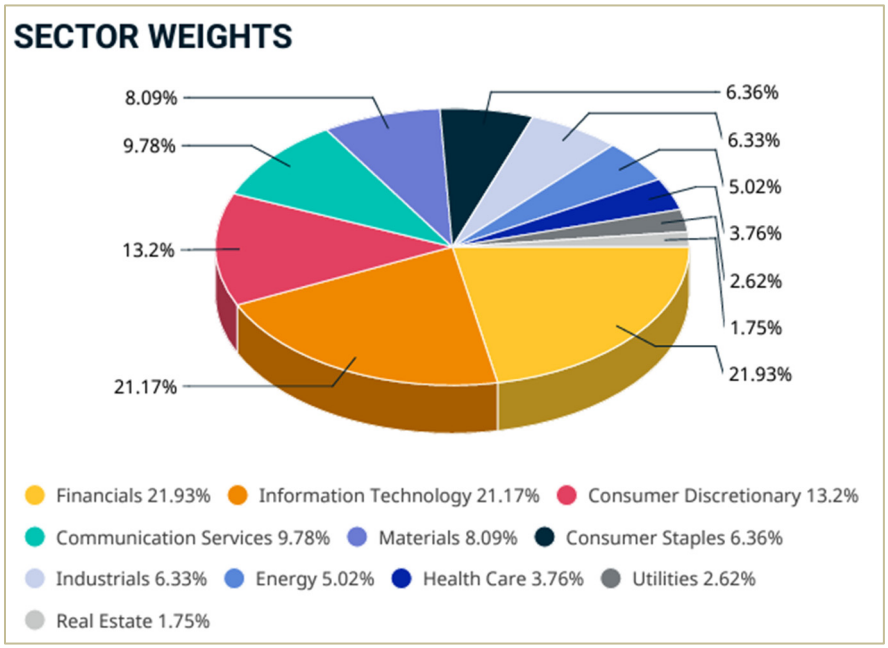


Figure 1.1: MSCI Emerging Markets Sector Weights 2022

Source- https://www.msci.com/documents/10199/c0db0a48-01f2-4ba9-ad01-226fd5678111

The financial market has many types of markets depending upon different elements, these are;

- Stock Market
- Derivative Market
- Commodity Market
- Bond Market
- Forex Market
- Cryptocurrency Market
- Cash Market
- Future Market
- Primary Market
- Secondary Market

1.2 Stock Market

The term "stock market" means to a group of markets in which stocks are purchased, sold, and issued. It is a subset of the financial market. Investor is among the main elements of it. Investors constantly look for opportunities to maximise their returns in this complex and dynamic environment. The 'supply and demand' principle is the fundamental rule of the stock market (Shah et al., 2019). Investors who wish to purchase a particular stock, submit a bid at a set price, and sellers who wish to sell their shares, set an asking price. The dynamics of market supply and demand determine stock prices. The fluctuations of market supply and demand establish stock prices. Firm performance, movements in the market, the state of the marketplace, and investor attention all have effect on stock prices. There are inevitable dangers when making investments in the stock market. Market sentiment, company-specific events, and economic downturns can all have an impact on stock prices. Investor attention is a key element that profoundly affects stock prices and investor behavior.

1.2.1 Theories:

There are many famous theories on the stock market and investor's behavior, which said that there is a relation between them, such as:

1.2.1.1 The Theory of Choice Asymmetry

The theories of Barber and Odean (2008) and Odean (1999) rely on the asymmetry of choice. It implies that investors only buy stocks that catch their eye because there is a

big pool of potential investments available. Moreover, there is a direct link between increased attention and increased purchasing and pricing, which are then temporarily reversed. According to this theory, stock prices and investor attention have a positive, albeit mostly short-term, relationship. As the initial excitement wanes and investors come to the realization that the stock might not be as valuable as they initially believed, the price eventually tends to return to its initial level.

A concept with roots in behavioral economics and decision theory, the Theory of Choice Asymmetry examines the phenomenon of people making inconsistent decisions when presented with the same option in different ways. It explores the psychological and cognitive biases that affect how decisions are made, providing insight into why people frequently display seemingly contradictory preferences.

Fundamentally, the Theory of Choice Asymmetry asserts that people typically assess options in terms of relative gains or losses rather than absolute terms, depending on a reference point. Depending on how options are presented, this reference point may change, resulting in asymmetrical assessments of the same options. This asymmetry can show up in a variety of decision-making situations, including financial investments and consumer choices.

Prospect theory, which was put forth by psychologists Daniel Kahneman and Amos Tversky in the 1970s, is one of the fundamental ideas of the Theory of Choice Asymmetry. According to prospect theory, people experience loss aversion, which is the tendency to weigh possible losses more heavily than comparable gains. People may choose to avoid risk rather than maximize utility as a result of this unequal distribution of gains and losses.

Moreover, choice asymmetry is greatly influenced by the framing effect. The phenomenon known as the framing effect describes how the presentation of information affects the results of decision-making. For example, framing a choice as a gain may encourage risk-seeking behavior, but framing the same choice as a loss may elicit stronger emotional responses and lead people to choose risk-averse decisions.

When making financial decisions, one can observe an example of choice asymmetry in action. Think about the following two situations: People are offered a $500 guaranteed gain in Scenario A, but in Scenario B, there is a 50% probability that they will receive one thousand dollars and a fifty percent likelihood that they will not.

Even though the expected value of $500 is the same in both scenarios, many people have a risk aversion and would rather take the sure profit in Scenario A than risk the uncertain result in Scenario B.

On the other hand, the decision-making asymmetry is evident when the same scenarios are presented in terms of losses. People are given a $500 guaranteed loss in scenario C, a $1,000 guaranteed loss in scenario D, and a 50% chance of losing nothing at all. In this case, people frequently behave in a risk-seeking manner, choosing the uncertain result in Scenario D over the certain loss in Scenario C, even though the expected loss in both cases is $500.

1.2.1.2 Alternative Theory

According to the alternative idea, finding information increases as investor attention rises (Tantaopas, Padungsaksawasdi, & Treepongkaruna, 2016; Vlastakis & Markellos, 2012). The traditional concept of finance is based on rational principles of human behaviour and the efficiency of markets, is diverged by the Alternative Theory of Behavioral Finance. Rather, it recognizes the existence of emotional influences, cognitive constraints, and psychological biases that affect financial market decision-making. This alternative strategy aims to comprehend the ways in which asset pricing, market dynamics, and investor behavior are influenced by these behavioral factors. This reduces return predictability and raises market efficiency even though it puts short-term price pressure on the market (Vozlyublennaia, 2014).

The increased focus and trading activity might boost stock returns in the near run. The hypothesis in which increased focus might cause more information to become available. Long-term information absorption by the market may cause stock returns to become less susceptible to attention-driven short-term swings and more unpredictable. To have an extensive understanding of the nuances of the stock market as well as investor conduct, the Alternative Theory of Behavioral Finance provides an appealing framework. Behavioral finance is a more nuanced approach that recognizes the impact of emotional and cognitive biases on decision-making by combining ideas from psychology, sociology, and economics. Even though there are still difficulties in integrating behavioral finance with conventional finance theories, the field is still developing and making important knowledge to both academics and practitioners.

1.2.1.3 Behavioral Finance Theory

Behavioral finance theory is a noteworthy deviation from conventional finance theories, as it integrates knowledge from cognitive science, psychology, and sociology to examine investor behavior and financial markets. It aims to comprehend how emotional factors, cognitive constraints, and psychological biases affect how financial markets make decisions. This multidisciplinary approach offers a more sophisticated understanding of market dynamics, asset pricing, and investor behavior while challenging the rationality assumption at the heart of conventional finance theories. The foundation of behavioral finance was established by Kahneman and Tversky's prospect theory (Kahneman D and Tversky A, 1979), which explains how people make decisions when faced with risk.

This theory emphasizes the significance of psychological factors in influencing people's preferences and decisions. Many people consider Kahneman and Tversky to be the founders of behavioral finance. They introduced prospect theory in their seminal 1979 paper "Prospect Theory: An Analysis of Decision under Risk," which challenged conventional economic theories by showing that people do not always make rational decisions. They demonstrated how psychological elements including risk aversion, framing, and reference points affect people's preferences for gains and losses.

1.2.1.4 Efficient Market Hypothesis:

An important idea within the finance industry, the Efficient Market Hypothesis (EMH) influences how investor's view and interact with financial markets. The theory, which was put forth by economist Eugene F. Fama in the 1960s, holds that financial markets effectively take into account and reflect all available information, meaning that investors cannot regularly generate above-average returns by taking advantage of market inefficiencies. This hypothesis has significant effects on portfolio management, investing strategies, and our general knowledge of how markets function. Forecasting the stock market has proven to be a difficult task. According to FAMA and FRENCH (1995), the efficient-market hypothesis, stock prices in accurate data markets behave like random fluctuations, and estimating the direction and scale of changes is difficult.

The Efficient Market Hypothesis has influenced financial studies and investing practices. It is not without detractors, though. One critique cites examples of market

oddities and bubbles that appear to contradict the concepts of market efficiency, similar to the late 1990s bubble burst.

Furthermore, by highlighting how psychological variables and cognitive biases affect investment decisions, behavioral finance contradicts the EMH. According to behavioral finance, people who participate in the market are not necessarily logical, and their feelings and inclinations might cause inefficiencies in the market.

Essential Elements of the Efficient Market Theory:

Three primary types, each representing a distinct level of market efficiency, constitute the foundation of the EMH:

- Weak Form Efficiency: According to this theory, current stock prices already take into account all past price and volume information. Technical analysis is therefore considered unproductive since it uses historical market data to forecast future price changes. It is not feasible for buyers to consistently outperform the overall market by studying past trading trends or patterns.
- Moderate Form Efficiency: The moderate form of EMH postulates, stock prices effectively incorporate into consideration everything that is publicly accessible, including headlines, accounting records, and indicators of the economy, in along with previous data. As such, it is impossible to consistently get higher returns using either basic analysis or the utilization of publicly available information. New knowledge is immediately and correctly reflected in prices, making any attempt to profit from it pointless.
- Strong Form Efficiency: The EMH's strong form goes one step further and asserts that prices of the shares, accurately show all information, both private and publicly. This suggests that obtaining a long-term competitive advantage in the market is impossible even with insider knowledge. No investor can regularly beat Marketplace in a well-organized, effective market.

1.2.1.5 CAPM:

The CAPM or Capital Asset Pricing Model aims at assessing a connection among expected returns and risk. It suggests that an investment's beta determines its predicted return, or the volatility of the investment relative to the market. However, the simplifying assumptions of CAPM have drawn criticism.

We are overwhelmed with information of all types in today's environment, yet we have a limited amount of time and resources to adequately process it. Investors, in particular, must determine where to focus their limited attention, so not every piece of information gets the same amount of attention (Cohen, 1979). Research findings from the past literature suggest that prolonged periods of attention in a firm increase fluctuations in stock prices and trading volume(Antweiler et al., 2020).

The term "recognition of investor," first used by Merton (1987), suggests that stock markets are important to investors. According to Peng et al. (2006), asset pricing theory states that when valuing a stock, investors should take into account all information that grabs their attention. Thus, comprehending investor attention dynamics is essential to comprehending financial market behavior.

The stock markets are also known the stock exchanges. The idea of stock exchange has been around for many centuries, the first known exchange was founded in Antwerp, Belgium, in the 16th century. As technology and market dynamics changed over time, stock exchanges advanced and became more sophisticated. There are many stock exchanges operating in the world today, each with its own rules and guidelines. Every country has its own one or many stock exchanges.

1.2.1.6 Random Walk Theory:

Maurice Kendall created this concept in 1953. One term in statistics is "random walk." The stock market's mathematical model is based on this notion. According to this hypothesis, the current stock price is independent of historical trends. The price of stocks fluctuates at random. Therefore, using technical or fundamental analysis to anticipate future prices will not yield any results.

1.2.1.7 The Modern portfolio theory:

Harry Markowitz created MPT, which places a strong emphasis on diversification to maximize portfolio returns. It implies that investors should consider an investment's risk in addition to its predicted profit and connection with other investments in the portfolio in order to maximise return for an average level of risk.

Every theory offers a different perspective on how the attention, behavior, and sentiment of investors impact or mold the dynamics of the stock market. The Theory of Choice Asymmetry rely on the asymmetry of choice. Because there is a large pool of possible investments, it suggests that investors only purchase stocks that grab their attention. Furthermore, heightened attention is directly correlated with higher pricing and purchasing, which are subsequently momentarily reversed. According to this theory, stock prices and investor attention have a positive, albeit mostly short-term, relationship. The traditional concept of finance is based on rational principles of human behaviour and the efficiency of markets, is diverged by the Alternative Theory of Behavioral Finance. Rather, it recognizes the existence of emotional influences, cognitive constraints, and psychological biases that affect financial market decision-making. And the goal of behavioral finance theory is to understand how psychological biases, cognitive limitations, and emotional aspects influence the way financial markets make decisions. Additionally, the efficient-market hypothesis states that it is challenging to predict the direction and magnitude of changes in stock prices in reliable data markets, which behave like random fluctuations. And the CAPM theory contends that extended attention spans within a company lead to higher swings in trading volume and stock prices. We identified from earlier research based on these theories that there is a connection between the stock market and investors' attention or sentiment. Our study empirically examines the relationship between investor attention and the stock market, which is supported by a wide range of theories.

1.2.2 Types of stock exchanges: Stock exchanges are categorised according to their level of development and maturity using the terms developed, emerging, and underdeveloped stock exchanges. These divisions are made in accordance with a number of criteria, including market size, access to liquidity, rules and regulations, investor protection, technological framework, and overall economic development.

1.2.2.1 Developed Stock market or Exchange:

The term "developed stock exchanges" refers to financial markets that are extremely developed, mature, and firmly established. These exchanges are typically found in nations with robust economies, steady political structures, and strictly controlled

financial sectors, such as the USA, Japan, Canada, Australia, etc, briefly mention in Table 2.1. There are 23 developed markets in 2022 list, this list is updated every year according to the performance of the market. And the country allocation is also briefly explained in Figure 2.2, in which major countries weightage is mentioned with the percentage, according to the MSCI list 2020. USA has the maximum weightage of 65.53% among other developed markets.

The New York Stock Exchange or NYSE in the United States of America, the LSE in United Kingdom, and the Deutsche Börse in Germany are a few examples of developed stock exchanges.

Table 1.1: MSCI List of Developed Markets 2022

Developed Markets		
America	**EMEA**	**APAC**
USA	Finland	Australia
Canada	Belgium	Singapore
	Denmark	Japan
	Austria	New Zealand
	France	Hong Kong
	Germany	
	Portugal	
	Israel	
	Italy	
	Norway	
	Ireland	
	UK	
	Sweden	
	Spain	
	Netherlands	
	Switzerland	

Source: https://www.msci.com

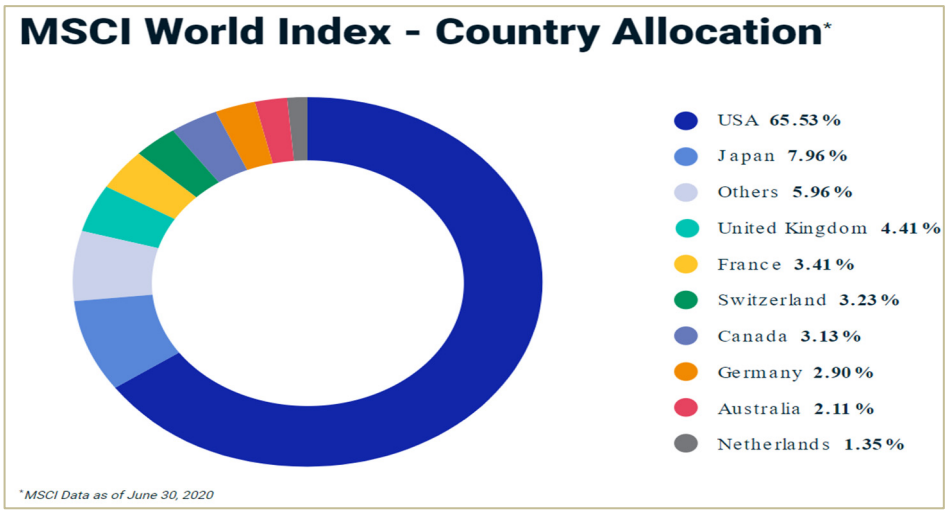


Figure 1.2: MSCI World Index- Country Allocation

(Source- https://www.msci.com/our-solutions/indexes/developed-markets)

1.2.2.2 Emerging Stock market or Exchange:

Financial markets that are still in the development and expansion stages are known as emerging stock exchanges. These exchanges usually exist in nations like India, China, Brazil, Russia etc, that have developing economies and laws and regulations, briefly mention in Table 2.2. There are 26 emerging markets in 2022 list, this list is updated every year according to the performance of the market. And country weights are also mentioned in Figure 2.3. China has the maximum weightage of 29.55% among all emerging markets.

Table 1.2: MSCI List of Emerging Markets 2022

Emerging Markets		
Americas	**EMEA**	**APAC**
Brazil	Czech Republic	China
Peru	Poland	India
Colombia	Greece	Taiwan
Mexico	Hungary	Korea
Chile	Kuwait	Malaysia
Argentina	Egypt	Philippines
	Qatar	Indonesia
	Saudi Arabia	Thailand
	South Africa	Pakistan
	UAE	
	Turkey	

Source: https://www.msci.com

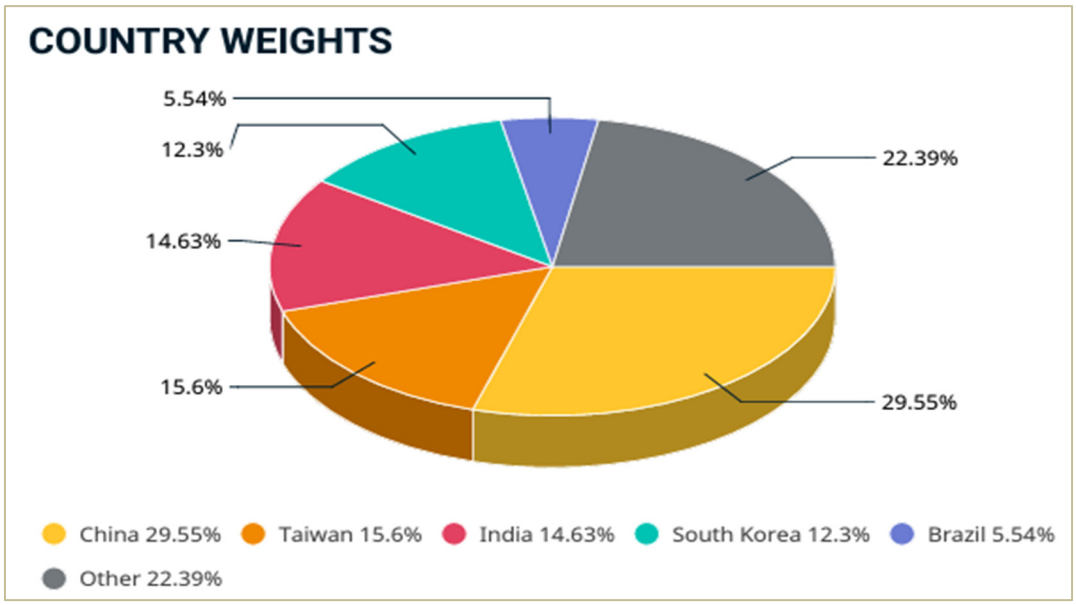


Figure 1.3: MSCI Emerging Markets Country Weights 2022

Source- https://www.msci.com/documents/10199/c0db0a48-01f2-4ba9-ad01-226fd5678111

1.2.2.2.1 Benchmark index of Emerging countries:

- **Argentina: S&pmerval Index**

  The Merval Index, also known by the S&P Merval Index, is Argentina's main stock exchange index. It represents the efficiency of the Buenos Aires Stock Exchange's (BCBA) strongest and most traded stocks. The index is named after the MerVal (MERcado de VALores), which translates to "market of values" in Spanish. The S&P Merval Index play as a key benchmark for Argentine stock market, reflecting the overall trends and movements in the country's equities market.

  It covers a wide variety of industries, including energy, banking, and manufacturing, and telecommunications, providing investors with a broad overview of the Argentine economy. The index is constructed employing a stock market capitalization-weighted technique, with bigger businesses having a bigger effect on the index's values. Changes in the Merval Index are mainly watched by buyers, analysts, and policymakers as an measure of the overall health and performance of Argentina's stock market.

  The S&P Merval Index had a slight rising trend prior to a discernible decline during the GFC crisis. The index recovers from the crisis and subsequently experiences volatility during the European Debt Crisis. The Brexit crisis in 2016–

2017 and the Chinese market downturn in 2015 did not appear to have any impact on the index; however, the index's upward trend following 2016 suggests that investor sentiment was positive. The index spikes the highest during the COVID-19 pandemic, most likely as a result of inflationary pressures as opposed to real growth. The index has been rising since COVID-19, and the graph indicates that there have been no appreciable consequences from the conflict between Russia and Ukraine. The sudden spike near the end most likely denotes inflation rather than economic expansion.

Figure 1.4: Trends in S&P Merval Index

- **Brazil: Ibov Index**

The Ibovespa, often referred to as the Ibov Index, is the primary stock market index of Brazil. Managed by Sao Paulo Stock Exchange (B3), the Ibovespa represents the achievement of the majority of proactively traded stocks on the Brazilian exchange. The name "Ibovespa" is derived from the combination of the words "Ibovespa" and "Espresso," symbolizing the efficiency and speed of the Brazilian financial market.

The companies in the Ibov Index are from a wide range of industries, including finance, energy, commodities, and telecommunications. It serves as a key benchmark for both domestic and international investors, giving information about the general state and developments of the Brazilian equities market.

Calculations for the Ibovespa are based on a market capitalization-weighted methodology, giving more weight to larger companies. This ensures that the index reflects the respective prominence in the Brazilian market. The components of the Ibovespa are periodically reviewed to maintain its relevance and accuracy.

Throughout the Global Financial Crisis, Ibovespa Index chart had a noticeable drop, but there was also a swift recovery. Up until the European Debt Crisis, there is stability. After a brief fall, the index rises once more. Retractions of small magnitude seem to be linked to both Brexit and the 2015 Chinese crash. When the COVID-19 pandemic first breaks, the index noticeably declines; however, it then rises significantly. There doesn't seem to be any immediate impact from the conflict between Russia and Ukraine; instead, the index seems to be continuing its upward trajectory.

Figure 1.5: Trends in Ibov Index

- **Chile: Igpa Index**

The IGPA (Índice General de Precios de Acciones) in Spanish, is primary stock market index of Chile. It is managed by the Santiago Stock Exchange and represents the performance of a broad selection of stocks listed on the exchange. The IGPA is created to provide a comprehensive overview of the Chilean equity market. Comprising a diverse range of sectors, including finance, mining, utilities, and retail, some of the most highly valued shares that are regularly traded on the

Santiago Exchange are reflected in the IGPA Index. It is weighted based on market capitalization, giving greater influence to larger companies and reflecting their impact on the overall market performance.

The IGPA Index is a crucial benchmark for investors and analysts, offering insights into the trends and dynamics of the Chilean stock exchange. It is an extremely useful instrument for assessing market sentiment, making investment decisions, and gauging the broader economic conditions in Chile.

Since its inception in 2000, the Santiago Stock Exchange IGPA Index has generally shown an upward trend; however, there was a significant increase prior to the 2008 GFC crisis and decline during the crisis. Following 2008, the index exhibits a slow but erratic recovery, most likely as a result of the confluence of the EDC crisis and the ensuing unpredictability in the world economy. A significant fall is consistent with the 2015 Chinese market crisis was succeeded by a period of expansion and recovery, possibly indicating the resilience of the Chilean market. The index did not move much during the Brexit era, but it did noticeably increase around in COVID-19, indicating that share marketplace responded swiftly to the crisis. Nonetheless, the upward trend that has been observed since 2020 appears to be unaffected by the conflict between Russia and Ukraine, suggesting that other local or global factors could be impacting investor sentiment in Chile.

Figure 1.6: Trends in IGPA Index

- **China: Shcomp Index**

The Shcomp index (Shanghai Composite Index) is the principal stock index tracking the activity of the Shanghai Stock Exchange (SSE) in China. Introduced in 1991, the Shcomp is a comprehensive indicator that reflects the combined performance of a diverse array of stocks listed on the SSE. This comprises businesses from a range of industries, including consumer products, technology, industrial, and finance. As a vital barometer of the Chinese equity market, the Shcomp is essential to evaluating and comprehending the general patterns and state of China's stock exchanges. The index includes both A-shares, denominated in Chinese yuan and mainly traded by mainland Chinese investors, and B-shares, traded in foreign currencies and open to international investors.

The Shcomp index is determined by capitalization per share, indicating the index's movements are more influenced by bigger business's stocks. Investors, both within China and globally, closely monitor the Shcomp for insights into market sentiment and economic conditions in China. Changes in the Shcomp are scrutinized by analysts, investors, and policymakers, making it a crucial tool for gauging the performance of Chinese stocks and the broader financial landscape in the country.

The graph of the Shanghai Stock Exchange Composite Index shows notable spikes and drops along with high volatility. From 2000 onwards, there is a gradual increase that culminates in a sharp peak and subsequent collapse during the 2008 Global Financial Crisis. After that, there is a period of upswing and downswing, with some significant declines that might be related to the EDC and the 2015 share market turmoil in China. The index fails to react dramatically to Brexit; instead, it declines in the beginning of 2020 throughout the first COVID-19 period. After that, the graph shows an improvement, but the index shows no discernible effect from the conflict between Russia and Ukraine. This suggests that domestic occurrences and domestic economic policies have more impact on the Shanghai market's responses than does this specific geopolitical dispute.

Figure 1.7: Trends in Shcomp Index

- **Colombia: Colcap Index**

The COLCAP Index is principal stock market index of Colombia, representing the activity of the majority of frequently transacted and volatile shares on Colombia's main market, the Bolsa de Valores de Colombia (BVC). Introduced in 2001, the COLCAP Index serves as a key indicator for investors, providing information about the general patterns and state of the Colombian stock market.

Comprising a diverse range of sectors, including finance, energy, utilities, and manufacturing, the COLCAP Index provides a broad representation of the Colombian exchange.

The Colombia Index showed an initial upward trend until 2014. After this peak, there is a discernible downtrend with discernible peaks and troughs as well as considerable volatility. The index doesn't exhibit a discernible decline during the Great Financial Crisis because the timeframe isn't displayed in the given segment. Still, there are noticeable differences in the years that line up with the European Debt Crisis and the collapse of the Chinese stock market, suggesting a response to these global economic occurrences. The index shows a downward trend during the COVID-19 pandemic and then seems to be stabilizing around Brexit. There may be more challenges ahead because the index has not yet reached its peak after 2020 and has not immediately responded to the crisis between Russia and Ukraine.

Figure 1.8: Trends in Colcap Index

- **Czech Republic: Px Index**

The PX Index is primary stock market index of the Czech Republic, reflecting the performance of shares traded on the Prague Stock Exchange (Burza cenných papírů Praha). Established in 1994, the PX Indices is an essential benchmark for assessing the general patterns and condition of the Czech equity market. Comprising a diverse set of sectors, including finance, energy, industry, and technology, the PX Index provides a comprehensive snapshot of the Czech stock market. The index is constructed employing a free-float market capitalization weighted technique, with every business's impact proportional to their freely tradable market shares.

The Prague index has an interesting past, with a notable peak before the 2008 GFC and a sharp decline reflecting the crisis' aftermath. The following years show a bottoming out and a slow, if irregular, recovery path that may have been influenced by the larger EDC. There seems to have been little direct impact from these events as stability started to emerge around the time of the 2015 Chinese crash, and there was no discernible decline during the Brexit period. The index falls during the COVID-19 in tandem with the global market's contractions. Following that, there is a slow increase that shows no discernible response to the conflict between Russia and Ukraine, indicating that other factors may have a greater impact on the Czech market.

Figure 1.9: Trends in Px Index

- **Egypt: Egx30 Index**

The EGX30 Index is main index of Egypt, representing the performance among the 30 frequently exchanged stocks upon the market EGX (Egyptian Exchange). Established in 1998, the EGX30 serves as a key benchmark for investors, providing insights into the overall trends and health of the Egyptian equity market. Comprising a diversified range of sectors, including finance, telecommunications, construction, and energy, the EGX30 Index reflects a cross-section of Egypt's stock market. The index is constructed employing a market capitalization-weighted technique, with bigger businesses having a greater impact on the index's value.

The Egyptian Exchange Index has a slow growth pattern, with a notable peak seen prior to 2008 and a subsequent steep decline that is most likely related to the GFC. There seems to be a period of volatility and recovery, possibly more due to factors related to the local economy and the Arab Spring than the European Debt Crisis. The graph shows a period of growth despite the Brexit vote, followed by a downturn around the 2015 Chinese market crash, suggesting some protection from these specific global events. The index then collapses around the onset of the COVID-19 pandemic, reflecting the downturns in the world markets. With no discernible immediate consequences from the Russia-Ukraine conflict, there is a notable vertical surge after 2020 that may be the result of an enormous depreciation of the currency or another local economic variables rather than an actual indication of market growth.

Figure 1.10: Trends in Egx30 Index

- **Greece: Ase Index**

The Athens Stock Exchange (ASE) Index, commonly known as the ASE Index, is the principal stock market index of Greece. Established to reflect the performance of the Greek equity market, the ASE Index includes a diverse range of stocks given on the Athens Stock Exchange.

Addressing multiple sectors such as finance, energy, telecommunications, and consumer goods, the ASE Index provides a comprehensive overview of the Greek stock market. The index measure, using a market capitalization-weighted methodology, where the larger companies play a more significant role in determining its value.

The Athens Stock Exchange General Index makes a dramatic impression; it peaked around 2007 before taking a severe tumble due to the world financial crisis. The EDC had a severe impact on Greece, as shown by the index's persistent downward trend and low troughs up until roughly 2012. There is still more decline before a deep trough. Following that, the index rises somewhat but then essentially stays the same, indicating a long-term crisis impact but no discernible growth. The Brexit referendum in 2016 didn't cause much of a dip, suggesting that the Greek market was already factoring in these uncertainties. The COVID-19 pandemic appears to have had a slight decline in effects before a gradual recovery. According to the most recent data available, there hasn't been much of a response to the conflict

between Russia and Ukraine; instead, the index has been gradually rising, which could indicate that Greece's economy is gradually stabilizing or recovering.

Figure 1.11: Trends in Ase Index

- **Hungary: Bux Index**

The BUX Index is the primary stock market index of Hungary, representing the performance of shares traded on the Budapest Stock Exchange (BSE). Established to gauge the overall trends and health of the Hungarian equity market, the BUX Index includes a diverse array of stocks from various sectors such as finance, energy, telecommunications, and manufacturing.

The Budapest Stock Exchange Index shows a pattern of gradual ascent that peaks before a notable decline caused by the GFC, starting in 2000 and displaying some volatility. The zigzag recovery of the European Debt Crisis period is characterized by notable volatility and reflects the economic uncertainty of the region. Despite the Brexit vote in 2016, there is a noticeable downturn in 2015 that may have been related to the slump in the Chinese market. Following that, the index shows resilience with an upward trajectory; however, consistent with overall market trends, there is a notable decline at the onset of the COVID-19 pandemic. The index rises after the pandemic, suggesting a robust recovery without any obvious immediate effects from the conflict between Russia and Ukraine. This could be because of Hungary's distinctive economic policies or other contributing factors.

Figure 1.12: Trends in Bux Index

- **India: Nifty Index**

The Nifty Index, officially known as Nifty 50 or the National Stock Exchange 50, is the key stock market index of India. Managed by the NSE (National Stock Exchange), the Nifty 50 represents the performance of the 50 largest and frequently used stocks across various sectors given on the NSE.

The Nifty Index, which debuted in 1996, is widely regarded to be a benchmark to the Indian equity market. Finance, technological innovation, power, and everyday items are among the industries represented. The value of the index is calculated using a free-float market capitalization-weighted technique, with each company's impact proportional to its freely tradable market shares.

The Indian NSE Nifty 50 Index has a notable long-term upward trend that points to the expansion of the national economy. The index declines during the GFC of 2008, but it then rises sharply, demonstrating resilience in the face of adversity. The 2015 Chinese market crash did not seem to have any effect on the index, and neither did the EDC cause any significant declines in the index in the years that followed. In 2016, Brexit did not seem to have much of an effect. When the COVID-19 pandemic strikes in 2020, the index suffers a major setback, but it then bounces back swiftly and consistently. Strong economic fundamentals and investor faith in India's market may be to blame for this. The index is still growing and does not appear to be significantly impacted by the conflict between Russia and Ukraine,

which may be a sign of investor optimism and continued expansion in the Indian economy.

Figure 1.13: Trends in Nifty Index

- **Indonesia: Jci Index**

The Jakarta Composite Index (JCI), or JCI Index, is Indonesia's primary trading index. The IDX (Indonesia Stock Exchange) is in charge of it, the JCI represents the performance of stocks listed on the IDX. Introduced in 1982, the index has become a crucial benchmark for evaluating the overall trends and health of the Indonesian equity market.

It appears that Indonesia is a long-term stock index based on its steady growth trend from the early 2000s to 2008, which was a severe decline reflecting the effects of the GFC. The index experienced record highs in the subsequent years, indicating a robust response to the crisis. The absence of any significant dips in the graph that could be associated with the EDC or the 2015 Chinese Market Crash suggests that either strong domestic growth outweighed foreign influences or that the market was largely immune to these events. Despite what seems to have been a brief plateau or dip around the time of the Brexit vote in 2016, the overall trend is still rising. The COVID-19 pandemic of 2020 began with a notable decline, consistent with reactions in the world market, and a swift rebound, indicating sustained investor confidence. The index's post-2020 path points to further growth

in the market, possibly independent of the dispute between Ukraine and Russia. This indicates that other factors are propelling the market's growth.

Figure 1.14: Trends in Jci Index

- **Kuwait: Kwseidx Index**

The Kuwait Stock Exchange Index (KWSEIDX), Kuwait's main trading index belongs to the KWSEIDX Index. The KSE (Kuwait Stock Exchange) manages the index, which reflects the outcome of shares specified in the KSE. Founded to act as a standard for the Kuwaiti equity market, the KWSEIDX Index includes a diverse range of stocks from various sectors, such as finance, telecommunications, energy, and real estate.

The Kuwait All-Share Index shows that beginning in 2020, the journey will be turbulent. The index first declines, which may be related to the chaos in the world economy brought on by the COVID-19 pandemic. After that, it swiftly recovers and rises sharply, maybe as a result of rising oil prices or other economic stimuli. The index reaches its peaks in 2021 and then experiences a period of correction followed by swings, which is a typical pattern that happens after intervals of explosive growth. The chart doesn't immediately show an abrupt drop that might be immediately caused by continuing worries about the global economy, the volatility of oil prices, or the monetary effects of the war between Russia and Ukraine, but these factors may have contributed to the recent downturn. Following that, the index

appears to stabilize to some extent, indicating an effort to reach balance in potentially economic.

Figure 1.15: Trends in Kwseidx Index

- **Malaysia: Fbmklci Index**

The FTSE Bursa Malaysia KLCI (FBM KLCI) Index is Malaysia's fundamental market benchmark, representing the outcomes of the 30 biggest and liquidated companies provided on the country's stock trading, Bursa Malaysia. Managed jointly by FTSE Russell and Bursa Malaysia, the FBM KLCI is widely regarded as the benchmark index for the Malaysian equity market.

The FTSE Bursa Malaysia KLCI Index, which has been rising since the early 2000s and dipping around the 2008 GFC, illustrates the impact on the global economy. After that, it gradually rises, which most likely signifies the expansion and recovery of Malaysia's economy. A degree of resilience or a decoupling from the impacts of the European market is suggested by the graph's lack of noticeable volatility during the European Debt Crisis. The index has risen in spite of the Brexit referendum in 2016 and the fall in the Chinese market in 2015. It does, however, demonstrate a decline in the early COVID-19 pandemic phases, consistent with global market sentiment, prior to entering a volatile pattern. The absence of a significant shift in the trendline during the Russia-Ukraine conflict may indicate that additional local variables are at work or that the Malaysian market is not as

exposed to this event as it could be. In the latest time frame displayed, the index appears to have been modestly declining overall, which could be a sign of cautious sentiment from investors or adverse economic conditions.

Figure 1.16: Trends in Fbmklci Index

- **Mexico: S&P/BMV IPC Index**

The S&P/BMV IPC, commonly known as the IPC, is the fundamental market benchmark of Mexico. It is a collaboration between S&P Dow Jones Indices and the BMV (Bolsa Mexicana de Valores), Mexican exchange. The IPC stands for "Índice de Precios y Cotizaciones" in Spanish, translating to the Price and Quotes Index. Mexbol is its ticker used in Bloomberg.

The graph of the Mexican Stock Exchange indicates a period of expansion from 2010 until roughly 2014. The index rises generally during this time. This is the time of a discernible fall, which may be brought on by market volatility or other Mexico-related economic occurrences. Although there have been some variations since 2014, such as peaks that may be connected to periods of economic optimism or bullish market circumstances, overall the index has increased. The index experiences another decline around 2020, coinciding with the global economic impact of the COVID-19 pandemic. After this downturn, the index appears to have difficulty returning to its previous highs. This is followed by a period of decline that concludes with the most recent data point. The ups and downs could be attributed

to a mix of internal issues and the wider unpredictabilities of the world economy, which might include the aftermath of the conflict between Russia and Ukraine.

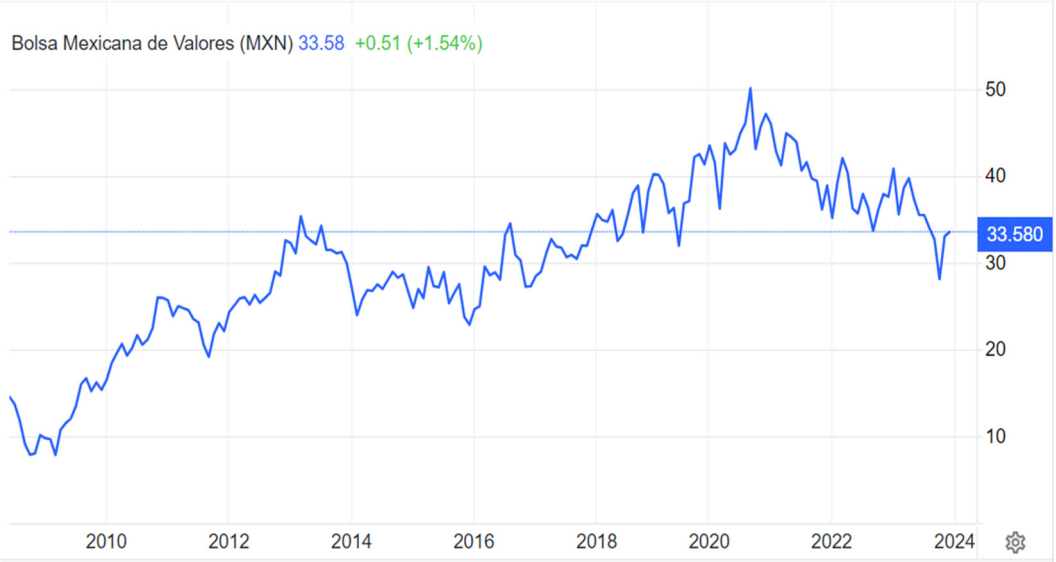


Figure 1.17: Trends in BMV Index

- **Pakistan: Kse100 Index**

The KSE100 Index is the fundamental market benchmark of Pakistan, representing the outcome of top 100 liquidated companies provided on the PSX (Pakistan Stock Exchange). Managed by the PSX, the KSE100 Index is a key benchmark for evaluating the overall trends and health of the Pakistani equity market.

The Karachi Stock Exchange KSE100 Index has been rising since the early 2000s; it has fluctuated somewhat but has grown steadily, suggesting that the economy is growing. Following the 2008 GFC, the index shows a discernible decline, but it then recovers and continues to rise. This growth continues despite global events such as the EDC and the 2015 Chinese market slump. The Brexit referendum happened in or around 2016. Despite some index volatility, the overall upward momentum is sustained. The global economy is abruptly shocked in 2020 by the COVID-19 pandemic, which results in a notable decline in the index. Nevertheless, the index makes an incredible comeback shortly after. The index has recently increased to new heights, which may indicate investor optimism or inflationary pressures. The most recent trend does not make the consequences of

the conflict between Ukraine and Russia very evident, suggesting that local variables may currently have a greater influence on the KSE100 Index.

Figure 1.18: Trends in Kse100 Index

- **Peru: Igbvl Index**

The IGBVL Index (Índice General de la Bolsa de Valores de Lima), is the fundamental market benchmark of Peru. Managed by the BVL (Bolsa de Valores de Lima), the IGBVL Index serves as a key benchmark for assessing the overall performance of the Peruvian equity market.

Beginning in 2016, there has been a pattern of fluctuations in the S&P/BVL Peru General Index. Following a brief period of decline, there is a notable uptick that ends in 2017. The index seems to be relatively stable, with sporadic declines and rises, suggesting that the economy is impacted by both internal and external factors. The most noticeable decline happens in 2020, which is related to the COVID-19 pandemic's disruption of the world economy. Nonetheless, the index demonstrates tenacity with a robust recovery, indicating a prompt restoration of confidence among investors or successful fiscal policies. Even though there hasn't been a significant shift in line with the Russia-Ukraine conflict since 2020, the index still exhibits some volatility, which may be related to the continuous unpredictability of the world economy or peculiar local market dynamics in Peru.

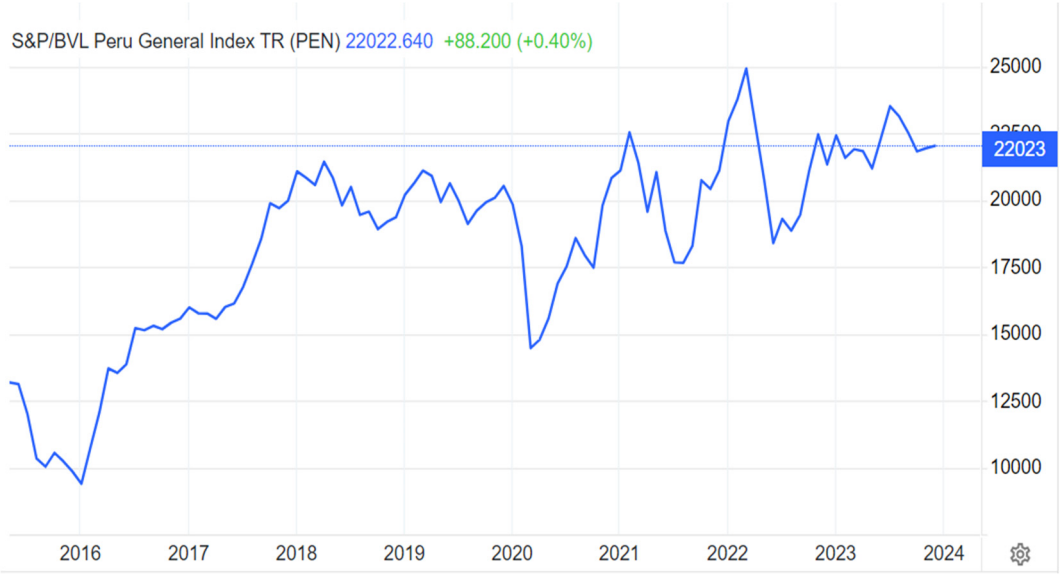


Figure 1.19: Trends in Igbvl Index

- **Philippines: Pcomp Index**

"Pcomp Index," is the primary stock market index in the Philippines. Managed by the Philippine Stock Exchange (PSE), the Pcomp represents the performance of a basket of 30 shares that are frequently exchanged on the exchange.

The index experiences significant declines during the 2008 Global Financial Crisis, but it then resumes a robust upward trend, demonstrating investor confidence and economic resiliency in the years that follow. Although there has been some noticeable volatility in 2015, which may be related to international market events like the turmoil in the Chinese stock market, the general trend is still upward. Around the time of the vote for Brexit in 2016, there was a plateau and a slight downturn; the global economic shock is reflected in the sharp decline that occurred throughout the COVID-19 pandemic in 2020. The index shows a recovery after the pandemic, but this recovery appears to plateau and fluctuate. The most recent trend indicates a moderate downward trajectory, which may indicate investor caution amid uncertainties about the global economy, involving potential effects from the conflict between Russia and Ukraine.

Figure 1.20: Trends in Pcomp Index

- **Poland: Wig20 Index**

The WIG20 Index is Poland's main trading benchmark, representing the performance of the top 20 publicly traded businesses provided on the Warsaw Exchange. Managed by the GPW, the WIG20 serves as a key benchmark for assessing the overall trends and health of the Polish equity market.

The Warsaw Stock Exchange WIG Total Return Index exhibits a clear upward trend from 2000 until the GFC in 2008, at which point the index sharply declined. Although the index varies in the years that follow, up until 2012, there is evidence of a recovery; this could be due to the fallout from the economic downturn and the EDC crisis. After 2012, the index has been rising, but it has been notably volatile, perhaps as a result of a combination of national and international economic policies and events, such as the decline in the Chinese stock market in 2015. There appears to have been little impact following the Brexit referendum in 2016, as there is no discernible significant decline. A notable decline coincides with the COVID-19 pandemic in 2020 and is consistent with effects on the world economy; however, a robust recovery points to a speedy return of investor confidence.

Figure 1.21: Trends in Wig20 Index

- **Qatar: Dsm Index**

It referred the Qatar exchange index. Which is the benchmark index of Qatar. The main stock market index in Qatar is the "Qatar Exchange Index" or "QE Index." The Qatar Stock Exchange (QSE) manages this index. It represents the activity of the listed companies on the Qatar Stock Exchange.

After 2012, the index shows an upward trend with some fluctuations, but it does not show significant changes during the Brexit in 2016 or the Chinese stock market crash in 2015, indicating that these events had little effect in the Qatari market. The index will experience another dip in 2020, coinciding with the start of the COVID-19 pandemic, which will reflect the slowdown in the world economy. After that, the index rises once more before, according to the latest statistics, entering a phase of decline that could be caused by a number of things, including the possible economic effects of the conflict between Russia and Ukraine. The drop, which is noteworthy for the Qatari economy, may also be related to regional economic issues or the erratic pricing of essential goods like oil.

Figure 1.22: Trends in Dsm Index

- **Russia: Imoex Index**

The main stock market index in Russia is the MOEX Russia Index, commonly known as the MOEX Index or IMOEX Index. Managed by Moscow Exchange (MOEX).

The MOEX Index has been rising, albeit slowly, despite global economic challenges such as the EDC and the 2015 Chinese market collapse. The 2016 Brexit vote appears to have had no discernible impact. The beginning of the COVID-19 pandemic is correlated with a significant decline, which is followed by a sharp increase, demonstrating the volatility of the global financial market at this time. The market's reactions to the conflict between Russia and Ukraine and the subsequent economic sanctions, which have had a substantial impact on investor sentiment and the Russian economy, may be reflected in the most recent data, which shows a sharp increase followed by a decline.

Figure 1.23: Trends in Imoex Index

- **Saudi Arabia: Saseidx Index**

The primary stock market index in Saudi Arabia is TASI (Tadawul All Share Index), often referred to as the Tadawul Index. The Saudi Stock Exchange (Tadawul) manages it.

The development of Saudi Arabia's primary stock market index is shown on the Tadawul All Share (TASI) Index chart. The extraordinary spike that peaked around 2006 is followed by a precipitous decline that could be attributed to the effects of the GFC as well as the local market bubble. After this turbulent phase, the index steadily bounces back, though not without considerable volatility. The lack of significant declines during the EDC or the 2015 Chinese market downturn suggests that Saudi Arabia's economy may have been somewhat shielded from these occurrences or from the prevailing impact of oil prices. The index shows no discernible reaction to Brexit around 2016. A decline in 2020 corresponds with the world economy's downturn brought on by the COVID-19 pandemic, but a rebound that follows indicates resiliency. The index then fluctuates, but there isn't a significant decline that can be directly linked to the start of the conflict between Russia and Ukraine. This suggests that a mix of domestic and international oil market trends are probably responsible for the index's performance.

Figure 1.24: Trends in saseidx Index

- **South Korea: Kospi Index**

  The KOSPI Index (Korea Composite Stock Price Index), is the primary stock market index of South Korea. Managed by the Korea Exchange (KRX), the KOSPI Index represents the performance of companies listed on the KRX, including both large and liquid stocks.

- **Taiwan: Twse Index**

  The TWSE Index, officially known as TAIEX (Taiwan Capitalization Weighted Stock Index), is fundamental trading benchmark of Taiwan. Managed by the Taiwan Stock Exchange (TWSE).

  The Taiwan Stock Exchange Corporation (TSEC) weighted index exhibits an overall upward trend from the early 2000s, despite occasional periods of volatility. The decline that occurred around 2008 is a good indicator of how the global financial crisis affected all markets, including Taiwan's. The index then recovers, showing persistence and growth in the following years. The fact that the index did not significantly decline during the European Debt Crisis or the Chinese market downturn in 2015 indicates that Taiwan's market was not significantly impacted by these events. The graph shows growth even in the midst of the Brexit referendum, and after 2016, there is a steady upward trend. The COVID-19

pandemic's effects on the global economy are reflected in 2020's sharp decline and quick recovery, which also showed a robust rebound in Taiwan's market. The most recent trend indicates that the index is rising to new heights, despite some recent fluctuations that don't seem to be related to the conflict between Russia and Ukraine. Instead, they point to strong market dynamics or Taiwan's technology sector.

Figure 1.25: Trends in Twse Index

- **Thailand: Set Index**

The SET Index (Stock Exchange of Thailand), is principal index of Thailand. Managed by the Stock Exchange of Thailand (SET), the SET Index represents the performance of companies listed on the SET.

The Thailand SET 50 Index chart, which reflects the effects on the world economy, shows a consistent increase since the early 2000s, with a notable decline during the 2008 Global Financial Crisis. Even though there were some noticeable oscillations that could be attributed to reactions to various economic pressures, such as the European Debt Crisis, the recovery that followed shows that the Thai economy is robust. The chart does not show a significant impact from the Brexit referendum in 2016 or the downturn in the Chinese market in 2015, suggesting either limited exposure or strong domestic economic conditions during those times. According to global market trends, there is a noticeable decline at the start of the

COVID-19 pandemic in 2020, but there is a partial recovery in the period that follows. According to the latest data, there appears to be a downward trend. This could be due to various factors, such as the economic consequences of the conflict between Russia and Ukraine or additional local economic challenges that Thailand is facing.

Figure 1.26: Trends in Set Index

- **Turkey: Xu100 Index**

the main stock market index in Turkey is the borsa istanbul 100 index 'BIST 100 Index', officially known as the xu100 (Borsa İstanbul 100 Index). The BIST 100 Index is managed by Borsa İstanbul, the main stock exchange in Turkey, and it represents the performance of the top 100 companies listed on the exchange.

The BIST National 100 index exhibits no discernible volatility during the 2008 GFC, following a protracted stretch of steady growth that began in the early 2000s. This could indicate that other factors were driving the market's growth during that period or that the Turkish market was less affected by the crisis. The index has been rising steadily since 2008, with no significant dips during the European Debt Crisis or the 2015 Chinese market downturn, suggesting that the Turkish economy has been relatively stable or immune to these events. It seems that the index has been rising ever since the Brexit vote in 2016. There is a notable sharp

rise around 2020, which could be the consequence of strong inflationary pressures or economic stimulus, and volatility ensues.

Figure 1.27: Trends in Xu100 Index

- **UAE: Dfmgi Index**

The DFMGI Index, officially known as the Dubai Financial Market General Index, is the fundamental trading benchmark of the Dubai Financial Market (DFM) in the United Arab Emirates (UAE).

The Dubai Financial Market General Index shows erratic behavior, peaking approximately in 2006 and then plunging precipitously in 2008 in lockstep with the world financial crisis. Due to the effects of the crisis and the severe market corrections that primarily harmed Dubai's financial and real estate sectors, the decline continued into 2009. Following that, the index gradually recovers but enters a stabilization phase marked by a slower rate of volatility and gradual growth. The Dubai market may not have been as severely affected by this specific incident given that there was no discernible decline during the EDC. The index did not move significantly during the Brexit referendum in 2016 or the Chinese market downturn in 2015; this could suggest that the index is focused on regional economic drivers or that it is relatively isolated from these events. The COVID-19 pandemic in 2020 had an impact on the world markets, which is what precipitated the decline. The rebound that ensued, however, suggests that either investor confidence has

recovered or that fiscal measures were effective. Since the pandemic, the index has been rising; however, recent slight declines may be due to uncertainty about the nature of the global economic recovery, including potential repercussions from the conflict between Russia and Ukraine.

Figure 1.28: Trends in Dfmgi Index

1.2.2.3 Under-developed or Frontier Stock market or Exchange:

Stock exchanges that are in the initial phases of development or confront major challenges in terms of facilities, regulation, or economic stability are referred to as underdeveloped stock exchanges. These exchanges are typically found in nations with fragile economies, unstable governments, or weak regulatory systems like; Bangladesh, Jorden, Oman etc, briefly mention in Table 2.3. There are 23 frontier markets in 2022 list, this list is updated every year according to the performance of the market. The DSE (Dhaka Stock Exchange) in Bangladesh, the ASE (Amman Stock Exchange) in Jordan, are a few examples of underdeveloped stock exchanges.

There were many studies done on developed markets, so present study is done on all emerging markets according to the MSCI list 2022. Because emerging markets also play a crucial role on world's economy.

Table 1.3: MSCI List of Frontier Markets 2022

Frontier Markets		
Americas	**EMEA**	**APAC**
	Bahrain	Bangladesh
	Benin	Sri Lanka
	Jordan	Vietnam
	Croatia	
	Kenya	
	Iceland	
	Ivory Coast	
	Burkina Faso	
	Kazakhstan	
	Estonia	
	Lithuania	
	Senegal	
	Morocco	
	Slovenia	
	Oman	
	Romania	
	Mauritius	
	Serbia	
	Nigeria	
	Tunisia	

Source: https://www.msci.com

1.3 Investor Attention

Investor interest in a specific stock or market is referred to as investor attention. Investor's capability to know is limited. When confronted with vast volumes of information, their processing capacity is restricted. As a result, individuals must be careful about the material to which they devote their attention. Investors are net purchasers of attention-grabbing equities (Barber and Odean, 2008). The topic of investor attention is precisely related to theories about behavioural finance that contend that investors are not always rational in their choices. Instead, they may be shifted by psychological and mental biases that affect the investments they make. The focus of investors can be affected by a variety of things, including current events in the news, market trends, social media, etc (Da et al., 2011). Market prices may suffer as a result

of investor attention. Investors may panic sell and prices may drop quickly if a bad event or news story catches their attention. This frequently occurs when fear and uncertainty rule investor sentiment during market crashes or financial crises. For academics and professionals alike, it is crucial to comprehend how investor attention affects the stock market.

According to Peng and Xiong (2006), attention might explain price swings away from basic values caused by under- and over-reaction to the news. Furthermore, Andrei and Hasler (2015) contend that heightened attention increases the transfer of news into market prices, resulting in increased volatility. The increased focus of retail investors on disclosures amplifies the unpredictable nature of stock returns following announcements. In contrast, organizational attention from investors has a minor but adverse effect on fluctuation in the days following news releases. Earlier research (Aouadi et al., 2013) has found that it is a substantial driver of stock activity. More precisely, Kollmann and Malherbe, (2013) recognized investor attention as a novel transmission mechanism of financial crises across markets. Here is the basic flowchart of attention creation in Figure 2.1.

According to a significant strand of literature derived from the "price pressure theory" (Barber and Odean, 2008), when determining whether to purchase or sell stocks, investors do not confront the same search difficulty. A previous study indicates that knowing investor behavior is critical in financial analysis. Single buyer is net purchasers of eye-catching equities (Grullon et al., 2004). Researchers have investigated many psychological elements and evaluated their effects on investor behavior. Limited attention is a prominent psychological bias. The term investor attention is very closely related to theories of behavioural finance that contend that investors are not always rational in their choices, but they may also be shifted by psychological and mental biases that affect the investments they make. Attention's psychology is an ongoing subject of study in cognitive psychology (Ben and Slim, 2022). According to Li and Yu (2012), behavioral biases can impact not just individual stock values, but also the overall market.

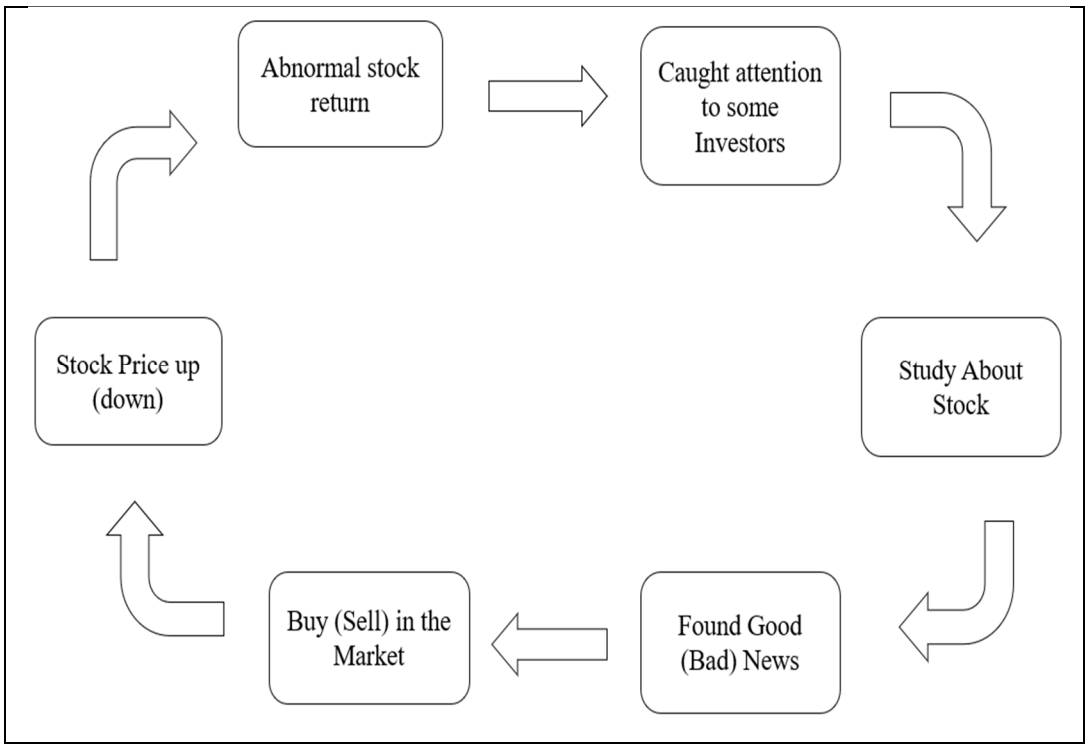


Figure 1.29: Flowchart of Attention (author's own creation)

1.3.1 Behavioral Finance

Behavioral finance, a new area, started to appear in a number of scholarly publications, trade magazines, and even neighbourhood newspapers during the 1990s. The field of behavioural finance is expanding quickly, that can help academics better understand investor behavior and preferences. In comprehending investor behavior in the real world, behavioral finance heavily draws on cognitive psychology. Under-reaction is ascribed to two explanations in the behavioral finance literature: conservatism (Barberis et al., 2005) and investors' limited attention/recognition (Hirshleifer and Teoh, 2011). The developing area of behavioral finance explores the cognitive aspects and emotional concerns that influence the decision-making process of people, groups, and organizations It seeks to clarify and improve our comprehension of the mental processes, affective states, and impact of investments on decision-making. The field of behavioral finance explores the integration of psychology into financial analysis, with a concentration on individual-level cognitive biases (Statman, 2008). The three elements, psychology, sociology, and finance, combined and create behavioral finance, in Figure 1.30.

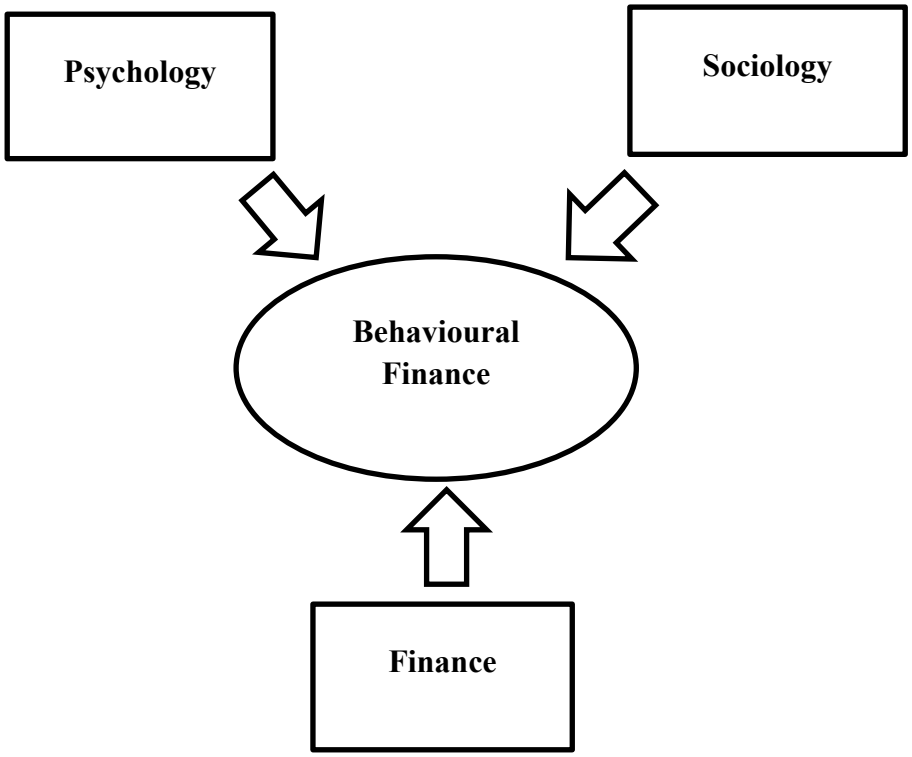


Figure 1.30: Behavioural Finance

1.3.2 Measures of Investor's Attention

Previous research has used various proxies to measure investor attention, including advertising expense (Grullon et al., 2004), trading volume (Gervais et al., 2001), news and headlines (Barber and Odean, 2008), Consumer confidence (Schmeling, 2009), media coverage (Engelberg and Parsons, 2011) and Extreme returns (Yuan et al., 2015). Yet, these indirect proxies present various challenges as they solely assess the news-releasing aspect, lacking assurance that a substantial number of investors are informed through these channels. Moreover, surges in trade volumes and upper price limits could result from market manipulation orchestrated by a limited or specific group of investors. Consequently, they do not serve as reliable indicators of broad market-wide investor attention.

As per Da et al. (2011), these proxies serve as indirect indicators of investor interest. They claim that indicators of greater investor attention include things like media attention, higher trading volume, or significant excess returns. However, events beyond investor interest may be responsible for an increase in volume of trading or

substantial profits. Huberman and Regev (2001) stress that increased investor interest is not a given when it comes to media visibility alone. Additionally, Cohen and Frazzini (2008) argue that investors often struggle to effectively process the overwhelming volume of information presented in the media. As a result, a much more direct proxy, such as SVI, is required to gauge investors' attention.

Measures of Investor's Attention

- Trading volume (Gervais et al., 2001)
- Abnormal returns (Yuan et al., 2015)
- Advertising expenses (Grullon et al., 2004)
- News and headlines related to different stocks (Barber and Odean, 2008)
- Media coverage (Engelberg and Parsons, 2011)
- Consumer confidence (Schmeling, 2009)

1.3.2.1 Trading volume

(Gervais et al., 2001) reveals that occasions, when particular stocks have extraordinary trading volume relative to their regular trading volume, hold valuable information regarding future stock returns. Times of exceptionally high volume, on the other hand, tend to be followed by higher net returns, and durations of incredibly low volume are likely to be followed by unfavorable excess returns.

1.3.2.2 Abnormal returns

(Yuan et al., 2015) test by unusual trading volume, since actively traded equities, must be grabbing the attention of investors. Sort on excessive one-day returns since these is likely to correlate with attention-grabbing events, whether good or bad. Sort by if a company is in the news.

1.3.2.3 Advertising expenses

(Grullon et al., 2004) show that corporations with higher advertising expenditures, on average, have a higher figure for both retail and institutional investors, as well as better mobility of their common stock.

1.3.2.4 News and headlines related to different stocks

(Barber and Odean, 2008) suggest that the headlines and the news of the different stocks also affect the investor's attention in many ways. So that firm or particular stock also gets affected.

1.3.2.5 Media coverage

Even if it does not provide actual news, the mainstream press has the potential to reduce informative disputes and influence the value of stocks because it reaches a large number of investors (Engelberg and Parsons, 2011). Even after adjusting for well-known risk indicators, they discover that equities with no media attention outperform firms with extensive media coverage. These findings are especially pronounced in small companies and stocks with a high level of personal possession, minimal researcher coverage, and substantial idiosyncratic volatility. Their findings imply that the range of content delivery has an impact on stock returns.

1.3.2.6 Consumer confidence

(Schmeling, 2009) noted that on average, sentiment expects negative average stock market returns across nations Future stock returns are generally lower when sentiment is strong, and vice versa. This relationship is true for the return of equities, growth stocks, tiny stocks, and various forecasting timeframes. The influence of mood on stock returns is greater in nations with less market efficiency and a culture predisposed to herd-like behavior and overreaction.

So, there are many indirect methods to measure the investor attention, but according to latest studies in past few years, GSVI (Google search volume index) came out as a better measure among old ones (Da et al., 2011). In present study, GSVI index is used to measure the investor attention for the better results.

1.4 Google Search Volume Index (GSVI)

One of the most disputed issues in investor attention research seems to be how attention can be accurately measured, given that numerous studies employ indirect proxies to gauge investor attention. Recently, some publications have proposed the intensity of

internet searches as a more direct and improved indicator for investor attention (Da et al., 2011; Drake et al., 2012). Da et al. (2011) introduced the use of the GSVI as a novel and lead indicator of investor attention. From 2004 to 2008, their analysis of Russell 3000 shares revealed an association with current proxies for buyer attentiveness. GSVI emerged as a credible proxy for individual investor attention, demonstrating a timelier capture compared to other proxies. Empirical evidence presented by Andrei and Hasler (2015) indicates a positive concurrent connection between stock market fluctuations and a indicator of investors' attention derived from Google online search queries.

In 2022, Google has 92.5% approx. share of web search volume worldwide, Bing has 3.08% share, Yahoo has 1.3% share, Yandex has 1.05% share, Baidu has 0.79% share and DuckDuckGo has 0.62% share of web search volume worldwide. Google is at rank one in the search engine industry, accounting for more than 90% of global research query volumes; hence, the number of searches is likely to represent general public search behavior. According to Kim et al. (2019), Google searches revealed that they are not associated with current ones and cannot predict future returns, but they may predict increased fluctuation and volume of trading. You note that Google's searches are more concerned with the future than with the present business. Data will be obtained for present study from Google Trends search volume index, which allows users to study the popularity of a certain phrase over time using the GSVI.

1.5 RATIONALE OF THE STUDY

A stock market is a major platform for a country’s economy. It has created opportunities for researchers to monitor market activities. Investor attention is the major cause to impact the stock market, and finding its level of impact is really necessary for investors and companies. To mitigate these issues and to identify the relationship between the stock market and investor attention, the researchers analyse the relationship between them. There have only been a few small-scale studies conducted in the past, but it is impossible to draw a broad conclusion from such a crucial subject. The purpose of the current study is to determine the relationship and the impact of investor’s attention on the emerging stock market.

1.6 SCOPE OF THE STUDY

Although developed stock markets have been the subject of extensive research, emerging nations have received less attention. So present study focuses on all emerging stock markets and examines the relationship and impact of investor's attention on the emerging stock market. The sample period is 19 years from 2004 to 2022, which also covers the major financial, health, and war crises of this time period like Global Financial Crisis (GFC), European Sovereign Debt Crisis (ESDC), COVID-19 Crises, Russia-Ukraine War Crises. New tools and methods are used to analyse the results.

1.7 ORIGINALITY OF THE STUDY

It is apparent from the literature review chapter's content (Chapter 3), however, that there have been limited investigations on the connection between investor attention and the market for securities. The present research work appears to differ from past research because it considers all emerging stock markets, for a vast period and for many crises period. The sample data and sample period are very large and a great fit to analyse the significantly better results. This study, which takes into account the entire sample period (2004–2022) and numerous subgroups of various crises, fills a gap in the literature on the stock market and investor attention. There hasn't been a single thesis work on the stock market and investor attention with a large sample period and sample data up to this point.

1.8 STRUCTURE OF THESIS

The six chapters that make up this thesis are as follows:

Chapter: 1

Current chapter addresses the introduction of current research work, and a thorough overview of the financial market and stock market. which is followed by an explanation of investor attention and its different measures. Additionally, it discusses the purpose of the study, its scope, and the originality of present research work in financial literature. Finally, the thesis is presented in its organized structure, followed by the conclusion.

Chapter: 2

This chapter provides a thorough analysis of past related literature on the stock market and investor attention. This chapter reviews 120 empirical papers and briefly discusses the categorization of prior literature related to the stock market and investor attention using various criteria. Additionally, a brief discussion of the bibliometric analysis (biblioshiny and vosviewer) based on the review of 625 documents is included. Finally, the research gap and conclusion are covered.

Chapter: 3

This chapter clarifies the research design, the structure of the study, the research methods, and the chapter's conclusion. This chapter outlines a strategy for solving the research problem, which is followed by the research questions, objectives, and hypothesis. This chapter also provides data and information on research methods and tools. It also outlines the significance of data sources, the criteria used to choose markets, and the duration of the crisis. In this chapter, the statistical tests that were used in this research to address the research questions are covered in detail.

Chapter: 4

This chapter demonstrates the analysis and interpretation of the outcomes of various econometric tests. Results of descriptive statistics, stationarity, vector autoregression (VAR) model, autoregressive distributed lag (ARDL) model, Toda-Yamamoto Granger causality test, Exponential Generalised Autoregressive Conditional Heteroskedasticity (EGARCH) model, Wavelet analysis, and their efficiency testing are presented in this chapter. This chapter concludes with a summary of each test for each section. and the findings from the whole sample period as well as the individual sub-periods are discussed.

Chapter: 5

The overview, conclusion, and suggestions of the thesis are the chapter's main goals. Additionally, it outlines important constraints on the current and future scope of stock market and investor attention.

1.9 CONCLUSION

Financial markets and stock markets are the key sectors to play a main role in world's economy. There are popularly three divisions of stock markets: developed, emerging and frontier markets. Present study will focus on all emerging markets. There are many factors that affect these markets, investor attention is the main factor. There are many indirect methods to measure the investor attention. Among them GSVI is the new direct measure. So, present study will use GSVI to measure the investor attention, and analyse the relationship between emerging stock market and investor's attention.

An overview of the current research project is presented in this chapter. It discusses the financial system, the financial market, the stock market, and investor attention, followed by an explanation of the study's purpose, its scope, and the originality of the current research work in the field of finance. The thesis' structure is also presented at the end.

The focus of this chapter is on the stock market's dynamics and structure while offering a thorough overview of all financial markets. This foundation is necessary to comprehend the larger economic context, but more explanation is required regarding its direct connection to the way investor focus affects emerging market stock market returns. In emerging markets where information inequalities and inefficiencies in the market are common, investor attention—a phenomenon in behavioral finance—can have a substantial impact on stock market activity. By linking the characteristics of financial markets to the nuances of investor attention in these regions, one can better understand the analysis on how shifts in investor attention could potentially alter the stock market performance. This connection strengthens the statement that investor attention acts as a main variable in shaping market outcomes in less developed financial markets.

Chapter 2

LITERATURE REVIEW

One form of the financial market is the stock market. It enables businesses to trade openly and raise capital. According to Bencivenga et al. (1996), stock market liquidity is a critical and basic determinant of an economy's growth. The movement of capital, as well as ownership, takes place in a regulated and secure environment. As a result, they play a critical role in promoting the expansion of industry and trade in the country. However, investor attention has a profound impact on several areas of the stock market, featuring market volatility (Ballinari et al., 2022), trading volume (Vlastakis and Markellos, 2012), and stock returns (Da et al., 2011). A lot of research indicates that analyzing investor attention can also provide light on a range of stock market observations (Dellavigna and Pollet, 2009).

The evaluation of the relationship between investor attention and the stock market has always been interesting for researchers. On this topic, numerous studies have been done (Akarsu and Süer, 2022). According to Da et al. (2011) and Joseph et al. (2011), rises in the search volume index (SVI) indicate favourable returns in the US market. According to research by Nelson et al. (2013) and Hu and McInish (2013) on stock unsolicited messages as attention-grabbing events, receiving spam messages boosts trading volume and returns. Pyo (2017) investigates the connection between investor focus and stock returns in the Korean market and discovers that investor focus reduces KOSPI index returns. The SVI can be used to determine investor interest, according to Nguyen et al. (2019), who concentrate on five emerging economies within nations. They confront that Future stock prices and investor interest returns have a negative connection with one another. Section 2.1 discusses the Quantitative analysis

of Past Literature. Followed by section 2.2, which describes the Qualitative Analysis of the Past Literature. And then section 2.3 highlights the research gap based on the literature analyses, and Section 2.4 brings the chapter to a conclusion.

Prior attempts to review the chosen literature have been made, but manual data handling in traditional reviews limited the number of documents that could be examined (Seth and Sidhu, 2020). A systematic, thorough, and repeatable research approach is offered by bibliometrics, which makes it possible to statistically analyze large amounts of reliable, transparent, and structured data (Lohan et al., 2023). However, content analysis provides a structured, rule-based approach to reviewing text records' informative content. Content analysis is a popular technique that breaks down text data into easier-to-understand categories. Consequently, this chapter examines the literature review from two perspectives: manually performing content analysis and quantitatively computing author, citation, country, journal, and other information using biblioshiny and vosviewer software.

2.1 Quantitative Analysis of the Past Literature

2.1.1: Manual Categorization of Past Literature

Now the literature review was performed, data was extracted manually from google scholar and empirical literature was performed. This literature was manually done for the clear and comparative results of the related topic. Empirical literature was searched on specific databases and websites, and using keywords such as 'Investor Attention,' 'Stock Returns,' and 'Stock Market.', for 19 years from 2004 to 2022. The data for relevant papers were gathered using keywords from titles, abstracts, references, and keyword lists. Looking for stock market research articles yielded several results, the vast majority of which were on the stock market itself. However, these 120 periodicals were chosen because of their direct relationship to investor interest and stock performance. These 120 studies were thoroughly analyzed to find the proper category. The following subcategories are used to categorize the research papers:

- Data analysis technique/econometric tools
- Sample (Nation) wise distribution (where a certain country is chosen as a sample)

- Number of sample nations
- Number of sample years
- Number of sample stocks/indices/markets

2.1.1.1 Data analysis technique/econometric tools:

GARCH, CAR, VAR, ARIMA, and other models were employed in earlier investigations (Baig et al., 2021; Smales, 2021a; Szczygielski et al., 2021; Topcu and Gulal, 2020; Zaremba et al., 2020). However, in the majority of the research, simple GARCH modeling was utilized more often. Many recent research use data from Bloomberg, Google Trends, Worldometer, Yahoo Finance, DataStream, and other sources (Al-Awadhi et al., 2020; Butt et al., 2020; Shear et al., 2021; Smales, 2021a; Szczygielski et al., 2021). However, in terms of investor attitudes, GSV has been employed by many number of studies as a measure of investor attention to forecasting stock market returns (Iyke and Ho, 2021; Tantaopas et al., 2016), as shown in Table 2.1 and Figure 2.1.

Table 2.1: Data analysis Method/ Econometric tools (Author's own calculations)

Method/ Econometric tools	Number of studies
GARCH family models	42
AR, VAR	30
ARIMA	9
UNIT ROOT TEST	6
Correlation tests	20
Others	13

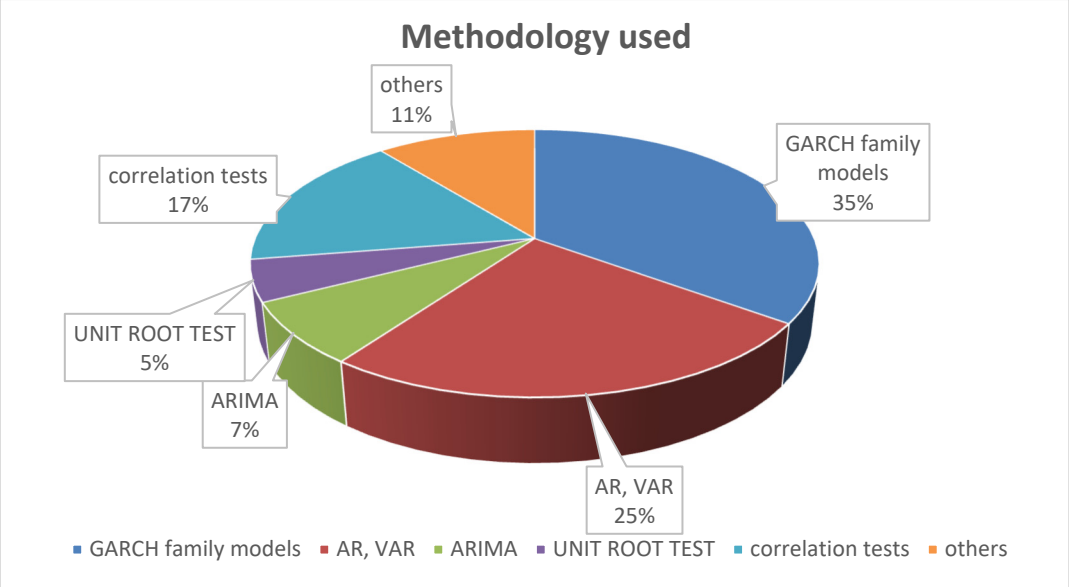


Figure 2.1: Method/ Econometric tools (Author's own calculations)

2.1.1.2 Sample (Nation) wise distribution:

Table 2.2 and Figure 2.2 show how many studies were conducted using a certain nation as a sample. 57 studies used the United States as among their sample countries, whereas 42 studies used China as among their sample countries. The majority of study on the stock market in terms of investor interest has been performed in the countries like the USA and China (Al-Awadhi et al., 2020; Baig et al., 2021; Smales, 2021a; Wan et al., 2021; Y. Zhang and Tao, 2019).

Table 2.2: Country-wise distribution (Author's Own Calculations)

Sample Country	Number of studies
USA	57
China	42
UK	26
Japan	26
Australia	33
South Africa	21
India	32
Russia	21
Germany	14
France	15
Turkey	15
Canada	17
UAE	17
Others	19

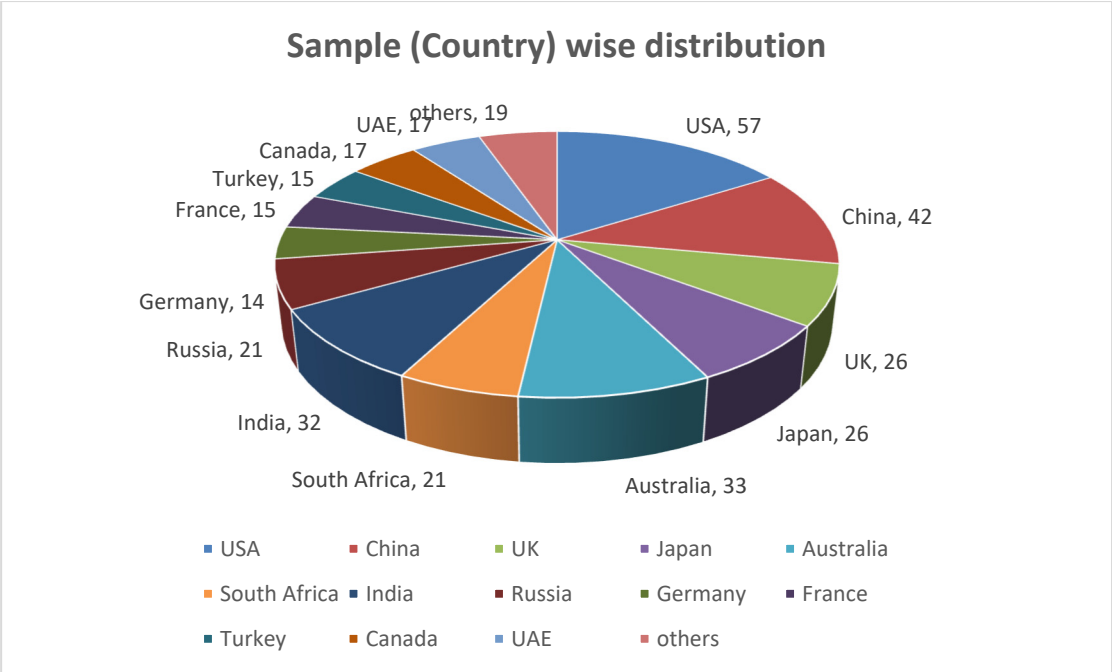


Figure 2.2: Sample (Country) wise distribution (Author's Own Calculations)

2.1.1.3 Number of sample nations:

Figure 2.3 and Table 2.3 shows how many nations were considered as sample countries in the sample literature; most research used a single country as their sample country (Al-Awadhi et al., 2020; Baig et al., 2021; Cahill et al., 2021; Huo and Qiu, 2020; Wan et al., 2021; Y. Zhang and Tao, 2019). Few studies took more than 60 countries as their sample country (Erdem, 2020; Zaremba et al., 2020).

Table 2.3: Number of sample countries (Author's Own Calculations)

Number of sample countries	Number of studies
1 country	39
2-3 countries	12
4-6 countries	14
7-9 countries	13
10-15 countries	12
16-20 countries	8
21-40 countries	9
41-60 countries	7
61 and more countries	6

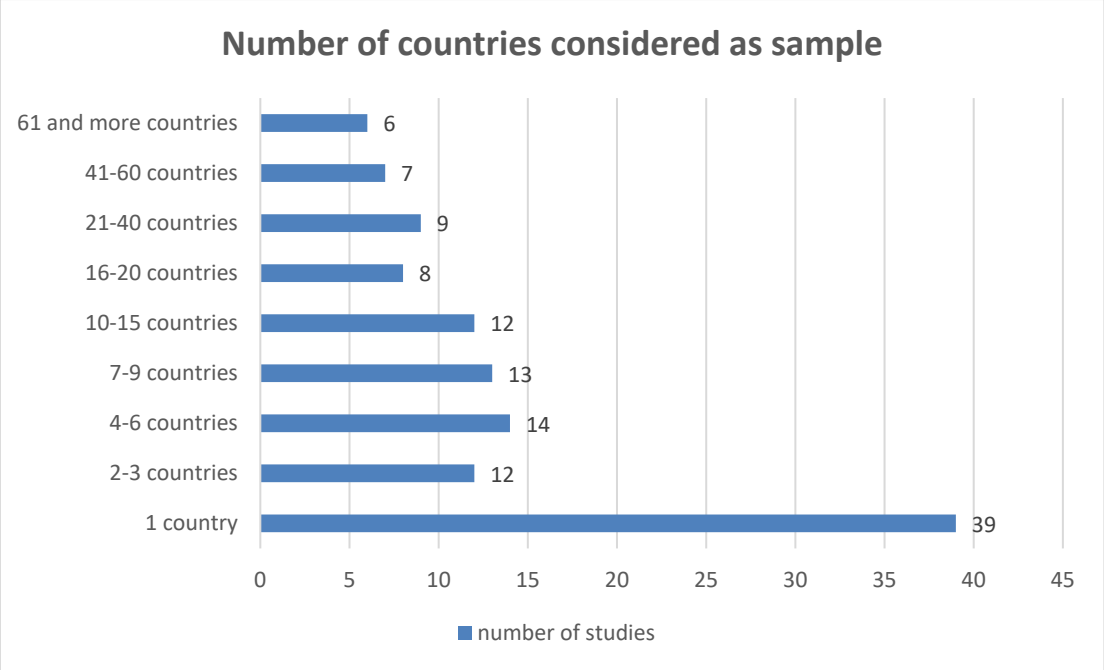


Figure 2.3: Number of sample countries (Author's Own Calculations)

2.1.1.4 Number of sample years:

In Table 2.4 and Figure 2.4, how many years were chosen as their sample years are depicted. 35 studies chose 0-5 years as their sample period (Al-Awadhi et al., 2020; Baig et al., 2021; Cahill et al., 2021; Erdem, 2020; Huo and Qiu, 2020; Szczygielski et al., 2021; Topcu an Gulal, 2020; Zaremba et al., 2020; Y. Zhang and Tao, 2019), 14 studies chose 6-10 years (Ding and Hou, 2015; Goddard et al., 2015; Kim and Park, 2015; Kou et al., 2018), while a few studies took more than 25 years (He et al., 2019).

Table 2.4: Number of sample years (Author's Own Calculations)

Number of years	Number of studies
0-5 Y	35
6-10 Y	21
11-15 Y	19
16-20 Y	17
21-25 Y	12
26-30 Y	5
31 and more years	11

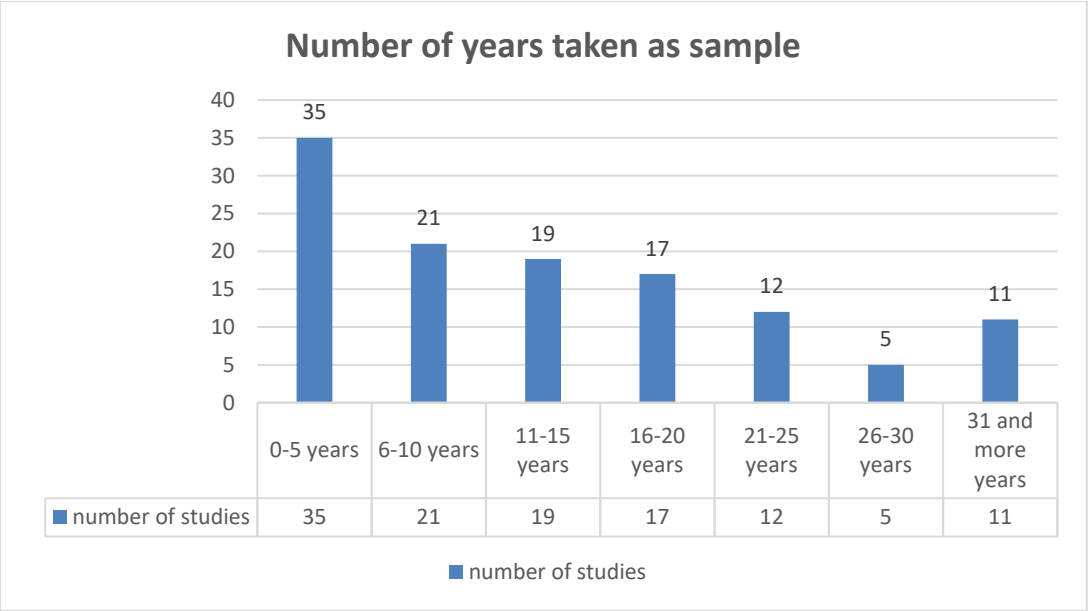


Figure 2.4: Number of sample years (Author's Own Calculations)

2.1.1.5 Number of sample stocks/indices/markets:

The number of stocks used as a sample in studies is shown in Table 2.5 and Figure 2.5, with 53 studies using less than 5 stocks or markets as a sample (Al-Awadhi et al., 2020; Baig et al., 2021; Y. Zhang and Tao, 2019). 22 studies used 6-10 sample stocks, 18 research used 11-15 sample stocks, and only a few studies used over 15 stocks/indices.

Table 2.5: Number of sample stocks/indices/markets (Author's Own Calculations)

Number of stocks/indices	Number of studies
0-5	53
6-10	22
11-15	18
16-20	5
21-25	2
26-30	3
31-35	2
36-40	3
41-45	5
45 and above	7

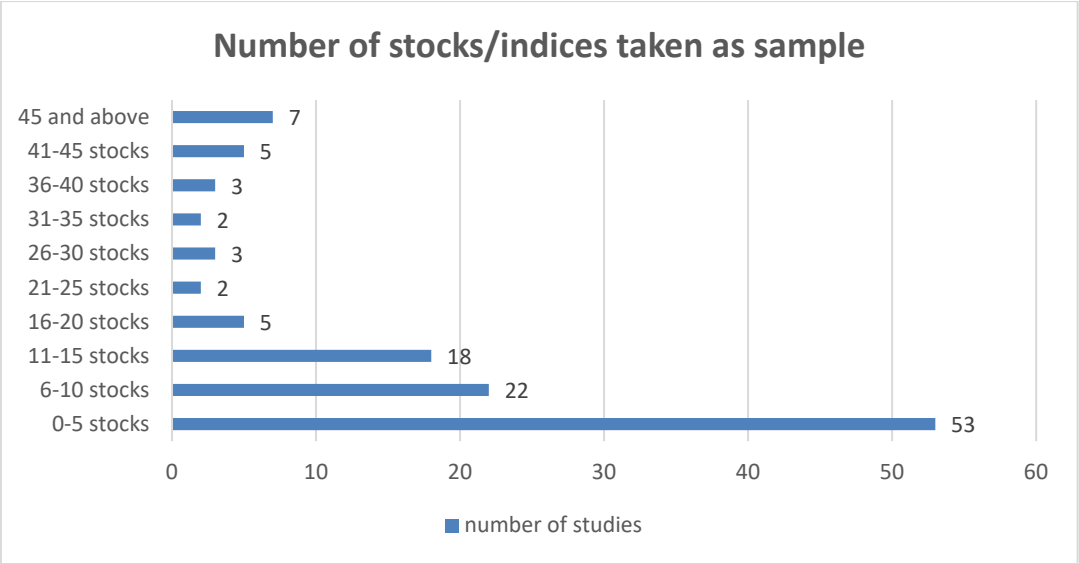


Figure 2.5: Number of sample stocks/indices/markets (Author's Own Calculations)

2.1.2 Bibliometric Analysis of Past Literature:

Using the Scopus database, all relevant publications on the current problem were compiled. Scopus is an important database that contains high-quality research in finance and many other fields. Related articles were found by searching for the following terms: (("Investor's Attention") AND ("Stock Market Returns") OR ("Global Stock Market Returns") OR ("Global Stock Market")). In the first round, 647 items were extracted. The search was further refined by document type: article, conference paper, book chapter, conference review, and review. Then we retrieved 641 appropriate articles for analysis, followed by a language filter (only English), and after applying a filter of the time period from 2004 to 2022, finally, 625 final documents were chosen.

Table 2.6 illustrates the descriptive components of investor attention and stock market literature that should be grasped before moving on to the next step in the research. In Biblioshiny, 625 documents were processed, including journal papers (563), book chapters (9), reviews (7), conference papers (44), and conference reviews (2). There was a total of 1018 keywords in these publications, plus 1441 author keywords. From 2004 through 2022, literature was collected. There were 1242 different authors who contributed to these documents, with only 68 of them creating a single

author. The article per author ratio is 0.503, implying that one document was written by nearly two writers on average.

Table 2.6: Main Information about Data (Author's own creation from Biblioshiny)

Description	Results
MAIN INFORMATION	
SampleTime period	2004:2022
Source (Journals, Books, etc)	250
Document	625
Average years from publication	3.45
Average citations per document	14.4
Average citations per year per doc	2.368
References	25225
DOCUMENT TYPE	
articles	563
book chapters	9
conference paper	44
conference review	2
review	7
DOCUMENT CONTENT	
Keywords Plus (ID)	1002
Author Keywords (DE)	1441
AUTHOR	
Author	1242
Author Appearances	1687
Authors of single-authored document	68
Authors of multi-authored document	1174
AUTHOR COLLABORATION	
Single-authored document	83
Documents per Author	0.503
Authors per Document	1.99
Co-Authors per Document	2.7
Collaboration Index	2.17

2.1.2.1 Document-wise classification:

Figure 2.6 depicts the annual production of stock market papers aimed toward investors. There was initially little production, but literature production rises with time. There was just one study in 2004 and 2005, followed by 2006 (2), 2007 (4), and so on. A large number of research began in 2020 (101), and in 2021 (173). And in Table 3.7, the

articles per year are displayed. Which depicted how many studies are performed in different years.

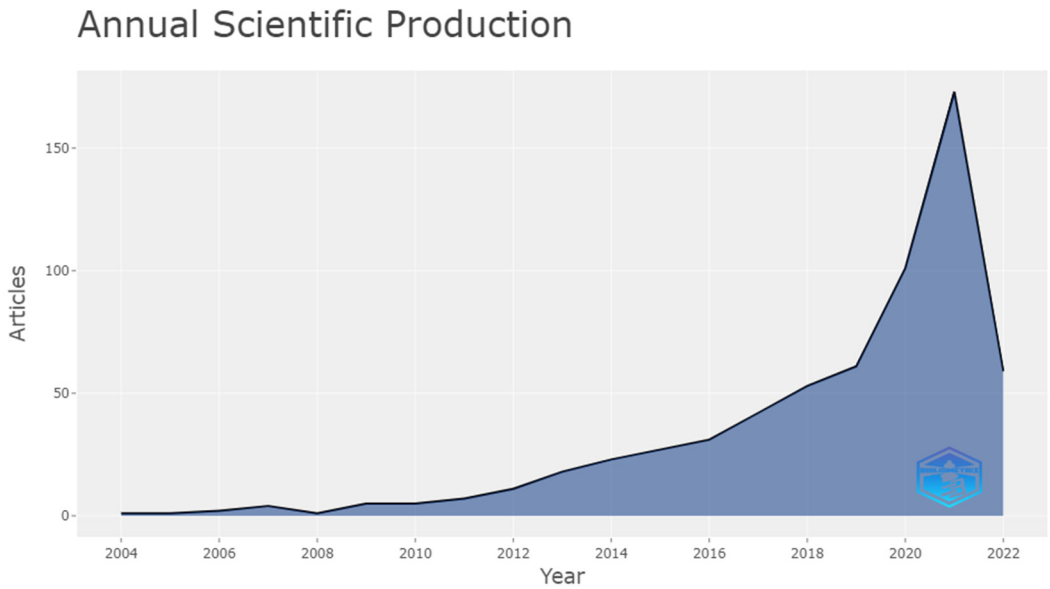


Figure 2.6: Annual scientific production (Author's own creation from Biblioshiny)

Table 2.7: Articles per year (author's own creation from Biblioshiny)

Year	Articles
2004	1
2005	1
2006	2
2007	4
2008	1
2009	5
2010	5
2011	7
2012	11
2013	18
2014	23
2015	27
2016	31
2017	42
2018	53
2019	61
2020	101
2021	173
2022	59
Total	**625**

This section outlines the most significant publications in stock market publications with respect to investors' attention. The top ten globally cited papers are listed in Table 2.8. Da et al. (2011), who conducted the study in 2011, claim that the search volume index (SVI) likely represents the attention of individual investors. SVI increases imply higher stock prices in the next two weeks and a price reverse within a year. According to the list of most frequently cited papers, research by Peng L (Peng and Xiong, 2006) revealed that restricting investor attention results in category-learning behavior.

Hirshleifer et al. (2009) examine the notion that "limited investor attention leads to market underreactions" by assessing the information load experienced by investors. They argue that irrelevant news, in line with the investor distraction hypothesis, hinders market responses to relevant news. Additionally, they observe that when other companies release earnings on the same day, the immediate price and volume response to a firm's earnings surprise is significantly lower, while the post-announcement trend is more pronounced. Vozlyublennaia (2014) explores the Association among the outcome of various securities benchmarks in major sectors of investment and investor interest determined by Google search frequency. The study reveals that increased attention results in a notable short-term shift in index performance.

Table 2.8: Most globally cited article (Author's own creation from Biblioshiny)

Paper	DOI	TC	TC/Year
Da Z, 2011, J Financ	10.1111/j.1540-6261.2011.01679.x	1061	88.4167
Peng L, 2006, J Financ Econ	10.1016/j.jfineco.2005.05.003	505	29.7059
Hirshleifer D, 2009, J Financ	10.1111/j.1540-6261.2009.01501.x	496	35.4286
Vozlyublennaia N, 2014, J Bank Financ	10.1016/j.jbankfin.2013.12.010	177	19.6667
Hirshleifer D, 2011, Rev Asset Pricing Stud	10.1093/rapstu/rar002	165	13.75
Dimpfl T, 2016, Eur Financ Manage	10.1111/eufm.12058	159	22.7143
Urquhart A, 2018, Econ Lett	10.1016/j.econlet.2018.02.017	152	30.4
Andrei D, 2015, Rev Financ Stud	10.1093/rfs/hhu059	147	18.375
Seasholes Ms, 2007, J Empir Financ	10.1016/j.jempfin.2007.03.002	144	9
Li J, 2012, J Financ Econ	10.1016/j.jfineco.2011.04.003	143	13

Hirshleifer et al. (2011) propose a method to analyze the market's misreactions to earnings-related news due to insufficient investor attention. They look into the effects of one particular emotional limitation, limited attention, and discover a slew of untested empirical implications. The study shows that if interpreting data is expensive, certain traders may trade consistently while disregarding certain publicly available information.

2.1.2.2 Source-wise classification:

To find the relevant journals, source impact and Bradford Law are used. Table 2.9 organizes the journals according to their total citation (TC), number of production (NP), h index, g index, m index, and year of publication (PY). Finance research letters journal is the most productive, with 25 net productions, followed by Pacific Basin Finance Journal, which has 19 net productions. Journal of financial economics has a maximum h-index (11) with 15 net productions.

Table 2.9: Top ten journals according to source impact (Author's own creation from Biblioshiny)

Top 10 journals	h_index	g_index	m_index	TC	NP	PY_start
Finance research letters	9	16	1.1250	283	25	2015
Pacific basin finance journal	7	13	0.7778	193	19	2014
Journal of financial economics	11	15	0.6471	981	15	2006
Journal of behavioral finance	6	10	0.6	117	14	2013
International review of financial analysis	6	13	0.5455	209	13	2012
Management science	7	11	0.5385	176	11	2010
Journal of banking and finance	6	11	0.3158	252	11	2004
Economic modelling	9	10	0.9	399	10	2013
Review of financial studies	8	10	0.8889	678	10	2014
International review of economics and finance	5	8	0.8333	73	8	2017

The Bradford law, depicted in Table 2.10, splits the journal into three zones. Zone 1 is the principal source for articles about the stock market and investor interest. This is the

nuclear zone, which comprises journals with a significant number of articles. Which determined that 16 of the 257 journals fell into core zone 1, with the rest falling into zone 2 and 3. The top 16 journals are the key publication sources.

Finance research letters is a notable publication venue for stock market literature in terms of investor attention. According to its latest publications, Y. Zhang and Tao, (2019), stock market returns have decreased due to rising investor focus on smog. Hazy grabbed investor interest through direct physically and psychologically haze experiences, as well as haze-related headlines and government regulation, and affected stock markets through investor attention. Another appropriate forum is the Pacific Basin Finance Journal.

Table 2.10: Journal rankings according to Bradford law (Author's own creation from Biblioshiny)

Sources	Rank	Freq	Cumfreq	Zone
Finance Research Letters	1	29	29	1
Pacific Basin Finance Journal	2	20	49	1
International Review of Financial Analysis	3	16	65	1
Journal of Financial Economics	4	16	81	1
Journal of Behavioral Finance	5	15	96	1
International Review of Economics and Finance	6	13	109	1
Management Science	7	13	122	1
Applied Economics	8	12	134	1
Economic Modelling	9	12	146	1
Journal of Banking and Finance	10	12	158	1
Research in International Business and Finance	11	10	168	1
Review of Behavioral Finance	12	10	178	1
Review of Financial Studies	13	10	188	1
Emerging Markets Finance and Trade	14	9	197	1
Review of Accounting Studies	15	9	206	1
Journal of Corporate Finance	16	8	214	1
Journal of Empirical Finance	17	8	222	2
Review of Quantitative Finance and Accounting	18	8	230	2
Energy Economics	19	7	237	2
European Financial Management	20	7	244	2

2.1.2.3 Author-wise classification:

Table 2.11 highlights the ten authors who have had the most impact on stock market

literature. They are ranked on the bases of net production (NP). Shen D is at the top of the list, with an h-index of 7 and 10 publications. In his work Zhang et al. (2022), Shen D introduces the Baidu Index as a novel proxy for investor attention and explores its correlation with both returns and range-based return volatility of China's six major carbon emission permits. Li et al. (2021) examines the bidirectional effects and contemporaneous patterns among bitcoin returns and customer attention. The study examines bitcoin responsiveness to Twitter posts and the frequency of Google searches, as well as a mixture of the two.

Ranked second with an h index of 6 and 9 publications, Yin L is noted in Liu et al. (2022). The research investigates if oil financier attentiveness (OA), determined by Google search traffic, contains sufficient data to forecast crude oil future possible fluctuation using high-frequency heterogeneous autoregressive (HAR) model settings. Wu et al. (2019) investigates financial contagion across currency markets using only a novel pathway of investor attention as measured by the Google SVI.

Han L was rated third on the list, with an h index of 5. Han et al. (2018) examines the asymmetric/discriminatory influence of investor attention on expected stock returns in 15 markets throughout downturns and expansions in his study. International research contributes to the study on investor attention by demonstrating the discrepancies between attention and three stages of market efficiency: one that is semi-strong, two that is strong, and three that is weak. And in Table 2.12, the top author's documents are presented along with DOI and their sources.

Table 2.11: Top 10 author's impact (author's own creation from biblioshiny)

Element	h_index	g_index	m_index	TC	NP	PY_start
Shen D	7	10	0.7	271	10	2013
Yin L	6	9	1	128	9	2017
Xiong X	5	8	0.5	137	8	2013
Zhang X	3	8	0.375	96	8	2015
Zhang Y	5	8	0.5	228	8	2013
Han L	5	7	0.833	120	7	2017
Li X	4	7	0.5	104	7	2015
Wang S	3	6	0.375	126	6	2015
Zhang W	4	6	0.4	122	6	2013
Zhu H	3	4	0.333	23	6	2014

Table 2.12: Top author's documents (author's own creation from biblioshiny)

Author	Year	TI	SO	DOI
Shen D	2022	A wavelet-based nonparametric causality test of investor attention and China's carbon emission markets	Asia-pacific financial markets	10.1007/s10690-021-09348-2
Wang J	2022	Forecasting the green bond index with ceemdan-lstm	Frontiers in energy research	10.3389/fenrg.2021.793413
Zhu H	2022	What effect does investor interest have on crude oil prices and returns? Evidence for time-frequency quantile causality analysis	North American journal of economics and finance	10.1016/j.najef.2021.101581
Shen D	2021	Investor attention shocks and stock co-movement: substitution or reinforcement?	International review of financial analysis	10.1016/j.irfa.2020.101617
Zhang Y	2021	Can investor interest aid in forecasting the stock returns of Chinese oil companies?	International review of economics and finance	10.1016/j.iref.2021.07.006
Zhang Y	2021	The bitcoin market demonstrates investor interest in cryptocurrency.	Plos one	10.1371/journal.pone.0246331
Zhang Y	2021	Evidence for investor interest and carbon return from the EU-ets	Economic research-ekonomska istrazivanja	10.1080/1331677x.2021.1931914
Zhang Y	2021	A long short-term memory network perspective on the role of investor attention in stock price prediction	Finance research letters	10.1016/j.frl.2020.101484

Figure 2.7 displays the bibliographic coupling of the authors. Which is obtained from Vos viewer. The results present that zhang y, shen d and li y are some highly collaborating authors. Many other authors are also presented in the figure, coupling with other authors, presented in different colors.

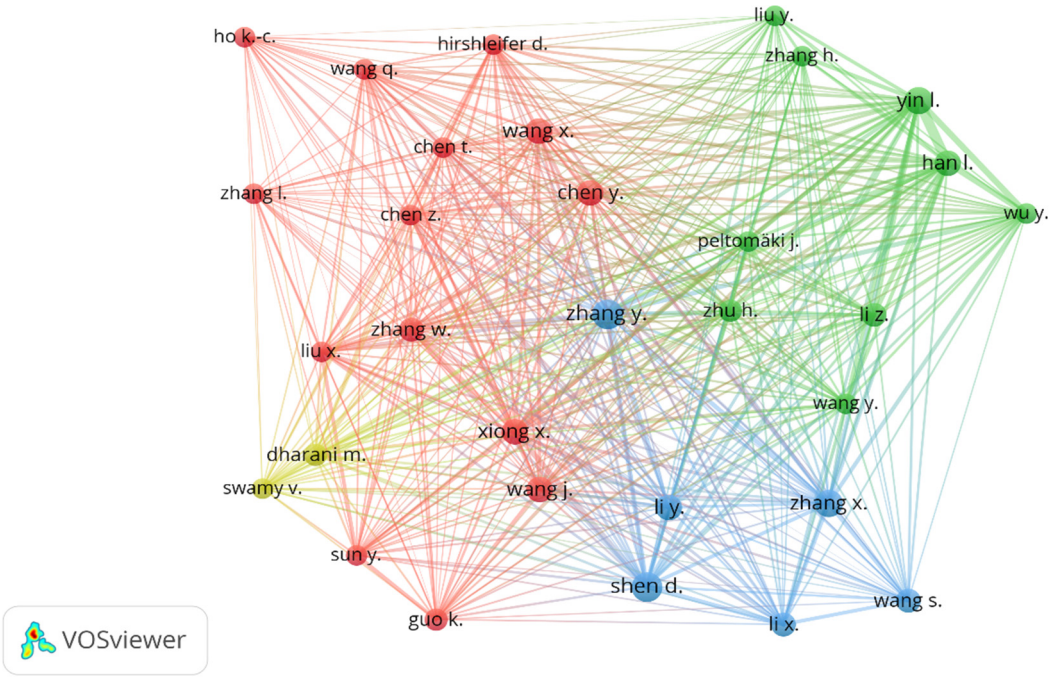


Figure 2.7: Bibliographic Coupling of Authors (Author's own creation from VOSviewer)

2.1.2.4 Country-wise classification:

Table 2.13 provides data from two sources; the left side displays the countries and locations with the most scientific publications over time. Countries with multiple citations are displayed on the right side. China has the most publications (629), followed by the United States (330), Australia (75), the UK (74), etc. And the United States (3036) has the maximum total citations (TC), followed by China (1358). Figure 3.8 displays the country's scientific output. In which a dark-colored area represents the area that provides a maximum output of articles.

Table 2.13: Top countries in terms of publications and citations (Author's own creation from Biblioshiny)

Country	Freq	Country	TC
China	629	USA	3036
USA	330	China	1358
Australia	75	UK	645
UK	74	France	245
Germany	52	Australia	241
France	40	Hong Kong	169
Italy	37	Canada	149
Brazil	35	Germany	148
Canada	33	Netherlands	131
India	30	Italy	105

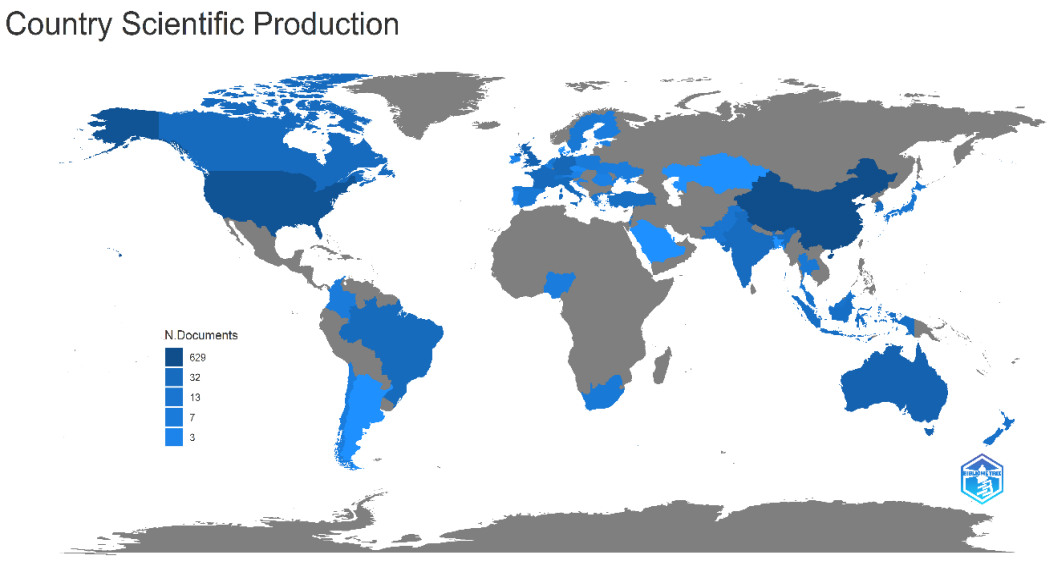


Figure 2.8: Country Scientific Production (Author's own creation from Biblioshiny)

Figure 2.9 depicts the most significant affiliations. Tianjin University is top in terms of stock market publishing (54) in terms of investor interest literature (Hao & Xiong, 2021; C. Zhang et al., 2020). It was established in 1895 called Imperial Tientsin University and was later renamed Peiyang University. It was renamed in 1951 after being revamped and expanded to be one of China's best multipurpose engineering universities.

The Chinese Academy of Sciences is in second place, with 30 publications (Chen and Huang, 2021; J. Li et al., 2020). It was ranked at the top in the Nature Index 2021 Young Institutions and first in China in the NTU Rankings 2019. The Southwestern University of Finance and Economics is positioned third with 20 articles. Renowned for its business administration department in China, the university holds a significant reputation. In 2021, it secured the first position in Sichuan and the sixth nationwide among universities specializing in finance, business, and economics in the latest edition of the prestigious Best Chinese Institutions Ranking. Beihang University claims the fourth spot with 17 publications. The institution has earned over 900 awards for its achievements, boasting approximately 40 first-place programs and projects.

Ranked fifth with 17 publications, the Central University of Finance and Economics is notable. In 2021, it achieved the top position in Beijing and the second nationwide among institutions specializing in finance, business, and economics in the most recent edition of the esteemed Best Chinese Institutions Ranking.

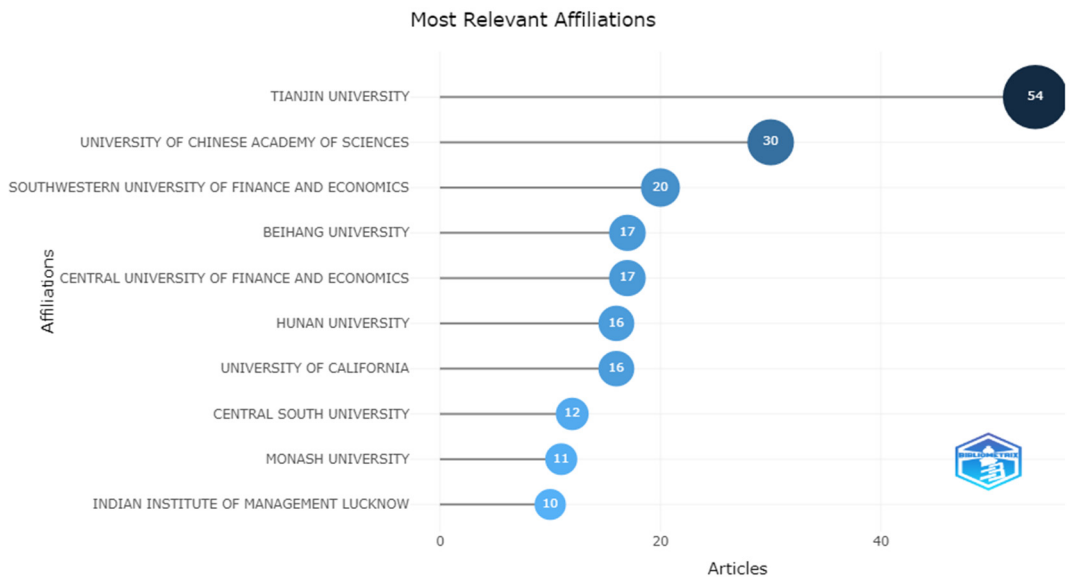


Figure 2.9: Most Relevant Affiliations (Author's own creation from Biblioshiny)

Table 2.14 displays data for the top 10 corresponding author countries. China is first on the list. Corresponding authors from China have contributed 180 articles, 137 of which are single-country publications (SCP) while 43 of those are multi-country publications (MCP). The United States ranks second with 97 publications, including 70 (SCP) and

27 (SCP) (MCP). And the UK comes third with 25 publications, 15 (SCP) and 10 (MCP).

Table 2.14: Corresponding author's country (Author's own creation from Biblioshiny)

Country	Articles	Freq	SCP	MCP	MCP_Ratio
China	180	0.375	137	43	0.2389
USA	97	0.20208	70	27	0.2784
United Kingdom	25	0.05208	15	10	0.4
Australia	24	0.05	18	6	0.25
Germany	17	0.03542	16	1	0.0588
France	12	0.025	7	5	0.4167
Korea	11	0.02292	9	2	0.1818
India	10	0.02083	9	1	0.1
Canada	9	0.01875	4	5	0.5556
Italy	9	0.01875	8	1	0.1111

Figure 2.10 also presents the coupling of the different countries, which is obtained from the VOS viewer. China and USA have maximum coupling with other countries. All groups of coupling are presented in the figure in the different colored groups.

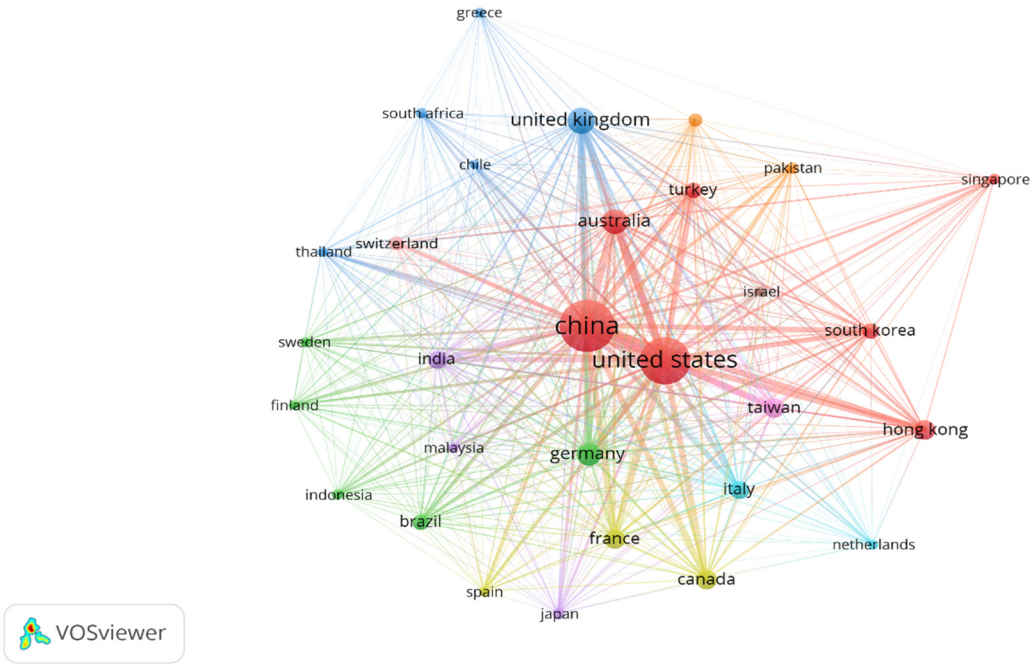


Figure 2.10: Bibliographic Coupling of Countries (Author's own creation from VOSviewer)

2.1.2.5 Keyword-wise classification:

Table 2.15 displays the most frequently used keywords in stock market literature in terms of investor attention. Keyword Plus, Abstract, Authors Keyword, and Title are the four components of the table. Investments are the most frequently used term in the Keyword Plus section. The most prevalent word in the Author Keyword section is "investor interest." And most prevalent word in Abstract and Title section is "attention." The keyword + word cloud is seen in Figure 2.11. Words that occur frequently in text have a greater font size. In stock market literature, the phrase "investments" occurs the most frequently. So, this is the most important of all the phrases used. The second largest number is commerce and financial markets, followed by investor attention and investment. In the author's keyword word cloud, investor attention is the often-used term. And in Figure 2.12, the title's word cloud is seen. In which attention is the biggest which means this is the most used keyword, followed by the investor, stock, market, etc.

Figure 2.11: Word Cloud with keyword plus (Author's own creation from Biblioshiny)

Figure 2.12: Word Cloud with Title (Author's own creation from Biblioshiny)

Table 2.15: Most frequent words (Author's own creation from Biblioshiny)

ABSTRACT		**TITLE**	
Words	**Occurrences**	**Words**	**Occurrences**
attention	295	attention	1600
investor	221	investor	1087
stock	175	stock	821
market	138	investors	792
evidence	96	market	758
returns	83	returns	545
investors	62	information	511
information	43	firms	433
markets	40	results	363
risk	39	stocks	334
KEYWORD PLUS		**AUTHOR KEYWORD**	
Words	**Occurrences**	**Words**	**Occurrences**
investments	95	investor attention	248
commerce	61	limited attention	26
financial markets	55	bitcoin	24
investment	30	investor sentiment	22
investor attention	29	google trends	21
costs	23	google search volume index	20
forecasting	20	stock returns	20
search engines	19	cryptocurrency	18
stock returns	18	google search volume	17
stock market	17	market efficiency	17

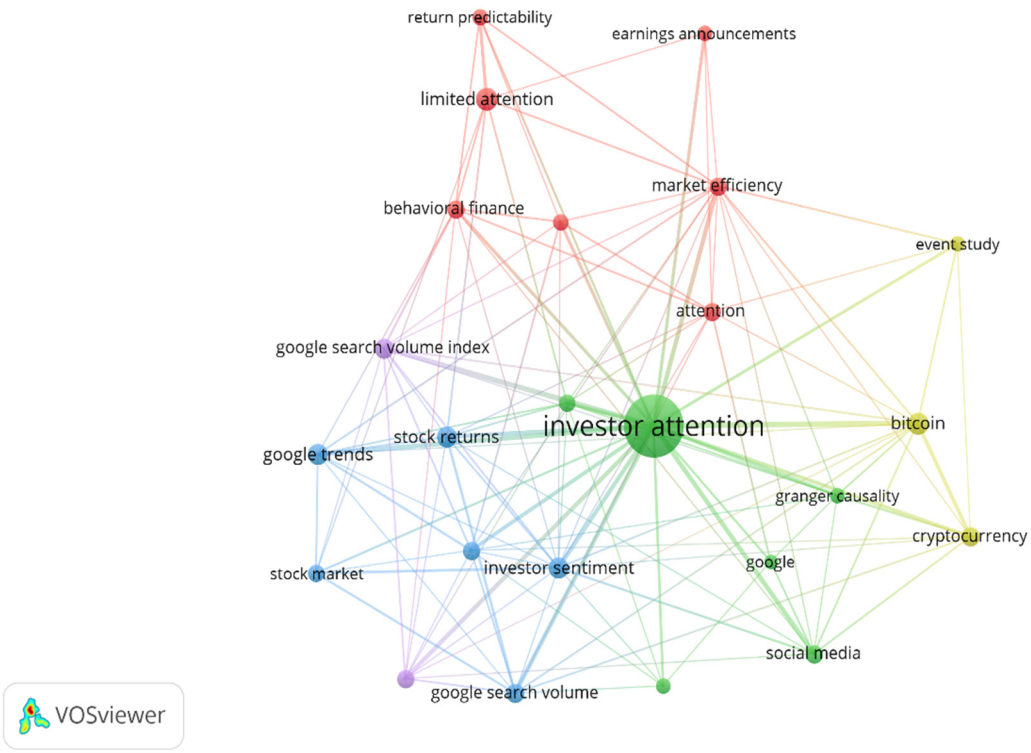


Figure 2.13: co-occurrence network of author keywords (Author's own creation from VOSviewer)

Figure 2.13 present the co-occurrence network of the author keywords, obtained from the VOS viewer. framed with a minimum of ten occurrences The outcome is separated into five clusters: red, green, yellow, blue, and purple. Investor attention is a frequently co-occurring term with the highest centrality. Attention, behavioral finance, return predictability, earnings announcements, market efficiency, limited attention, and trading volume are the seven components in the red cluster. There are six components in the green cluster: Baidu index, granger causality, information asymmetry, Google, investor attention, and social media. There are six things in the blue cluster: Google search volume, stock return, Google trends, investor sentiment, stock market, and volatility. There are three components in the yellow cluster: cryptocurrency, bitcoin, and event study. There are two entries in the purple cluster: covid-19 and the Google search volume index.

Several study themes have now been developed, which will aid in data analysis. which organizes the themes into a conceptual frame to evaluate the study subject's relevance and evolution. Figure 2.14 depicts a thematic map with x-axis and y-axis. The centrality of the chosen subject is evaluated, and so is the density of selected theme. The diagram is split into four sections.

In the map's bottom-left corner, themes are either emerging or disappearing, representing novel ideas that may enhance or fade within the study sector. On the lower right, essential themes are situated—fundamental subjects with low density but high relevance, indicating extensive prior research. The upper left portion is characterized by density but lacks centrality, portraying highly developed yet distinct motifs. In the upper right corner, there is both density and centrality, with a notable motor theme among the topics. Table 2.16 provides an overview of the topics and keywords derived from the thematic map, with brief discussions on all themes, clusters, and keywords.

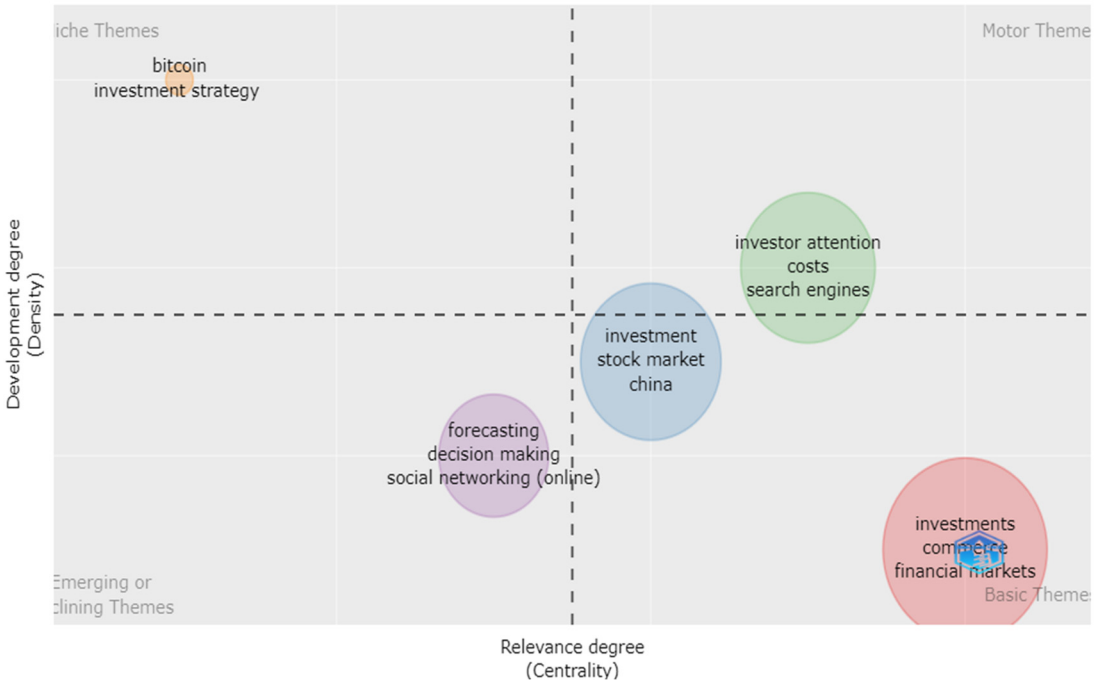


Figure 2.14: Thematic Map (Author's own creation from Biblioshiny)

Table 2.16: Themes and keywords in thematic map (Author's own creation from Biblioshiny)

Cluster Representation	Theme	Keywords in Clusters
Investment	Basic Theme	Investment, stock market, China
Investments	Basic Theme	Investments, commerce, financial markets
Forcasting	Emerging Theme	Forcasting, decision making, social networking (online)
Investor attention	Motor Theme	Investor attention, costs, search engines
Bitcoin	Highly Developed and Isolated Theme	Bitcoin, investment strategy

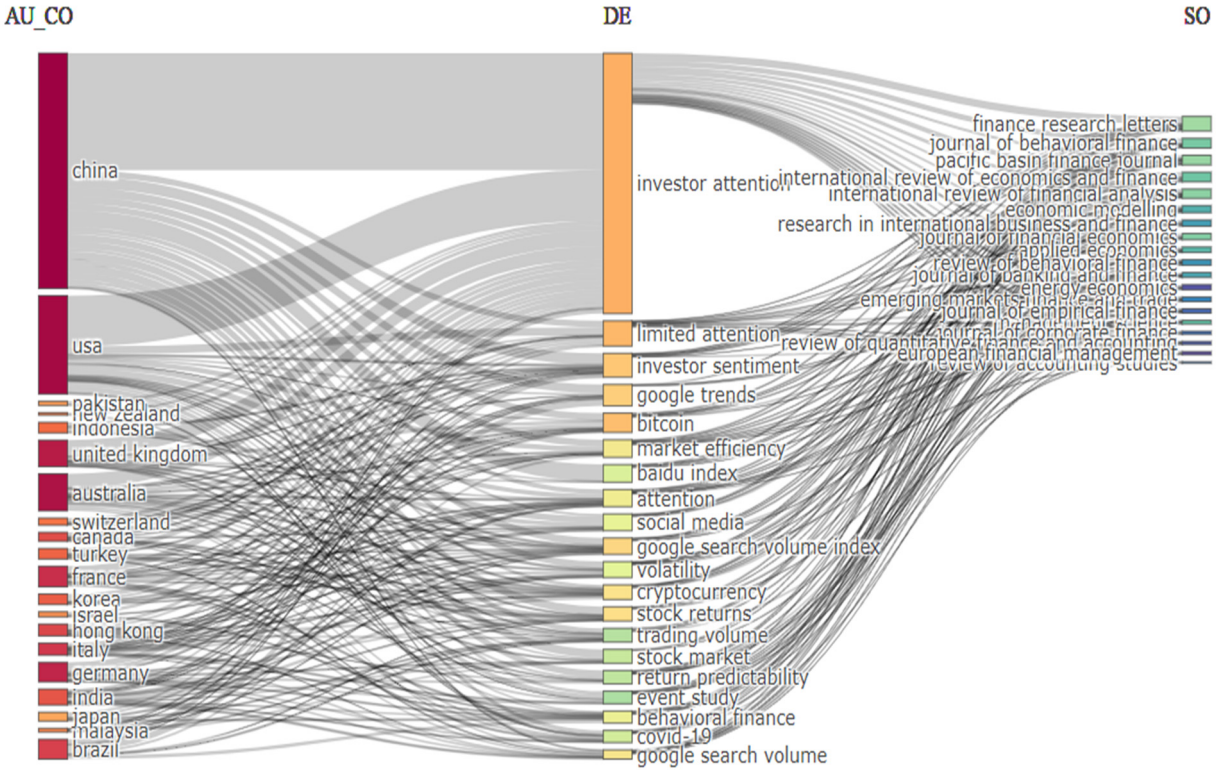


Figure 2.15: Three-fold analysis (Author's own creation from Biblioshiny)

Figure 2.15 displays a three-fold analysis of the current issue, with countries on the left, keywords in the center, and sources on the right. The findings suggest that concerns linked to investor attention studies are the most researched in the majority of countries followed by limited attention, investor sentiment, google trends, bitcoin, etc. China

studies the greatest number of issues connected to investor attention, among many others, followed by the USA, Australia, UK, etc. And finance research letter journal published the most studies in the current issue followed by journal of behavioral finance, pacific basin finance journal, etc.

2.2 Content or Qualitative Analysis of the past literature:

Table 2.17: Content analysis of past literature

Sr. no.	Title of the articles	Author(s), Year and country of first Author	Journal of the article & Sample data (no. of years)	No. of sample Countries () / Markets {} / stocks [] / commodities []	Sources of data []	Methodology used	Objectives	Findings and Conclusion
A1	Investor attention on the COVID-19 and the African stock returns	Bernard N, Sin-Yu H, 2021, Australia	MethodsX & 1 Jan 2020 - 26 nov 2020	Mauritius, Morocco, Namibia, Nigeria, Botswana, Egypt, Ghana, Kenya, South Africa, Tanzania, Tunisia, Uganda, Zambia and Zimbabwe {14}	Datastream , Yahoo finance and google trends [3]	EGARCH	How investor attention reacts to stock market return during covid	This study found that the returns in stock on 3 exchanges – Botswana, Nigeria and Zambia – had steadily reduced. Ghana and Tanzania, by contrast, have more attention from investors may improve stock returns.
A2	All That Glitters: The Effect of Attention and the News on the Buying Behavior of the Individual and Institutional Investors	Brad M & Terrance O, 2008, University of California	The Review of Financial Studies & Jan 1991 – June 1999	USA	the Plexus Group	Regression test	Individual investors' purchasing decisions are more impacted by attention than their selling decisions.	The study discover that purchasing decision of single investors is focused on. They are high-volume net purchasers after highly negative and very good day returns and when the stock is in the news. And professional investors are less likely to buy carefully.
A3	Forecasting the Stock Returns: Do Commodity Price Help?	ANGELA J, OLGA K et. Al. 2014, UK	Journal of Forecasting & 1973 - 2012	S&P 500, S&P GSCI [2] Gold, LME, Precious Metal [20])	Datastream	Correlation, regression,	investigates if it is possible to predict stock returns by looking at the connection between commodity and stock prices.	Study found that stock returns and returns on goods can only have a poor connection on a period-by-period basis. Furthermore, after the dot.com crisis, the interaction between the markets was altered by the link between returns.
B1	Investor attention and the global	L.A. Smales 2021, Australia	International Review of Financial Analysis	China, india, Australia,	Google Trends,	ARCH (GARCH)	-- How investor focus affects overall stock	According to the findings, GSV demonstrated that throughout the crisis

	market returns during COVID-19 crisis		& 31-12-2019 to 30-06-2020	South Africa, Russia, US et. Al. (19)	Google search volume		results in this crisis time. --response from GSV.	period, investor attention had an adverse effect on global stock returns, and there was a significant association with global stock market returns. When investor interest rose, its lower stock returns and higher the price volatility.
B2	Investor Attention towards the coronavirus and response of the Stock and the Sovereign Credit Default Swaps Markets	Hilal A, Falik S et. Al. 2020, Pakistan	ResearchGate & 23 Jan-12 June 2020	41 countries	Google search volume, data stream, google trends	Regression	--impact of investor attention on the stock markets and country risk.	According to the finding, a rise in Coronavirus search intensity led a decline in stock market performance and an increase in SCDS Spreads. This effect was significantly more pronounced in developed nations as compared to developing nations.
B3	Investor attention and response of the US stock market sectors to COVID-19	L. A. Smales 2021, Australia	emerald insight & 31 dec 2019 to 31 may 2020	104 trading days	DataStream, Google Trends, GSV	Granger causality test	--How Investor attention influences US stock returns towards COVID-19	The discrepancy in returns between stock market sectors can be explained by the detrimental impact of investor attention on US stock returns. A few industries benefited from the increased focus, with the industries most likely to gain from the crisis and associated spending by families and the government performing better than others.
B4	Are Investors' Attention and the Uncertainty Aversion the Risk Factors for the Stock Markets? International Evidence from the COVID-19	Falik S, Badar N et. Al. 2020, Pakistan	Risks & 23 January to 12 June 2020	34 countries	DataStream, GSV, Our world in data	Unit root test, Lagrange multiplier test	-- to investigate the relationship between stock market results and investors' attentiveness to COVID-19 and the moderating influence of national culture.	The study found that in countries where investors had stronger cultural norms of avoiding uncertainty, investors' attention had a more detrimental/negative impact on stock market outcomes. The results demonstrated that during a crisis, investors' cultural norms of avoiding uncertainty increase financial market volatility.
B5	The impact of investor attention	Daoxia W, Rui X et. Al.	Finance Research Letters	China, 201 firms	China Stock Market &	Regression models	to determine the outbreak's effects on	The study observed that the negative impact was greater for

	during the COVID-19 on investment in clean energy v/s fossil fuel firms	2021, China	& 25 Nov 2019 to 16 March 2020		Accounting Research (CSMAR) database		companies that produce fossil fuels and clean energy.	fossil fuel business than clean energy. As a result of investor interest, clean energy business returns improved during the epidemic, but not of fossil fuel. And financial markets, mainly the clean energy stocks had positive impact of green recovery schemes.
B6	The only certainty is uncertainty: An analysis of impact of the COVID-19 uncertainty on the regional stock market	Princess R, Jan J et. Al. 2021, UK	Finance Research Letters & 1 January 2019 to 19 June 2020	45 countries	Google Trends	IGARCH	to examine the effect of uncertainty associated with COVID-19 on volatility and returns on regional indexes.	The COVID-19 pandemic had an adverse effect in every domain. But while COVID-19-related uncertainty gradually subsided in European, North American, and Latin American markets, it tends to be more resilient in Asian markets. In several locations, volatility increased early in the crisis but decreased as it went on.
B7	Death and Contagious Diseases: Impact of COVID-19 Virus on the Stock Market Return	Abdullah M, Khaled Al S et. al. 2020, Kuwait	Journal of Behavioural and Experimental Finance & 10 January to 16 March 2020	China	Bloomberg, Worldometer	Regression analysis	The overall number of COVID-19-related confirmed cases and deaths has a notable impact on stock returns for all Chinese stock market companies.	This study assessed the detrimental effects of the COVID-19 pandemic on stock market returns. Particularly, stock returns showed a strong inverse relationship with the daily rise in the number of confirmed cases as well as the daily increase in the number of COVID-19-related deaths.
B8	Deaths, Panic, Lockdowns and the US Equity Markets: Case of the COVID-19 Pandemic	Ahmed S, Hassan A Et. Al. 2020, Pakistan	Finance Research Letters & January 13th, 2020 to April 17th, 2020.	US S&P 500	Thomson Reuters DataStream, Apple, Oxford COVID19 Government Response Tracker, John's Hopkins database, RavenPack, Google trends	GARCH	--Lockdowns and Reduced Mobility lessen the volatility and liquidity of the equities market. --Volatility and illiquidity in the stock market rise with the number of COVID-19 cases and	The study found a significant decline in market stability and liquidity was associated with a rise in coronavirus infections and fatalities that were confirmed. In a similar vein, market volatility and illiquidity appear to be exacerbated by public panic and the implementation of restrictions and lockdowns.

							deaths. --Market stability and liquidity are weakened by unfavourable mood stemming from news about the coronavirus.	
B9	Haze, Investor Attention and the China Stock Markets: Evidence from the Internet Stock Forum	Yihao Z, Lingfeng T et. Al. 2018, China	Finance Research Letters & January 1st, 2013 to December 31st, 2015	china	Daily bindu media index, National Oceanic and Atmospheric Administration	regression	--To investigate how haze affects China's stock markets and how investor attention acts as an intermediary. --There is a negative correlation between stock market results and haze-related investor attentiveness.	The results said that stock market returns decreased due to increased investor attention on haze. Direct experiences of the haze, both psychologically and physically, as well as news about the haze and accompanying government regulations, all drew investor attention and had an impact on the stock markets.
B10	Freedom and the Stock Market Performance during Covid-19	Orhan E 2020, USA	Finance Research Letters & Jan-April 2020	Japan, India, Africa, USA, Russia, turkey et. Al. (75)	Bloomberg, our world in data, freedom house	correlation	--The no. of Covid-19 cases has any effect on global financial markets. --The impact of the coronavirus in freer and less freer country's market.	According to the study, the increase in confirmed cases per million, as opposed to the increase in fatality rates, had a significant negative effect on the markets, resulting in more volatility and worse index returns. A comparable rise in coronavirus infections had a greater impact on stock markets in less free nations. In a similar vein, by volatility.
B11	Infected Market: Novel Coronavirus, Government Intervention, and the Stock Return Volatility around Globe	Zaremba A, Kizys R et. Al. 2020,	Finance Research Letters & 1 January 2020 to 3 April 2020	UAE, USA, Japan, Italy, India et. Al. (67)	DataStream	CAPM, FF, AMP, CAR	-- to look at the connection between stock market volatility and policy reactions to the COVID-19 epidemic.	Finding said that state actions boost volatility in international stock markets dramatically and robustly. The importance of information efforts and the postponement of public events largely drove the impact. Limitations associated to coronaviruses significantly affected the financial markets'

								trading environment. Widespread sales may result from increased volatility in the financial markets.
B12	The impact of COVID-19 on the emerging stock market	Mert T, Omer S 2020	Finance Research Letters & March 10, 2020 - April 30, 2020	All emerging markets	Investing Database, Yahoo Finance ,Worldometer Statistics (2020).	IPS test, GARCH, OLS	- Analysis is done on how COVID-19 has affected developing stock markets.	Study explained that, until April 10, there was an adverse impact of covid on developing stock markets. By mid-April the detrimental effects had dropped and started to fade off. The worst effects were seen in Asian developing markets, whilst the impact in Europe is limited. Emerging economies, where governments have taken necessary actions in good time and announced larger stimulus packages, are generally less influenced by the epidemic.
B13	Mobility during the COVID-19 pandemic and retail investor attention	Daniel C, Chloe H 2021, Australia	SSRN & January 3 to August 31, 2020	US	Google's Community Mobility Reports, DataStream , Compustat	Ordinary least square model	Does the COVID-19 pandemic's impact on mobility as a result of state-level lockdowns influence retail investors' attention to the equities markets?	The paper found that in states with a younger population and a bigger proportion of the population, which did not work at home in 2019, this association was greater. The results found the positive relation between duration of stay-at-home and the retail investor attention, which stimulates the abnormal trading activity in the financial markets.
B14	How does China stock market react to announcement of COVID-19 pandemic lockdown?	Xiaolin H, Zhigang Q 2020, China	Economic and Political Studies & 22 January to 3 March 2020	China, 28 industries	CSMAR	CAR, AR	-- to check how the stock market in China responds to the unexpected COVID-19 outbreak	Larger reversals in the event window were seen by the article for corporate and industrial shares with positive CARs. Thus, the industries and stocks that responded favourably to the pandemic shutting news were mostly responsible for the overreactions in the Chinese stock market. Additionally, for

								stocks with lower institutional ownership, regular investors have reacted more aggressively to the COVID-19 outbreak.
B15	COVID-19 and the investor's behavior	Regina O, Matthias P 2020, Germany	Finance Research Letters & Aug 1, 2019 to April 17, 2020	UK, 45,003,637 transactions, 456,365 investors	ECDPC	OLS regression analysis	What is the reaction of ordinary investors to the COVID-19 pandemic?	Study said, as the COVID-19 epidemic develops, investors will boost trading activity both extensively and intensively. On average, the number of COVID-19 instances doubled considerably, and investors dramatically increased their weekly trade intensity by 13.9%. Investors are also slightly more likely to sell for short periods.
C1	Investor's Attention and the Stock Price Movement	Chiao-Ming C, Alex Y et. Al. 2018,	JOURNAL OF BEHAVIORAL FINANCE & 1995 to 2013 (19)	197,007 observations	Institutional Brokers' Estimate System (IBES), Google Trends.	CAR	--to look into if the degree of investor attention affects the dynamics of stock prices after a shock. --After a significant shock, do the attention and sentiment levels of investors influence the dynamics of stock prices differently?	The study implied that if investors were pessimistic about equities that do not come with information, prices were much more sharply reversed. The impact of investor attention on price dynamics differs across stocks with different levels of risk. When a company received less attention, there were fewer market discussions and assessments, and further price continuance was encouraged. As a result, the prices of these stocks were reversed more than those of low volatility equities. Overall, this study shows that investor attention and sentiment are important components that influence price movement after severe shocks and interact with volatility in the dynamics of price determination.

C2	Investor's Attention and the Stock Returns: An Internationa l Evidence	Liyan H, Ziying L et. Al. 2017 China	Emerging Markets Finance and Trade & January 2004 to October 2015	15 countries	Google Trends	VAR model, ARIMA model	--to investigate how investor attentiveness affects predicted stock returns in fifteen different markets during economic booms and recessions in an asymmetric/ discriminativ e manner.	According to the study, while attentiveness lowers return autocorrelation and increases market efficiency, it also increases the predictability of stock returns and diminishes market efficiency. Third, we find that the underlying optimism and pessimism triggered attention have uneven effects. Studies of empirical data show that when people are expecting returns, pessimism frequently garners more attention.
C3	Investor's Attention and the Global Stock Returns	Tao Chen 2017, Honk Kong	JOURNAL OF BEHAVIO RAL FINANCE & January 2004 to December 2014	67 countries	Bloomberg, Google trends	Vector autoregression (VAR) framework	To examines the thorough impact of investor's attention on different stock market returns.	The results showed that the investor's attention to stock returns was large and detrimental. This impact depends on VAR analysis and was long-lived in nature. Investor attention may have a detrimental influence on local attention and attention in the United States. Finally, good (negative) feelings reinforce the negative effect of investor's attention in marketplace (weaker).
C4	Investor's Attention and the Stock Market Volatility	Danial A, Michael H 2015	The Review of Financial Studies & June 2000 to December 2012	17,500 survey responses	---------- -----	Regression analysis	-- to look into how investors' attention to news and their learning uncertainty interact to affect asset values.	The asset pricing model suggests that premium risk and volatility will increase with care and uncertainty, according to the findings. Our empirical research validated these hypotheses. The care, insecurity, and premium for volatility/risk hypothesised relationships were likewise quadratic.
C5	Attention effect via internet search intensity in	Parkpoom T, Chaiyuth P 2016, Thailand	Pacific-Basin Finance Journal &	Asia-pacific market	Google Trends, Bloomberg	Granger causality test	-- to investigate the connections between different	The study found that the market's impact on return predictability had an advantage since attentiveness leads to investors making more

	Asia-Pacific stock Markets		Jan 2004-dec 2014				market factors—such as return, volatility, and trading volume—and investor attention in a subset of Asia-Pacific equities markets.	informing decisions. This increases the efficiency of the market. The results were exclusively devoted to the predictable returns and volatility. Investor interest does not seem connect to the predictability of the trading volume. An asymmetrical connection between attentiveness and different market situations. However, whether the asymmetric association was beneficial or negative remains ambiguous.
C6	Investor Attention and FX Market Volatility	John G, Arben K et. Al. 2015	Int. Fin. Markets, Inst. and Money & January 2004 to September 2011	6 countries	LexisNexis database	GARCH,	-- to conduct an empirical investigation on the relationship between investor attention and currency price dynamics.	This study reported that variations in investor attention were highly related to fluctuations in the volume of transaction of the major FX traders. There was a positive and significant relationship between volatility and attention. It appears that investors can predict upcoming fluctuations in currencies even in the absence of news or macroeconomic uncertainty. Attention from investors was also linked to time-varying risk average assessed by a risk premium variance. This study results reflect a hypothesis that the pricing risk component of FX markets is a time-variable investment focus.

Recent Literature published on the Relevant study:

We manually analysed the past literature, mentioned in Table 2.17. Among the studies of recent literature on relevant study;

Surekha et al., (2022) depicted that the stock market has long piqued the interest of investors. The ease with which stock movement forecasting instruments facilitate the immediate transfer of profits has led to their high demand. Profitability is increased when results are accurate. The economy, politics, and social trends all have an impact on stock market trends. Stock trends can be analysed using either technical or fundamental analysis. With the emergence of technical wonders like worldwide digitalization, stock market forecasting is entering a technologically enhanced era that is changing the traditional trading method. Numerous methods and strategies have been developed for forecasting fluctuations in stock values, assisting investors in making informed decisions. The recommended method uses a graphic representation of the the top- and bottom-bound of the projected stock prices to show the best trading strategy.

Zhao et al., (2022) said due to its rapid development, China's latest industry of media has drawn the attention of an increasing number of investors since the start of the twenty-first century. But in recent years, its stock market has continuously displayed erratic performance. Liquidity risk and spillover between particular companies and markets are analysed in this research to examine the relationships among new-media stocks. They find that the reasons behind the instability of China's new media equities include the volatility of idiosyncratic risks and substantial systemic linkage between markets, which together result in greater liquidity risk spillover effects.

Liu, F. and Wen, W., (2023) said Investors can receive important information about the dynamics and trends of the capital market from price index, It functions like a thermometer, recording shifts in the stock market. The influence of index modifications on social responsibility's performance is experimentally examined in this research utilising the quasi-natural research of CSI 300 indices revisions. In their study they discover that the performance of corporate social responsibility is considerably enhanced by index additions. The motivation of maximizing shareholder value, which propels the fulfillment of corporate social responsibility, is supported by mechanism analysis. Moreover, heightened investor attention and expert following play a significant mediating role in the promotion of the influence of stock index inclusion on corporate social responsibility. Further investigation shows that the beneficial impact of stock index entries on social responsibility's performance is stronger in sectors with greater competition product markets. However, the fact that index withdrawals do not

significantly impair company social responsibility performance implies that there is an asymmetry in the impacts of index additions and removals.

Ho et al., (2023) study gives a disclosure of non-financial information helps shield companies from the risk of default. In addition, the channels utilised in the intermediate transmitting process may have an effect on a firm's default risk. As a result, they used the regression method to examine listed companies that were transacted on the Taiwan stock exchange between 2005 and 2014. The results show that information sharing has a significant negative influence on default risk. Furthermore, information transparency might ultimately influence an organization's default probability via intermediary transmitting channels after accounting for endogeneity and confirming robustness. Their research indicates that constructing a fully transparent information disclosure system will enhance market operations. Specifically, the rules' regularised information sharing will improve the efficiency of management and monitoring going forward.

The purpose of the research of Wu et al., (2022) is to improve our knowledge of how climate risk affects financial market valuation. Their study's main focus is on how stock prices respond to information provided by companies about climate risk. We use transcripts of Chinese listed corporations' performance briefings to measure the climate hazard at the organisation level. Using a number of Chinese listed enterprises between 2009 and 2021, they find that greater business climate risks are related with unfavourable market reactions over a short period of time. Numerous robustness tests support this result. They also discover that business environment risk has a negative impact on stock price reaction due to rising trading activity, higher investor interest, and reduced positive media coverage. Finally, they demonstrate how several important moderators, such as industrial carbon emissions, local abnormal temperatures, state-owned professional shareholding, and dividend distribution, influence the link between the business climate risk and an adverse market reaction. Their research indicates that the stock market may be able to more effectively price climate risk if disclosures of information related to climate change are made.

The study by Albrecht et al., (2023) looks at how news about the coronavirus's spread affects stock market returns. Using regression analysis, they look into this impact across various geographic locations and behavioral aspects. In particular, we

investigate the connection between stock returns and variables like investor interest, the quantity of newly confirmed COVID-19 cases and fatalities, and the government actions taken during the pandemic. Their results show that news about new virus-related deaths and interest in the vaccine had a major impact on stock markets throughout the world, including in Europe and the US. Interestingly, these effects were noted before the first vaccine was approved. Their research, however, does not support these findings for the Chinese and Japanese stock markets. Consequently, they contend that the Japanese stock market offers a chance for diversification in the event of comparable shocks. These results advance our knowledge of the relationships between financial markets and public health emergencies.

The literature of Chen et al., (2022) demonstrates that spatial investor–firm adjacency plays an important role to measure investor attention because of its locality and familiarity. This study explores whether the pattern seen in the American market also exists in Chinese market—namely, that the stock market's reaction to a company's earnings announcement can be significantly influenced by the demand for the company's information. Specifically, by dividing the search volume generated in the province where the firm is registered by the total contemporaneous countrywide search volume across all 31 provinces, this article generates an evolving local interest ratio for each publicly traded Chinese company. From 2011 to 2018, it was found that the market response around the dates of the yearly revenue releases in China's A-share market is predicted by the local attention measure. Higher local attention companies see more trading activity prior to the announcement, and price changes are a better indicator of impending earnings news. Price changes for earnings are less predictive at the announcement, even though trading is still going on. Furthermore, the only evidence we could find for the local information advantage theory explaining Chinese investors' attention to the area was supporting it.

Jiang et al., (2022) also look into the connection between anomalies in the financial markets and investor attention. They find that after days of high attention, anomaly returns are generally higher. In a natural experiment setting where exogenous variations in attention are generated by rounding errors and stock market regulations, the result remains robust even after adjusting for the impact of news. Large traders appear to trade more aggressively on anomaly signals after noticing increased attention,

according to an analysis of order imbalances. In order to shed light on the comprehension of anomalies, we explore the degree to which the results are motivated by coordinated arbitrage mechanisms, bias amplification, or underreaction caused by inattention.

Huang et al., (2023) also looks into how retail investors' attention affects market response to changes in analyst recommendations in the Chinese stock market. The results suggest that retail attention has a different impact on post-recommendation adjustment drift. Specifically, retail attention mitigates post-upgrade announcement drift while exacerbating post-downgrade drift. After several modifications to ensure robustness and reduce possible endogeneity problems, the results remain valid. Furthermore, we discover that whereas retail attention boosts liquidity to mitigate post-upgrade drift and aids the intake of news from individual businesses, it also causes underreaction due to short-sale limits and disposition effects suggesting larger post-downgrade drifts. The results of the further heterogeneity test provide more evidence for channel tests and indicate that favourable emotion prior to news can accelerate its incorporation into stock prices. These results add to the body of knowledge regarding the role played by individual investors in price discovery process after fundamental information is made public.

2.3 Research Gap:

Certain gaps have been revealed after evaluating 625 papers on investor's attention and the stock market. These gaps reflect the diversity of studies on the topic of investor attention analysis. The evidence suggests that investor attention varies over time and impacts stock prices.

- The literature hasn't quite figured out the direction of relationship among the stock market and investor attention. While Kim et al. (2019) finds no significant relationship at all, and Chen (2017) find a negative relationship whereby returns decrease after an increase in investor attention. In contrast, Da et al. (2011) find a positive relationship.
- This study expands the discussion on market pricing anomalies and, in particular, provides in the evaluation of emerging markets, as previous research has mostly concentrated on developed markets like USA (Baig et al., 2021; Butt et al., 2020).

- Mostly studies were focused on few sample countries and for a short span of time.

2.4 Conclusion:

In the present chapter, many issues have been discussed like investors' attention, its measures, and GSVI. Then the brief literature is discussed in which all category is explained, author-wise classification, country-wise, source-wise, period-wise, etc. According to this analysis of the present chapter, Numerous studies have concentrated on the United States, China, and the United Kingdom. But there is more scope in other countries like in emerging countries. This also shows that research in these sectors has grown between 2011 and 2021. The data indicates that stock prices are impacted by changes in investor attention over time. The direction of the association between investor attention and stock returns, however, has not been entirely clarified by the literature. In contrast, Da et al. (2011) and Tang and Zhu (2017) find a positive relationship, while Kim, Lucivjanska, Molnar, and Villa (2019) find no significant relationship at all. Bijl, Kringhaug, Molnar, and Sandvik (2016) and Chen (2017), for example, identify a negative relationship whereby returns decline following an increase in investor attention. We contribute to the literature, by seeking to address this issue empirically.

By reviewing 625 documents in bibliometric analysis, this chapter has built an empirical structure that is profound in its analysis of the influence of investors' attention on stock returns. In brief, the study emphasizes how outside factors can influence or mould investor perception and market results. These observations highlight how crucial investor focus is to the operation of stock markets in developing financial systems. Our literature assessment demonstrates these findings, which supports the necessity for more studies on the role that investors' attention plays in influencing stock returns in developing economies. The conceptual framework, research needs, emerging trends, and geographical focus, these kinds of criteria may be discovered by bibliometric analysis specific to a given topic. Other elements such as sample size, sample period, model employed, and current research aims, methods, findings, and conclusions can be discovered through a typical literature review categorization, explained above. This review is crucial for comprehending the complex nature of stock market behavior, supporting the main idea of our thesis and providing guidance for further investigation.

Since previous research has mostly focused on developed markets, primarily the U.S., this study especially adds to the examination of emerging markets. Researchers find that stock market returns are negatively impacted by investor attention (Al-Awadhi et al., 2020; Baig et al., 2021; Butt et al., 2020; Erdem, 2020; Shear et al., 2021; Smales, 2021b, 2021a; Szczygielski et al., 2021; Wan et al., 2021; Y. Zhang and Tao, 2019) but some find positive impact (Iyke and Ho, 2021). At last, the research gaps are identified on the basis of past literature, which is also the objective of the present study, discussed in chapter 3.

Chapter 3

RESEARCH METHODOLOGY

The current study aims to investigate the short-term and long-term relation among the stock market and investor attention, as well as the impact of investor attention on the stock market. All benchmark stock indices for emerging markets are considered for analysis. Analyzing psychological variables such as investor attention is critical because investor attention has a significant impact on the market for securities (Hossain and Siddiqua, 2022). Academic experts are growing more concerned about the effect of investor attention on the global stock market because behavioral finance is a rapidly expanding field that can help scholars comprehend investor behavior and choices and their impact.

It appears appropriate to conduct an empirical analysis to analyse the relation between the stock market and investors' attention and to determine the impact of investor attention on the stock market. In other words, does the stock market react to daily changes in investor attention.

The current chapter provides a comprehensive outline of the research methodology. To ensure quantitative interpretation and intuitive understanding, the instruments of methodology have been carefully taken. The chosen methodological tools were the result of earlier research in the field and the broadness of the research in a global context. There are two sections to this chapter. The research layout, research objectives, questions, hypotheses, data and sources, statistical tools, and the conceptual relation between the stock market and investor's attention are all provided in the first section of the present chapter's introduction.

Under section 3.1, the design of the current study is covered. Additionally, section 3.2 presents the econometric methods used in the current study to fill in research gaps. Finally, section 3.3 presents the chapter's conclusion.

3.1 STUDY DESIGN

A complete plan summary of how the analysis will be conducted is referred to here as the research design. This section covers the research question, objective, hypotheses, and their actual implications for the analysis and interpretation of the sample data. The following sections have discussed how the current study was organised:

3.1.1 Research Questions

The following research questions have been employed to fill the gaps in the literature:

1. Does investor attention affect stock market?
2. Is the attention driven turbulence in stock markets a short-lived phenomenon, or does it survive to extended period?
3. How does investor attention affect stock market, positively or negatively?

3.1.2 Research Objectives

The study's primary goal is to investigate the impact of investor attention in the emerging stock market. In accordance with the prior discussion, the following objectives for the current study have been established:

1. To analyze the causality between investor's attention and emerging stock markets.
2. To test the cointegration between investor's attention and emerging stock markets.
3. To examine the impact of investor's attention on emerging stock markets.

3.1.3 Research Hypotheses

The following null hypotheses will be tested in this research work in an effort to address the objectives listed above:

1. H_{01} = There is no significant short-run relationship between investor's attention and emerging stock markets.

2. H_{02} = There is no significant long-run relationship between investor's attention and emerging stock markets.
3. H_{03} = There is no significant impact of investor's attention on emerging stock markets.

3.1.4 Data and Sources

For the analysis, all Emerging stock markets are selected based on the list of MSCI (Morgan Stanley Capital International) Emerging Markets Index 2021 (MSCI, 2021), shown in Table 3.1. Return series data is collected related to all 26 Emerging Stock Markets from the Bloomberg terminal. The first-ranked index of stock markets in all nations is considered as a highly reflective benchmark index. Benchmark indexes of all countries are used for the analysis to represent a particular country's market. The period of sample data is from 1 January 2004 to 30 June 2022, because the data from google trends is available from 1 January 2004 only.

And time series data of investor attention has been retrieved from the Google search volume (GSV) index, Google Trends provided the information. This index provides a series of dates of the amount of queries submitted for search and is used as an indicator of investor interest; it shows how frequently a particular search phrase has been searched with regard to the overall number of searches worldwide, over a user-specified date spectrum. It normalizes search query data so that figures range between zero and one hundred based on the percentage of searches for each topic across all subjects within a given geography. Filters are applied by Google Trends to eliminate duplicate searches, searches containing special characters, and browses conducted by a small number of people. Keywords are collected which were nominated by Bloomberg, google trends, and Wordstream, among them, the keyword with the highest search intensity in Google Trends is chosen for the study, displayed in Table 3.2.

Structural break analysis is applied to assess all major crisis periods for 3rd objective, with sample periods aligned closely with established literature. Following Mollah et al. (2016), the Global Financial Crisis (GFC) is delineated with a calm period spanning from 1-1-2004, to 8-8-2007, and crisis time period from 9-8-2007, to 31-12-2009 (Bello et al., 2022). For the European Debt Crisis (EDC), the calm period extends from 1-1-2010, to 1-5-2010, and crisis time period from 2-5-2010, to 9-6-2013. The

Chinese crash is identified with a calm period from 10-5-2013, to 11-5-2015, and the crisis period from 12-6-2015, to 31-12-2015. Adopting the approach of Aristeidis and Elias (2018), crisis of Brexit period is defined with a calm period from 1-1-2016, to 23-6-2016, and the crisis time from 24-6-2016, to 30-9-2017, aligning with significant economic events related to Brexit. Following Okorie and Lin (2021), the COVID-19 crisis has a calm period from 1-10-2019, to 31-12-2019, and crisis time from 1-1-2020, to 31-3-2021. Lastly, for the Russia-Ukraine War, the calm period spans from 1-4-2021, to 24-2-2022, and crisis time from February 25, 2022, to June 30, 2022, intentionally chosen to minimize the impact of external events.

Table 3.1: Selected Emerging Countries with Benchmark Indexes

Sr No	COUNTRY	BENCHMARK INDEX
1	Argentina	s&pmerval
2	Brazil	ibov
3	Chile	igpa
4	China	shcomp
5	Colombia	colcap
6	Czech Republic	Px
7	Egypt	egx30
8	Greece	ase
9	Hungary	bux
10	India	nifty
11	Indonesia	jci
12	Kuwait	kwseidx
13	Malaysia	fbmklci
14	Mexico	mexbol
15	Pakistan	kse100
16	Peru	igbvl
17	Philippines	pcomp
18	Poland	wig20
19	Qatar	dsm
20	Russia	imoex
21	Saudi Arabia	saseidx
22	South Korea	kospi
23	Taiwan	twse
24	Thailand	set
25	Turkey	xu100
26	UAE	dfmgi

Table 3.2: Selected Keywords

Sr No.	Emerging Countries	Suggested Keywords of Investor attention By Bloomberg, Wordstream & Google Trends	Selected Keyword (Highest Search Intensity) [A]
1	Argentina	Merval, Argentina Stock Exchange	Merval
2	Brazil	Ibovespa, Bovespa, Ibov	Ibovespa
3	Chile	Igpa, Chile Stock Exchange, Santiago Stock Exchange, Igpa Index	Igpa
4	China	Sse Composite Index, Sse Index, Shanghai Stock Exchange, Shanghai Index	Shanghai Index
5	Colombia	Colcap, Colcap Colombia, Colcap Index, Msci Colcap	Colcap
6	Czech Republic	Px Index, Prague Exchange	Prague Exchange
7	Egypt	Egx30, Egx30 Index, Egyptian Exchange	Egyptian Exchange
8	Greece	Greece Stock Exchange, Ase Index	Ase Index
9	Hungary	Bux Index, Budapest Stock Exchange, Budapest Exchange, Bux	Bux Index
10	India	Nifty, Nse, Nifty Index Nse Nifty, Nifty 50	Nifty
11	Indonesia	Jci, Indonesia Stock Exchange, Jci Index	Indonesia Stock Exchange
12	Kuwait	Kuwait Exchange, Kuwait Stock Exchange, Kse	Kuwait Exchange
13	Malaysia	Klse, Bursa Malaysia, Malaysia Stock Exchange, Malaysia Exchange	Klse
14	Mexico	Bolsa, Mexican Stock Exchange, Bmv, Mexican exchange	Mexican exchange
15	Pakistan	Kse 100, Kse 100 Index, Kse100	Kse 100
16	Peru	Igbvl	Igbvl
17	Philippines	Pcomp, Psei, Pcomp Index	Psei
18	Poland	Warsaw Stock Exchange, Wig20, Poland Stock Exchange	Wig20
19	Qatar	Qatar Exchange, Qatar Stock Exchange, Qatar Stock Market, Dsm	Qatar Exchange
20	Russia	Moex Index, Moscow Exchange	Moscow Exchange
21	Saudi Arabia	Tadawul, Tadawul Index, Sase	Tadawul
22	South Korea	Kospi, Kospi Index	Kospi
23	Taiwan	Taiwan Index, Taiwan Exchange, Taiwan Stock Exchange	Taiwan Index
24	Thailand	Set 50, Set Index, Thailand Stock Exchange	Set Index
25	Turkey	Xu100, Borsa Istanbul 100, Xu 100, Bist Xu100	Xu100
26	Uae	Dfmgi Index, Dfm Index, Dfm General, Dfm General Index	Dfm Index

3.1.5 Statistical Tools

The whole evaluation has been accomplished in Microsoft Excel, RStudio, SPSS 26, and EVIEWS 12. Microsoft Excel has been utilised to create all of the graphical displays.

3.2 RESEARCH TECHNIQUES

Numerous techniques were used in the current research work for the analyse of the stock market and investor attention. Daily data of return series and gsvi time series has been used to calculate and examine descriptive statistics. The present research work also employs other statistical tests, including the Unit Root Test, Vector Autoregression Model (VAR), Toda Yamamota test, ARDL (Autoregressive Distributed Lag Model), the EGARCH (Exponential Generalised Autoregressive Conditional Heteroskedasticity) model, and Wavelet analysis. The Returns Calculation Formula (R_t) is:

$$\mathbf{R_t = \log(P_t/P_{t-1})}$$

In this case, rt indicates log returns at time t, p_t indicates closing price at that time and p_{t-1} indicates the closing price at time t-1.

3.2.1 Descriptive Statistics

The analysis involves the utilization of various statistical measures such as the Jarque-Bera test, mean, min and max values, standard deviation, skewness etc. These assessments are performed on data pertaining to stock market indices spanning from January 1, 2004, to June 30, 2022. In cases of extensive datasets, the Jarque-Bera statistic approach is employed to assess the conformity of observations to a normal distribution. The computation for the Jarque-Bera test is outlined as follows:

$$\mathbf{JB = n\ [S/3 + (K-3)/12]}$$

- Where JB denotes Jarque Bera test statistic
- N denotes the sample size taken for the study
- S denotes the skewness co-efficient
- K denotes the Kurtosis Co-efficient

3.2.2 Unit Root Test

The unit root test is necessary to find the integrated level of all variables to avoid misleading results. The ADF (Augmented Dickey Fuller), PP (Phillips-Perron), and many other tests were used to evaluate does a time series has a unit root and then to find the order of integration. In the present study, ADF and PP tests are employed.

The ADF test is employed to verify the stationary properties and sequence of integration of a time series. The ADF test is used in the current study to address the issue of auto-correlation.

The ADF test is often expressed in the following regression form:

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \delta_2 \Delta y_{t-2} + \ldots + \delta p \Delta yt - p + \varepsilon_t$$

where:

- Δ represents the differencing operator (i.e., the change in the variable from one period to the next),
- yt is the level of the time series at time t,
- α is a constant,
- β is the coefficient on a time trend,
- γ measures the impact of the lagged level of the time series on the current change,
- $\delta 1, \delta 2, \ldots, \delta p$ are coefficients on lagged differences of the time series,
- p is the lag order chosen for the test,
- εt is the error term.

The null hypothesis of the ADF test is typically that $\gamma=0$, indicating the presence of a unit root. Rejection of the null hypothesis suggests that the time series is stationary.

The specific formulation of the test may vary depending on whether a constant and/or a trend term is included in the regression. The ADF test statistic is then compared to critical values to determine statistical significance and reject or fail to reject the null hypothesis.

The PP test (1988) proposed an alternative model for addressing elevated auto-correlation in error terms that did not include a lag period. The Phillips-Perron (PP) test adjusts t-test statistics. The PP test is described using the following regression model:

$$\Delta R_t = PR_{t-1} + \varepsilon_t$$

Where R_t denotes the log price series, Δ denotes the first difference, and ε_t denotes pure white noise.

3.2.3 Vector Autoregression Model (VAR)

It is necessary to choose a suitable multivariate time series method for examining the relation between the stock market and investor attention, after determining the order of integration from the ADF and PP tests. The order in which a time series is integrated determines which model is chosen. First, if the stock return series, which represents the stock market, and the GSVI series, which represents investor attention, are both stationary at level, i.e., series is i0, then a simple VAR model is used to examine the relationship. However, if both series are stationary at the first difference, i.e., series is i1, then the VECM model is used. But if one series is stationary at level (i0) and the other is stationary at the first difference (i1), then the appropriate model is the ARDL model. Toda Yamamoto test has been utilised to test the short-run relation even though the series has unit root but they are not cointegrated.

To determine the appropriate lag length between the selected time series, the study uses VAR method. In the research, we used the lag length recommended by the SIC criteria for the VAR approach.

A Vector Autoregression (VAR) model is a multivariate time series model that describes the joint dynamics of multiple variables over time. The general form of a VAR(p) model for two variables, $y1$ and $y2$, with a lag order of p, can be expressed as follows:

$$y_{1t} = c_1 + \phi_1 y_{1,t-1} + \phi_{12} y_{2,t-1} + \ldots + \phi_1 p y_{1,t-} p + \phi_2 p y_{2,t-} p + \varepsilon_{1t}$$

$$y_{2t} = c_2 + \phi_{21} y_{1,t-1} + \phi_{22} y_{2,t-1} + \ldots + \phi_2 p y_{1,t-} p + \phi_2 p y_{2,t-} p + \varepsilon_{2t}$$

In this system of equations:

- y_{1t} and y_{2t} are the two variables of interest at time t.
- c_1 and c_2 are intercept terms.
- ϕij are coefficients representing the contemporaneous effects of variable j on variable i.
- p is the lag order of the VAR model, indicating how many past time points are included in the model.
- $\varepsilon_1 t$ and $\varepsilon_2 t$ are the error terms for each equation, assumed to be white noise.

The VAR model captures the interdependencies and feedback loops between the variables by including lagged values of all variables in each equation. The coefficients ϕij represent the impact of the lagged values on the current values of the variables.

The order of the VAR model (p) is an important parameter that needs to be determined based on data characteristics and model selection criteria. The VAR model can be extended to include more than two variables in a similar manner, and the structure of the system of equations would be adjusted accordingly.

3.2.4 Objective 1: To analyze the causality between investor's attention and emerging stock markets

Toda Yamamoto Granger Causality

In empirical research studies, examining the relationship between investor attention and stock returns is a difficult and challenging exercise. Many researchers have conducted numerous studies to determine the relation between investor attention and stock returns. C. J. Granger suggested an approach in 1969 that shows the direction of relationships between two sample variables. The Granger causality test is the name given to this model (Engel and Granger, 1987). Granger's representation theorem states that if two sequences are cointegrated, then the long-run and/or short-run relationships will always exist. In simple words, one series can granger cause the other series and vice versa, or

both can granger cause each other, or maybe both are not granger cause each other. The Toda-Yamamoto Granger causality test is more accurate due to its acceptable regardless of whether the variables are not co-integrated, co-integrated in a random sequence, or co-integrated with the orders of I (0) and I (1), respectively. So, the Toda-Yamamoto test is used in this study to analyze the short-run causality between investor attention and stock returns. The lag length is opted which is recommended by the SC criteria for this approach.

The general form of the Toda-Yamamoto test regression equation for two variables, *yt* and *xt*, can be expressed as follows:

$$y_t=\alpha+\beta_1 y_{t-1}+\beta_2 y_{t-2}+\ldots+\beta p y t-p+\gamma_1 x_{t-1}+\gamma_2 x_{t-2}+\ldots+\gamma q x t-q+\delta_1 y^2_{t-1}+\delta_2 y^2_{t-2}+\ldots+\delta r y^2 t-r+\varepsilon_t$$

In this equation:

- y_t and x_t are the dependent and independent variables, respectively.
- α is a constant term.
- βi and γi are coefficients representing the lagged values of y and x up to orders p and q, respectively.
- δi represents the coefficients for the lagged squared values of y up to order r.
- p, q, and r are the lag orders chosen for the test.
- ε_t is the error term.

3.2.5 Objective 2: To test the cointegration between investor's attention and emerging stock markets

Autoregressive Distributed Lag Model (ARDL)

The cointegration model proposed by Engle (1987) was used by the majority of earlier studies to identify long-term relations between the variables. All of the variables in these models must be stationary, and the order of the interactions must be equal. Pesaran et al. (2001) claim that the ARDL model has a number of benefits compared to the

cointegration model, including the following: It is not necessary for every factor to be incorporated in an identical order. As a result, the series' stationarity is not an issue. It is also better suited to the smaller number of samples. In terms of choosing lag orders, the ARDL model is more flexible because it permits an alternate lag order for every variable. The ARDL model was used in the current study to check the cointegration between the stock market and investor's attention in all 26 emerging markets.

The general form of an ARDL model for two variables, *yt* and *xt*, with *p* and *q* lags, respectively, is as follows:

$$y_t=\alpha+\beta_1 y_{t-1}+\beta_2 y_{t-2}+\ldots+\beta p y t-p+\gamma_0 x_t+\gamma_1 x_{t-1}+\gamma_2 x_{t-2}+\ldots+\gamma q x t-q+\delta_0 y_{t-1} x_t+\delta_1 y_{t-1} x_t +\delta_2 y_{t-2} x_t+\ldots+\delta p y t-\mathrm{p}\, x_t+\varepsilon_t$$

In this equation:

- y_t and x_t are the dependent and independent variables, respectively.
- α is a constant term.
- βi and γi are coefficients representing the lagged values of y and x up to orders p and q, respectively.
- δi represents the coefficients for the interaction terms between lagged values of y and x.
- p and q are the lag orders chosen for the test.
- ε_t is the error term.

3.2.6 Objective 3: To examine the impact of investor's attention on emerging stock markets

EGARCH Model and Wavelet Analysis

3.2.6.1 EGARCH Model

For examining the impact of investor's attention on the stock market, the present study uses a bivariate EGARCH (1,1) model. The GARCH (generalised autoregressive conditional heteroscedasticity) model from Bollerslev (1986) is not taken into account

in this study because it presumes that both good and bad news has a similar impact on the market. In contrast to the GARCH (p,q) model, the EGARCH model offers several advantages. One of the most notable is its logarithmic requirements, allowing for the relaxation of positive constraints on the parameters. Additionally, the EGARCH model incorporates asymmetries in stock return volatility.

The general form of an EGARCH (1,1) model is expressed as follows:

$$\log(\sigma^2_t) = \omega + \alpha(|r_{t-1}|/\sigma_{t-1}) + \beta\log(\sigma^2_{t-1}) + \gamma r_{t-1}$$

Here's the breakdown of the terms:

- $\log(\sigma^2_t)$ is the log conditional variance at time t.
- ω is the constant term.
- α is the coefficient for the absolute value of the standardized residuals from the previous period.
- $|r_{t-1}|$ is the absolute value of the standardized residual at time $t-1$.
- σ_{t-1} is the conditional standard deviation at time $t-1$.
- β is the coefficient for the lagged log conditional variance.
- γ is the coefficient for the lagged standardized residual.
- r_{t-1} is the standardized residual at time $t-1$.

The EGARCH model is suitable for capturing the volatility clustering observed in financial time series data. The absolute value term $|rt-1|$ and the asymmetric response to positive and negative shocks make the EGARCH model well-suited for financial returns data where volatility tends to exhibit clustering during periods of high market stress.

3.2.6.1.1 Diagnostic Tests

3.2.6.1.1.1 ARCH Effect

The ARCH test proposed by Engle (1982) is conceived to assess autocorrelation in the

square residual. ARCH-LM test is used to check autocorrelation on lag value 20. After this test, it will be sure that this model is providing better results or not.

3.2.6.1.1.2 Normality Test

The Jarque-Bera test is used in this study to examine the sample series' normality.

3.2.6.2 Wavelet Methods

This process involves applying mathematical techniques to raw data in order to extract additional information that may not be immediately available. Raw time series data typically lacks interpretable information in its unprocessed state. The objective is to transform these raw data into a finalized processed signal, allowing for the extraction of meaningful information. When it comes to time series data, the raw and unprocessed form primarily consists of temporal elements.

Contrary to raw time series data, where only the temporal element is present, wavelet analysis provides a more insightful representation. When plotting time series data using wavelet analysis, the independent variable (time) is shown on the X-axis, whereas the variable that is dependent is shown on the Y-axis. This results in a time-amplitude representation of the data. Wavelet decomposition becomes particularly useful when crucial frequency-related information is concealed in the raw data.

Wavelets, originating from filtering techniques and Fourier analysis, address and overcome many of the limitations associated with these methods. They exhibit exceptional versatility by combining data from both time and frequency domains, eliminating the need for rigid assumptions about the data generation process. The remarkable feature of wavelets lies in their ability to dynamically resize the analysis window. A small window allows the observation of minute characteristics, while a large window reveals broader features. This flexibility enables the examination of precise details as well as approximations using wavelets.

3.2.6.1 Wavelet Power Spectrum

A tool for studying a signal's time-varying frequency content in the processing of signals and time-frequency analysis is the Wavelet Power Spectrum (WPS). The idea

behind it is wavelet analysis, which breaks down a signal into various frequency components at various scales. The movement of power, or energy, across various frequencies is described by a signal's power spectrum. The spectrum of power across various scales and frequencies acquired through wavelet analysis is referred to as the Wavelet Power Spectrum. Transient characteristics and frequency variations over time can be identified with the help of the Wavelet Power Spectrum, which offers a time-varying examination of a signal's frequency content.

3.2.6.2 The Wavelet Coherence

The wavelet creation is used to visualize the coherence of two signals, x and y, in both the frequency and temporal domains. This method was created to investigate multiscale integration and period characteristics in irregular, time-sensitive phenomena.
Torrence and Compo (1998) proposed the following equation to express the adjusted wavelet coherence coefficient:

$$W^2(p,q) = [|M(M^{-1}Nab(p,q))|^2] / [M(M^{-1}|Na(p,q)|^2)M(M^{-1}|Nb(p,q)|^2)]$$

where M denotes the smoothing mechanism and 0 W2 (p,q) 1 denotes the squared wavelet coherence co-efficient range. A value near zero denotes a lack of correlation, whereas a value near unity denotes a strong correlation.

3.3 CONCLUSION

A manual has been created in this chapter that guides the development of empirical techniques to analyse the impact and the short and long-term relationship between markets with the help of the research gap identified from the literature review in Chapter 3. Research objectives and hypotheses have been developed for this study's current chapter. All 26 Emerging Stock Market's return series data will be collected from the Bloomberg terminal and time series data of investor attention has been retrieved from the Google search volume (GSV) index, obtained through Google Trends for the period 1 January 2004 to 30 June 2022. And the structural break dates are also explained in current chapter. The two main goals of the current research work are to examine the impact and short and long-term relationships. The different

econometric approaches have been chosen based on the research objectives, and the findings from different techniques are presented in the following chapter.

The wide-ranging reach of our research, including 26 developing nations between 2004 and 2022, has proven essential in furnishing a thorough assessment of the influence of investor focus on stock markets across significant crises like the Global Financial Crisis and the COVID-19 pandemic. This wide-ranging methodology not only improves the statistical soundness of our results but also enables comprehensive cross-national comparisons, guaranteeing that our conclusions hold in a variety of political, social, and economic contexts. Furthermore, we can completely evaluate these techniques by utilizing cutting-edge analytical tools to study such a broad dataset, which further advances our knowledge of the dynamic interaction between investor behavior and market responses during times of crisis. When navigating and interpreting the complexity of developing market economies, policymakers, investors, and academic academics will find these insights to be of great use. Large sample periods and sample sizes have also been chosen in previous studies (Iyke and Ho, 2021; He et al., 2019; Erdem, 2020; Zaremba et al., 2020; Smales, 2021a; Chen, T., 2017).

We conducted a thorough analysis of the effect of investor attention on stock market returns in emerging markets using a variety of statistical tests and methodologies, from stationarity tests and descriptive statistics to more sophisticated models like VAR, ARDL, and EGARCH. Descriptive statistics offered an initial overview, stationarity tests guaranteed data stability, VAR and ARDL models examined interrelationships and long-term relationships, EGARCH and wavelet analysis addressed volatility and overlooked historical patterns, and so on. Each technique was selected to address a particular aspect of the data. The robustness and directional impacts of our models were further evaluated using the Toda-Yamamoto Granger causality test. Our analytical depth was enhanced by this varied methodological approach, which provided a solid, multifaceted viewpoint that was essential for making accurate conclusions regarding the complex nature of developing financial markets.

Chapter 4

RESULT ANALYSIS AND INTERPRETATION

This chapter presents the analysis and interpretation of empirical results. The research focuses on emerging stock markets, and this chapter uses descriptive statistics to first describe the nature of all markets. Following that, ADF and PP tests are employed to examine the stationarity and order of integration of each share market's closing price series and GSVI series for investor's attention. The ARDL, Toda Yamamoto Granger Causality test, and VAR results are also discussed. Finally, the results of the EGARCH model and Wavelet analysis are discussed to know about the impact of investor's attention on stock market returns.

4.1 DESCRIPTIVE STATISTICS

In order to make interpretation easier, descriptive statistics provide a summary of a given data set. The data set is described by the mean, which is used in Jarque-Bera (JB) statistics, measures of dispersion, correlation between the sample variables, and measures of central tendency. This section examines the summary statistics of the GSVI series (for Investor attention (IA)) and closing price series and return series of emerging stock markets.

The current study, which covers the years 2004 to 2022, uses a time series analysis to analyse the data. So, using the methodology outlined in the previous chapter, the study continues to examine the data in this section. Additionally, subsection 4.1.1 of this section displays the findings of descriptive statistics for the IA and closing price series (CP) for emerging stock markets for the years 2004 to 2022. And subsection 4.1.2 displays the findings of descriptive statistics of IA and Stock Return (RET) series (2004-2022).

4.1.1 Results of Descriptive Statistics (2004-2022)

Table 4.1 depicts the descriptive statistics of the closing price and IA series for the time period 2004-2022. Results show that mean of all closing price and GSVI variables is positive. And the highest mean value of the closing price series is reported in Brazil (62604) followed by Mexico (35717), Hungary (25943), Kuwait, and Pakistan (23754). And the highest mean value of the GSVI series is reported in India (63.22543) followed by Thailand (42.93912), Malaysia (42.66038), and South Korea (39.35786). And the lowest mean is spotted in the closing price series of Turkey (727.837) followed by the Czech Republic (1116.413), and Thailand (1169.208). And lowest mean of the GSVI series is spotted in Hungary (2.249266) and Indonesia (2.863857). The standard deviation depicts the highest volatility in the closing price series of Brazil (25361.85) followed by Kuwait and Pakistan (14637.69), and lowest in the Czech Republic (254.7333) followed by Malaysia (322.3145), and Colombia (385.2219). And the highest standard deviation is spotted in the GSVI series of South Korea (30.93756) followed by Taiwan (28.21666), and Thailand (26.04292), and lowest in Hungary (5.033764), and Indonesia (5.885359). Skewness of zero and kurtosis of three indicate a normal distribution, in Table 4.1, the skewness of the closing price (cp) series of all countries is positive except Chile, Colombia, Indonesia, Malaysia, Mexico, Peru, Philippines, Qatar, and Thailand. And the skewness of the GSVI series of all countries is positive except Malaysia and Thailand. Positive skewness statistics in all sample series indicate longer right tails, which indicate extreme gains, while negative skewness indicates longer left tails, which indicate extreme losses. The frequency distribution's "degree of peakedness" is indicated by the kurtosis. The kurtosis value of cp variables of all countries is more than 3 except Brazil, Chile, Colombia, Egypt, Hungary, Indonesia, Kuwait, Malaysia, Mexico, Pakistan, Philippines, Qatar, and Thailand. And the kurtosis value of all GSVI variables of all countries is more than 3 except Argentina, Malaysia, Mexico, Philippines, Poland, Qatar, Saudi Arabia, South Korea, Taiwan, and Thailand.

Table 4.1: Descriptive Statistics of GSVI series (for IA) and stock closing price (CP) series for emerging stock markets (2004-2022)

Country	Variable	Mean	Median	maximum	Minimum	Std. Dev	Skewness	Kurtosis	Jarque-bera	Probability	Sum	Sum Sq. Dev.	Observations
Argentina	CP	9013.82	8450.72	18526.35	4089.93	2840.685	1.484588	5.366601	2865.94	0	43004935	3.85E+10	4771
	IA	31.93103	31	100	0	22.01129	0.384673	2.821737	123.9546	0	152311	2310566	4771
Brazil	CP	62604.6	58338.39	130776.3	17604.12	25361.85	0.659995	2.940114	347.0818	0	2.99E+08	3.07E+12	4771
	IA	18.56038	11	100	0	21.0428	1.510637	4.419316	2214.584	0	88533	2111711	4771
Chile	CP	18309.52	19214.01	29518.17	7074.51	5554.048	-0.307985	2.228962	193.6069	0	87354737	1.47E+11	4771
	IA	7.812998	0	100	0	15.47398	2.392919	9.534793	13039.54	0	37268	1141909	4771
China	CP	2726.154	2832.113	6092.057	1011.499	868.0529	0.377633	3.848639	256.5635	0	13006479	3.59E+09	4771
	IA	26.35723	23	100	0	21.67548	0.823425	3.37517	567.0076	0	125724	2240601	4771
Colombia	CP	1278.622	1356.48	1942.37	251.72	385.2219	-0.804313	2.986233	514.4465	0	6100307	7.08E+08	4771
	IA	8.215933	0	100	0	15.42427	2.270857	8.951328	11139.04	0	39190	1134584	4771
Czech Republic	CP	1116.413	1045.55	1936.1	628.5	254.7333	1.128824	3.82666	1149.084	0	5326407	3.10E+08	4771
	IA	14.05241	0	100	0	18.94093	1.408386	4.828545	2241.459	0	67030	1710921	4771
Egypt	CP	8239.018	7409.27	18304.46	1151.79	3694.8	0.405519	2.451845	190.4931	0	39308355	6.51E+10	4771
	IA	12.5283	0	100	0	18.9148	1.662485	6.198506	4057.1	0	62505	1592241	4771
Greece	CP	1705.015	957.7	5334.5	440.88	1308.305	1.189842	3.156103	1130.581	0	8134625	8.16E+09	4771
	IA	6.802306	0	100	0	15.53936	2.822526	12.09095	22759.26	0	32447	1151579	4771
Hungary	CP	25943.07	2.25E+04	55925.58	9379.99	10410.32	0.7937	2.716574	516.9533	0	1.24E+08	5.17E+11	4771
	IA	2.249266	0	56	0	5.033764	3.928712	26.02657	117652.5	0	10729	120840.6	4771
India	CP	7107.411	5929.6	18477.05	1388.75	3868.626	0.824533	3.228947	551.0176	0	33909456	7.14E+10	4771
	IA	63.22453	65	100	0	15.1822	-0.45273	3.27191	177.6511	0	301581	1099251	4771
Indonesia	CP	3905.321	4316.176	7262.777	668.477	1862.684	-0.25878	1.723037	377.4056	0	18632285	1.65E+10	4771
	IA	2.863857	0	100	0	5.885359	3.855961	31.34244	170576.4	0	13589	164320.1	4745

Kuwait	CP	23754.37	17740.69	52876.46	4471.6	14637.69	0.294199	1.499075	516.6568	0	1.13E+08	1.02E+12	4771
	IA	15.05556	15	72	0	11.1127	0.599032	3.831453	422.676	0	71815	588934.3	4771
Malaysia	CP	1442.756	1557.55	1895.18	781.05	322.3145	-0.65164	2.095321	500.3586	0	6883389	4.96E+08	4771
	IA	42.66038	44	100	0	22.08365	-0.0881	2.499756	55.90698	0	203490	2325782	4771
Mexico	CP	35717.24	39157.51	56609.54	8771.43	11847.48	-0.70311	2.446899	453.9124	0	1.70E+08	6.70E+11	4771
	IA	29.60637	29	100	0	23.6362	0.401794	2.489667	180.1435	0	141252	2664855	4771
Pakistan	CP	23754.37	17740.69	52876.46	4471.6	14637.69	0.294199	1.499075	516.6568	0	1.13E+08	1.02E+12	4771
	IA	14.44025	0	100	0	20.5175	1.467378	4.744134	2316.391	0	68880	2007595	4771
Peru	CP	13626.4	13366.86	24.51.62	2435.04	4959.345	-0.408951	3.066301	133.8585	0	65011560	1.17E+11	4771
	IA	6.971698	0	100	0	16.58645	2.736867	10.98249	18619.28	0	33255	1312001	4771
Philippines	CP	5145.987	5738.06	9058.62	1388.15	2274.462	-0.195885	1.48774	485.134	0	24551505	2.47E+10	4771
	IA	21.32222	16	100	0	23.99349	0.9078	0.009803	655.179	0	101707	2745454	4771
Poland	CP	2.34E+03	2309.44	3917.87	1305.73	469.1997	0.931183	4.159138	956.5868	0	11145125	1.05E+09	4771
	IA	31.12439	29	100	0	25.26326	0.428012	2.347039	228.6879	0	147374	3201392	4736
Qatar	CP	9249.799	9330.54	14494.35	3925.46	2033.642	-0.130988	2.70868	30.51427	0	44130793	1.97E+10	4771
	IA	30.57715	32	100	0	24.48621	0.298898	2.266994	177.8133	0	145853	2859370	4771
Russia	CP	1763.384	1623.99	4287.52	467.72	790.0465	0.858723	3.718493	688.9824	0	8413106	2.98E+09	4771
	IA	9.227768	0	100	0	16.35853	2.146514	8.351422	9350.802	0	43998	1275657	4769
Saudi Arabia	CP	8227.011	7659.88	20061.69	4130.01	2450.659	1.685425	6.840869	5191.426	0	39251070	2.86E+10	4771
	IA	26.57327	24	100	0	22.96139	0.540483	2.465961	287.2846	0	126037	2500102	4744
South Korea	CP	1881.682	1954.11	3305.21	719.59	528.6138	0.093139	3.353576	31.75008	0	8977507	1.33E+09	4771
	IA	39.35786	39	100	0	30.93756	0.076919	1.609892	388.7684	0	187737	4564564	4771
Taiwan	CP	9013.82	8450.72	18526.35	4089.93	2840.685	1.484588	5.366601	2865.94	0	43004935	3.85E+10	4771
	IA	20.98155	0	100	0	28.21666	1.097911	2.801019	966.1684	0	100082	3796982	4771
Thailand	CP	1169.208	1276.49	1838.96	384.15	404.8549	-0.176932	1.521164	459.6411	0	5578292	7.82E+08	4771
	IA	42.93912	47	100	0	26.04292	-0.253138	2.105329	208.3123	0	203145	3208046	4732
Turkey	CP	727.837	706.07	2463.76	159.22	375.0979	1.084871	4.901121	1654.352	0	3472510	6.71E+08	4771

	IA	7.824738	0	100	0	14.91475	2.346612	9.552864	12912.07	0	37324	1060863	4771
UAE	CP	3126.229	2846.07	8484.63	1010.03	1460.795	1.028907	4.019926	1048.155	0	14908987	1.02E+10	4769
	IA	5.264681	0	100	0	12.62813	3.031626	14.13431	31932.88	0	25102	760192	4769

Table 4.2: Descriptive Statistics of GSVI series (for IA) and stock return (RET) series for emerging stock markets (2004-2022)

Country	Variable	Mean	Median	maximum	Minimum	Std. Dev	Skewness	Kurtosis	Jarque-bera	Probability	Sum	Sum Sq. Dev.	Observations
Argentina	RET	9.84E-05	5.19E-05	0.028336	-0.03002	0.004884	-0.50117	7.967351	5104.825	0	0.46969	1.14E-01	4771
	IA	31.93103	31	100	0	22.01129	0.384673	2.821737	123.9546	0	152311	2310566	4771
Brazil	RET	0.000152	0	0.059404	-0.06946	0.007396	-0.42432	12.07723	16522.82	0	7.24E-01	2.61E-01	4771
	IA	18.56038	11	100	0	21.0428	1.510637	4.419316	2214.584	0	88533	2111711	4771
Chile	RET	0.000113	3.12E-05	0.039338	-0.0601	0.004136	-1.12501	28.50924	130364.4	0	0.536844	8.16E-02	4771
	IA	7.812998	0	100	0	15.47398	2.392919	9.534793	13039.54	0	37268	1141909	4771
China	RET	6.79E-05	0	0.039236	-0.0402	0.006512	-0.56119	8.324809	5886.878	0	0.323895	2.02E-01	4771
	IA	26.35723	23	100	0	21.67548	0.823425	3.37517	567.0076	0	125724	2240601	4771
Colombia	RET	0.00017	0	0.078722	-0.07075	0.005575	-0.55332	31.14698	157736.7	0	0.810248	1.48E-01	4771
	IA	8.215933	0	100	0	15.42427	2.270857	8.951328	11139.04	0	39190	1134584	4771
Czech Republic	RET	6.69E-05	7.95E-05	0.053696	-0.07029	0.005585	-0.68358	20.61299	62040.21	0	0.319253	1.49E-01	4771
	IA	14.05241	0	100	0	18.94093	1.408386	4.828545	2241.459	0	67030	1710921	4771
Egypt	RET	0.000204	0	0.046694	-0.07814	0.007023	-0.62178	13.03566	20328.63	0	0.973955	2.35E-01	4771
	IA	12.5283	0	100	0	18.9148	1.662485	6.198506	4057.1	0	62505	1592241	4771
Greece	RET	-8.11E-05	0	0.05833	-0.07693	0.008062	-0.52651	11.37671	14169.48	0	-0.38699	3.10E-01	4771
	IA	6.802306	0	100	0	15.53936	2.822526	12.09095	22759.26	0	32447	1151579	4771
Hungary	RET	0.000137	3.58E-05	0.05723	-0.05493	0.006397	-0.42887	12.0755	16519.68	0	6.53E-01	1.95E-01	4771

	IA	2.249266	0	56	0	5.033764	3.928712	26.02657	117652.5	0	10729	120840.6	4771
India	RET	0.000214	0.000177	0.042145	-0.04757	0.005416	-0.59349	11.67756	15249.09	0	1.020349	1.40E-01	4771
	IA	2.863857	0	100	0	5.885359	3.855961	31.34244	170576.4	0	13589	164320.1	4771
Indonesia	RET	0.000213	7.97E-05	0.03585	-0.03085	0.005243	-0.43209	6.870354	3126.287	0	1.01E+00	1.31E-01	4771
	IA	15.05556	15	72	0	11.1127	0.599032	3.831453	422.676	0	71815	588934.3	4771
Kuwait	RET	6.38E-05	0	0.028778	-0.04334	0.003133	-0.82608	16.54131	36994.49	0	0.304234	4.68E-02	4771
	IA	42.66038	44	100	0	22.08365	-0.0881	2.499756	55.90698	0	203490	2325782	4771
Malaysia	RET	0.000165	0.000115	0.045343	-0.03156	0.005066	-0.04314	9.640579	8767.652	0	7.89E-01	1.22E-01	4771
	IA	29.60637	29	100	0	23.6362	0.401794	2.489667	180.1435	0	141252	2664855	4771
Mexico	RET	0.000203	0.000107	0.070939	-0.06038	0.006028	-0.50399	16.35815	35674.38	0	0.969689	1.73E-01	4771
	IA	63.22453	65	100	0	15.1822	-0.45273	3.27191	177.6511	0	301581	1099251	4771
Pakistan	RET	0.000213	7.97E-05	0.03585	-0.03085	0.005243	-0.43209	6.870354	3126.287	0	1.01E+00	1.31E-01	4771
	IA	14.44025	0	100	0	20.5175	1.467378	4.744134	2316.391	0	68880	2007595	4771
Peru	RET	0.000154	0	0.055657	-0.05772	0.005298	-0.58393	21.06302	65131.41	0	0.736495	1.34E-01	4771
	IA	6.971698	0	100	0	16.58645	2.736867	10.98249	18619.28	0	33255	1312001	4771
Philippines	RET	0.000142	0	0.040673	-0.0622	0.005449	-0.96369	14.42305	26678.04	0	0.676979	1.42E-01	4771
	IA	21.32222	16	100	0	23.99349	0.9078	0.009803	655.179	0	101707	2745454	4771
Poland	RET	2.63E-05	0	0.035416	-0.06187	0.006147	-0.53818	9.320988	8173.012	0	0.125481	1.80E-01	4771
	IA	31.12439	29	100	0	25.26326	0.428012	2.347039	228.6879	0	147374	3201392	4736
Qatar	RET	0.000117	0	0.040919	-0.06027	0.00582	-0.63935	17.01603	39377.46	0	0.558165	1.62E-01	4771
	IA	30.57715	32	100	0	24.48621	0.298898	2.266994	177.8133	0	145853	2859370	4771
Russia	RET	0.000144	4.63E-05	0.109556	-0.17575	0.008485	-1.93385	60.90969	669627.9	0	0.687841	3.43E-01	4771
	IA	9.227768	0	100	0	16.35853	2.146514	8.351422	9350.802	0	43998	1275657	4769
Saudi Arabia	RET	0.000102	0	0.048007	-0.06968	0.006502	-1.52342	22.60269	78234.16	0	0.486118	2.02E-01	4771
	IA	26.57327	24	100	0	22.96139	0.540483	2.465961	287.2846	0	126037	2500102	4744
South Korea	RET	0.000112	8.84E-05	0.049007	-0.04852	0.005291	-0.51848	11.94286	16112.09	0	0.535042	1.34E-01	4771
	IA	39.35786	39	100	0	30.93756	0.076919	1.609892	388.7684	0	187737	4564564	4771

Taiwan	RET	9.84E-05	5.19E-05	0.028336	-0.03002	0.004884	-0.50117	7.967351	5104.825	0	0.46969	1.14E-01	4771
	IA	20.98155	0	100	0	28.21666	1.097911	2.801019	966.1684	0	100082	3796982	4771
Thailand	RET	7.16E-05	0	0.045935	-0.06976	0.005169	-1.14372	20.63306	62849.42	0	0.341687	1.27E-01	4771
	IA	42.93912	47	100	0	26.04292	-0.25314	2.105329	208.3123	0	203145	3208046	4732
Turkey	RET	0.000237	0.000259	0.052672	-0.04805	0.006989	-0.47252	7.315152	3879.146	0	1.128726	2.33E-01	4771
	IA	7.824738	0	100	0	14.91475	2.346612	9.552864	12912.07	0	37324	1060863	4771
UAE	RET	0.000155	0	0.093933	-0.06784	0.007276	0.029675	18.4185	47239.65	0	0.549818	2.52E-01	4769
	IA	5.264681	0	100	0	12.62813	3.031626	14.13431	31932.88	0	25102	760192	4769

4.1.2 Results of Descriptive Statistics (2004-2022)

Table 4.2 depicts the descriptive statistics of the return series and IA series for the time period 2004-2022. Results show that mean of all variables is positive except RET variable of Greece. And the highest mean value of the return series is reported in Turkey (0.000237) followed by India (0.000214), and Indonesia (0.000213). And the highest mean value of the GSVI series is reported in India (63.22543) followed by Thailand (42.93912), Malaysia (42.66038), and South Korea (39.35786). And the lowest mean is spotted in the return series of Greece (-8.11E-05) followed by Poland (2.63E-05). And lowest mean of the GSVI series is spotted in Hungary (2.249266) and Indonesia (2.863857). The standard deviation depicts the highest volatility in the return series of Russia (0.0008485) followed by Greece (0.0008062), and lowest in Kuwait (0.0003133). And the highest standard deviation is spotted in the GSVI series of South Korea (30.93756) followed by Taiwan (28.21666), and Thailand (26.04292), and lowest in Hungary (5.033764), and Indonesia (5.885359). Skewness of zero and kurtosis of three indicate a normal distribution, in Table 4.2, the skewness of the return series of all countries is negative except UAE. And the skewness of the GSVI series of all countries is positive except Malaysia and Thailand. Positive skewness statistics in all sample series indicate longer right tails, which indicate extreme gains, while negative skewness indicates longer left tails, which indicate extreme losses. The frequency distribution's "degree of peakedness" is indicated by the kurtosis. The kurtosis value of return variables of all countries is more than 3. And the kurtosis value of all GSVI variables of all countries is more than 3 except Argentina, Malaysia, Mexico, Philippines, Poland, Qatar, Saudi Arabia, South Korea, Taiwan, and Thailand.

4.2 UNIT ROOT TEST (ADF & PP)

To run any model firstly we have to check the stationarity of the series. This study has time series data, which mostly has unit roots. Before running models, ADF and PP tests are applied to check the stationarity of all series. This is also important to check the level of integration of the series. Because daily data is used in this study, for that the SIC (Schwarz Bayesian Criteria) criteria have been chosen.

4.2.1 ADF & PP test results (2004-2022)

The outcomes of ADF tests and PP tests for all sample countries for the entire sample period are discussed in this subsection. First, results pertaining to the closing price series across all nations are shown in Table 4.3. The values of the ADF and PP tests for all countries' closing price series are non-stationary at the level. At the first difference in trend and intercept, they are all stationary. So, all closing price series of all countries are i1 series in nature.

Table 4.3: CP series Unit root results 2004-2022

Country	Closing Price (CP) variable (trend and intercept)	ADF Statistics		PP statistics	
		level (p-value)	first diff (p-value)	level (p-value)	first diff (p-value)
Argentina	CP	-1.3717 (0.8691)	-66.0437 (0.0000)	-1.31103 (0.8849)	-66.0321 (0.0000)
Brazil	CP	-2.21503 (0.4805)	-75.0939 (0.0001)	-2.35908 (0.4012)	-74.8876 (0.0001)
Chile	CP	-2.4235 (0.3671)	-61.7349 (0.0000)	-2.41804 (0.3700)	-61.7462 (0.0000)
China	CP	-2.33807 (0.4125)	-31.56027 (0.0000)	-2.3237 (0.4203)	--67.3003 (0.0000)
Colombia	CP	-2.4702 (0.3431)	-42.7026 (0.0000)	-2.40808 (0.3752)	-61.6192 (0.0000)
Czech Republic	CP	-2.4264 (0.3656)	-66.8489 (0.0000)	-2.53407 (0.3114)	-66.9251 (0.0000)
Egypt	CP	-1.94405 (0.6309)	-61.9179 (0.0000)	-1.9871 (0.6076)	-61.9052 (0.0000)
Greece	CP	-1.4812 (0.8361)	-65.2058 (0.0000)	-1.5427 (0.8149)	-65.34404 (0.0000)
Hungary	CP	-2.17505 (0.5029)	-31.9001 (0.0000)	-2.0993 (0.5455)	-67.1991 (0.0000)
India	CP	-1.2812 (0.8920)	-29.3695 (0.0000)	-1.4669 (0.8408)	-67.5873 (0.0000)
Indonesia	CP	-2.77507 (0.2066	-66.3909 (0.0000)	-2.8017 (0.1966)	-66.3397 (0.0000)
Kuwait	CP	-2.0556 (0.5699)	-60.5371 (0.0000)	-2.1743 (0.5033)	-61.04109 (0.0000)
Malaysia	CP	-1.6935 (0.7543)	-64.87707 (0.0000)	-1.7474 (0.7299)	-65.0237 (0.0000)
Mexico	CP	-1.6935 (0.7543)	-64.87707 (0.0000)	-1.7474 (0.7299)	-65.0237 (0.0000)

Pakistan	CP	-2.0556 (0.5699)	-60.5371 (0.0000)	-2.1743 (0.5033)	-61.04109 (0.0000)
Peru	CP	-1.9656 (0.6193)	-61.0129 (0.0000)	-2.0509 (0.5725)	-61.8659 (0.0000)
Philippines	CP	-1.8366 (0.6868)	-50.1666 (0.0000)	-1.8324 (0.6889)	-66.9969 (0.0000)
Poland	CP	-3.0129 (0.1286)	-67.92201 (0.0000)	-3.0091 (0.1297)	-67.9133 (0.0000)
Qatar	CP	-2.7358 (0.2220)	-61.5236 (0.0000)	-2.7251 (0.2263)	-61.5839 (0.0000)
Russia	CP	-2.9692 (0.1411)	-27.5093 (0.0000)	-2.8046 (0.1955)	-68.0799 (0.0000)
Saudi Arabia	CP	-1.6766 (0.7616)	-66.8402 (0.0000)	-1.9602 (0.6223)	-67.2272 (0.0000)
South Korea	CP	-2.9584 (0.1443)	-67.52008 (0.0000)	-3.0237 (0.1257)	-67.5174 (0.0000)
Taiwan	CP	-1.3717 (0.8691)	-66.0437 (0.0000)	-1.31103 (0.8849)	-66.0321 (0.0000)
Thailand	CP	-2.3478 (0.4072)	-68.52604 (0.0000)	-2.42203 (0.3679)	-68.541 (0.0000)
Turkey	CP	1.2975 (1.0000)	-44.3868 (0.0000)	1.6857 (1.0000)	-69.7446 (0.0000)
UAE	CP	-2.2691 (0.4503)	-21.9403 (0.0000)	-2.2195 (0.4780)	-69.4804 (0.0000)

And IA series of all countries, shown in Table 4.4, are stationary at level, so they are i0 series in nature at trend and intercept. Now we have the combination of the i1 and i0 series in our sample, so ARDL (autoregressive distributed lag) modeling is the best fit to check the cointegration among them.

Table 4.4: IA series Unit root results 2004-2022

Country	**Investor Attention (IA) variable (trend and intercept)**	**ADF Statistics**	**PP statistics**
		level (p-value)	**level (p-value)**
Argentina	IA	-8.7234 (0.0000)	-79.1283 (0.0001)
Brazil	IA	-7.245 (0.0000)	-46.0797 (0.0000)
Chile	IA	-68.6717 (0.0000)	-68.6752 (0.0000)
China	IA	-10.91007 (0.0000)	-66.3575 (0.0000)

Colombia	IA	-64.6981 (0.0000)	-66.8336 (0.0000)
Czech Republic	IA	-19.7386 (0.0000)	-77.3308 (0.0001)
Egypt	IA	-21.3714 (0.0000)	-75.0051 (0.0001)
Greece	IA	-69.7605 (0.0000)	-70.13008 (0.0000)
Hungary	IA	-18.4493 (0.0000)	-74.2818 (0.0001)
Indonesia	IA	-65.8267 (0.0000)	-66.4482 (0.0000)
Kuwait	IA	-7.2158 (0.0000)	-84.3108 (0.0001)
Malaysia	IA	-9.7912 (0.0000)	-79.5778 (0.0001)
Mexico	IA	-9.7912 (0.0000)	-79.5778 (0.0001)
India	IA	-5.7729 (0.0000)	-40.7657 (0.0000)
Pakistan	IA	-11.1201 (0.0000)	-78.9359 (0.0001)
Peru	IA	-67.72020 (0.0000)	-67.7739 (0.0000)
Philippines	IA	-8.39306 (0.0000)	-86.0431 (0.0001)
Poland	IA	-13.1657 (0.0000)	-832156 (0.0000)
Qatar	IA	-7.5988 (0.0000)	-80.9239 (0.0000)
Russia	IA	-45.0323 (0.0000)	-68.2085 (0.0000)
Saudi Arabia	IA	-6.27105 (0.0000)	-83.7011 (0.0001)
South Korea	IA	-6.86505 (0.0000)	-83.0285 (0.0001)
Taiwan	IA	-3.9586 (0.0100)	-74.9924 (0.0001)
Thailand	IA	-6.9419 (0.0000)	-85.54805 (0.0001)
Turkey	IA	-20.4598 (0.0000)	-73.1962 (0.0001)
UAE	IA	-69.6897 (0.0000)	-69.8008 (0.0000)

And RET series of all countries, shown in Table 4.5, are stationary at level, so they are i0 series in nature at trend and intercept.

Table 4.5: RET series Unit root results 2004-2022

Country	Stock return (RET) variable (trend and intercept)	ADF Statistics	PP statistics
		level (p-value)	level (p-value)
Argentina	RET	-66.1385 (0.0000)	-66.1005 (0.0000)
Brazil	RET	-72.222 (0.0000)	-72.4239 (0.0000)
Chile	RET	-38.9855 (0.0000)	-61.9962 (0.0000)
China	RET	-67.9374 (0.0000)	-68.0864 (0.0000)
Colombia	RET	-42.30802 (0.0000)	-61.1556 (0.0000)
Czech Republic	RET	-65.8384 (0.0000)	-65.8553 (0.0000)
Egypt	RET	-62.0954 (0.0000)	-62.4280 (0.0000)
Greece	RET	-65.0894 (0.0000)	-765.0423 (0.0000)
Hungary	RET	-32.7401 (0.0000)	-65.8798 (0.0000)
Indonesia	RET	-63.7478 (0.0000)	-63.5904 (0.0000)
Kuwait	RET	-60.4218 (0.0000)	-61.7816 (0.0000)
Malaysia	RET	-64.0267 (0.0000)	-64.25304 (0.0001)
Mexico	RET	-49.40703 (0.0000)	-64.1713 (0.0000)
India	RET	-30.1074 (0.0000)	-66.45109 (0.0000)
Pakistan	RET	-60.4218 (0.0000)	-61.7816 (0.0000)
Peru	RET	-30.17571 (0.0000)	-59.5095 (0.0000)
Philippines	RET	-64.1545 (0.0000)	-63.9835 (0.0000)
Poland	RET	-67.3654 (0.0000)	-67.3443 (0.0000)

Qatar	RET	-61.4882 (0.0000)	-61.6366 (0.0000)
Russia	RET	-68.2971 (0.0000)	-68.2936 (0.0000)
Saudi Arabia	RET	-67.0552 (0.0000)	-67.1941 (0.0000)
South Korea	RET	-67.8803 (0.0000)	-67.8748 (0.0000)
Taiwan	RET	-66.1384 (0.0000)	-66.1005 (0.0000)
Thailand	RET	-69.3974 (0.0000)	-69.4284 (0.0000)
Turkey	RET	-67.5731 (0.0000)	-67.5730 (0.0000)
UAE	RET	-45.4412 (0.0000)	-68.22096 (0.0000)

4.3 Objective 1: To analyze the causality between investor's attention and emerging stock markets:

Toda Yamamoto Granger Causality Test is used to check the causality or short-run relationship between investor's attention

In empirical research studies, the relationship between the stock market and investor attention is a challenging and complicated exercise. To understand their relationship, many researchers have conducted numerous studies. Granger causality test is a model developed by C. J. Granger in 1969 that illustrates the flow of relationships between the two sample variables. The Toda and Yamamoto (1995) test is more effective than the conventional Granger causality in this regard. The Toda Yamamoto Granger causality test is used in this study to examine the relationship between investor attention and the stock market. For each of the sample countries, the lag length is chosen based on the SIC criteria in VAR model. Further sub-section represent the results of the Granger causality test for whole sample period.

4.3.1 Results of Toda Yamamoto Granger Causality Test (2004-2022)

Closing price series and investor attention (gsvi) series are used to run this model. Results of the Toda Yamamoto Granger causality test for all sample countries over the entire sample period are discussed in this subsection. The direction of the relationship

between investor attention and the stock market is shown in Table 4.6. Under different lag-length, results show that there is a unidirectional short-term relationship (in which investor attention affects the stock returns) in Brazil, China, Malaysia, Mexico, and Thailand. And unidirectional short-term relationship (in which stock returns affect the investor's attention) in Chile and UAE. And bidirectional short-term relationship in India, Poland, Russia, South Korea, and Turkey. And there is no short-term relationship in Argentina, Colombia, Czech Republic, Egypt, Greece, Hungary, Indonesia, Kuwait, Pakistan, Peru, Philippines, Qatar, Saudi Arabia, and Taiwan. The null hypothesis is rejected at 1 percent and 5 percent level of significance.

Table 4.6: CP and IA series Toda Yamamoto results 2004-2022

Country	Dependent Variable	Cause By /Excluded	Null Hypothesis	Chi-Sq	Df	Prob.	Decision
Argentina	CP	IA	IA does not granger cause CP	7.526	5	0.184	Not Rejected
	IA	CP	CP does not granger cause IA	5.3284	5	0.3771	Not Rejected
Brazil	CP	IA	IA does not granger cause CP	22.79792	6	0.0009	Rejected
	IA	CP	CP does not granger cause IA	5.316645	6	0.5039	Not Rejected
Chile	CP	IA	IA does not granger cause CP	1.952035	2	0.3768	Not Rejected
	IA	CP	CP does not granger cause IA	6.48065	2	0.0392	Rejected
China	CP	IA	IA does not granger cause CP	86.70954	8	0	Rejected
	IA	CP	CP does not granger cause IA	11.78302	8	0.1612	Not Rejected
Colombia	CP	IA	IA does not granger cause CP	4.97714	3	0.1735	Not Rejected
	IA	CP	CP does not granger cause IA	3.1754	3	0.366	Not Rejected
Czech Republic	CP	IA	IA does not granger cause CP	4.13654	5	0.53	Not Rejected
	IA	CP	CP does not granger cause IA	2.22546	5	0.8172	Not Rejected
Egypt	CP	IA	IA does not granger cause CP	2.4186	2	0.2984	Not Rejected
	IA	CP	CP does not granger cause IA	0.04605	2	0.9772	Not Rejected
Greece	CP	IA	IA does not granger cause CP	0.30574	1	0.58654	Not Rejected

	IA	CP	CP does not granger cause IA	0.12985	1	0.719	Not Rejected
Hungary	CP	IA	IA does not granger cause CP	0.5428	1	0.4612	Not Rejected
	IA	CP	CP does not granger cause IA	0.02854	1	0.8655	Not Rejected
India	CP	IA	IA does not granger cause CP	85.65947	8	0	Rejected
	IA	CP	CP does not granger cause IA	29.7123	8	0.0002	Rejected
Indonesia	CP	IA	IA does not granger cause CP	1.26624	1	0.2605	Not Rejected
	IA	CP	CP does not granger cause IA	0.59884	1	0.439	Not Rejected
Kuwait	CP	IA	IA does not granger cause CP	4.07125	5	0.5391	Not Rejected
	IA	CP	CP does not granger cause IA	4.43254	5	0.489	Not Rejected
Malaysia	CP	IA	IA does not granger cause CP	17.70649	8	0.0235	Rejected
	IA	CP	CP does not granger cause IA	5.061854	8	0.7509	Not Rejected
Mexico	CP	IA	IA does not granger cause CP	19.50041	8	0.0124	Rejected
	IA	CP	CP does not granger cause IA	5.96795	8	0.6508	Not Rejected
Pakistan	CP	IA	IA does not granger cause CP	9.87625	7	0.1957	Not Rejected
	IA	CP	CP does not granger cause IA	7.83457	7	0.3474	Not Rejected
Peru	CP	IA	IA does not granger cause CP	2.5736	2	0.2761	Not Rejected
	IA	CP	CP does not granger cause IA	4.4168	2	0.1099	Not Rejected
Philippines	CP	IA	IA does not granger cause CP	7.70754	6	0.2603	Not Rejected
	IA	CP	CP does not granger cause IA	5.43654	6	0.4899	Not Rejected
Poland	CP	IA	IA does not granger cause CP	15.83954	8	0.0447	Rejected
	IA	CP	CP does not granger cause IA	26.05081	8	0.001	Rejected
Qatar	CP	IA	IA does not granger cause CP	15.90456	10	0.1024	Not Rejected
	IA	CP	CP does not granger cause IA	12.3854	10	0.2601	Not Rejected
Russia	CP	IA	IA does not granger cause CP	7.46854	1	0.0063	Rejected
	IA	CP	CP does not granger cause IA	7.78254	1	0.0053	Rejected

Saudi Arabia	CP	IA	IA does not granger cause CP	14.11335	10	0.1679	Not Rejected
	IA	CP	CP does not granger cause IA	11.3452	10	0.3313	Not Rejected
South Korea	CP	IA	IA does not granger cause CP	33.4125	9	0.0001	Rejected
	IA	CP	CP does not granger cause IA	22.5864	9	0.0072	Rejected
Taiwan	CP	IA	IA does not granger cause CP	11.47704	10	0.3216	Not Rejected
	IA	CP	CP does not granger cause IA	8.44452	10	0.5855	Not Rejected
Thailand	CP	IA	IA does not granger cause CP	27.01095	7	0.0003	Rejected
	IA	CP	CP does not granger cause IA	7.01758	7	0.4271	Not Rejected
Turkey	CP	IA	IA does not granger cause CP	32.6802	3	0	Rejected
	IA	CP	CP does not granger cause IA	13.7125	3	0.0033	Rejected
UAE	CP	IA	IA does not granger cause CP	0.094212	1	0.7589	Not Rejected
	IA	CP	CP does not granger cause IA	6.40365	1	0.0114	Rejected

4.4 Objective 2: To test the cointegration between investor's attention and emerging stock markets.

Autoregressive Distributed Lag (ARDL) Model is used to test cointegration or long-run relationship between investor's attention and stock market.

After ensuring that all sample variables are stationary, this study applies the ARDL model to various levels of stationary variables to determine whether there is a long-term relationship between investor attention and the stock market. The sample series for the current study is a mixture of the i0 and i1 series, making the ARDL model the most appropriate to use. The ARDL model requires the selection of an appropriate lag length. Using SIC values, the ARDL model automatically chooses the lag length. The long-term relationship in the model is checked first, and then the error correction term is interpreted.

4.4.1 ARDL Results

Closing price series and investor attention (gsvi) series are used to run this model. This section discusses the ARDL model's results, long run form and bound test, and error correction regression coefficient. Table 4.7 demonstrates the presence of a long-term connection between the stock market and investor attention in China, and Turkey at 1%, and 5% significance levels. Based on the Error Correction Regression coefficient, we can conclude that only in Turkey is there a long-term positive relationship between investor attention and the stock market. In China, there is a negative long-run relationship among investor's attention and stock market.

Table 4.7: CP and IA series ARDL results

Country	Long run form & Bound test (F-statistic)	Error Correction Regression coefficient
Argentina	2.153894	-
Brazil	1.876881	-
Chile	1.852989	-
China	4.194515**	-0.000605*
Colombia	3.282625	-
Czech Republic	2.262708	-
Egypt	1.928089	-
Greece	0.359666	-
Hungary	1.74207	-
India	2.50346	-
Indonesia	2.130954	-
Kuwait	2.10877	-
Malaysia	1.703949	-
Mexico	2.224594	-
Pakistan	2.961063	-
Peru	1.952736	-
Philippines	1.421418	-
Poland	2.778451	-
Qatar	2.463876	-
Russia	3.507158	-
Saudi Arabia	2.287145	-
South Korea	1.755064	-
Taiwan	1.557449	-
Thailand	0.781254	-
Turkey	14.59100***	0.002326***
UAE	1.510636	-

***, and ** means there is 1%, and 5% level of significance.

4.5 Objective 3: To examine the impact of investor's attention on emerging stock markets.

Exponential Generalized Autoregressive Conditional Heteroskedastic (EGARCH) Model is used to examine the impact of investor's attention on emerging stock markets.

After applying the Granger causality test and ARDL model, a bivariate EGARCH (1,1) model is applied to check the impact of investor attention on the stock market. Among other GARCH family models (Power-GARCH, Asymmetric-GARCH, Vector-GARCH, Integrated-GARCH, and GJR-GARCH), the EGARCH model is the best model to check the impact of one series upon another (Smales, 2021b). The current study disregards the GARCH model (Bollerslev, 1986) because it believes that positive as well as negative information has the same effect on the market.

Stock return series and investor attention (gsvi) series are used to run this model. The current study makes results projections based on a two-stage process. The ARDL model is used in the first stage to determine long-run dynamics, and the EGARCH model is used in the second stage to determine the impact with support of the ARDL model's residuals. Before applying the EGARCH model, it is essential to check the autocorrelation and the ARCH effect. Further subsections show the results of the EGARCH model for the whole sample period and different time periods and discuss the conclusion at last.

Table 4.8: EGARCH model results of all crisis period and calm period

Country	Calm Period	GFC crises	Calm Period	EDC crises	Calm-Period	chinese crash	Calm Period	Brexit crises	Calm Period	Covid-19	Calm Period	rus-uk war
	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
Argentina	6.72E-05	-0.00073	0.001244	-0.00162***	0.00025	0.003594	-0.004947***	-0.004947***	0.000144	-0.00104	0.000321	0.002496
Brazil	0	0.00659**	-0.02339	-0.001351***	-0.002173***	0.077249***	0.063902**	0.063902**	0.011825***	0.103153***	0.000369***	0.248835***
Chile	0.001416	0.005928***	-0.02087	2.05E-06	-0.00021	0.00869	0.000274	0.000274	-0.007154***	-0.01411	0.001346	-0.096122***
China	0.023802***	0.002816***	-0.00581	0.017071***	0.000256	0.037761***	0.061732***	0.061732***	0.04203***	0.089209***	0	0.060019***
Colombia	0.006162**	-0.005238**	-0.00287	0.004411**	-0.0006	-0.00042	0.009161	0.009161	0.005547***	0.071745***	-0.00227	-0.022762***
Czech Republic	-0.005046***	0.001856	-0.017488	-0.001259	-0.005333**	0.003027	0.002347	0.002347	-0.00113	-0.027427***	0.000318	0.002569
Egypt	-0.001472***	0.001801***	0.007389	-0.004237**	-0.011773***	0.008122***	0.007238	0.007238	0.008426***	-0.01649	-0.01278***	-0.03846**
Greece	-0.00121	7.50E-06	0.018966	0.001089	-0.0007	-0.00177	0.006425	0.006425	0.002847**	-0.00739	0	0.228542***
Hungary	0.001813	-0.014207***	-0.1097***	0.004913**	0.013845	0.128945***	-0.10165	-0.10165	8.29E-07	0.138433***	0.024865**	-0.51905
India	-0.00019	-0.00078	0.031451***	0.000604	0.085364***	0.068752***	0.090914***	0.090914***	0.038954***	0.037951***	0.018269***	0.036148
Indonesia	-0.00156	0	0.017048***	0.0014	0.001509	-0.01476	0.104925**	0.104925**	0.002955	0.082499	0.00745	-0.602754***
Kuwait	-0.00095	-0.01805***	0.003731	0.001698	0.004451**	0.054381**	-0.0187	-0.0187	0.001349	0.015163***	0.005705**	0.030461***
Malaysia	0.001009***	-0.00062	0.021862	0.004182**	-0.003547***	0.00299	0.005735	0.005735	-0.001107***	0.046442***	-0.001006***	0.003985
Mexico	0.000328	0	0	0.00016	0.000691***	0.009016	-0.03095	-0.03095	9.46E-05	-0.00246	-0.001448***	-0.01725
Pakistan	0.004329**	0.002623**	0.010377***	0.001947	0.002033	0.003446	0.032596**	0.032596**	0.001618***	0.015364**	0.001671**	0.01837
Peru	0.001771	0.000484	-0.01865	0.000494	0.000421	0.001771	0.000484	0.000484	0.000494	0.001806***	-	-
Philippines	0.005176***	0.004333***	0.007765	0.002524***	-0.00017	0.024854***	0.008493***	0.008493***	0.009093***	0.02985***	0.010594***	0.132262***
Poland	0.001312**	0.000968**	0.005847***	0.000434	0.005292***	0.020036***	0.022245	0.022245	0	0.09518***	-0.001037***	0.06407***

Qatar	0.001289	0.002376**	0.000756	-0.002451***	0.003215***	0.008349***	-0.0067	-0.0067	0.000248	0.022057***	-0.000603	-0.05541***
Russia	0.00591***	0.004683***	-0.015324***	0.000844	0.019857***	0.00089	0.00739	0.00739	-0.006238	0.006497	0.010173***	0.056175***
Saudi Arabia	0.001022**	0.001896***	0.007511	0	-0.005289***	-0.047097***	-0.01321	-0.01321	-0.017654***	-0.00326	-0.02236***	-0.03327***
South Korea	0.002633**	0.001574**	-0.01765***	-0.001217***	-0.00021	0.011228***	0.01187	0.01187	7.10E-05	0.064075**	-0.003999**	0.024143
Taiwan	-0.00292	0.005758***	-0.00897	-0.00012	0.000862	0.002052	0.036632***	0.036632***	0.017488***	0.03214	-0.007921***	0.097483***
Thailand	0.01625***	0	-0.01384	-0.0008	-0.000507***	0.04845***	-0.01235***	-0.01235***	0.01622***	0.19946***	-0.00031	0.055398***
Turkey	0.001539	-0.00179	0.017883	-0.00163	-0.01025***	-0.01452**	0.00031	0.00031	0	0.009186	0	-0.03556***
UAE	0.001723***	0.002514	-0.04058***	0.006468**	-0.00112	0.015117	0.014208	0.014208	0.005514***	0.003282	0.001062	0.039152

***, and ** means there is 1%, and 5% level of significance. IA refers to the coefficient of investor's attention.

4.5.1 GFC crises

In this subsection, the outcomes of the EGARCH model for the calm-GFC period from 1-1-2004 to 8-8-2007 are explained. In Table 4.8, the results of EGARCH model are presented, in which impact of investor attention (IA) on stock market returns (RET)is shown, with coefficient and p-value. There is a negative sign, means there is adverse impact of IA on RET in countries Czech Republic, and Egypt with 1% level of significance. And there is positive sign, means there is favourable impact of IA on RET in countries China, Colombia, Malaysia, Pakistan, Poland, Russia, Saudi Arabia, South Korea, Thailand, and UAE, with 1% and 5% level of significance. In rest countries there is no impact shown.

And in the GFC period from 9-8-07 to 31-12-09, the EGARCH model results, indicate that IA has a negative effect on RET in Kuwait, Colombia, and Hungary. Additionally, there is a positive indicator, indicating that IA has a positive effect on stock market returns in the following nations: Brazil, Chile, China, Egypt, Pakistan, Poland, Philippines, Qatar, Russia, Saudi Arabia, South Korea, and Taiwan.

IA to RET during the calm-period and GFC crisis period had a positive impact in 10 and 12 countries, and negative impact in 2 and 3 countries respectively. According to results specific to crises, countries with positive relations offer opportunities for diversification even in times of crisis. This may be because, in spite of the crisis, investors believed that these markets offered good opportunities that could result in higher returns. Putting it another way, making investments in these markets may help lower risk and possibly boost returns (Lyke & Ho, 2021). The results indicate that certain developing stock markets could provide investors with possible diversification advantages in erratic times such as the GFC crisis.

4.5.2 EDC crises

This part explains the results of the EGARCH (1,1) model of the calm-EDC crisis period from 1-1-10 to 30-4-10. The EGARCH model's results, including the coefficient and p-value, are displayed in Table 4.8, where the impact of IA on RET is displayed. There is an adverse impact of IA on RET in countries, Hungary, Russia, and UAE. And there is a positive impact of IA on RET in countries, India, Indonesia, Pakistan, and Poland.

And in the EDC crisis period from 3-5-10 to 7-6-13, there is an adverse impact of IA on RET in countries, Brazil, Egypt, Qatar, and South Korea. And there is positive impact of IA on RET in countries, China, Colombia, Hungary, Malaysia, Philippines, and UAE.

4.5.3 Chinese crash

The results of the EGARCH (1,1) model of calm-Chinese crash period from 10-6-13 to 11-6-15 are explained in this subsection. There is an adverse impact of IA on RET in countries, Brazil, Czech Republic, Egypt, Malaysia, Saudi Arabia, Thailand, and Turkey. And there is positive impact of IA on RET in countries, India, Kuwait, Mexico, Poland, Qatar, and Russia.

And during the Chinese crash period from 12-6-15 to 31-12-15, there is an adverse impact of IA on RET in countries, Saudi Arabia and Turkey. And there is positive impact of IA on RET in countries, Brazil, China, Egypt, Hungary, India, Kuwait, Philippines, Poland, Qatar, South Korea, and Thailand.

4.5.4 Brexit crises

During the calm-Brexit crisis period from 1-1-16 to 23-6-16, the EGARCH (1,1) model results show that there is an adverse impact of IA on RET in countries, Argentina and Thailand. And there is positive impact of IA on RET in countries, Brazil, China, India, Indonesia, Pakistan, and Taiwan.

In the Brexit crisis period, from 24-6-16 to 29-9-17, there is a negative impact of IA on RET in countries, India, Malaysia, Saudi Arabia, Thailand, and UAE. And there is positive impact of IA on RET in countries, Argentina, Brazil, China, Egypt, Indonesia, Philippines, Poland, Qatar, and Russia.

4.5.5 Covid-19 crises

This section displayed results of the EGARCH (1,1) model of calm-Covid19 crisis period from 1-10-19 to 31-12-19. In Table 4.8, the results of EGARCH model are presented, in which impact of IA on RET is shown, with coefficient and p-value. There is a negative impact of IA on RET in countries, Chile, Malaysia, and Saudi Arabia. And

there is positive impact of IA on RET in countries, Brazil, China, Colombia, Egypt, Greece, India, Pakistan, Philippines, Taiwan, Thailand, and UAE.

And in Covid-19 crisis period from 1-1-20 to 31-3-20, there is a negative impact of IA on RET in country Czech Republic only. And there is positive impact of IA on RET in countries, Brazil, China, Colombia, Hungary, India, Kuwait, Malaysia, Pakistan, Peru, Philippines, Poland, Qatar, South Korea, and Thailand.

4.5.6 Rus-Uk war crises

During the calm-Rus-Uk war crisis period from 1-4-20 to 24-2-22, **t**here is a negative impact of IA on RET in countries, Egypt, Malaysia, Mexico, South Korea, and Taiwan. And there is positive impact of IA on RET in countries, Brazil, Hungary, India, Kuwait, Pakistan, Philippines, and Russia.

And in Rus-Uk war crisis period from 25-2-22 to 30-6-22, there is a negative impact of IA on RET in countries, Chile, Colombia, Egypt, Indonesia, Qatar, Saudi Arabia, and Turkey. And there is positive impact of IA on RET in countries, Brazil, China, Greece, Kuwait, Philippines, Poland, Russia, Taiwan, and Thailand.

4.5.7 Overall EGARCH Results (2004-2022)

The results of the EGARCH (1,1) model throughout the entire sample period from 2004 to 2022 are explained in this subsection. The results of the EGARCH model are presented in Table 4.9, along with the coefficient and p-value significance for the influence of IA on RET. With a 1% level of significance, there is an adverse effect of IA on stock market returns in Argentina, Brazil, China, Czech Republic, Egypt, Kuwait, Malaysia, Philippines, Poland, Qatar, Russia, Saudi Arabia, South Korea, and UAE. And there is a positive sign, which indicates that IA has a positive impact on RET in Greece, Indonesia, Peru, and Turkey, with a 1% level of significance. In rest countries, there is no sign of impact shown of investors' attention on stock market returns.

Table 4.9: EGARCH results (2004-2022)

Country	IA (2004-2022)	ARCH-LM (20)
Argentina	-0.000206***	0.9326
Brazil	-0.000286***	0.2641
Chile	0.00029	0.0146
China	-0.000437***	0.2388
Colombia	-0.00024	0.0362
Czech Republic	-0.001725***	0.6303
Egypt	-0.000672***	0.0102
Greece	0.002629***	0.0110
Hungary	-0.00015	0.0519
India	-2.75E-06	0.2693
Indonesia	0.005036***	0.1425
Kuwait	-0.001519***	0.8421
Malaysia	-0.00026***	0.1444
Mexico	3.27E-05	0.5566
Pakistan	-0.00031	0.8651
Peru	0.012283***	0.8071
Philippines	-0.000253***	0.2881
Poland	-0.000213***	0.2556
Qatar	-0.000694***	0.0011
Russia	-0.000896***	0.0349
Saudi Arabia	-0.001292***	0.0110
South Korea	-0.000249***	0.4571
Taiwan	2.67E-05	0.8951
Thailand	0	1.0000
Turkey	0.001219***	0.9580
UAE	-0.001542***	0.0010

In our study, among 26 emerging countries, overall, 14 had a negative impact on stock returns and 4 had a positive impact. This could be the result of investors

believing that these markets, despite the crisis, still presented good opportunities that could yield higher returns. According to the study's findings overall, investors may benefit from potential diversification in certain emerging stock markets during uncertain times like the GFC, EDC, Chinese, BREXIT, COVID-19, and RUS-UK WAR crises. At the 1 percent and 5 percent significance levels, the null hypothesis of the ARCH effect is not rejected in the majority of the sample series, as mentioned by ARCH-LM test on lag value 20. There is no evidence of auto correlation or serial depending on residuals squared. The results verify that the EGARCH model is the most suitable for examining the ARCH effect in time series samples.

4.5.8 Conclusion

After seen all the results of different crises period and whole sample period, we can say that there is strong impact of investor's attention on stock market returns. In every crisis period, IA gave impact on RET, negatively and positively both. In whole sample period, there is negative impact of investor's attention (IA) on stock market returns in 14 countries Argentina, Brazil, China, Czech Republic, Egypt, Kuwait, Malaysia, Philippines, Poland, Qatar, Russia, Saudi Arabia, South Korea, and UAE. And there is positive impact of IA on stock market returns in 4 countries Greece, Indonesia, Peru, and Turkey. Additionally, both positive and negative effects were shown at different periods. If results specific to crises are observed, the positive relation countries offer opportunities for diversification even in times of crisis. This might be the case because, in spite of the crisis, investors believed that these markets presented good opportunities. Overall, the study indicates that certain emerging stock markets may provide investors with possible diversification benefits during volatile periods like the GFC, EDC, Chinese, COVID-19, and RUW crises. And if a bad correlation is observed, you should avoid from making investments in those nations in order to protect your financial resources. These estimates generally agree with our main finding, which is that stock returns are significantly influenced by investor attention.

4.6 WAVELET ANALYSIS

In the realm of finance, the examination of the correlation between stock market and

other variables has significant importance. Nevertheless, it is imperative for the analysis of such correlation to consider the involvement of investors with varying investment horizons, as highlighted by Candelon et al. in 2008. This investigation into co-movement takes into account both short-term and long-term investors, a crucial aspect for foreign investors seeking heightened returns and aiming to distinguish between them based on time periods, as discussed by Aslanidis et al. in 2010. The focus of short-term investors revolves around the correlation of short-term stock returns, while long-term investors concentrate on correlations over extended time frames. To grasp the co-movement at different frequencies, it becomes essential to incorporate the frequency component of time series data, as emphasized by A'Hearn and Woitek in 2001 and Pakko in 2004.

Comprehending economic time series data at diverse frequencies poses several challenges. Fourier analysis is a tool employed to examine the frequency-domain characteristics of time series data. However, it has a drawback in that it may lead to a loss of temporal information during the Fourier transform, thereby complicating the identification of temporal correlations or structural changes. An alternative approach lies in wavelet analysis, which analyzes the frequency components of time series across varying time periods. Wavelet analysis proves valuable by incorporating localized power fluctuations among constituent variables. It generally encompasses coherence, cross wavelet transformations, and continuous wavelet transform, thereby offering a comprehensive understanding of the dynamics involved in the analysis of economic time series data.

4.6.1 Wavelet Power

The Wavelet power furnishes in-depth insights into both frequency and time periods by scrutinizing the unprocessed time series and delivering refined data. The Wavelet Power Spectrum (WPS) provides insights into similar behaviors of series at different frequencies and time points, it does not specifically address contagion. The spectrum of power across various scales and frequencies acquired through wavelet analysis is referred to as the Wavelet Power Spectrum. Transient characteristics and frequency variations over time can be identified with the help of the Wavelet Power Spectrum, which offers a time-varying examination of a signal's frequency content.

4.6.2 Wavelet Coherence

The heightened instability in the global financial market has intensified the examination of connections between financial markets and another variables during crises. The transmission of shocks across nations results in cross-market linkages, particularly during challenging periods due to the extensive integration between the spot market and the futures market. The degree of cross-market interdependence or contagion has escalated from the pre-crisis to the crisis period.

While the Wavelet Power Spectrum (WPS) provides insights into similar behaviors of series at different frequencies and time points, it does not specifically address contagion. This gap is addressed by Wavelet Coherence (WTC), a cross-analysis tool. WTC not only estimates the phase spectrum but also identifies lead-lag relationships, indicating which series impacts another. The white contours denote the 5% significant level. It's important to note that the wavelet transform is applied to finite time series, leading to edge distortions. These distortions, shown in the blurred areas on the extreme right and left of the figure, are to be disregarded during analysis and are referred to as the "cone of influence." The cone of influence represents the region affected by randomness and should be excluded during analysis.

The color code in the figure signifies variations in the series. The red color indicates high power, while blue denotes low power concerning the intensity of variations. The direction of arrows illustrates phase differences between the two series. Right-pointing arrows suggest that variables are in phase, indicating the transmission of information from one market to another. If arrows point up and to the right, the first market index leads. Conversely, if arrows point down, the first index lags while the other variable leads. Any left-pointing arrows signify out-of-phase variables with anti-cyclical effects. The first index leads if the arrows point left and up, and lags if they point left and down.

4.6.3 Argentina-S&P Merval Index Investor Attention and Stock Return Series

To comprehend WPS results, refer to Figure 4.1, which shows the graph of the wavelet power spectrum of ARG(I) means Argentina’s Investor Attention series results at different scales and periods. We have used four different cycles, each having a monthly scale, a monthly to quarterly scale, and an annual scale. The lengths of the cycles are

as follows: short scale (16–32 days, 32–64 days), medium scale (64–128 days), and long scale (128–256 days). In Figure 4.1, time is shown on the X-axis, and frequencies or scales are shown on the Y-axis. The 1000, 2000, 3000, and 4000 observations, which were made on October 30, 2007, August 30, 2011, June 30, 2015, and April 30, 2019, are similarly represented on the X-axis. Wavelet power is represented by a color; red denotes high power and blue denotes low power. This is comparable to the significance level (5%), which is indicated by a white contour. The cone of influence in WPS is crucial for determining the area that edge effects impact. Since the entire WPS lacks a conical shape, edge effects are not present. It is necessary to disregard the periods outside the cone of effect due to their lack of statistical certainty. Figure 4.1's graph indicates that the ARG(I) has low power on a small scale (16–32 days) and strong power on a medium size (32–128 days).

The first occurrence occurs close to observation 1300 (on January 1, 2009) when Global Financial Crises (GFC) occur. Next region of strong oscillations is near observation 3200 (on June 1, 2016) when Brexit Crises occur. And the next strong oscillation is near observation 4175 (on January 1, 2020) when Covid-19 crises occur, this is the strongest and longest oscillation. In Figure 4.1, ARG(I) series show volatility in short and medium run.

And Figure 4.1 shows, ARG(R) series first oscillation occur near observation 1000 to 1500 (October 30, 2007 to June 30, 2009) when Global Financial Crises occur. Following a period of global economic expansion from 2003 to 2008, several of the top emerging nations—including Argentina—entered a recession in 2009. The Argentine economy collapsed as a result of the conditions of asset deflation, trade flow contraction, and economic downturn that started in September 2008 (HAINES, 2020). And next is near obs. 2000 (August 30, 2011) when Economic Development crises occur. And next is near 4200, when Covid-19 occur. The majority of the excess returns continue to be negative, but after eighteen working days, they became negligible (Tanveer, Z. 2021). The wavelet power spectrum plot of AGR(R) in Figure 4.1 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in low scale in the year 2011 during the Economic Development crises and in 2020 when Covid-19 occur.

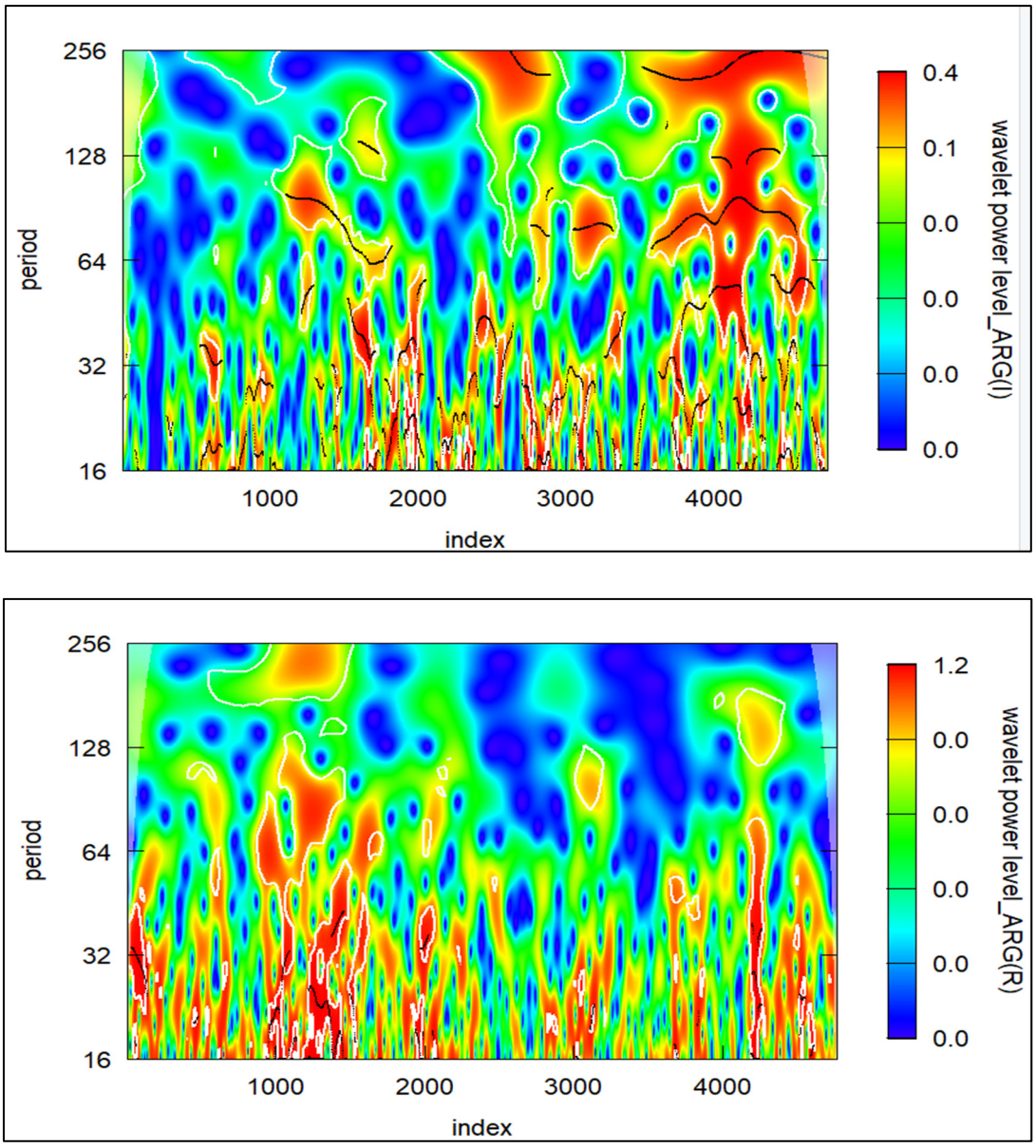


Figure 4.1: Wavelet Power AGR(I) & AGR(R)

And in wavelet coherence, the highest level of covariance at large scale in Argentina (ARG) observed in Figure 4.2 during the GFC crises of 2008; the arrows point upward, indicating that the first variable is leading, which is investor attention (I), and arrows are in left direction which means there is negative impact of investor's attention on stock returns (R) during GFC crises. Additionally, the highest level of covariance was seen in 2020, during the COVID-19 crises. In this case, the downward-pointing arrows

indicate that the second variable is in the lead, and the left-pointing arrow indicates that stock returns have a negative effect on investor attention.

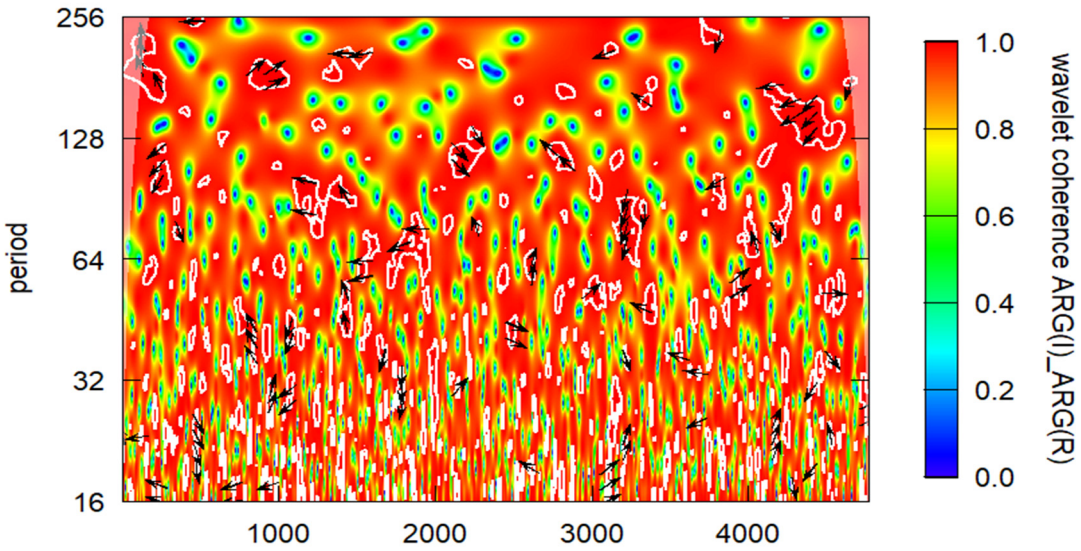


Figure 4.2: Wavelet Coherence ARG

4.6.4 Brazil-Ibov Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of BRAZ(I) in Figure 4.3 shows significantly high volatility in the short, medium and large scale periods between 2016 and 2021, when Brexit crises and Covid-19 crises occur.

The wavelet power spectrum plot of BRAZ(R) in Figure 4.3 shows significantly high volatility in the medium scale periods in 2007 and 2016, when global financial crises and Brexit crises occur. The immediate impact of the financial crisis of 2008 on the Brazilian economy was capital flight related to foreign loans and portfolio investments; however, the removal of foreign credit available to resident banks and businesses raised the liquidity constraints of some businesses, including some significant exporters from Brazil that had been making money on interest-rate trade that involve foreign exchange derivatives. Strong pressure was applied to the exchange rate, causing it to depreciate by 42.6% between September 1 and December 31 due to the reversal in capital flows (HAINES, 2020). It also shows significant high volatility in short, medium and large scale in 2020 when Covid-19 occur.

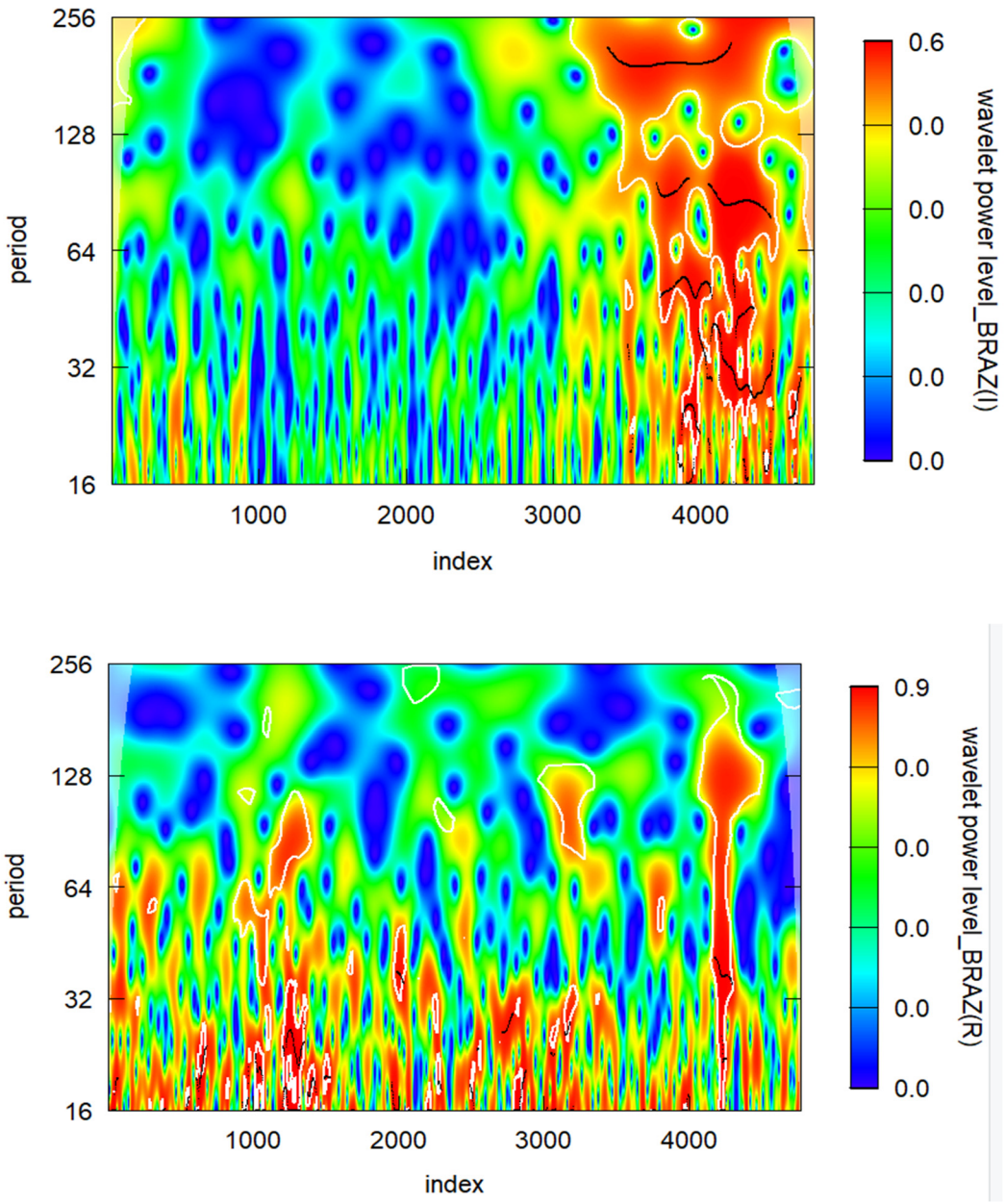


Figure 4.3: Wavelet Power BRAZ(I) & BRAZ(R)

And in wavelet coherence, the highest level of covariance at large scale in Brazil (BRAZ) observed in Figure 4.4 during the EDC crises of 2012; the arrows point downward with left direction, indicating that there is negative impact of stock returns (R) on investor's attention (I).

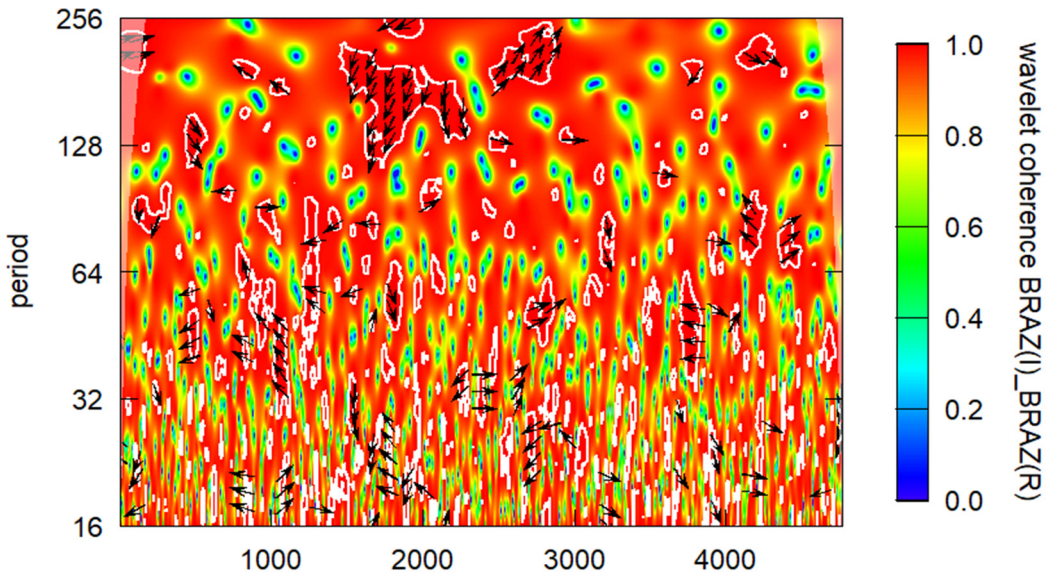


Figure 4.4: Wavelet Coherence BRAZ

4.6.5 Chile-IGPA Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of CHIL(I) in Figure 4.5 shows significantly high volatility in the short scale period in 2016, when Brexit crises occur.

The wavelet power spectrum plot of CHIL(R) in Figure 4.5 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in low, medium and large scale in 2020 when Covid-19 occur. Due to an increase in cases and deaths, volatility increased during the COVID-19 period. The COVID-19 pandemic cases had an adverse effect on stock markets in some sub-sample periods of the full sample of each Latin American nation, but not on stock market indices over the whole sample period (Bilgili et al., 2023).

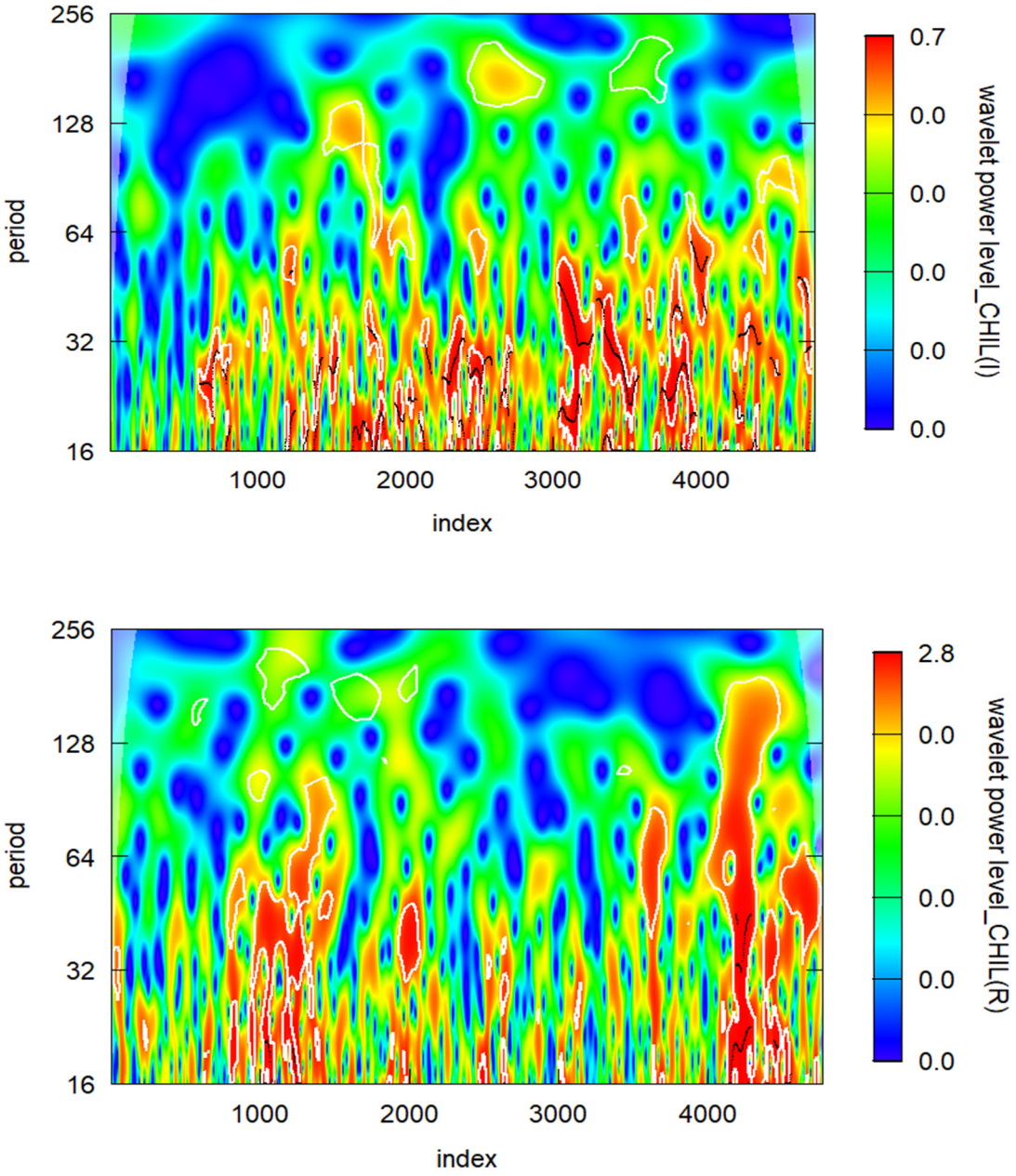


Figure 4.5: Wavelet Power CHIL(I) & CHIL(R)

And in wavelet coherence, the highest level of covariance at large scale observed in Figure 4.6 during the covid-19 crises of 2020; the arrows point downward with left direction, indicating that there is negative impact of stock returns (R) on investor's attention (I).

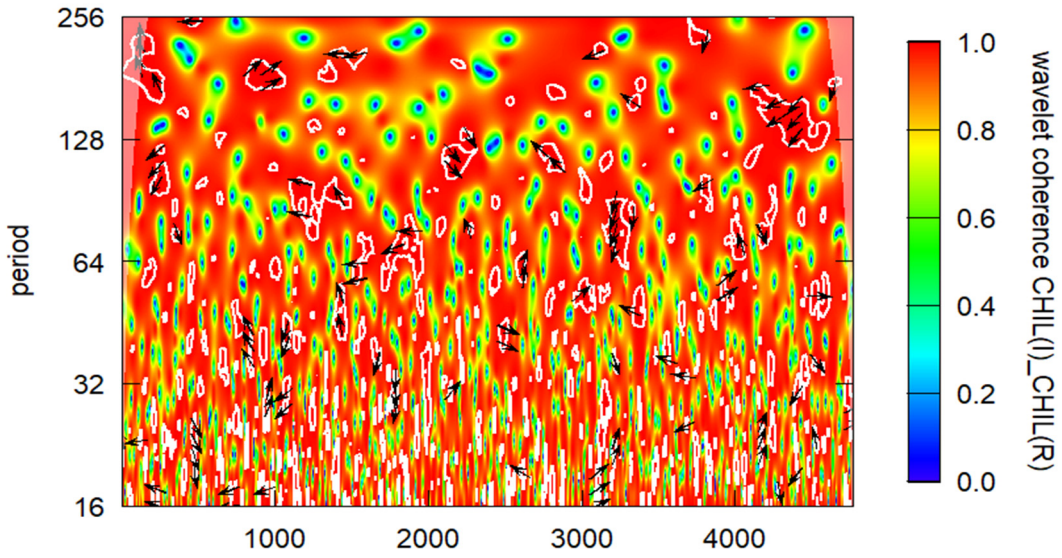


Figure 4.6: Wavelet Coherence CHIL

4.6.6 China-Shcomp Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of CHIN(I) in Figure 4.7 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of CHIN(R) in Figure 4.7 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. The short-term volatility of stock returns from 2007 to 2010 is also noteworthy, the substantial fluctuations observed in all frequency bands amidst crisis situations suggest the profound and enduring influence of the worldwide financial crisis on the Chinese stock market, the short-term high power in 2015–2016 stems from the 2015 market crash, which was brought on by an overreaction to the quantitative easing policy (Wang and Li, 2020). It also shows significant high volatility in short, medium and large scale in the year 2016 during the Brexit crises.

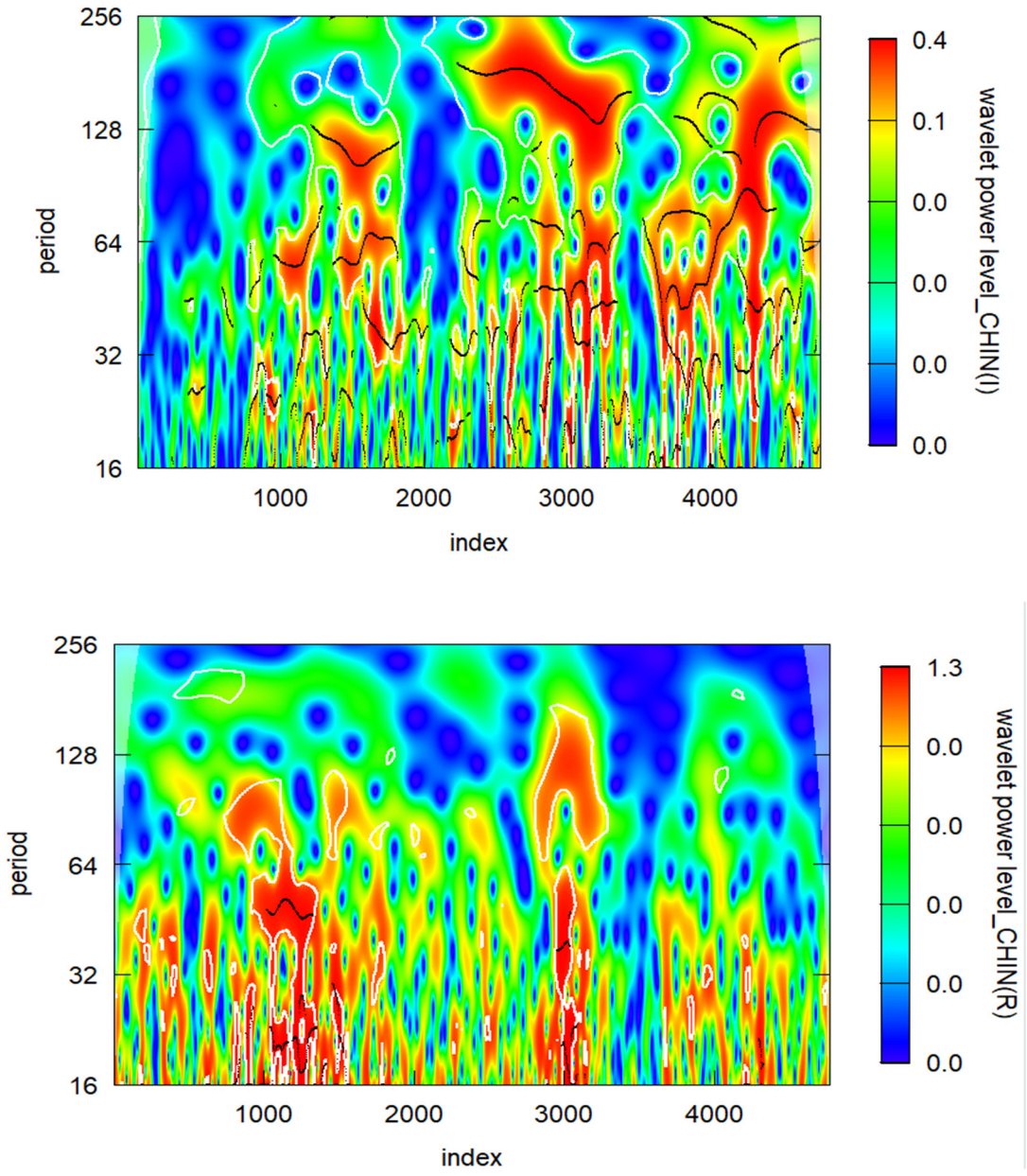


Figure 4.7: Wavelet Power CHIN(I) & CHIN(R)

And in wavelet coherence, the highest level of covariance at large scale observed in Figure 4.8 during the GFC crises of 2008; the arrows point upward with left direction, indicating that there is negative impact of investor's attention (I) on stock returns (R). Additionally, the highest level of covariance was seen in 2020, during the COVID-19 crises, where investor's attention (I) have negative impact on stock returns (R).

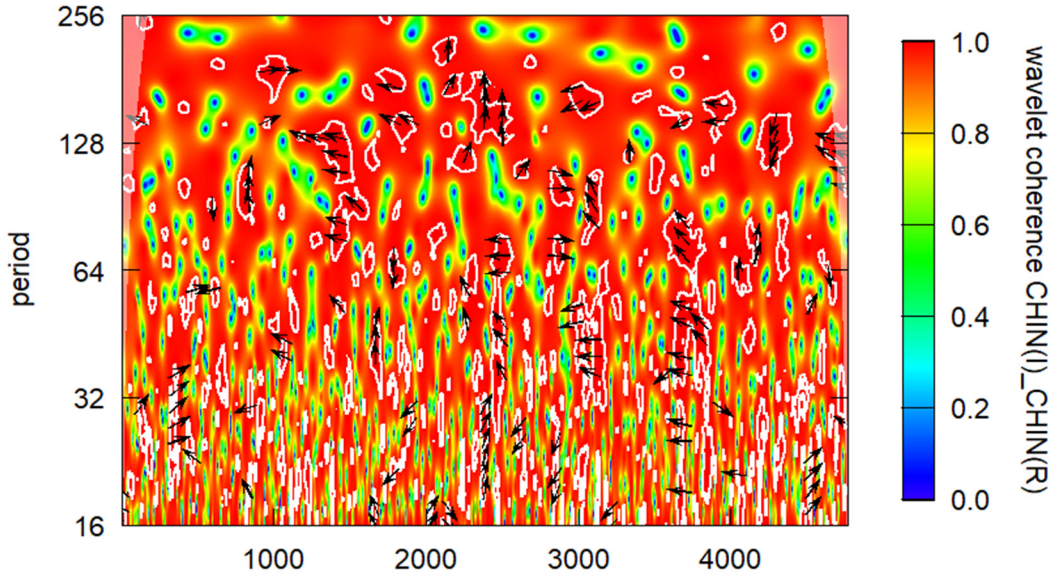


Figure 4.8: Wavelet Coherence CHIN

4.6.7 Colombia-Colcap Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of COL(I) in Figure 4.9 shows significantly high volatility in the short and medium scale period in 2020 when Covid-19 occur.

The wavelet power spectrum plot of COL(R) in Figure 4.9 shows significantly high volatility in the short and medium scale period in 2007, when global financial crises occur. It also shows significant high volatility in short, medium and large scale in 2020 when Covid-19 occur. Due to an increase in cases and deaths, volatility increased during the COVID-19 period. The COVID-19 pandemic cases had an adverse effect on stock markets in some sub-sample periods of the full sample of each Latin American nation, but not on stock market indices over the whole sample period (Bilgili et al., 2023).

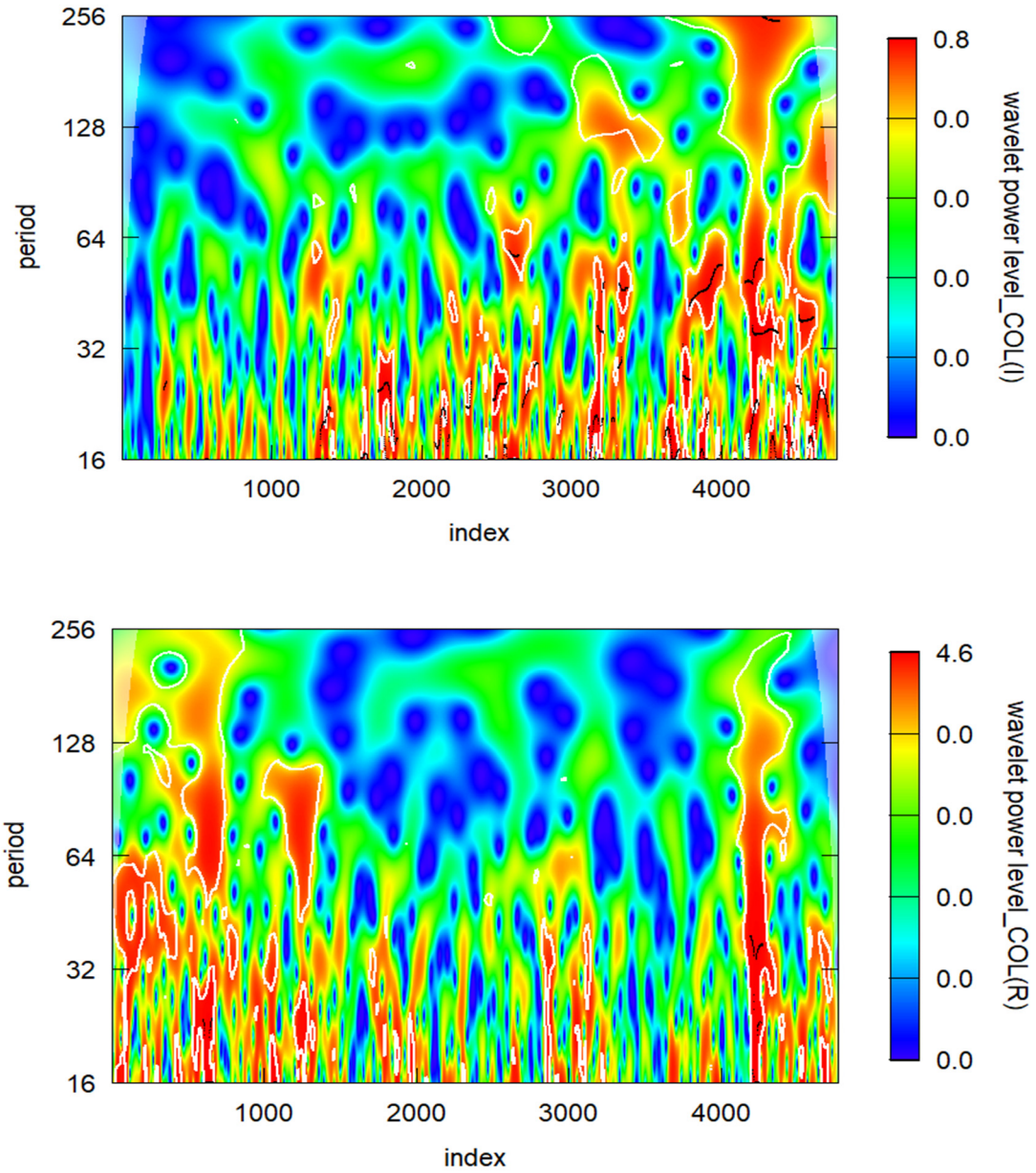


Figure 4.9: Wavelet Power COL(I) & COL(R)

And in wavelet coherence, the highest level of covariance at large scale observed in Figure 4.10 during the GFC crises of 2008; the arrows point downward with left direction, indicating that there is negative impact of stock returns (R) on investor's attention (I). Additionally, the highest level of covariance was seen in 2011, during the EDC crises, where stock returns have positive impact on investor's attention.

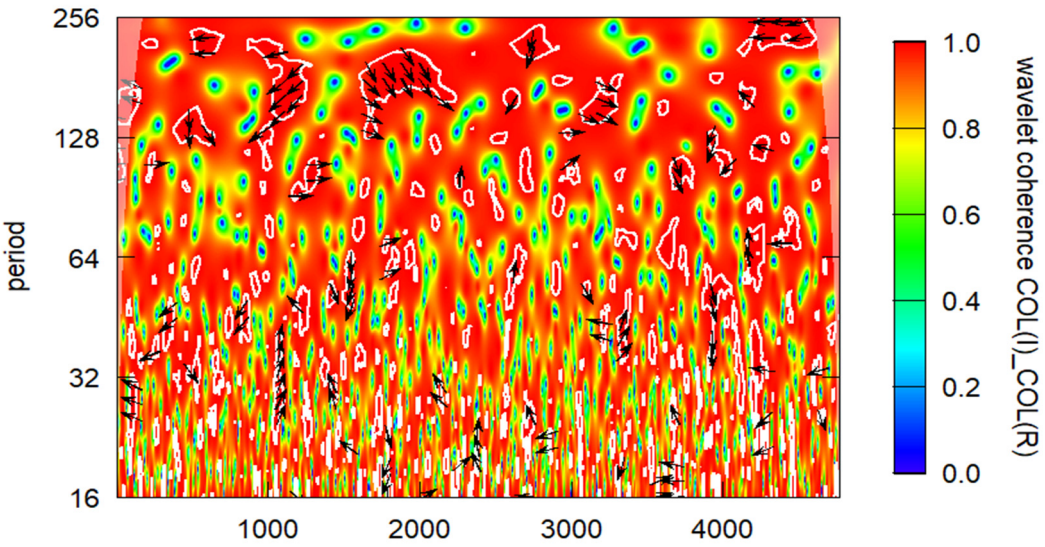
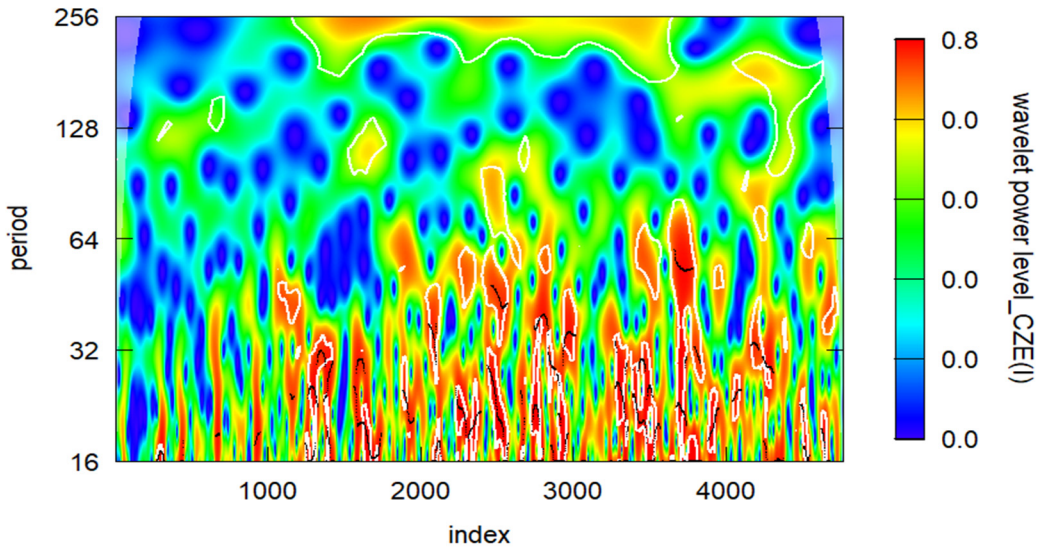


Figure 4.10: Wavelet Coherence COL

4.6.8 Czech Republic-PX Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of CZE(I) in Figure 4.11 shows significantly high volatility in the short and medium scale period in 2020 when Covid-19 occur.

The wavelet power spectrum plot of CZE(R) in Figure 4.11 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short, medium and large scale in 2020 when Covid-19 occur.



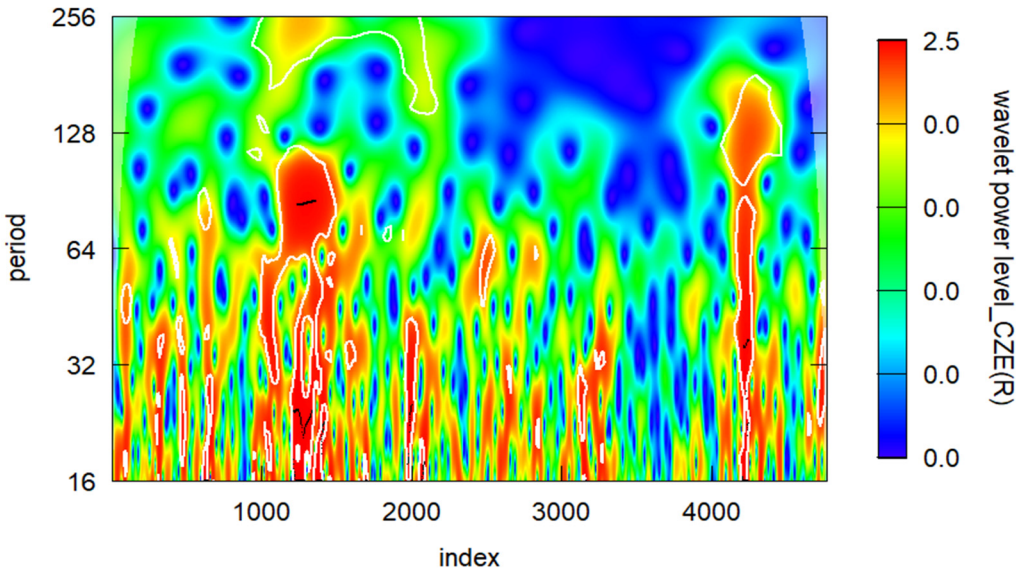


Figure 4.11: Wavelet Power CZE(I) & CZE(R)

And in wavelet coherence, the highest level of covariance at large scale is observed in Figure 4.12 during the GFC crises of 2008; the arrows point upward with left direction, indicating that there is negative impact of investor's attention (I) on stock returns (R). Additionally, the highest level of covariance was seen in 2016, during the brexit crises, in which stock return have negative impact on investor attention.

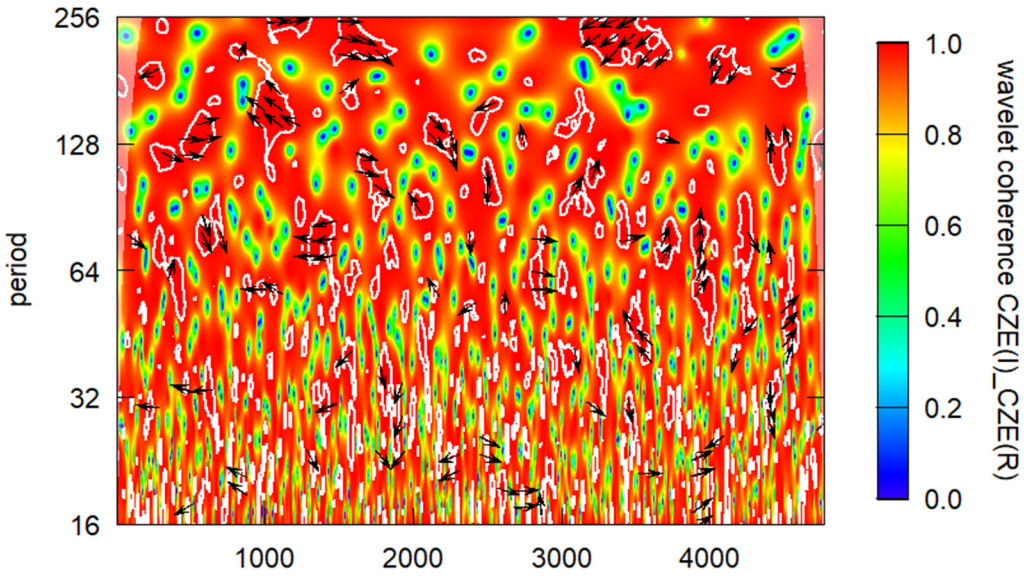
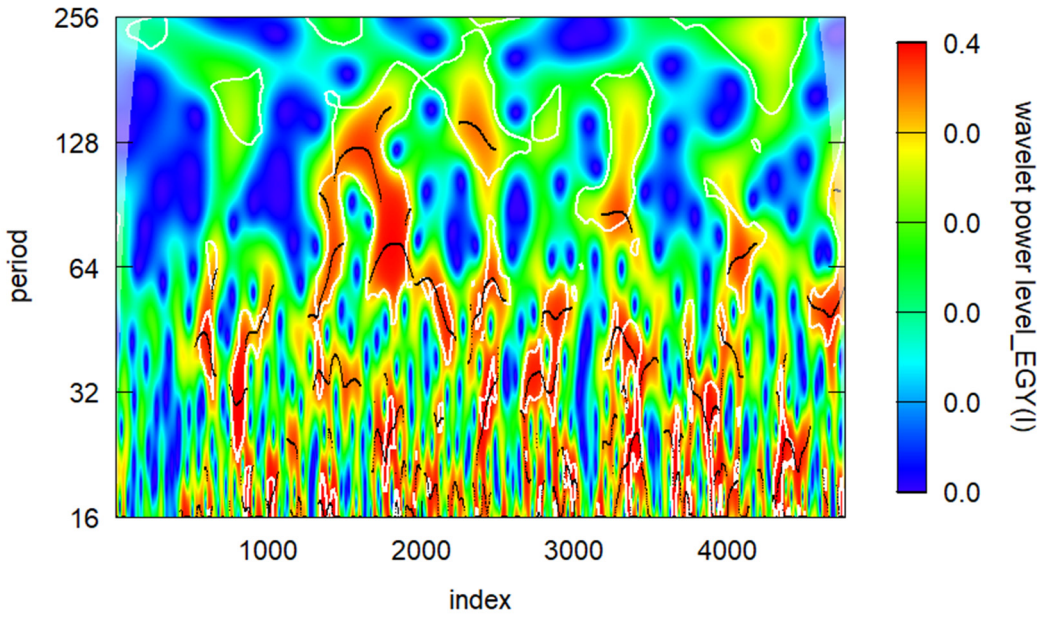


Figure 4.12: Wavelet Coherence CZE

4.6.9 Egypt-EGX30 Index Investor attention and Stock Return Series

The wavelet power spectrum plot of EGY(I) in Figure 4.13 shows significantly high volatility in the medium scale in period 2011, when Economic Development crises occur.

The wavelet power spectrum plot of EGY(R) in Figure 4.13 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short and medium scale in 2020 when Covid-19 occur. Additionally, since 2005, the scalogram shows more extreme return movements at both low and high frequencies. These movements are likely the result of weakening economic policies, a lack of confidence in economic stability, and unfavorable conditions in the global monetary markets after the US Federal Reserve decided to raise interest rates to 5.25%. The results show how much the Greek market fluctuated during the US subprime crisis. In fact, the CASE-30 index fell by 14.14% during the first week of October 2008, from 2354 points to less than 2,021 points (Aloui and Nguyen, 2014).



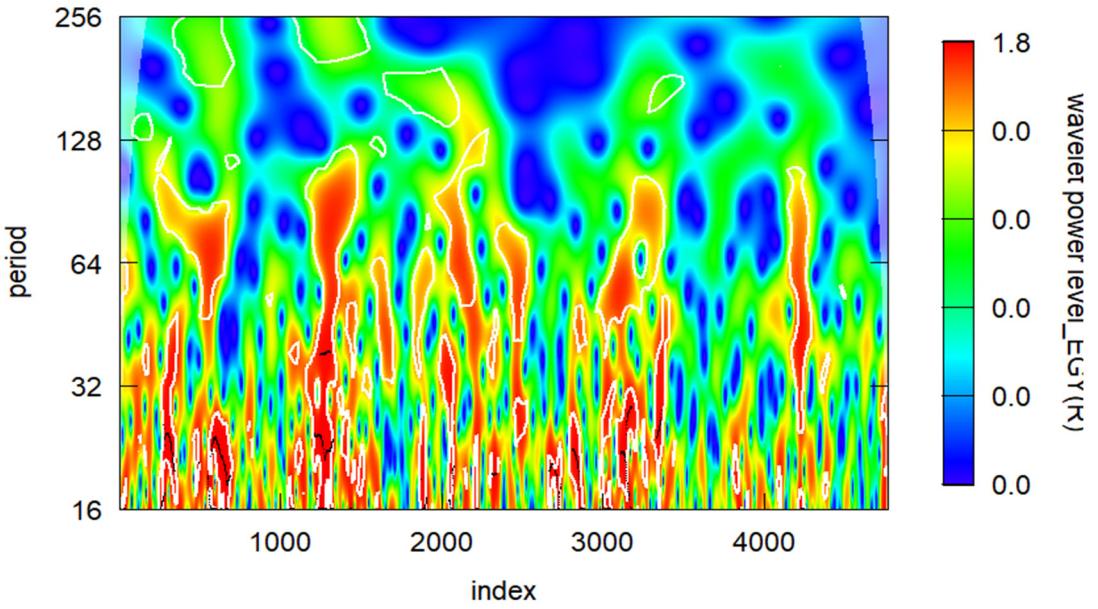


Figure 4.13: Wavelet Power EGY(I) & EGY(R)

And in wavelet coherence, the highest level of covariance at large scale observed in Figure 4.14 during the GFC crises of 2008; the arrows point upward with left direction, indicating that there is negative impact of investor attention on stock returns. Additionally, the highest level of covariance was seen in 2016, during the brexit crises, in which stock return have negative impact on investor attention.

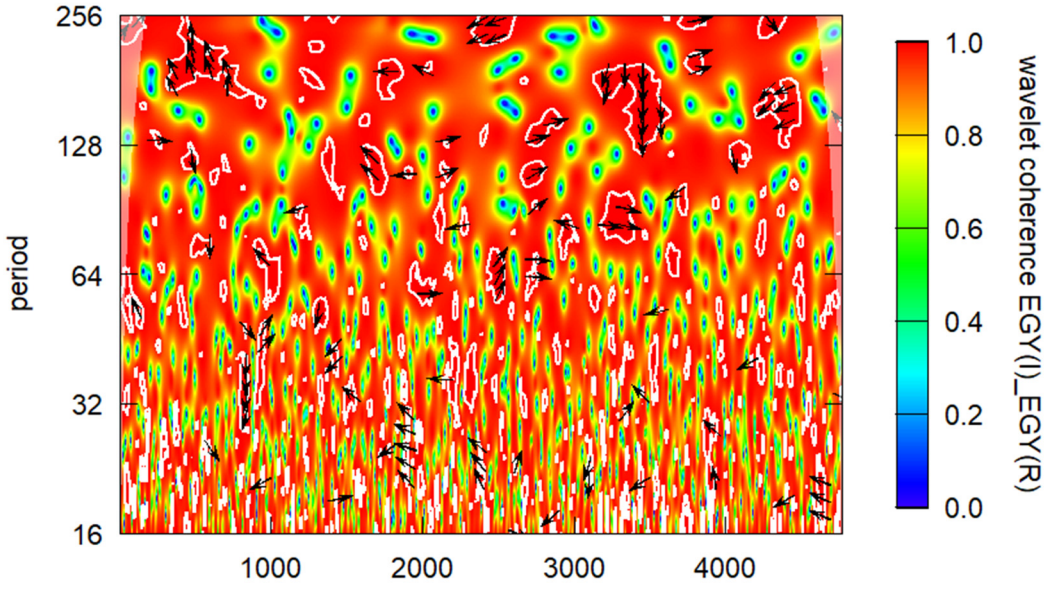
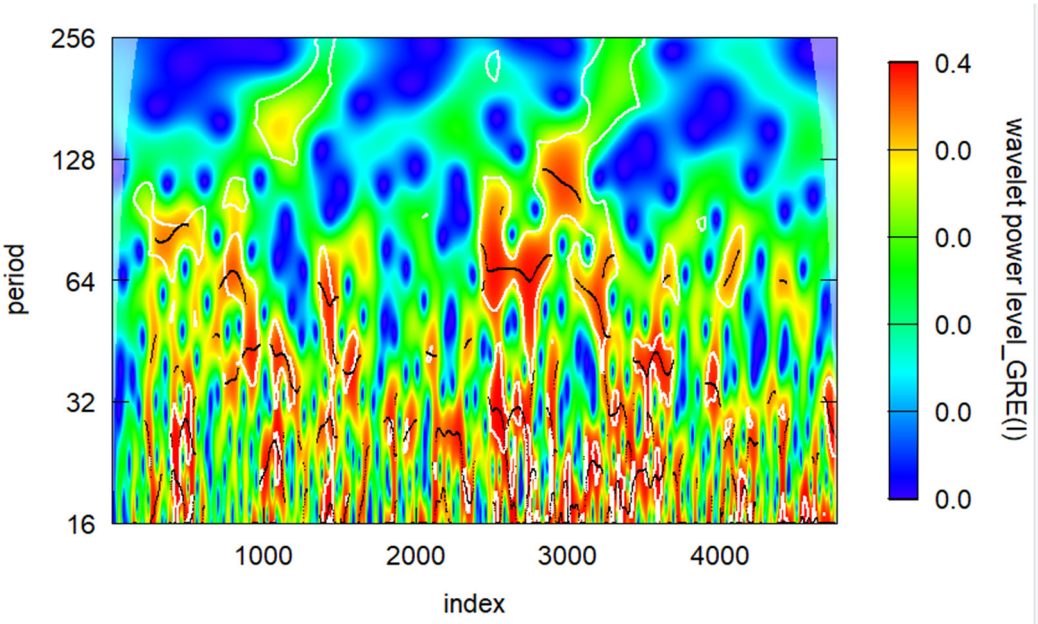


Figure 4.14: Wavelet Coherence EGY

4.6.10 Greece-ASE Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of GRE(I) in Figure 4.15 shows significantly high volatility in the short and medium scale periods between 2013 and 2015, when Chinese crises occur.

The wavelet power spectrum plot of GRE(R) in Figure 4.15 shows significantly high volatility in the short and medium scale periods between 2013 and 2015, when Chinese crises occur. It also shows significant high volatility in short, medium and large scale in 2020 when Covid-19 occur. The Greek stock market experienced significant swings throughout the Asian financial crisis, the September 11 terrorist attack, the subprime mortgage crisis in 2008, and the Greek public debt crisis. These dramatic swings were precipitated on 23-4-2010, when government of Greece needed an initial package of US$61 billion from the International Monetary Fund (IMF) and the European Union to cover its financial needs for the remainder of 2010. Furthermore, on April 27, 2010, Standard & Poor's downgraded Greece's sovereign debt quality to BB+ and voiced grave concerns about the Greek government's default risk. The news of this downgrade caused a sharp decline in the stock markets of Greece and other European countries (Aloui and Nguyen, 2014). The stock market indices' variance increased between 2006 and 2009, most likely as a result of the global financial crisis. The effect is more noticeable at medium and high scales, indicating that medium- to long-term stock market index shocks were ahead of us (Masih and Majid, 2013).



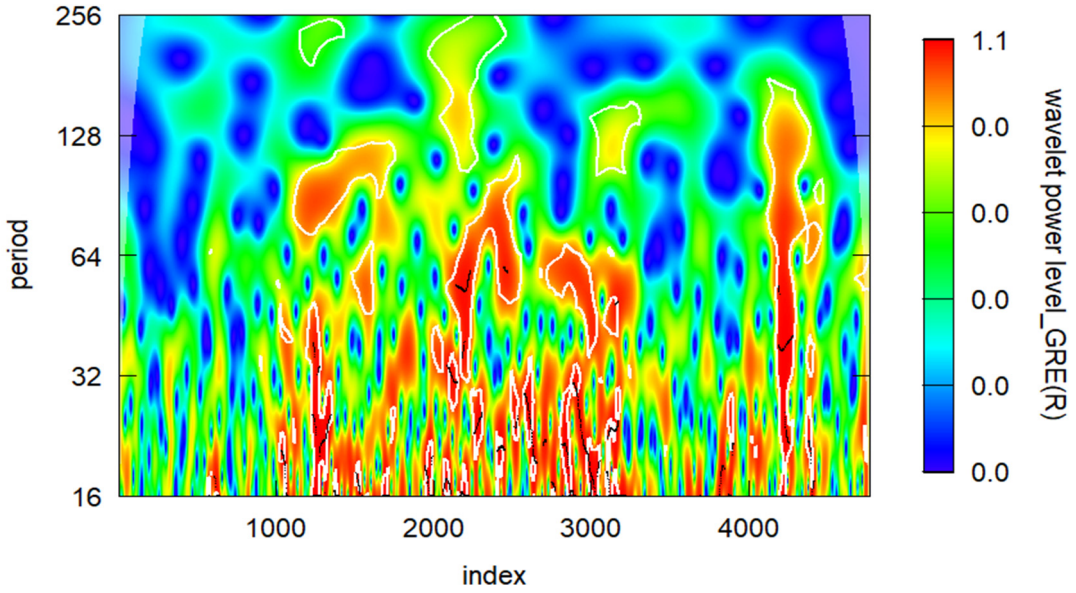


Figure 4.15: Wavelet Power GRE(I) & GRE(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.16 during the EDC crises of 2012; the arrows point downward with left direction, indicating that there is negative impact of stock returns (R) on investor's attention (I). Additionally, the highest level of covariance was seen in 2015, during the chinese crises, in which I positively impact R.

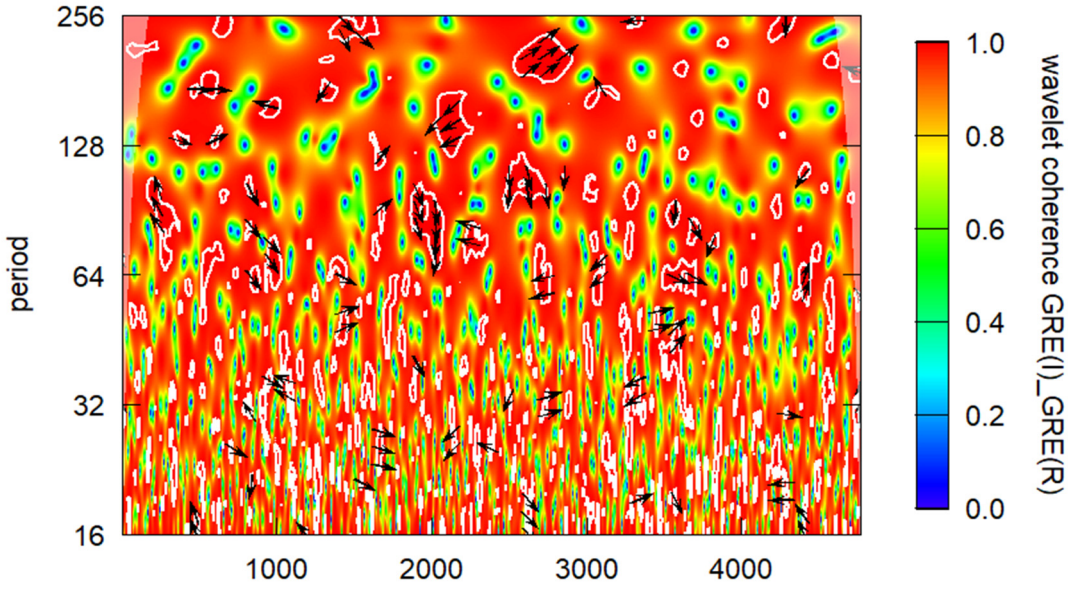


Figure 4.16: Wavelet Coherence GRE

4.6.11 Hungary-BUX Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of HUN(I) in Figure 4.17 shows significantly high volatility in the short and medium scale periods between 2005 and 2007, when global financial crises occur. It also shows significant high volatility in medium scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of HUN(R) in Figure 4.17 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short and medium scale in 2020 when Covid-19 occur.

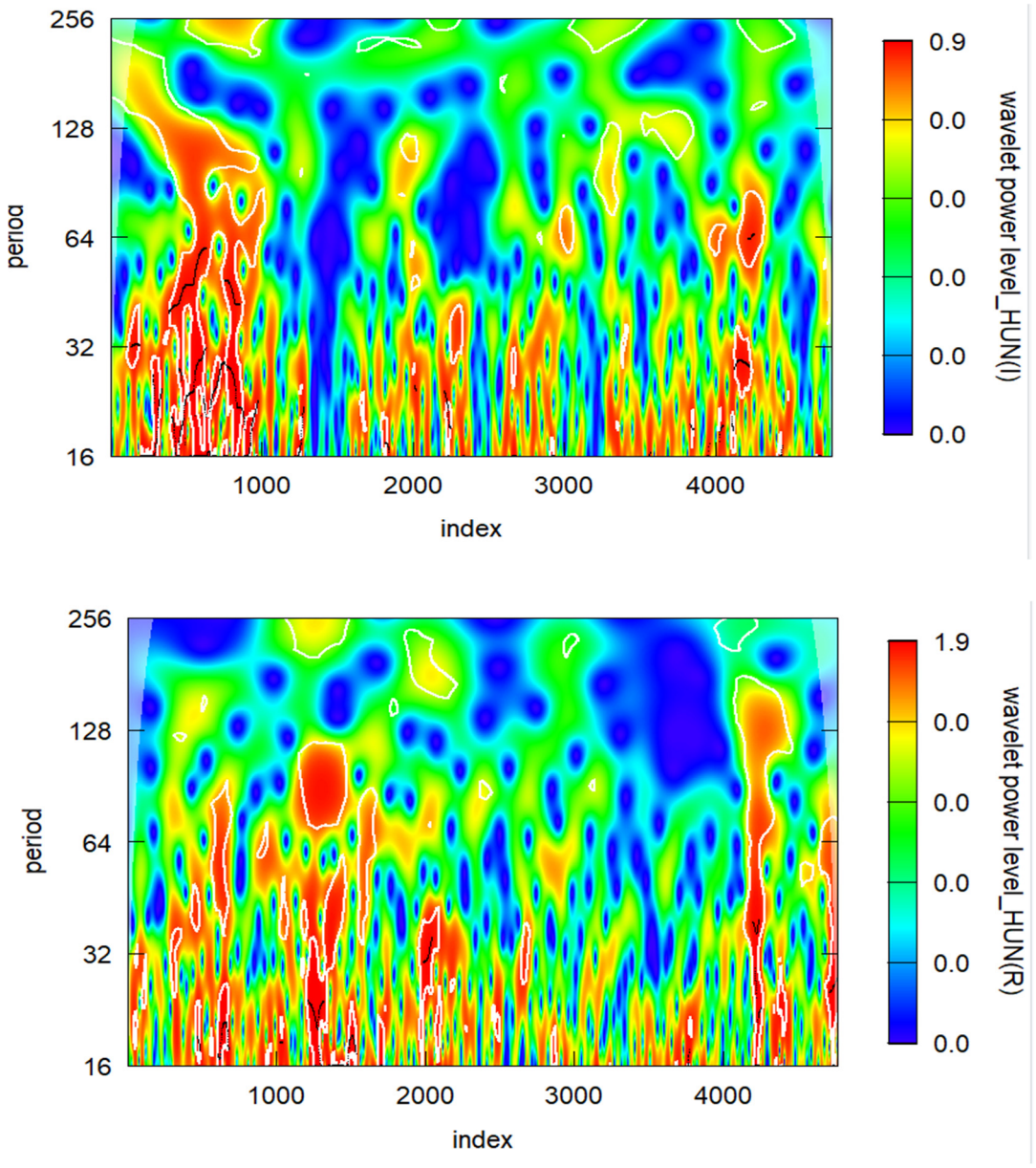


Figure 4.17: Wavelet Power HUN(I) & HUN(R)

And in wavelet coherence in Figure 4.18, the highest level of covariance was seen in 2020, during the COVID-19 crises where the arrows point upward with left direction, indicating that there is negative impact of investor attention on stock returns.

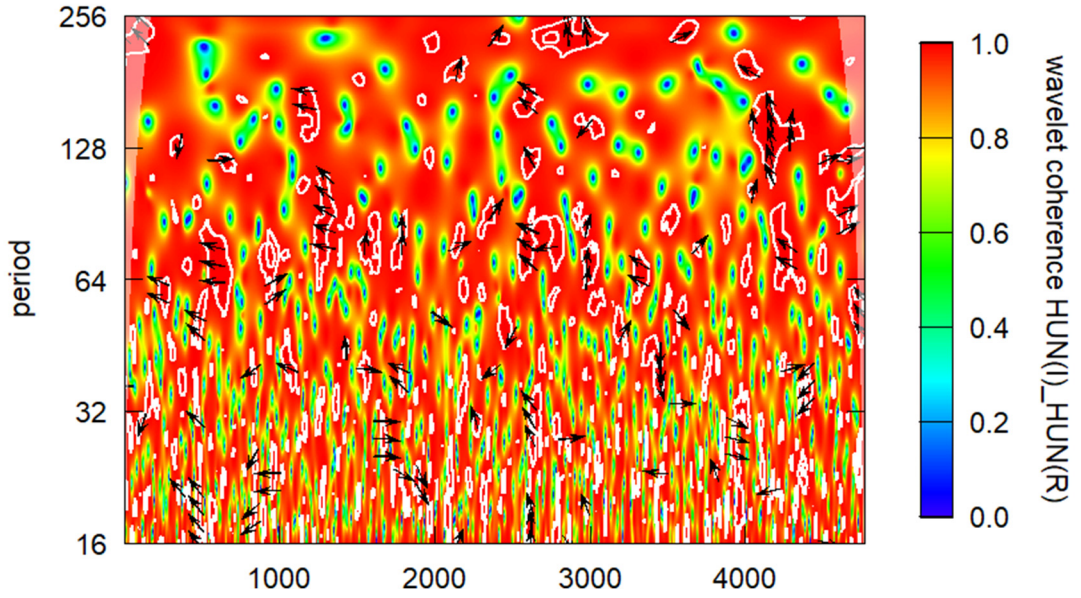


Figure 4.18: Wavelet Coherence HUN

4.6.12 India-NIFTY Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of IND(I) in Figure 4.19 shows significantly high volatility in the short and medium scale periods between 2019 and 2021, when Covid-19 occur.

The wavelet power spectrum plot of IND(R) in Figure 4.19 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short and medium scale in 2020 when Covid-19 occur. These notable regions of high volatility can all be linked to specific macroeconomic or geopolitical occurrences. Thus, by examining the power spectrum plot, it is possible to identify the contagion effect on the Indian market (Das, 2021).

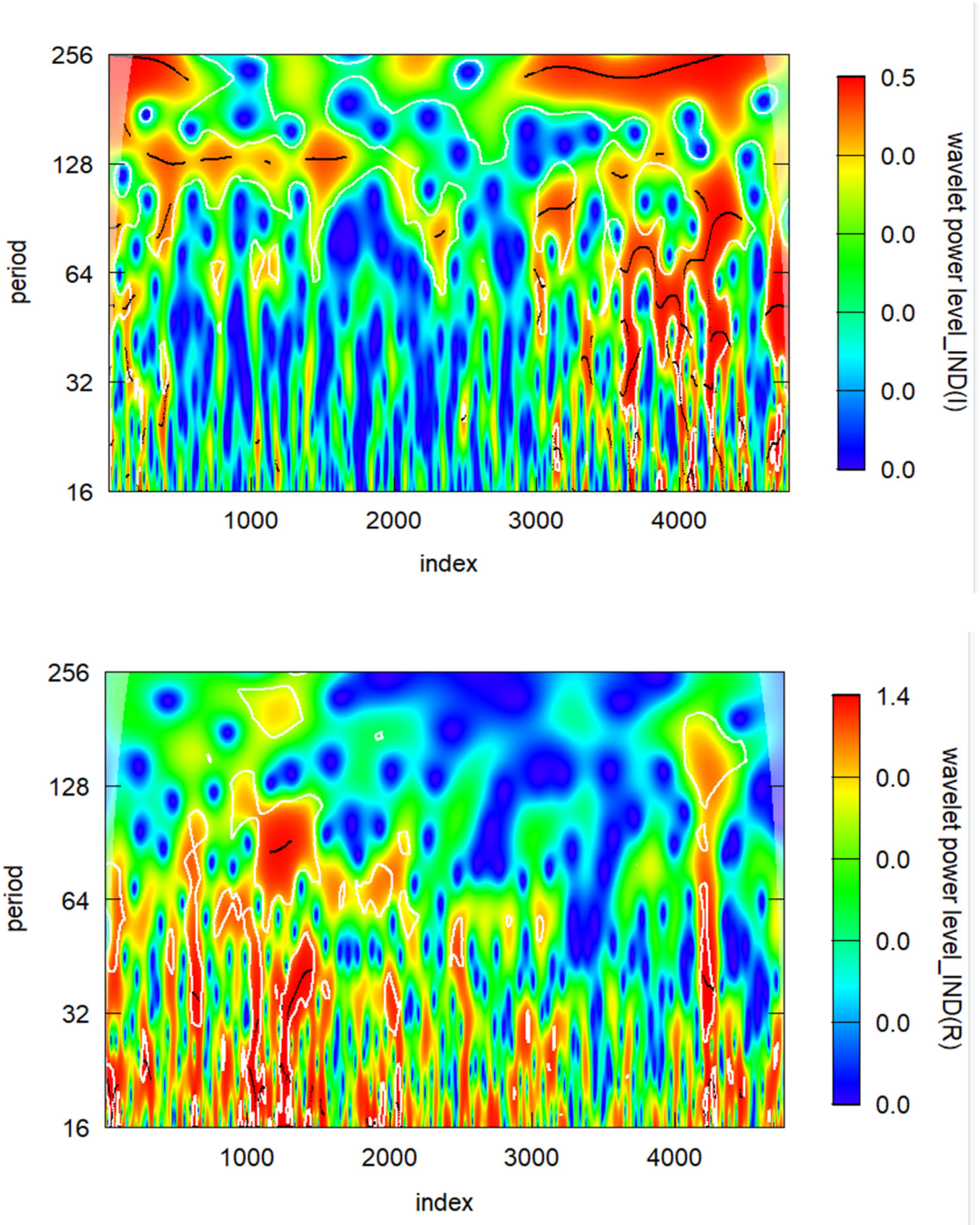


Figure 4.19: Wavelet Power IND(I) & IND(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.20 during the GFC crises of 2008; the arrows point downward with left direction, indicating that there is negative impact of stock returns (R) on investor's attention (I). Additionally, the highest level of covariance was seen in 2019, during the pre COVID-19 crises period, where investor attention negatively impact stock returns.

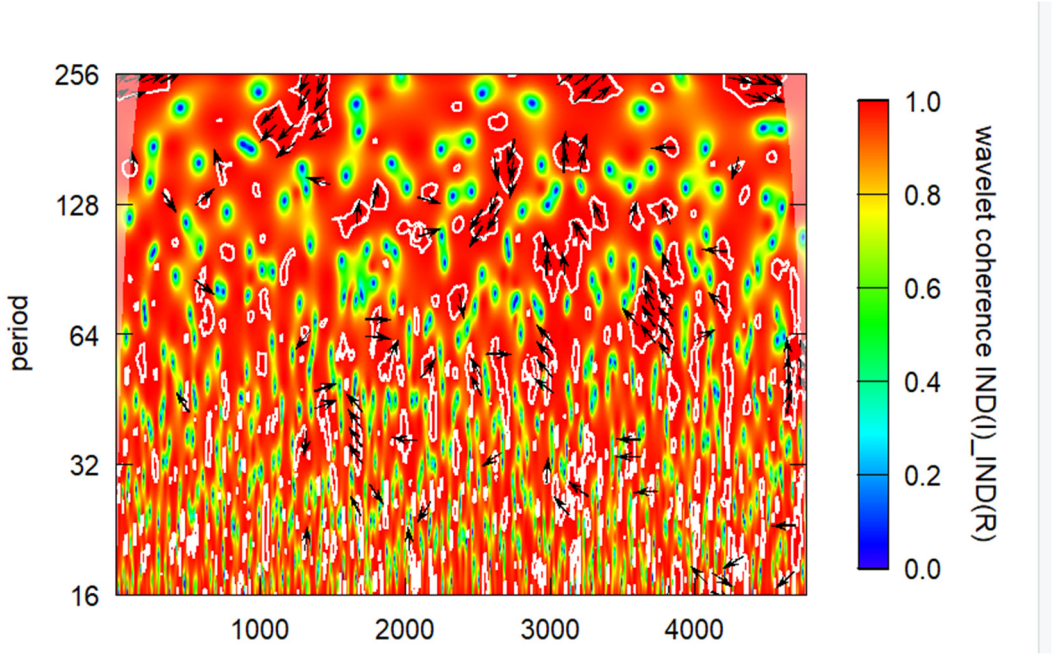


Figure 4.20: Wavelet Coherence IND

4.6.13 Indonesia-JCI Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of INDO(I) in Figure 4.21 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur.

The wavelet power spectrum plot of INDO(R) in Figure 4.21 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur and in 2020 when Covid-19 occur. The Indonesian government has used a mix of fiscal, monetary, and financial policies in response to the quickly developing global economic crisis. The ease of monetary policy has occurred. As of March 4, 2009, the interest rate is 7.75 percent, which is the lowest since July 2005. In a speech at the 2009 Bankers' Dinner, the Governor of the Bank of Indonesia mentioned that the official interest rate would probably be between five and seven percent. A 1.4 percent GDP fiscal stimulus package was passed and went into effect on March 1, 2009. Because monetary policy has a long and unpredictable lag, it is challenging to determine how much of the current monetary policy easing can counteract the effects of a period of tightening that was maintained between January and November 2008 due to a long and variable lag, all of these affected stock market as well (Zulaikha et al., 2018).

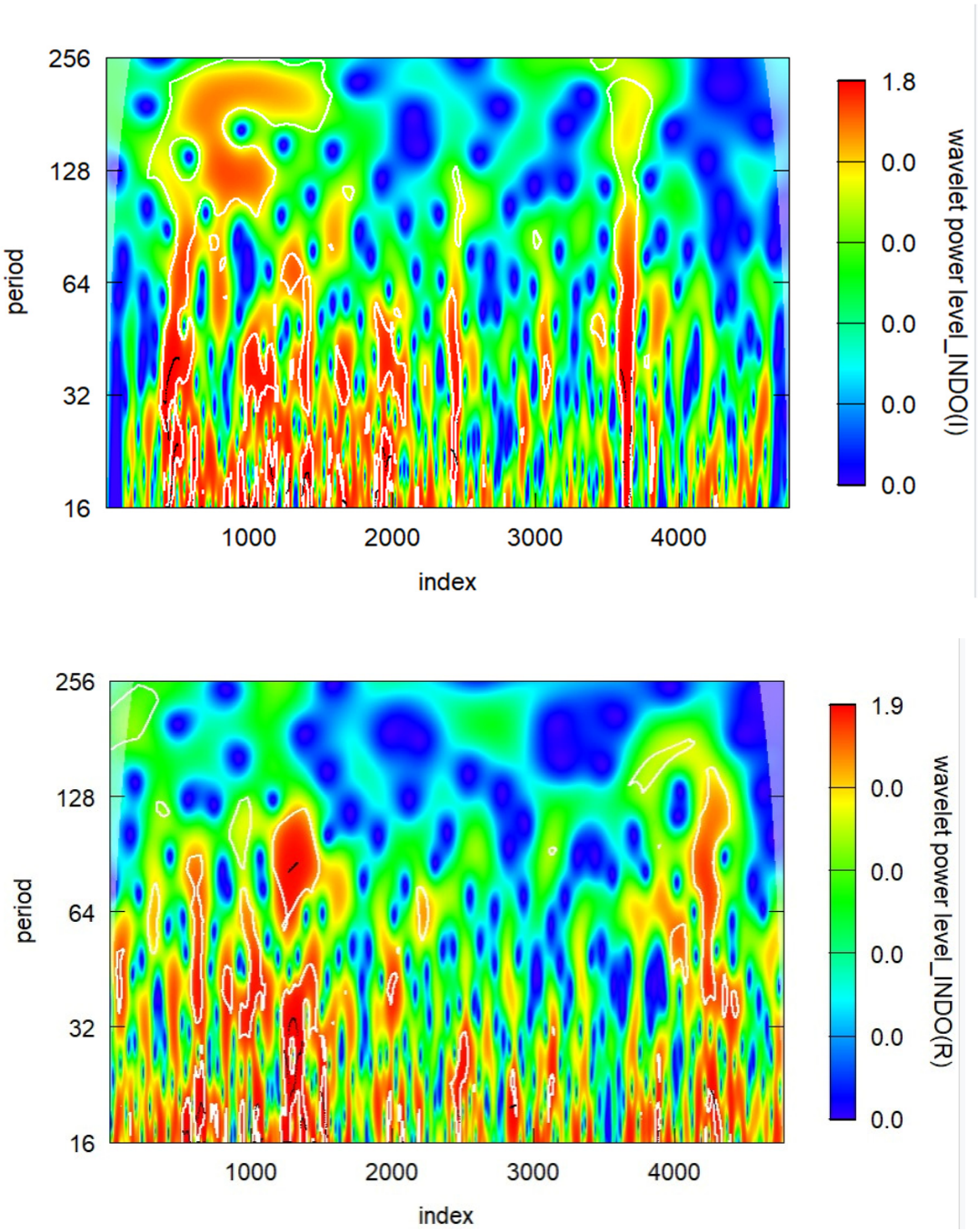


Figure 4.21: Wavelet Power INDO(I) & INDO(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.22 during the GFC crises of 2008; the arrows point downward with left direction, indicating that there is negative impact of stock returns (R) on investor's attention (I).

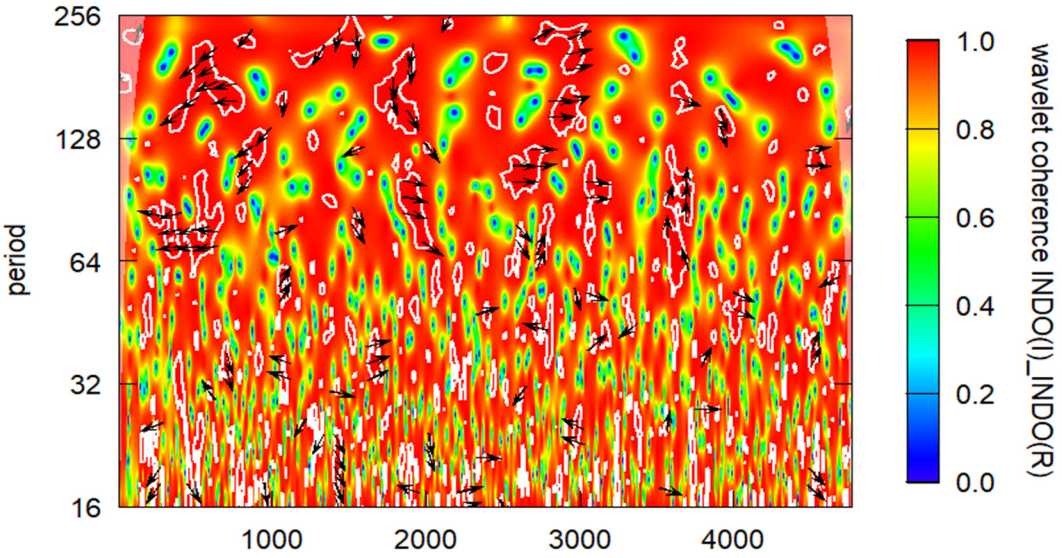
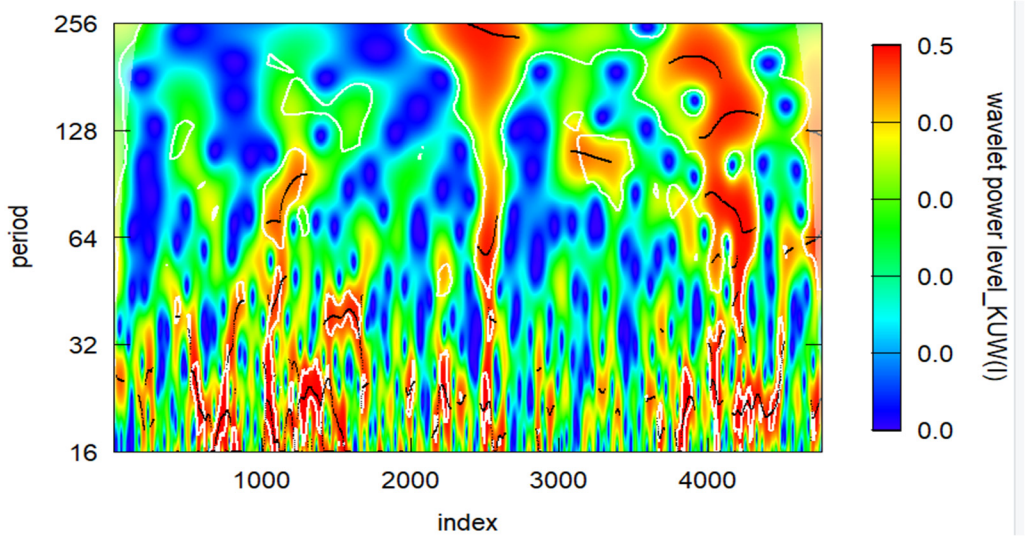


Figure 4.22: Wavelet Coherence INDO

4.6.14 Kuwait-Kwseidx Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of KUW(I) in Figure 4.23 shows significantly high volatility in the medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short and medium scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of KUW(R) in Figure 4.23 shows significantly high volatility in the short, medium and large scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short and medium scale in 2020 when Covid-19 occur.



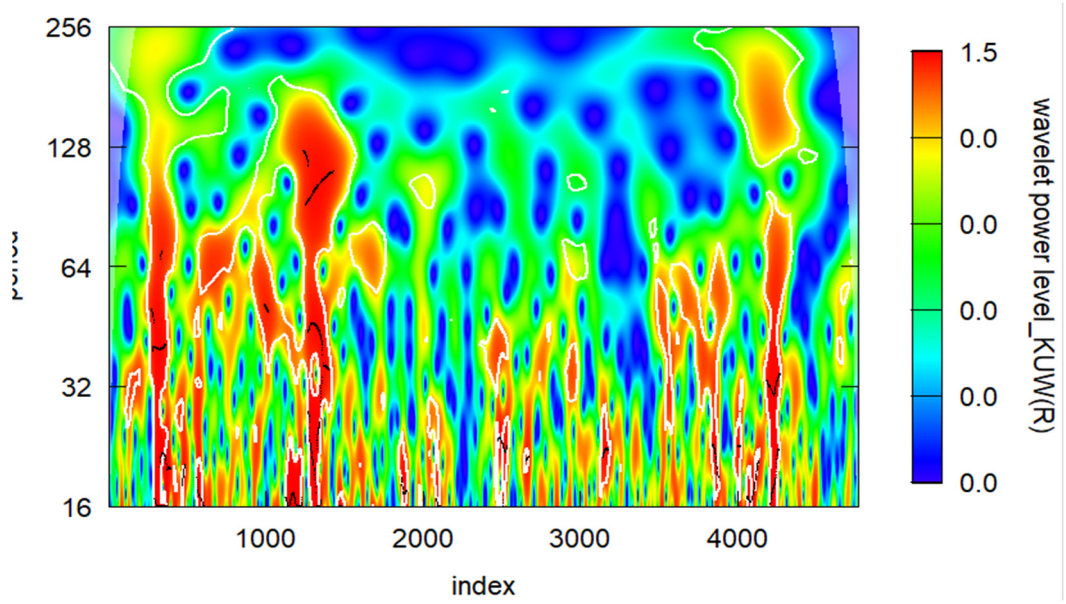


Figure 4.23: Wavelet Power KUW(I) & KUW(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.24 during the EDC crises of 2012; the arrows point upward with right direction, indicating that there is positive impact of investor attention on stock returns. Additionally, the highest level of covariance was seen in 2020, during the COVID-19 crises, indicating that there is negative impact of investor attention on stock returns.

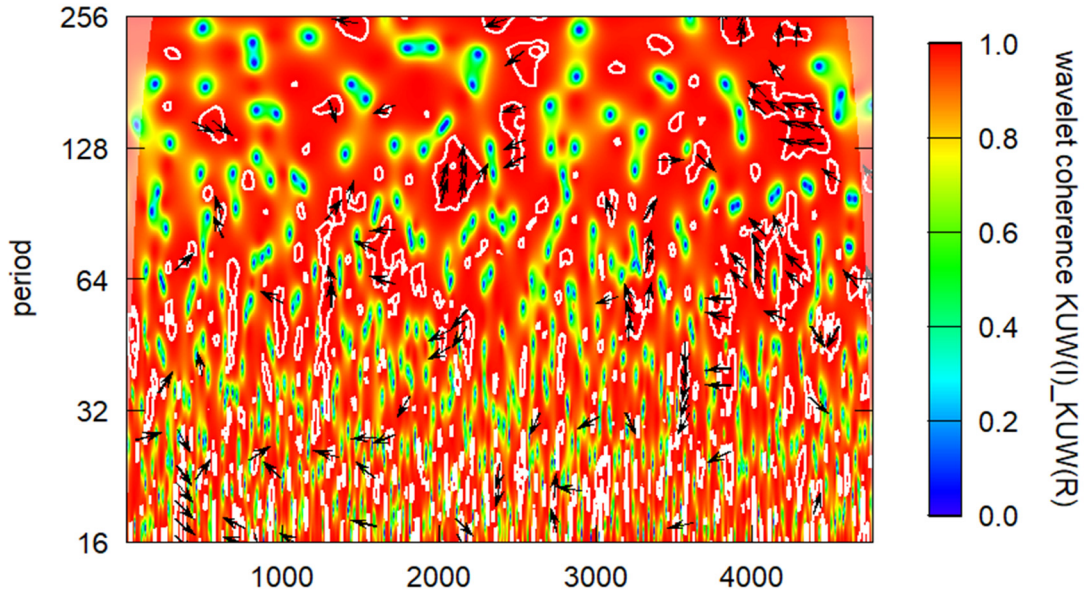


Figure 4.24: Wavelet Coherence KUW

4.6.15 Malaysia-Fbmklci Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of MAL(I) in Figure 4.25 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short and medium scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of MAL(R) in Figure 4.25 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short scale in 2020 when Covid-19 occur. The stock market indices' variance increased between 2006 and 2009, most likely as a result of the global financial crisis. The effect is more noticeable at medium and high scales, indicating that medium- to long-term stock market index shocks were ahead of us (Masih and Majid, 2013).

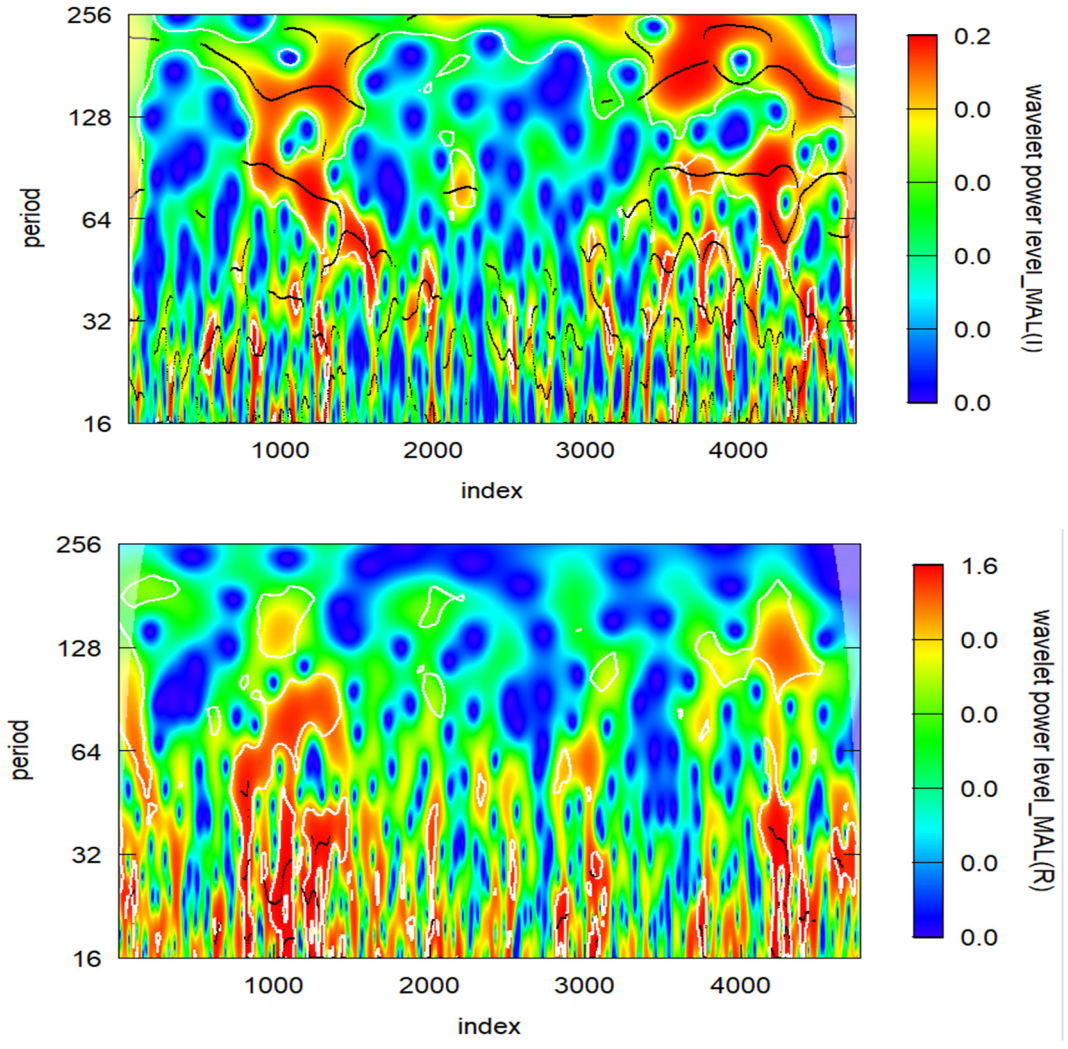


Figure 4.25: Wavelet Power MAL(I) & MAL(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.26 during the EDC crises of 2012; the arrows point upward with left direction, indicating that there is negative impact of I on R.

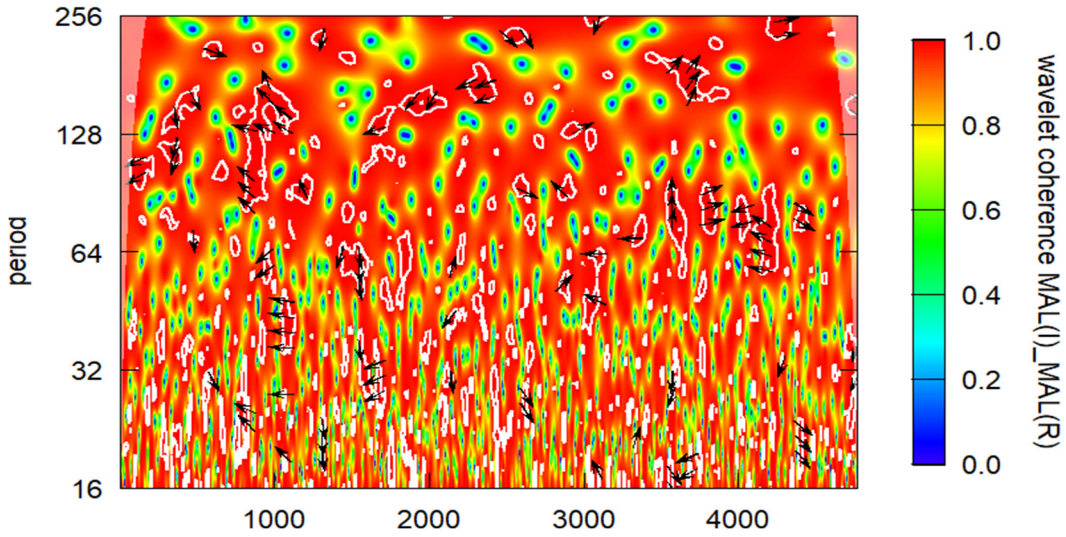


Figure 4.26: Wavelet Coherence MAL

4.6.16 Mexico-Mexbol Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of MEX(I) in Figure 4.27 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short and medium scale in the year 2016 during the brexit crises.

The wavelet power spectrum plot of MEX(R) in Figure 4.27 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short and medium scale in the year 2020 during the covid-19 crises. In the middle of the sample period (2013–2014), the variance vanishes, and at the end of the sample period, it rises once more (Aloui et al., 2018). Due to an increase in cases and deaths, volatility increased during the COVID-19 period. The COVID-19 pandemic cases had an adverse effect on stock markets in some sub-sample periods of the full sample of each Latin American nation, but not on stock market indices over the whole sample period (Bilgili et al., 2023).

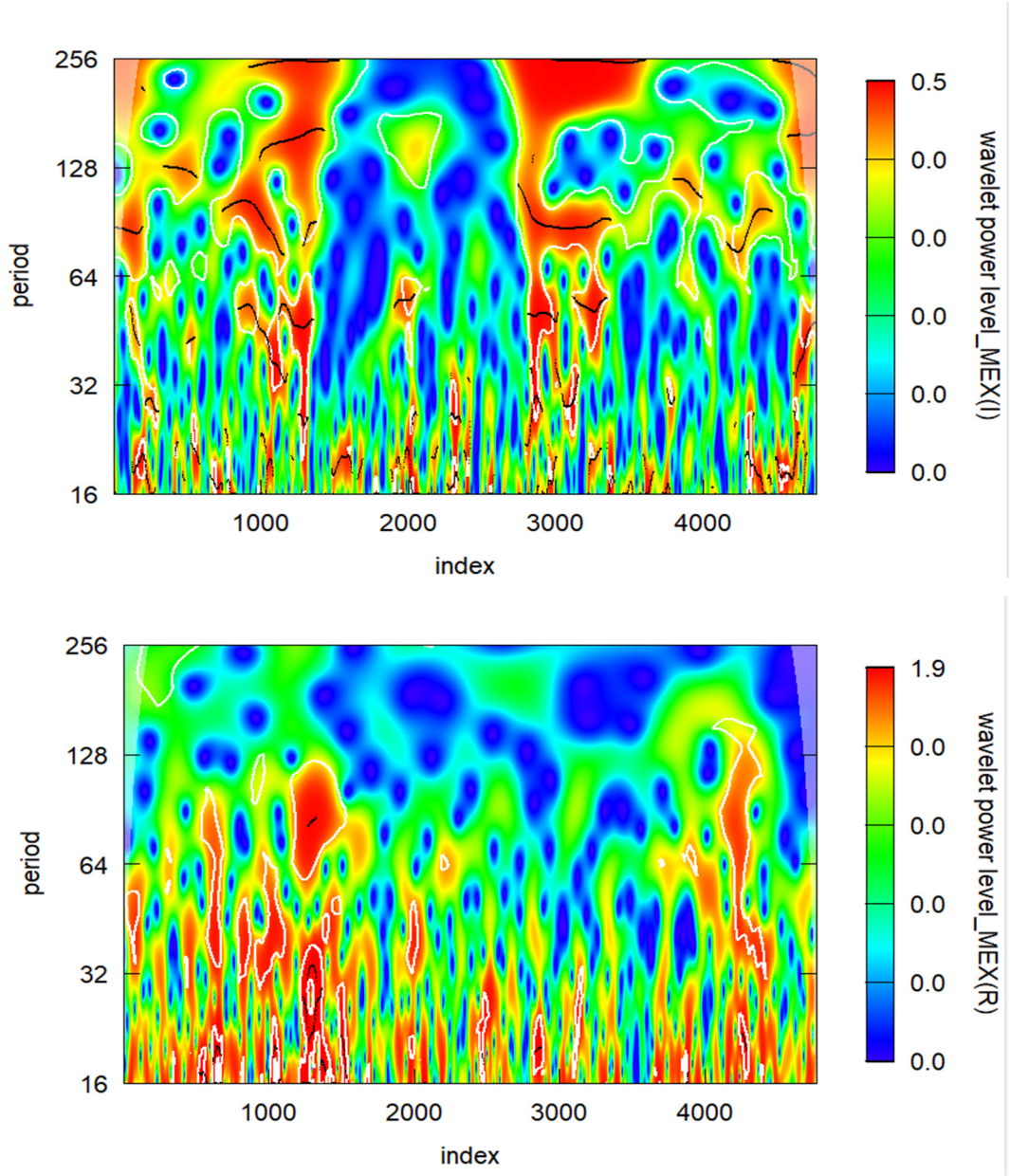


Figure 4.27: Wavelet Power MEX(I) & MEX(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.28 during the GFC crises of 2008; the arrows point dupward with right direction, indicating that there is positive impact of investor's attention (I) on stock returns (R). Additionally, the highest level of covariance was seen in 2020, during the COVID-19 crises, where I impact negatively on R.

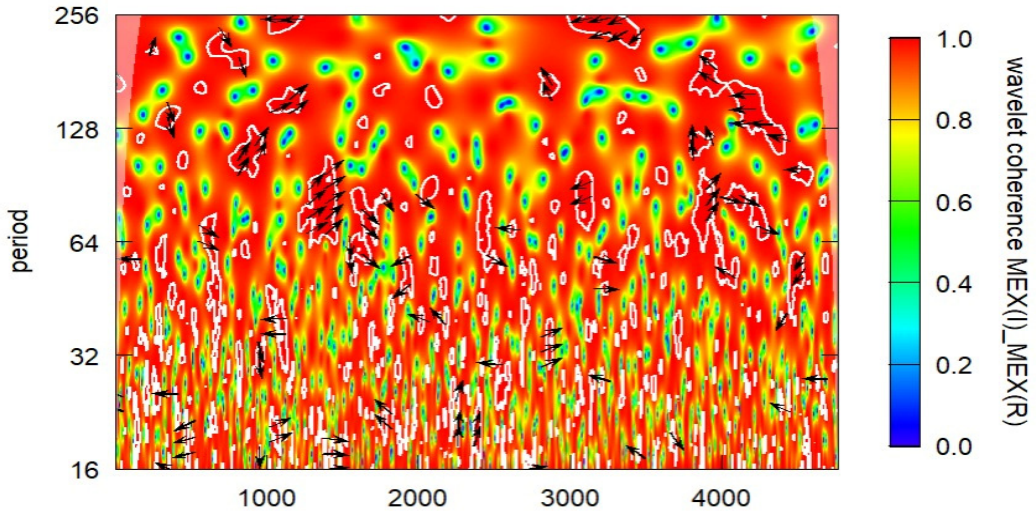
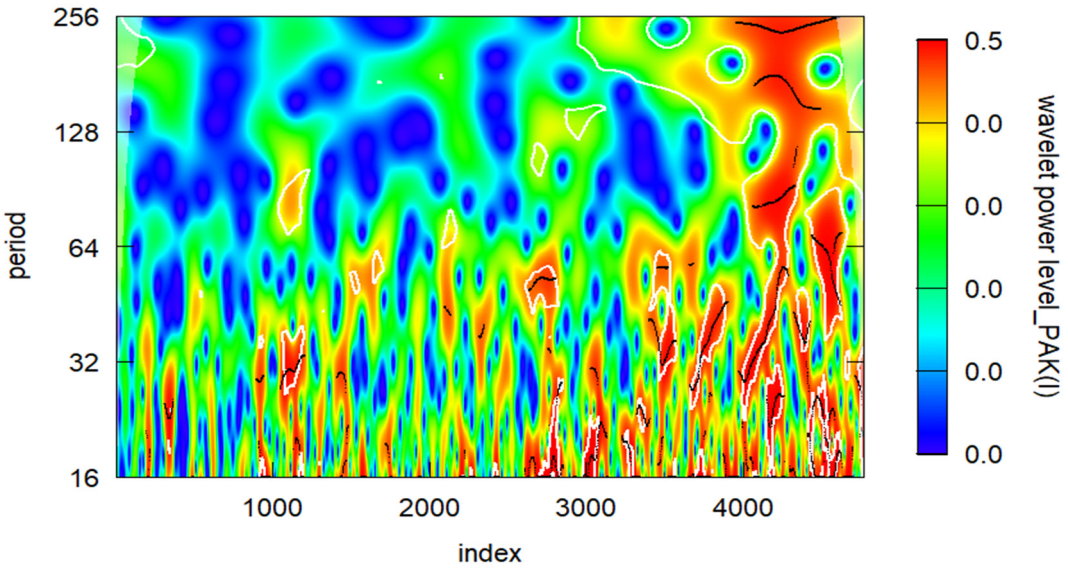


Figure 4.28: Wavelet Coherence MEX

4.6.17 Pakistan-Kse100 Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of PAK(I) in Figure 4.29 shows significantly high volatility in the short and medium scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of PAK(R) in Figure 4.29 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short scale in 2020 when Covid-19 occur. According to the study, over a significnt period of time, COVID-19 significantly affects KSE-100 and influences the index (Ali, 2022).



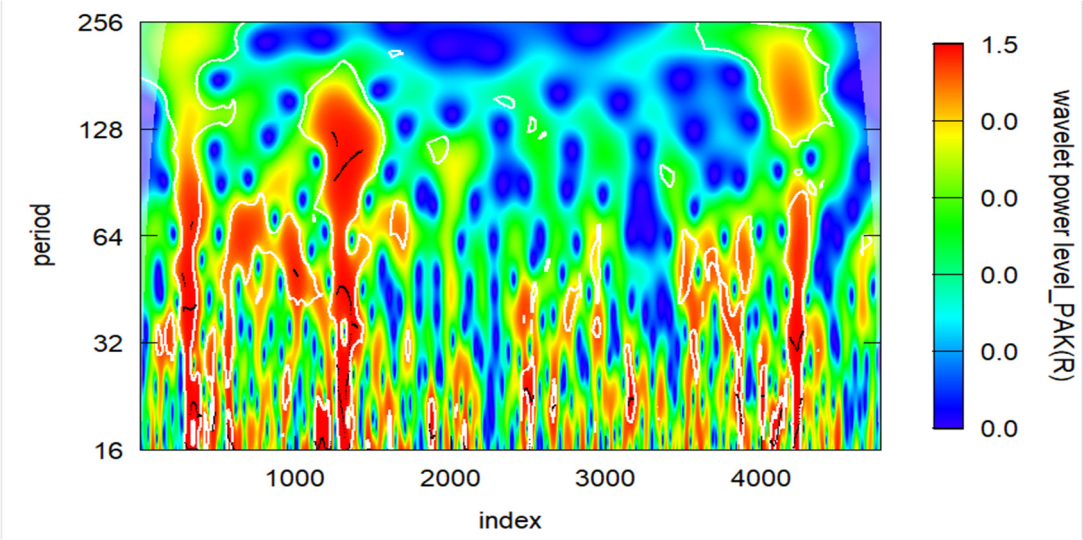


Figure 4.29: Wavelet Power PAK(I) & PAK(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.30 during the EDC crises of 2012; the arrows point downward with right direction, indicating that there is positive impact of stock returns (R) on investor's attention (I).

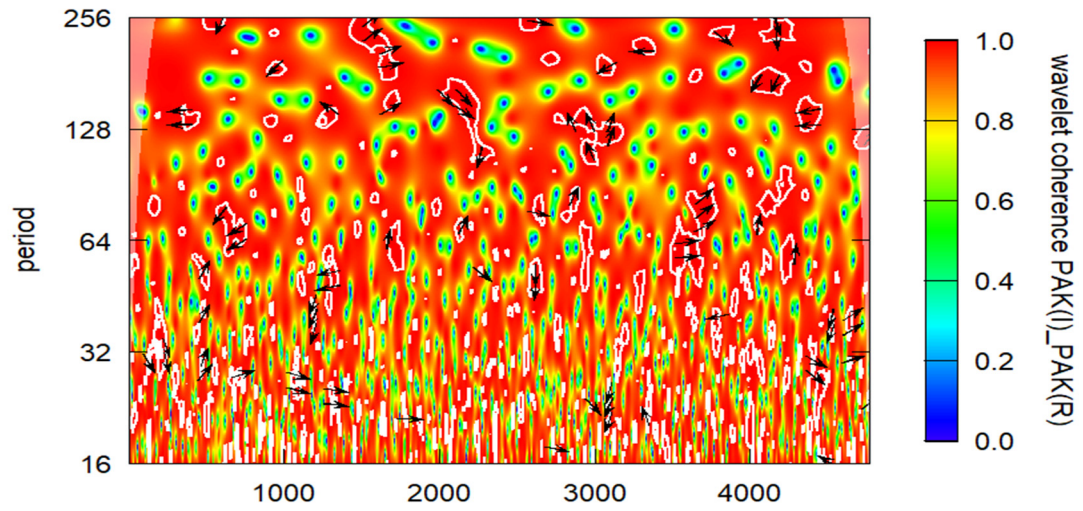


Figure 4.30: Wavelet Coherence PAK

4.6.18 Peru-Igbvl Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of PER(I) in Figure 4.31 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short and medium scale in 2021 when Covid-19 occur.

The wavelet power spectrum plot of PER(R) in Figure 4.31 shows significantly high volatility in the short and medium scale periods between 2007 and 2012, when global financial crises and EDC crises occur.

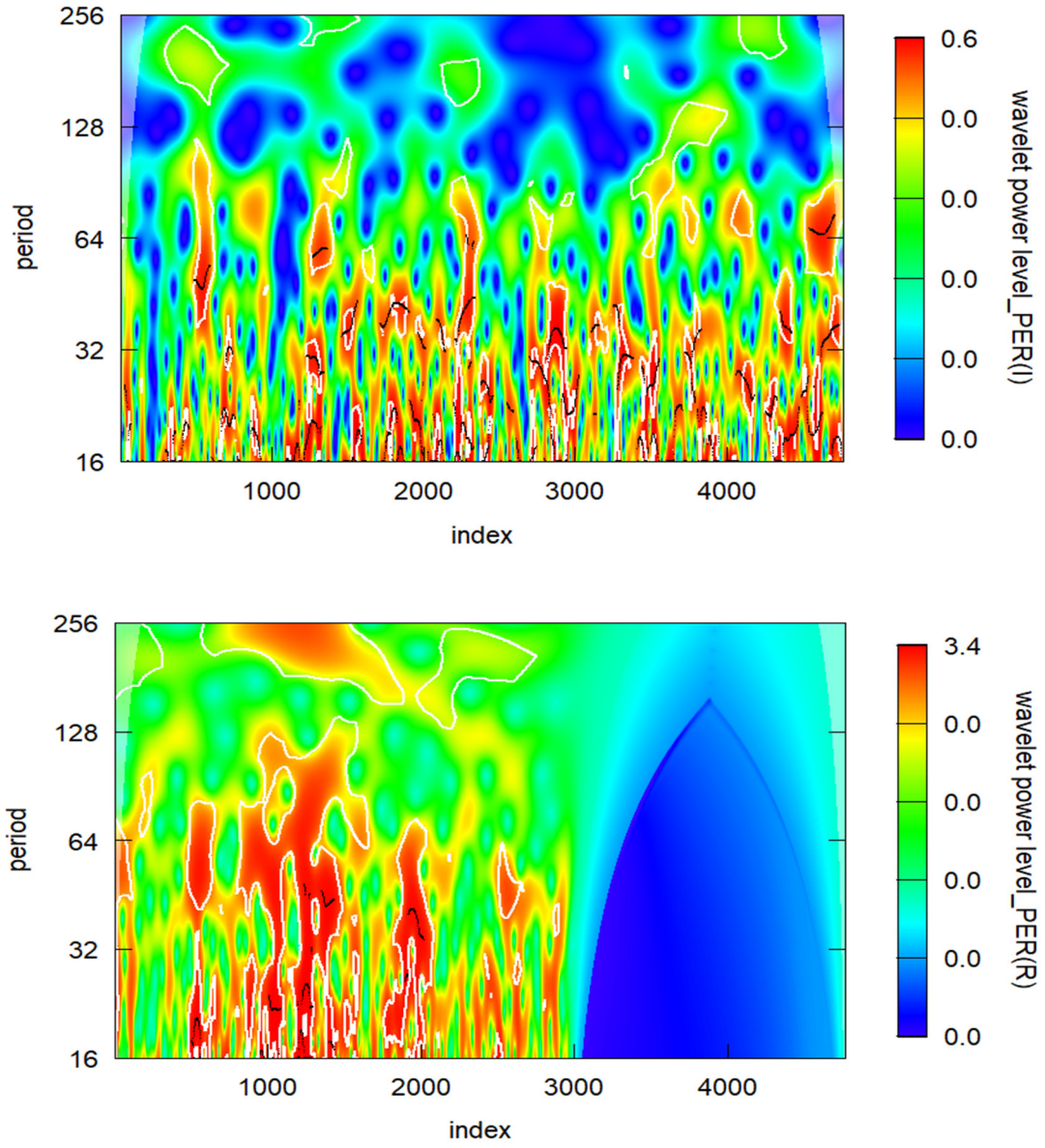


Figure 4.31: Wavelet Power PER(I) & PER(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.32 during the chinese crises of 2015; the arrows point upward with left direction, indicating that there is negative impact of I on R.

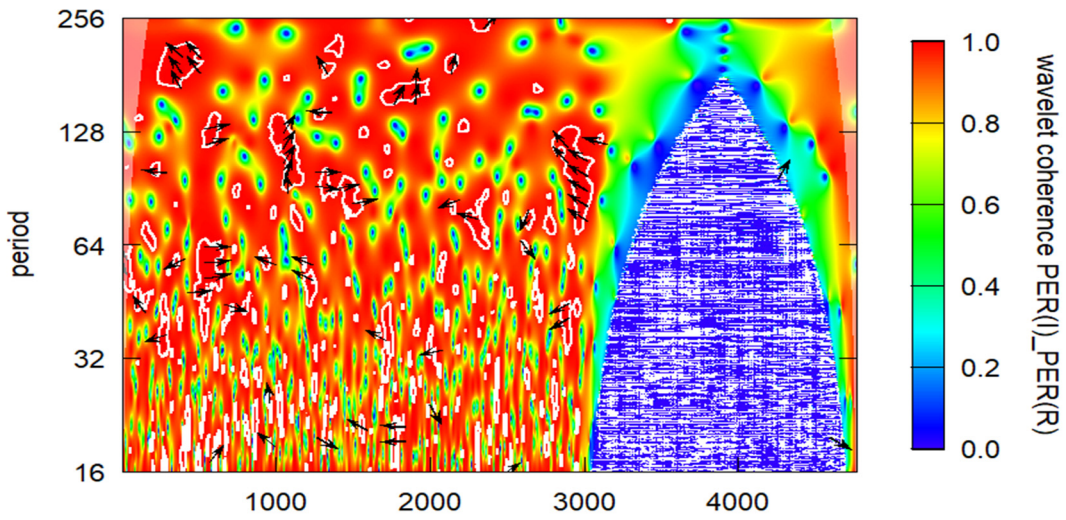
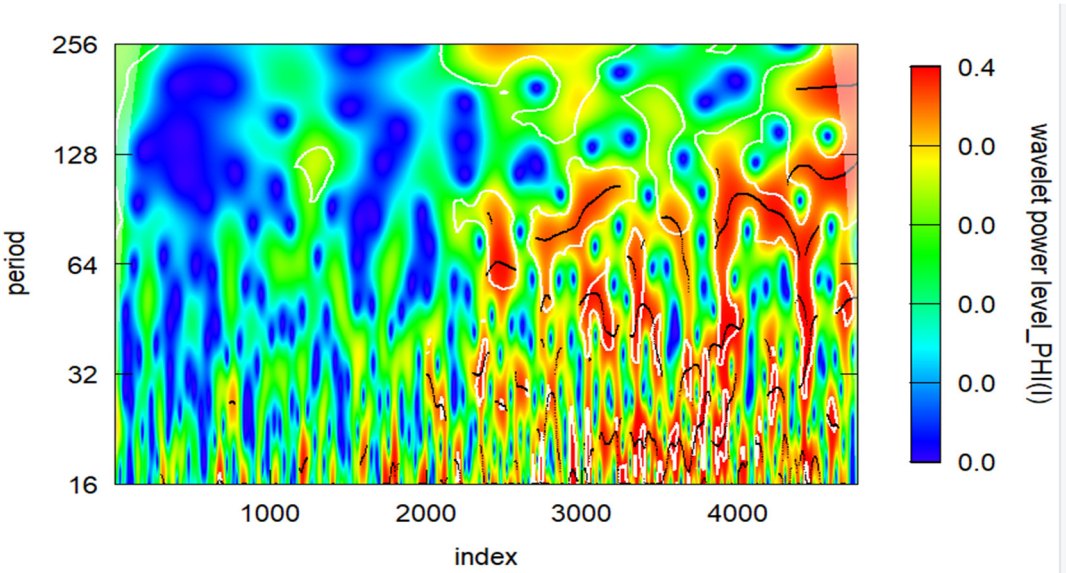


Figure 4.32: Wavelet Coherence PER

4.6.19 Philippines-Pcomp Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of PHIL(I) in Figure 4.33 shows significantly high volatility in the short and medium scale period in 2015, when chinese crises occur. It also shows significant high volatility in short and medium scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of PHIL(R) in Figure 4.33 shows significantly high volatility in the short and medium scale period in 2015, when chinese crises occur. It also shows significant high volatility in short and medium scale in 2020 when Covid-19 occur.



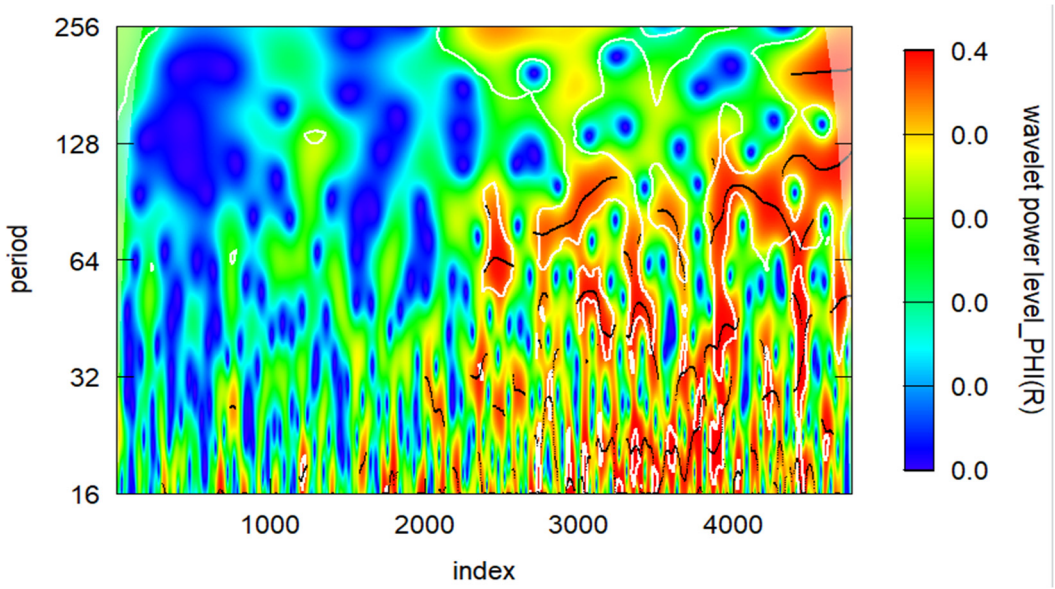


Figure 4.33: Wavelet Power PHI(I) & PHI(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.34 during the GFC crises of 2009; the arrows point downward with right direction, indicating that there is positive impact of stock returns (R) on investor's attention (I).

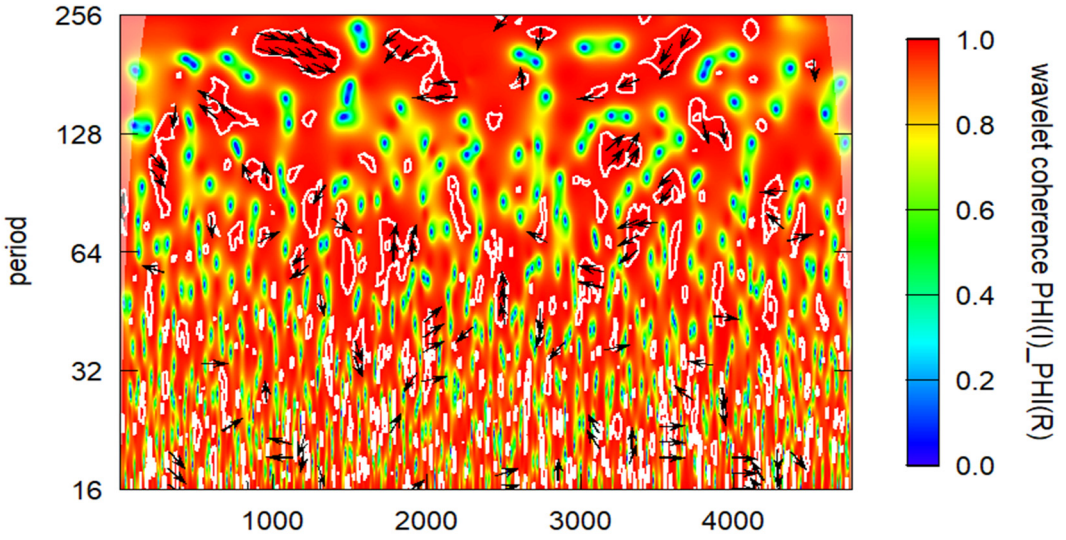


Figure 4.34: Wavelet Coherence PHI

4.6.20 Poland-Wig20 Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of POL(I) in Figure 4.35 shows significantly high volatility in the short, medium and large scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of POL(R) in Figure 4.35 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short, medium and large scale in 2020 when Covid-19 occur. In study Baruník et al., (2011), observing the indices' time-scale decomposition reveals some intriguing information. Almost all frequencies show that October 2008 was the month with the highest energy in all stock markets. The PX index is the most volatile, and the DAX is less active. However, it's intriguing that we can see strong dependences on all frequencies for a considerable amount of time starting around October 2008. The world's stock markets have suffered greatly during this sequence of sharp declines, and volatility has naturally increased. The stock market exhibits extremely strong patterns on lower scale frequencies for several months during the worst global market turbulence.

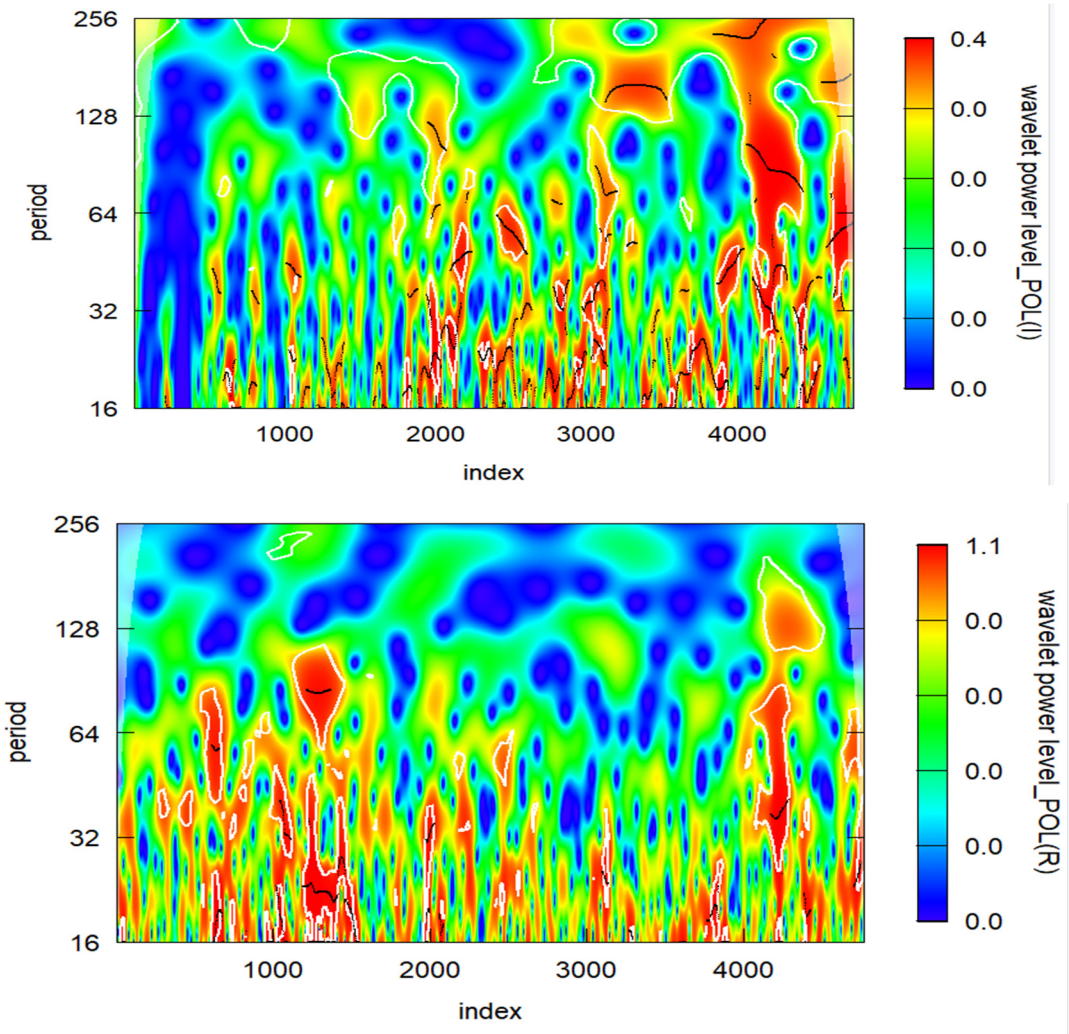


Figure 4.35: Wavelet Power POL(I) & POL(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.36 during the EDC crises of 2012; the arrows point upward with left direction, indicating that there is negative impact of I on R.

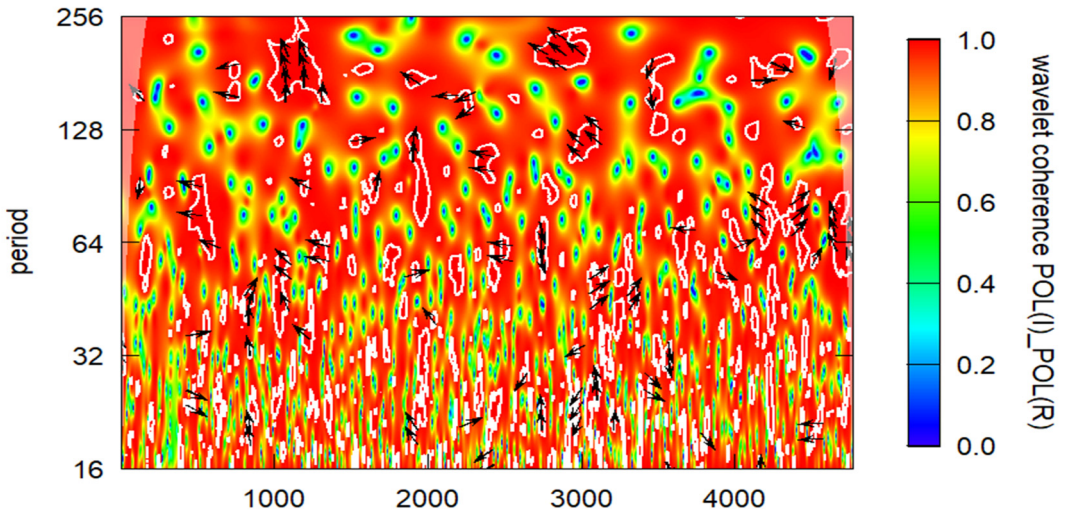
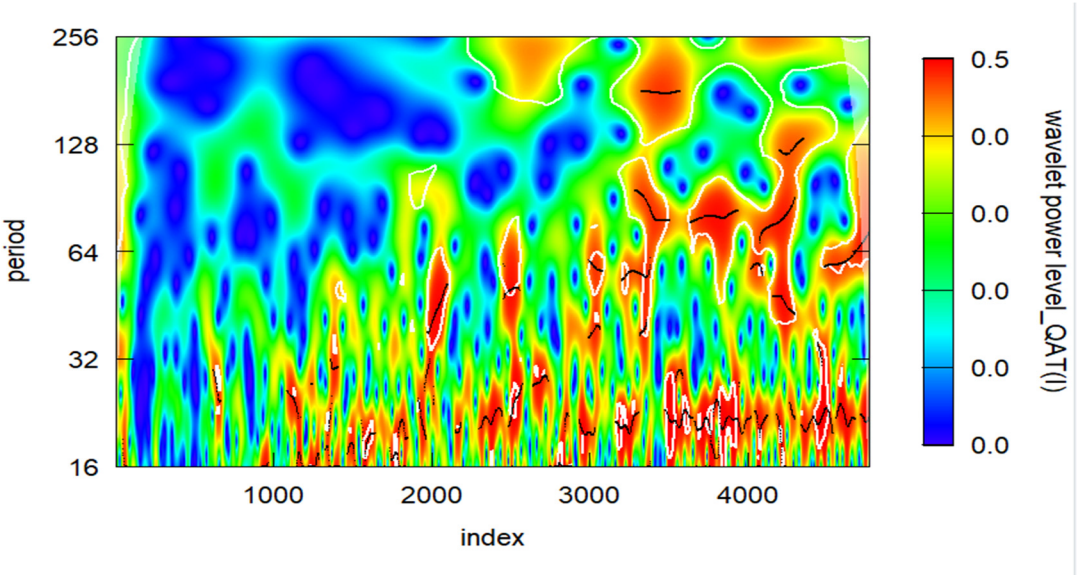


Figure 4.36: Wavelet Coherence POL

4.6.21 Qatar-Dsm Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of QAT(I) in Figure 4.37 shows significantly high volatility in the short and medium scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of QAT(R) in Figure 4.37 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur.



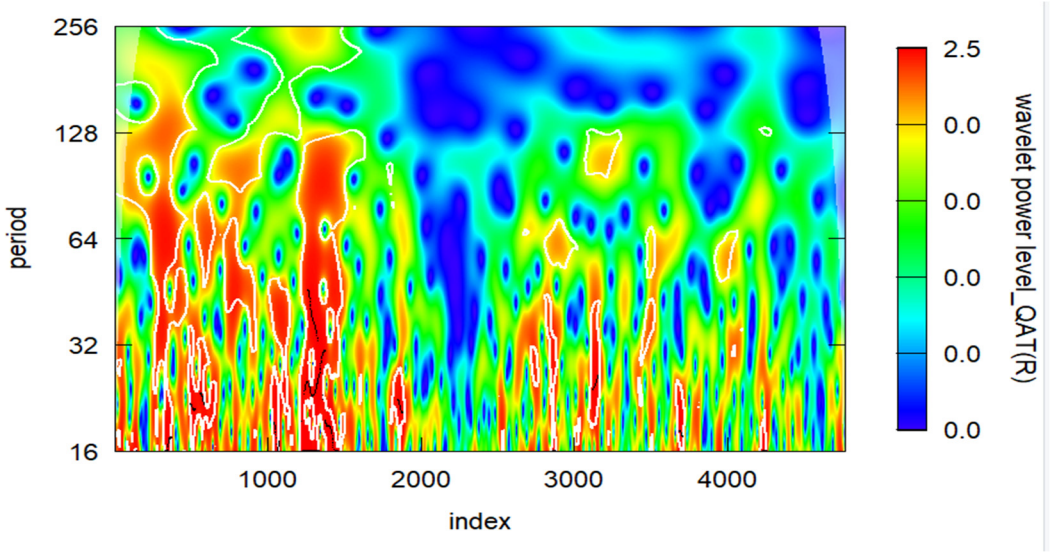


Figure 4.37: Wavelet Power QAT(I) & QAT(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.38 during the covid-19 crises of 2020; the arrows point upward with left direction, indicating that there is negative impact of I on R.

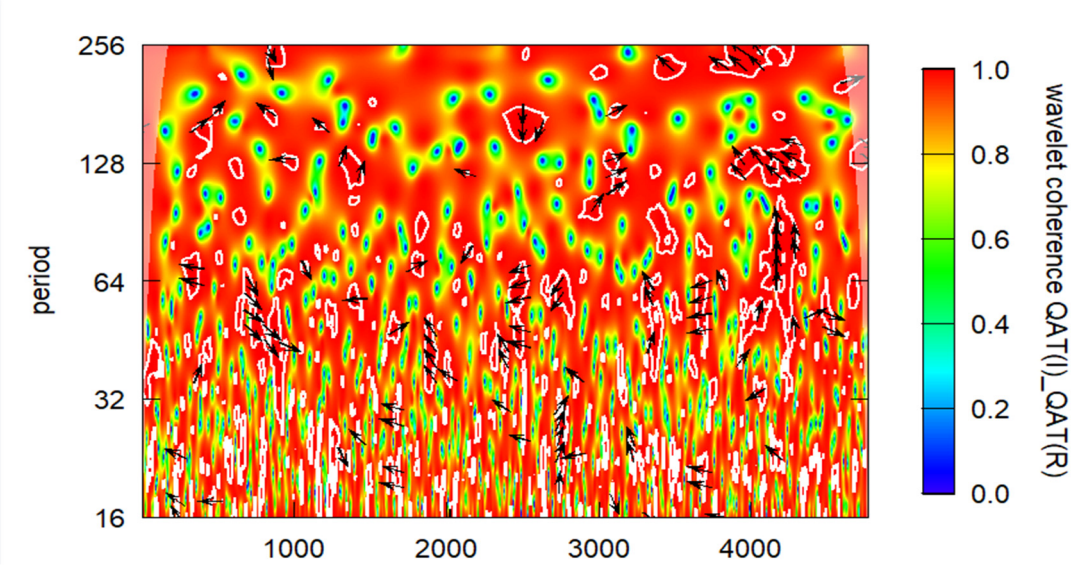


Figure 4.38: Wavelet Coherence QAT

4.6.22 Russia-Imoex Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of RUS(I) in Figure 4.39 shows significantly high volatility in the short and medium scale in 2015, when chinese crises occur. It also shows significant high volatility in short scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of RUS(R) in Figure 4.39 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short scale in 2020 when Covid-19 occur. Over the past five years, the Russian rouble has also declined significantly, primarily as a result of the massive drop in oil prices in 2014. It had an impact on Russia's inflation, which has averaged 8.52% since 2014. The currencies and inflation rates of every other nation are all comparatively stable. Thus, in the case of Turkey and Russia, long-term investors will leave the bond market and move their capital to the stock market if they believe that inflation expectations will outpace future bond yields. This could be the reason why since 2014, the bond market has led these economies and stock market has volatility (Živkov, 2019).

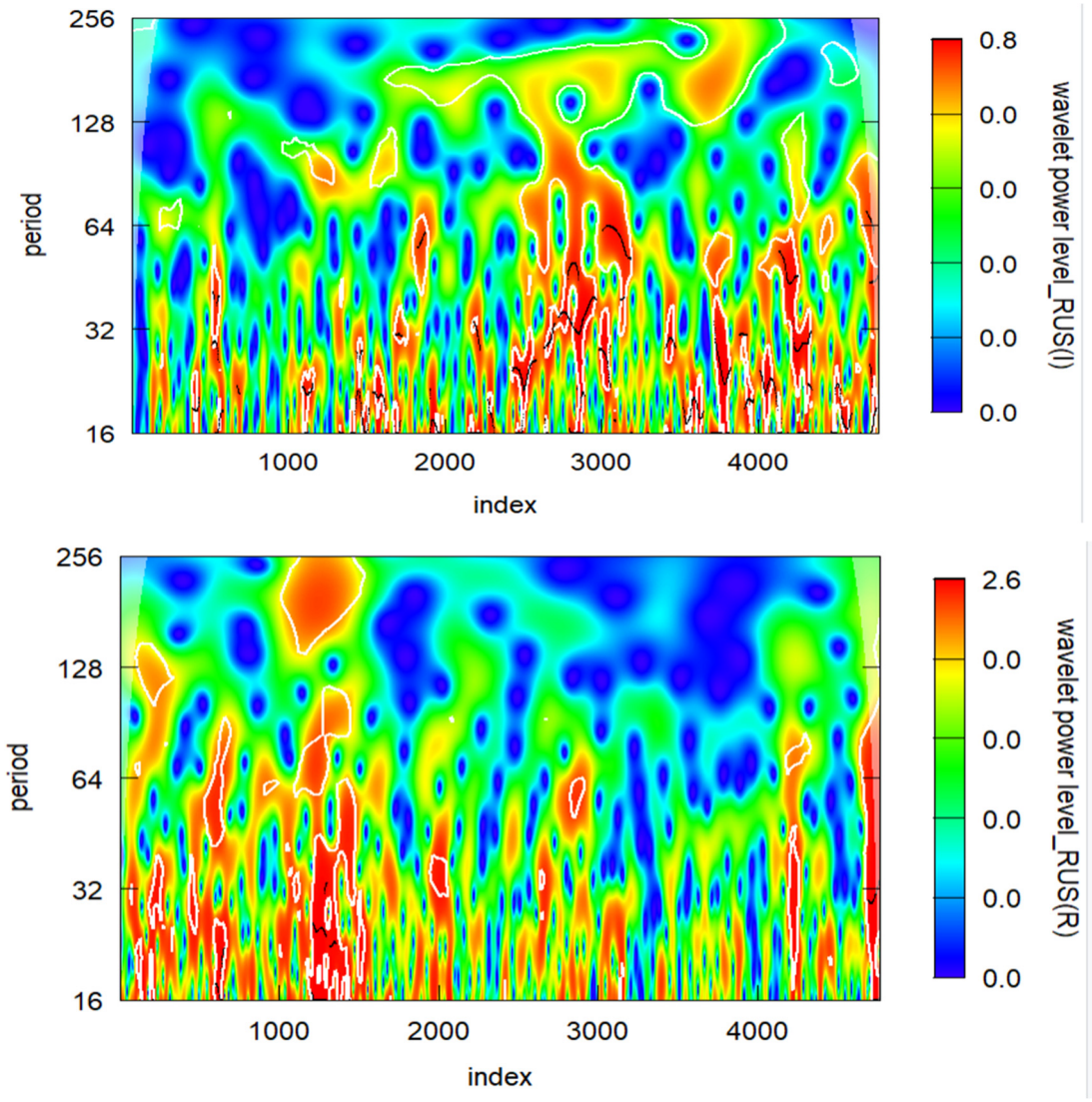


Figure 4.39: Wavelet Power RUS(I) & RUS(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.40 during the GFC crises of 2008; the arrows point downward with right direction, indicating that there is postive impact of stock returns (R) on investor's attention (I).

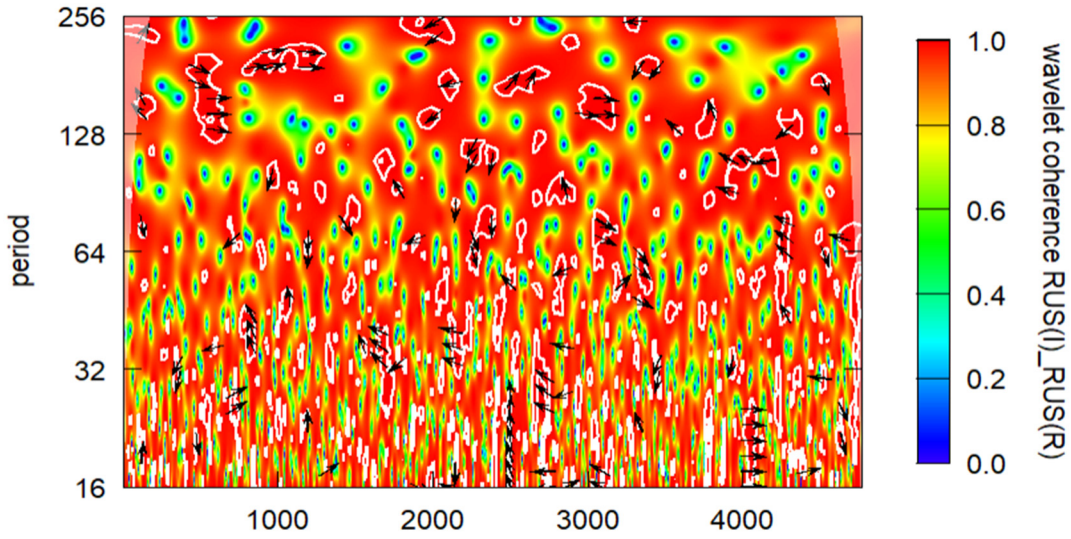


Figure 4.40: Wavelet Coherence RUS

4.6.23 Saudi Arabia-Saseidx Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of SAU(I) in Figure 4.41 shows significantly high volatility in the short and medium scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of SAU(R) in Figure 4.41 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short scale in 2020 when Covid-19 occur. Alshammari et al., (2020) conclude that between 2011 and 2019, there were a number of fluctuations in the Saudi stock market. The general index was observed to have dropped to (6417.7) points in 2011, but it had risen to (8535) points in 2013. One factor contributing to the volatility of the Saudi stock market is the level of concentration. In 2014, the proportion of foreign investors was 1.2%, the percentage of individual investors was approximately 86.9%, and the percentage of domestic institutions was approximately 11.8%. Conversely, the decline in stock prices is impacted by the low price of oil. The global economy in 2015 caused volatility in the Saudi stock market, leading to a drop in commodity prices and a notable collapse in the Chinese stock market. However, a number of issues facing the Saudi stock market at the moment, including the economic downturn, the drop in oil prices, the Covid-19

pandemic, and competing interests between China and the United States, will exacerbate short-term volatility.

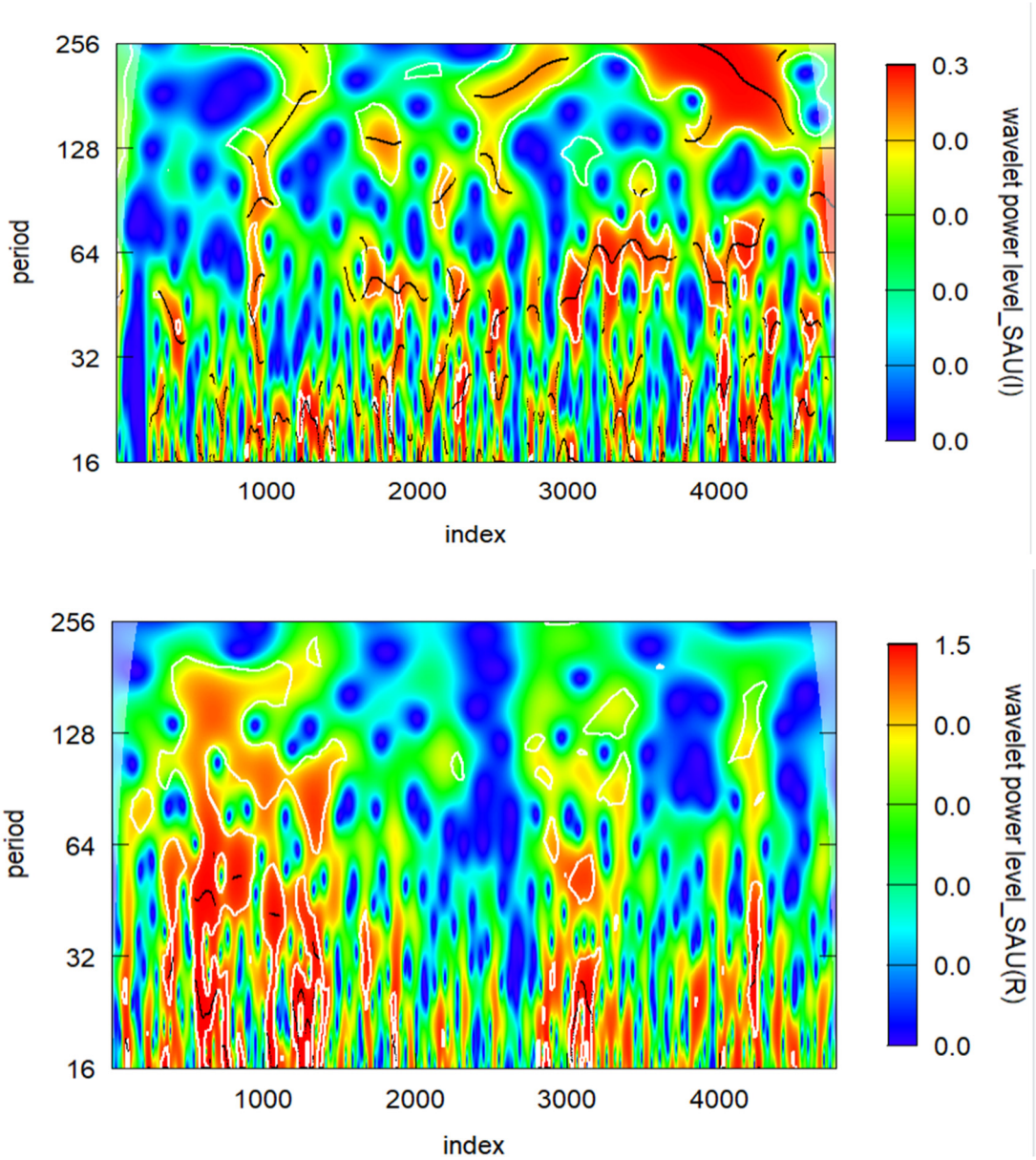


Figure 4.41: Wavelet Power SAU(I) & SAU(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.42 during the EDC crises of 2012; the arrows point downward with right direction, indicating that there is positive impact of stock returns (R) on investor's attention (I).

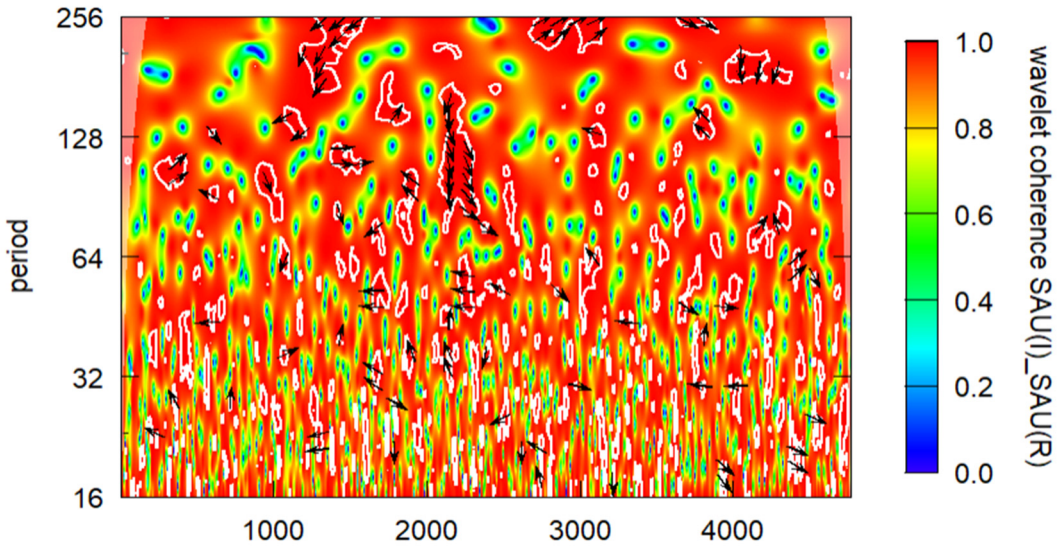
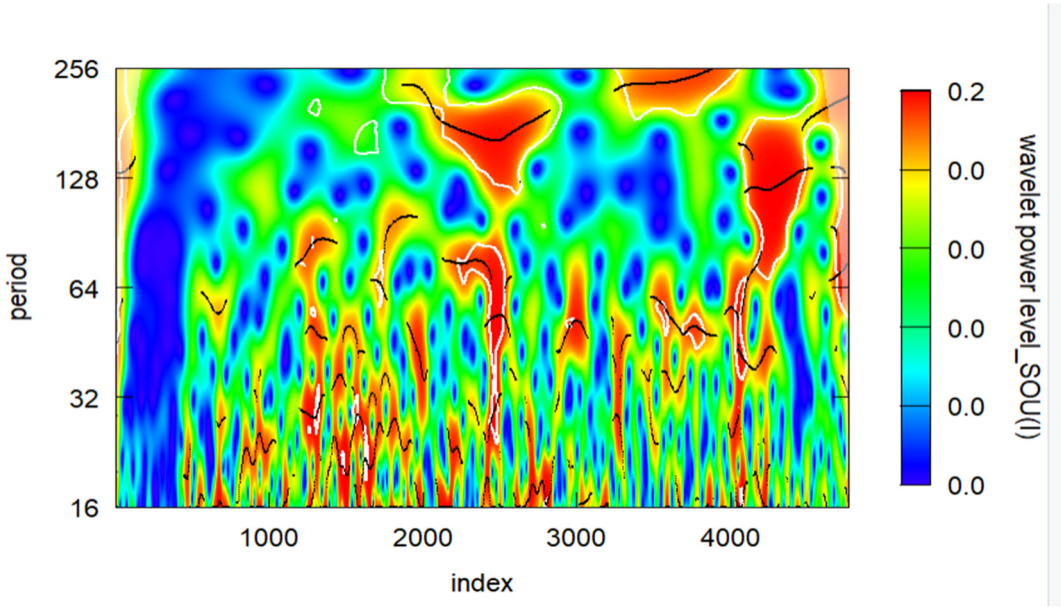


Figure 4.42: Wavelet Coherence SAU

4.6.24 South Korea-Kospi Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of SOU(I) in Figure 4.43 shows significantly high volatility in the short, medium and large scale in 2012, when EDC crises occur. It also shows significant high volatility in short scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of SOU(R) in Figure 4.43 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short scale in 2020 when Covid-19 occur.



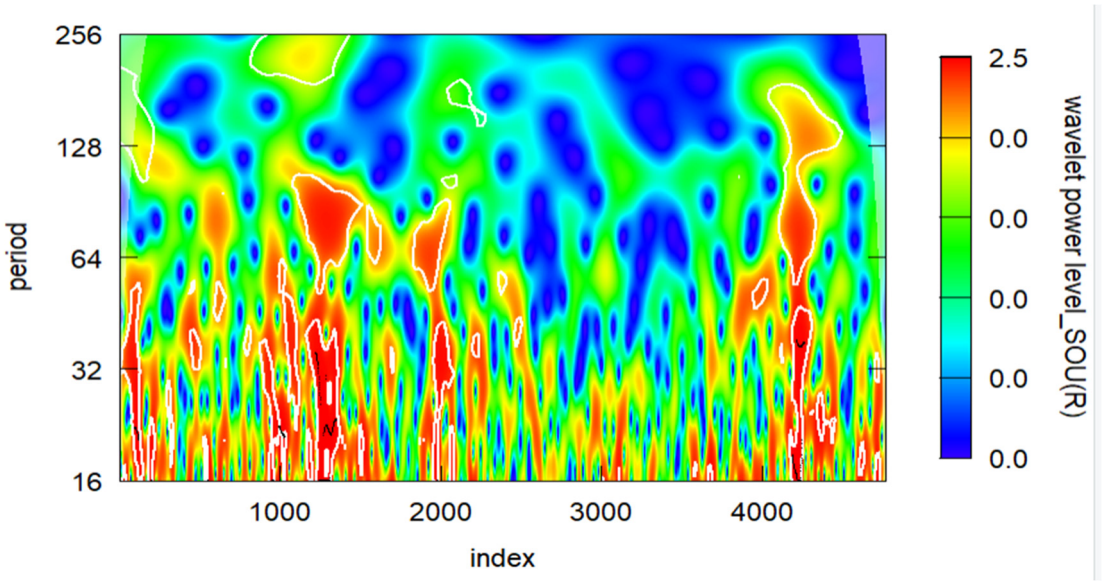


Figure 4.43: Wavelet Power SOU(I) & SOU(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.44 during the GFC crises of 2008; the arrows point downward with left direction, indicating that there is negative impact of stock returns (R) on investor's attention (I). Additionally, the highest level of covariance was seen in 2020, during the COVID-19 crises, in which the arrows point downward with left direction, indicating that there is negative impact of stock returns (R) on investor's attention (I).

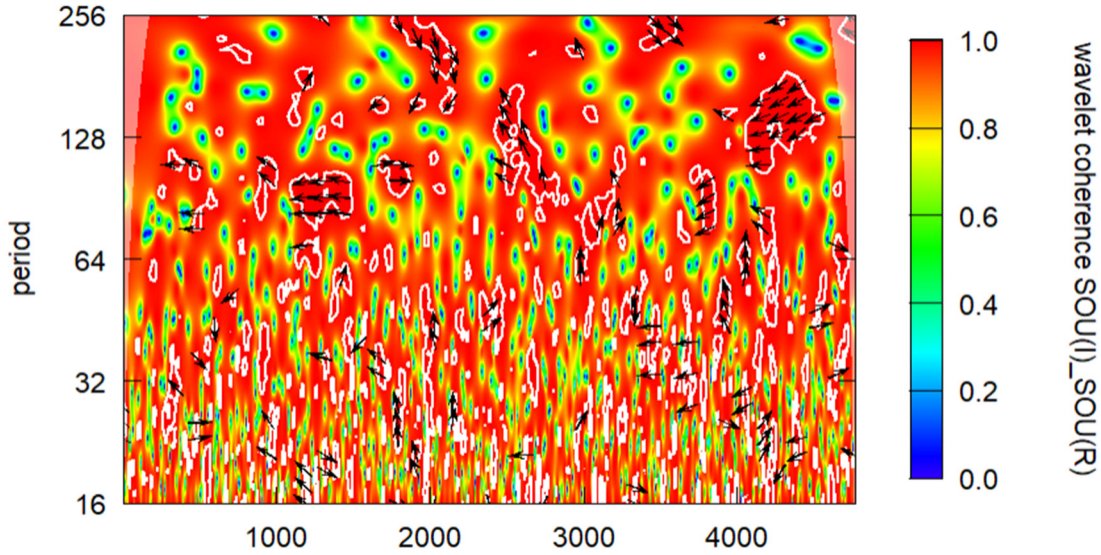


Figure 4.44: Wavelet Coherence SOU

4.6.25 Taiwan-Twse Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of TAI(I) in Figure 4.45 shows significantly high volatility in the short, medium and large scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of TAI(R) in Figure 4.45 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short scale in 2020 when Covid-19 occur.

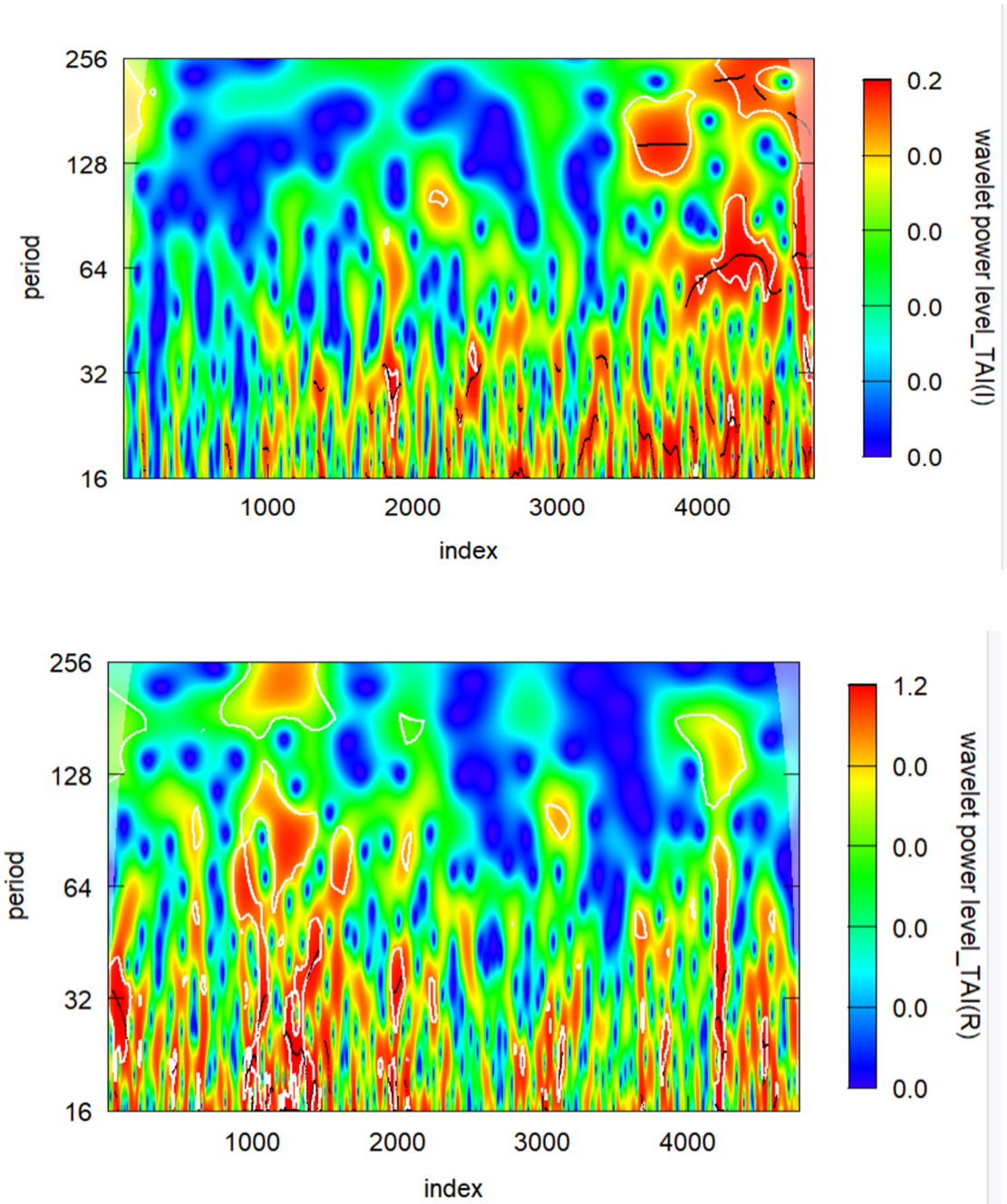


Figure 4.45: Wavelet Power TAI(I) & TAI(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.46 during the chinese crises of 2015; the arrows point downward with right direction, indicating that there is positive impact of stock returns (R) on investor's attention (I). Additionally, the highest level of covariance was seen in 2020, during the COVID-19 crises, in which I negatively impact R.

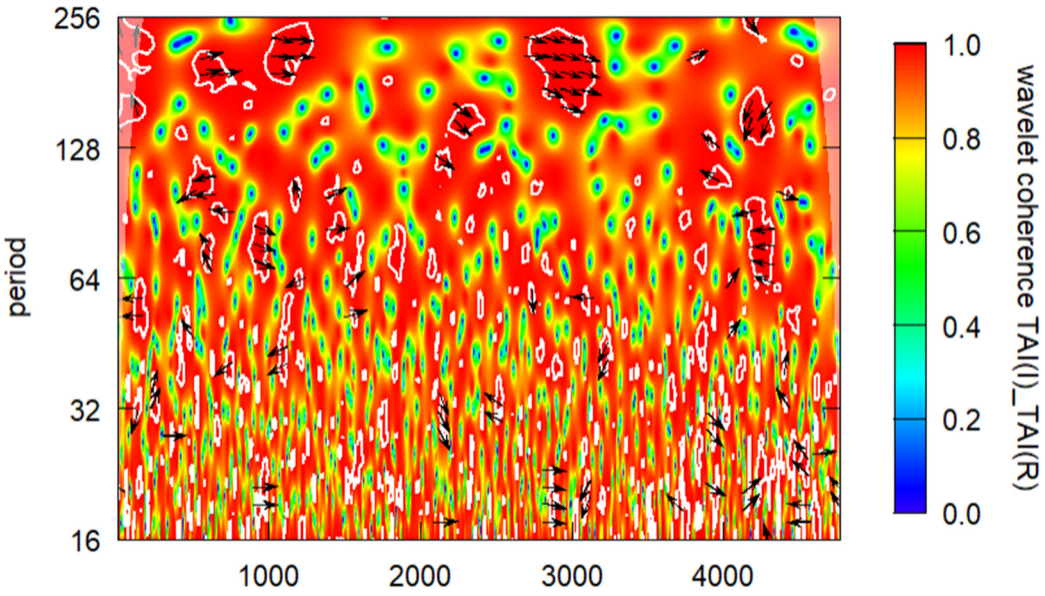


Figure 4.46: Wavelet Coherence TAI

4.6.26 Thailand-Set Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of THAI(I) in Figure 4.47 shows significantly high volatility in the short and medium scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of THAI(R) in Figure 4.47 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur and in 2020 when Covid-19 occur. The stock market indices' variance increased between 2006 and 2009, most likely as a result of the global financial crisis. The effect is more noticeable at medium and high scales, indicating that medium- to long-term stock market index shocks were ahead of us (Masih and Majid, 2013).

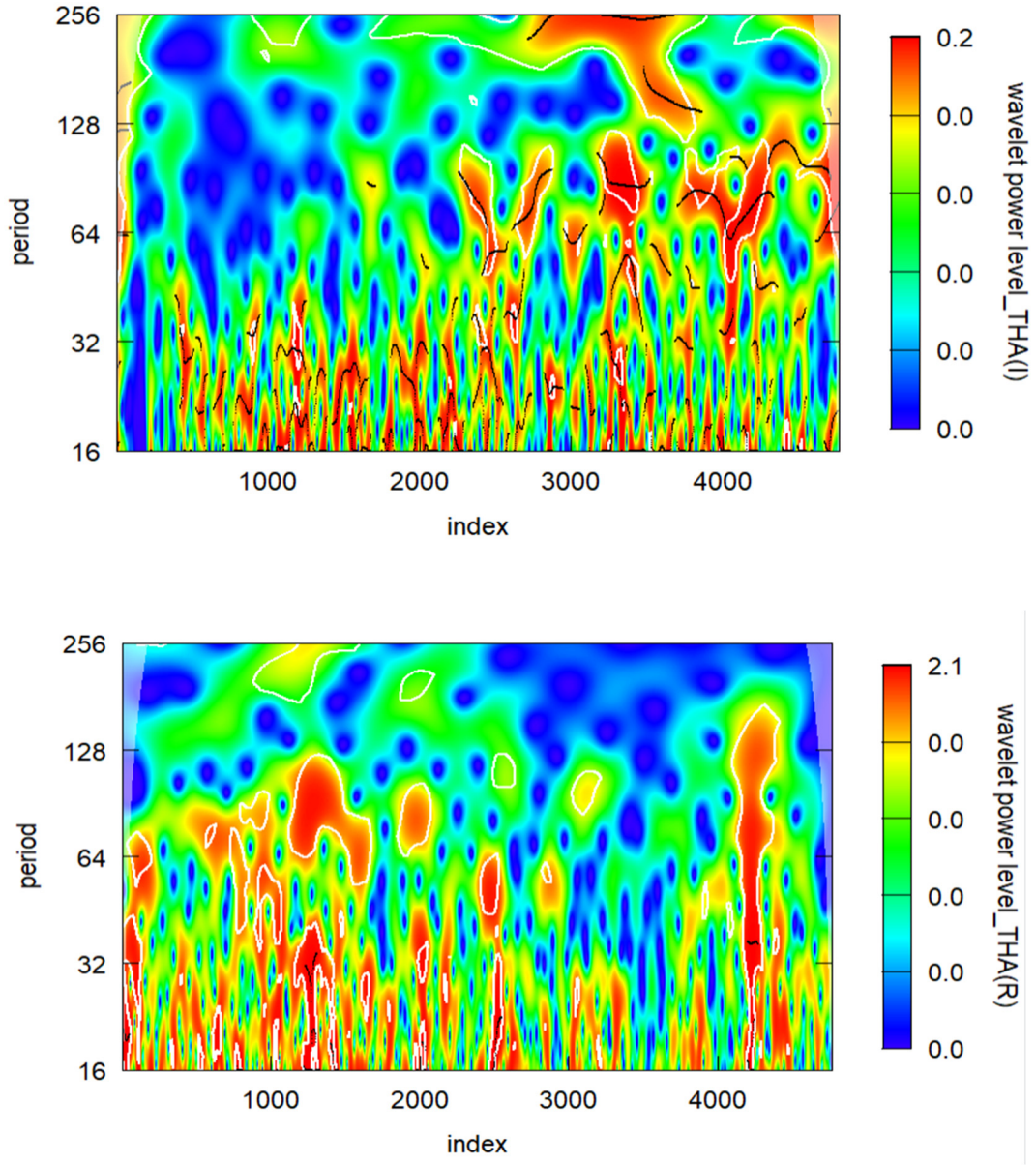


Figure 4.47: Wavelet Power THA(I) & THA(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.48 during the GFC crises of 2008; the arrows point downward with right direction, indicating that there is positive impact of stock returns (R) on investor's attention (I). Additionally, the highest level of covariance was seen in 2020, during the COVID-19 crises, in which I negatively impact R.

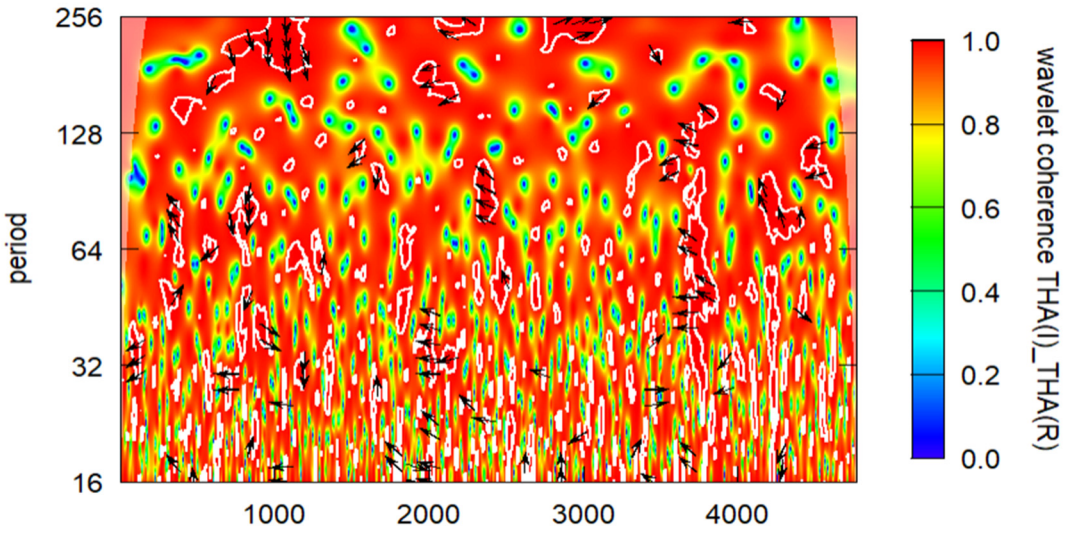


Figure 4.48: Wavelet Coherence THA

4.6.27 Turkey-Xu100 Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of TUR(I) in Figure 4.49 shows significantly high volatility in the short and medium scale in 2020 when Covid-19 occur.

The wavelet power spectrum plot of TUR(R) in Figure 4.49 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur. It also shows significant high volatility in short scale in 2020 when Covid-19 occur. Another feature that sets Turkey apart is its average annual inflation rate, which has been 8.86% since 190 2014. The existence of twin deficits is one factor contributing to Turkey's persistent issue with relatively high inflation. These deficits have an impact on the Turkish lira's depreciation, which eventually causes Turkish inflation (Živkov, 2019). The Turkish stock market was also severely impacted by the global financial crisis of 2008–2009, losing over half of its index value between October 2007 (58,053 points) and December 2008 (26,499 points). The Turkish market responded intensely to the global financial crisis of 2008–2009, but the change in return series was less significant than it was during the first turbulent period because of the smaller red and orange vortex (Aloui and Nguyen, 2014).

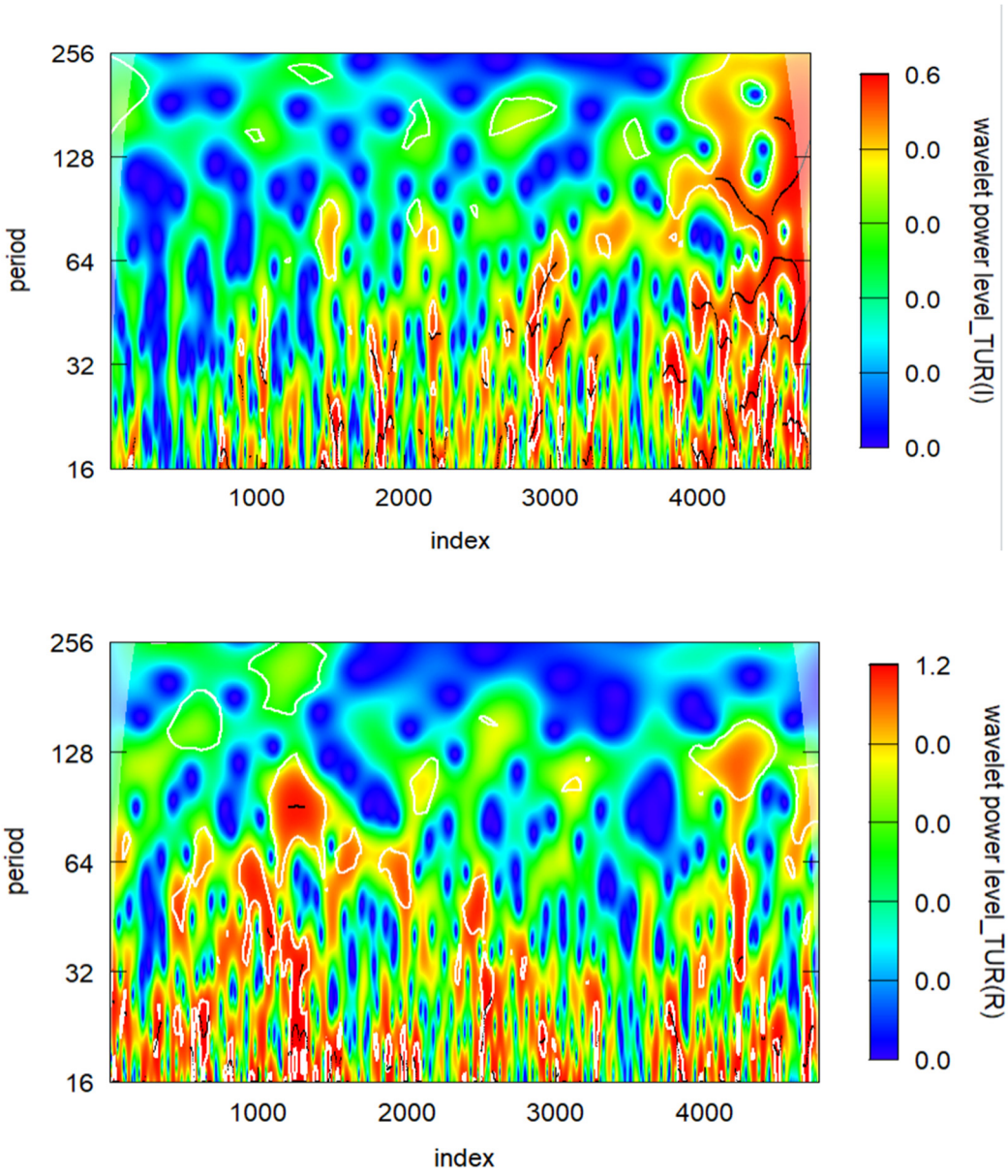


Figure 4.49: Wavelet Power TUR(I) & TUR(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.50 during the GFC crises of 2008; the arrows point downward with left direction, indicating that there is negative impact of stock returns (R) on investor's attention (I). Additionally, the highest level of covariance was seen in 2020, during the COVID-19 crises, in which I negatively impact R.

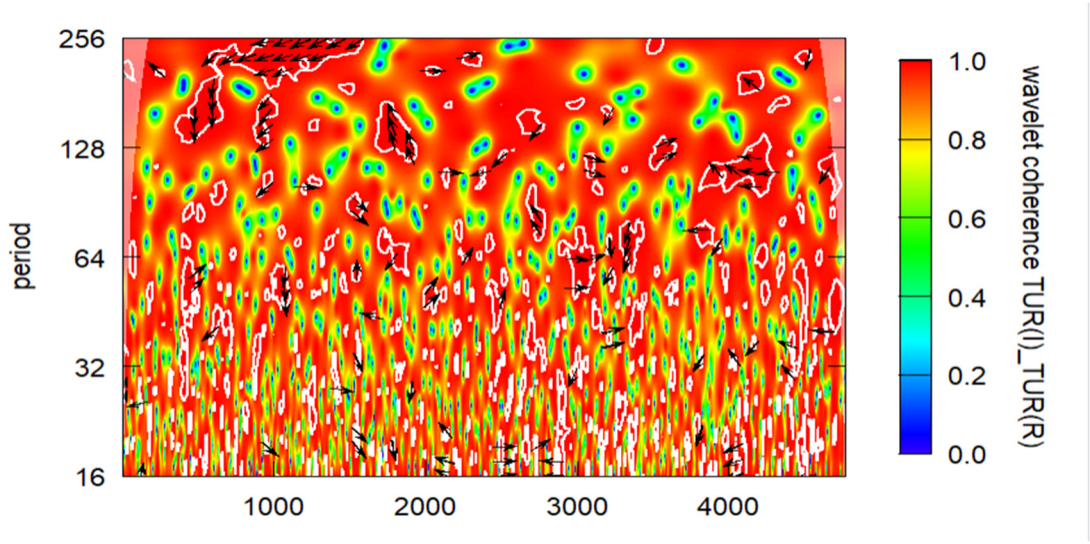
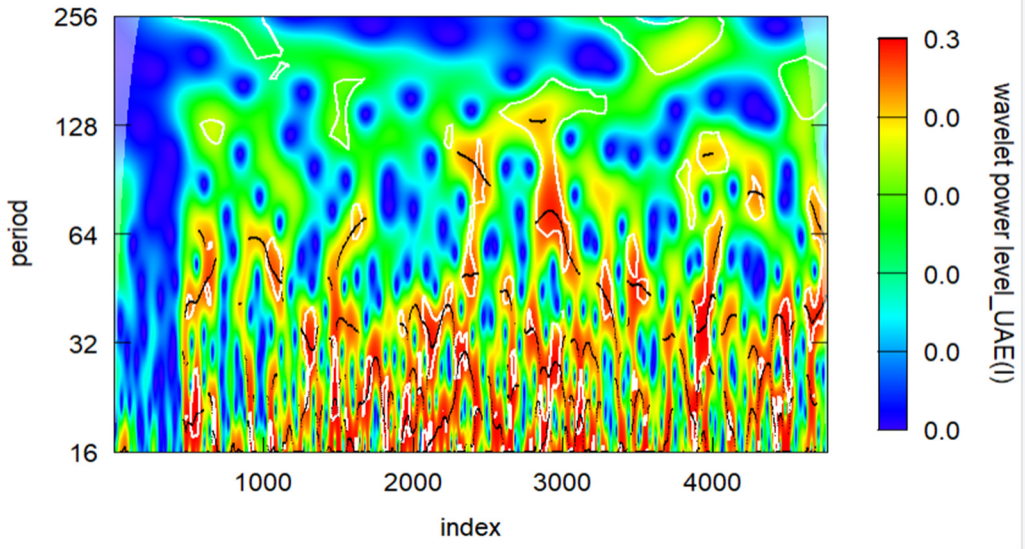


Figure 4.50: Wavelet Coherence TUR

4.6.28 UAE-Dfmgi Index Investor Attention and Stock Return Series

The wavelet power spectrum plot of UAE(I) in Figure 4.51 shows significantly high volatility in the short and medium scale in 2015 during the chinese crises.

The wavelet power spectrum plot of UAE(R) in Figure 4.51 shows significantly high volatility in the short and medium scale periods between 2007 and 2009, when global financial crises occur and in 2020 when Covid-19 occur. Akoum et al., (2012) demonstrate that the fluctuations at the highest frequencies are extremely weak. Long-term dependencies (variations at intervals longer than six months) between the returns and the oil production of OPEC also grow, especially after 2007.



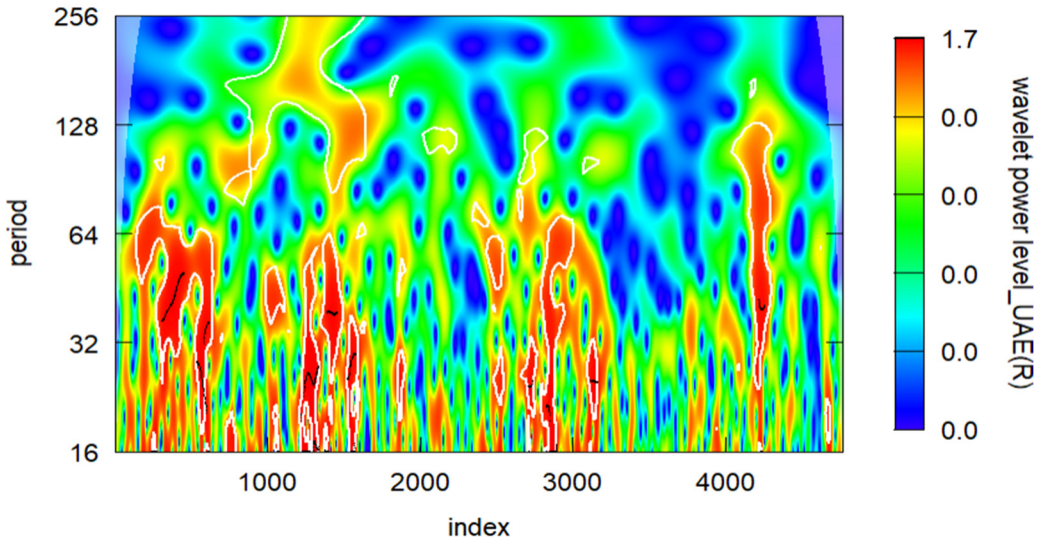


Figure 4.51: Wavelet Power UAE(I) & UAE(R)

And in wavelet coherence, the highest level of covariance observed in Figure 4.52 during the EDC crises of 2012; the arrows point upward with left direction, indicating that there is negative impact of I on R.

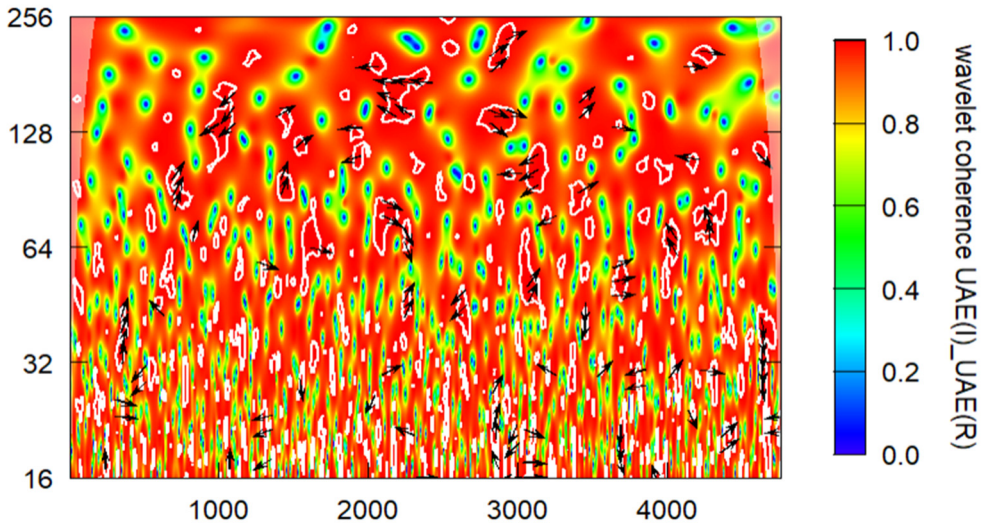


Figure 4.52: Wavelet Coherence UAE

4.6.29 Conclusion

The Wavelet Power Spectrum of all 26 countries indicated that, during various crises, each country endures periods of high volatility. Furthermore, the majority of these volatility are on short and medium scale, and only in few cases the volatility is on large

scale. In summary, the investor attention (I) and stock return (R) series in all sample countries exhibit high volatility, mainly during the GFC and COVID-19 crises. Additionally, volatility was observed during the Brexit, EDC, and Chinese crises in a few nations like in Chile, China, Greece, Mexico, Philippines, Russia, South Africa, and UAE.

Furthermore, the covariance in wavelet coherence was primarily noted during the GFC and COVID-19 crises. Covariance was also observed in a few nations during the Brexit, EDC, and Chinese crises. However, the impact is negative (arrow left ended) in most of the countries, with positive impacts (arrow right ended) only occurring in a small number of countries. Additionally, the variable Investor attention (I) is in the lead (arrow upward), means I impact R. And in some countries the stock return (R) is in lead (arrow downward), means R impact I. Basically from wavelet analysis, we can say that there is corelation or covariance exist in both series, and the high volatility obsereved in all countries in different crises periods.

Chapter 5

SUMMARY, CONCLUSION AND SUGGESTIONS

This final section of the thesis is dedicated to providing a concise overview of the preceding chapters, followed by a discussion of the major findings of the study. The chapter encompasses a summary of the research, conclusions drawn, implications, identified limitations, and suggestions and recommendations for further research within the Indian and/or international stock market context. The main focus of the current study is to provide beneficial guidance for significant stakeholders in the emerging stock markets. The investigation delves into the long-term and short-term relationships, between the closing price and GSVI series of 26 emerging nation indices, and at last checks the impact of investor's attention on the stock return series, forming the core of the study. Section 5.1 presents a comprehensive summary of the study, while Sections 5.2 and 5.3 subsequently outline the key findings and conclusions. Discussion is presented in section 5.4. The implications and recommendations stemming from the research findings are expounded upon in Section 5.5. A thorough examination of the study's contribution and limitations is articulated in Section 5.6 and 5.7. Section 5.8 sheds light on the potential avenues for future research in the present domain.

5.1 SUMMARY

The stock market plays a crucial role in the dynamic landscape of financial markets, actively contributing to economic advancement. The attention of investors stands out as a pivotal factor that shapes the stock market. Given the rapid growth of behavioral finance as a field that facilitates a deeper understanding of investor behavior, preferences, and their repercussions, scholars are raising concerns about the influence of investor attention on the worldwide stock market. This emphasizes the rising

significance of comprehending the intricate relationship between investor attention and the dynamics of the global stock market.

Every theory offers a different perspective on how the attention, behavior, and sentiment of investors impact or mold the dynamics of the stock market. The Theory of Choice Asymmetry rely on the asymmetry of choice. Because there is a large pool of possible investments, it suggests that investors only purchase stocks that grab their attention. Furthermore, heightened attention is directly correlated with higher pricing and purchasing, which are subsequently momentarily reversed. According to this theory, stock prices and investor attention have a positive, albeit mostly short-term, relationship. The traditional concept of finance is based on rational principles of human behaviour and the efficiency of markets, is diverged by the Alternative Theory of Behavioral Finance. Rather, it recognizes the existence of emotional influences, cognitive constraints, and psychological biases that affect financial market decision-making. And the goal of behavioral finance theory is to understand how psychological biases, cognitive limitations, and emotional aspects influence the way financial markets make decisions. Additionally, the efficient-market hypothesis states that it is challenging to predict the direction and magnitude of changes in stock prices in reliable data markets, which behave like random fluctuations. And the CAPM theory contends that extended attention spans within a company lead to higher swings in trading volume and stock prices. We identified from earlier research based on these theories that there is a connection between the stock market and investors' attention or sentiment. Our study empirically examines the relationship between investor attention and the stock market, which is supported by a wide range of theories.

Researchers have traditionally concentrated their efforts on developed nations, leaving a substantial gap in research opportunities within emerging and frontier nations. Given the prevalent and robust use of the Google platform, it becomes imperative to comprehensively assess the impact it, along with other platforms, and the actions of investors or users, may have on the stock market. Anchored by this central focus, the present study endeavors to explore and unravel the short-term and long-term relationship between investor attention and the stock market. The investigation extends its scrutiny to examine the influence of investor attention on stock returns during distinct crisis periods. For instance, during the GFC, EDC, Chinese crash, Brexit crisis,

Covid-19, and Russia-uk war crisis period, present study capture the impact of IA on RET on all crisis period and calm period of all 6 crisis.

To examine the relationships and assess impacts, this study employs a range of econometric tools (Table 5.1), including Unit root tests (ADF and PP), VAR, ARDL, Toda Yamamoto Granger Causality test, EGARCH model, and Wavelet Analysis (for an in-depth discussion, refer to chapter 3).

Table 5.1: Data Analysis Tools objective wise

Sr. No.	Objectives	Methodology
1.	**To analyze the causality between investor's attention and emerging stock markets.**	Granger Causality Testing: **Toda-Yomamoto Test** (Short Term relationship)
2.	**To test the cointegration between investor's attention and emerging stock markets.**	**ARDL Model** (Long Term Relationship)
3.	**To examine the impact of investor's attention on emerging stock markets.**	**EGARCH Model** (Positive/ Negative crisis specific influence) Time-Frequency Decomposition: **Wavelet Analysis** (short/medium/long over different crisis periods with lead lag relation)

Each of these models serves a specific purpose and offers unique insights. Combining these models can provide a comprehensive understanding of the dynamics and relationships within the data.

Here's how each model contributes:

1. **Toda-Yomamoto Test:** In the context of time series, this is a technique for determining Granger causality. Finding the predictive power of one variable over another is aided by it. The direction as well as the magnitude of connections of causality between various variables can be determined using the Toda-Yomamoto method in relation to comovement or lead-lag links.

2. **ARDL Model:** When confronted with data from time series that might show long-term relationships between variables, the ARDL model has been especially helpful. It makes it possible to incorporate non-stationary and stationary variables into the same model. ARDL can be used to explore the time-dependent effects of one variable on others, offering perspectives on dynamic interactions.
3. **EGARCH Model:** The asymmetric impact of news are supported by the EGARCH framework, which is well designed for modeling such returns. The various crisis types offer a distinct context for analyzing how the market reacts to investor attention during a time of high uncertainty.
4. **Wavelet Analysis:**

   It enables the investigation of the variations in the relationships between variables over various time-frequency scales. Wavelet analysis can be used to find periodicities or sequences in the relationships among variables in co-movement as well as lead-lag analysis, revealing lead-lag structure that may operate at various frequencies. The time series' frequency domain was not taken into consideration in the TY methodology's examination of the attention stock return nexus.

   When dealing with non-stationary data, wavelet analysis is becoming a more popular technique. The task of determining dynamic connection in a set of time series that is not stationary is addressed in this work by utilizing wavelets. One typical metric for the linear relationship between signals is coherence. It does not accurately capture many processes alongside time-evolving dependency structures, though, as it makes the assumption of static dependence.

   The outcomes of these methodological models are thoroughly interpreted and discussed in Chapter 4.

5.2 KEY FINDINGS

The conclusive findings in achieving the research objectives are outlined below:

5.2.1 Objective 1: To analyze the causality between investor's attention and emerging stock markets

Toda Yamamoto Granger Causality

Short-run relationship is analysed between closing price series and GSVI series of all 26 emerging indices from the Toda Yamamoto granger causality test. Under various lag lengths, the findings reveal a unidirectional short-term relationship, where investor attention influences stock returns, in Brazil, China, Malaysia, Mexico, and Thailand. Conversely, a unidirectional short-term relationship, where stock returns impact investor attention, is observed in Chile and the UAE. In India, Poland, Russia, South Korea, and Turkey, a bidirectional short-term relationship is evident. Notably, no short-term relationship is identified in Argentina, Colombia, Czech Republic, Egypt, Greece, Hungary, Indonesia, Kuwait, Pakistan, Peru, Philippines, Qatar, Saudi Arabia, and Taiwan, mentioned in Table 5.2. The null hypothesis is rejected at both the 1 percent and 5 percent levels of significance.

Table 5.2: Summarised Toda Yamamoto causality test

Short-term relationship	**Country**
Unidirectional short-term relationship (Investor attention affect the stock returns)	Brazil, China, Malaysia, Mexico, and Thailand
Unidirectional short-term relationship (Stock returns affect the investor's attention)	Chile and UAE
Bidirectional short-term relationship	India, Poland, Russia, South Korea, and Turkey
No short-term relationship	Argentina, Colombia, Czech Republic, Egypt, Greece, Hungary, Indonesia, Kuwait, Pakistan, Peru, Philippines, Qatar, Saudi Arabia, and Taiwan

5.2.2 Objective 2: To test the cointegration between investor's attention and emerging stock markets

Cointegration

Long-run relationship is analysed between closing price series and GSVI series of all 26 emerging indices from the ARDL model. And a long-run relationship between the stock market and investor attention is identified in China, and Turkey, with significance levels of 1%, and 5%. Analyzing the Error Correction Regression coefficient reveals that among these countries, only in Turkey is there a positive long-run relationship between investor attention and the stock market. In contrast, in China, a negative long-run relationship is observed between investor attention and the stock market, mentioned in Table 5.3.

Table 5.3: Summary of ARDL results

Long-term relationship	**Country**
Long-term relationship with negative effect	China**
Long-term relationship with positive effect	Turkey*

5.2.3 Objective 3: To examine the impact of investor's attention on emerging stock markets

EGARCH Model

To check the impact of investor attention on stock market returns, the EGARCH model is applied using both the return series and GSVI series. The results from the analysis of the entire sample period indicate a negative impact of IA on RET in countries such as Argentina, Brazil, China, Czech Republic, Egypt, Kuwait, Malaysia, Philippines, Poland, Qatar, Russia, Saudi Arabia, South Korea, and the UAE, with a significance level of 1%. Conversely, a positive impact of Investor's attention on stock market returns is observed in Greece, Indonesia, Peru, and Turkey, also at a 1% significance

level, mentioned in Table 5.5. In the remaining countries, no significant impact of investor attention on stock market returns is evident. Upon reviewing the outcomes across various crisis periods and the entire sample duration, it is evident that there is a substantial impact of investor attention on stock market returns. Throughout each crisis period, Investor Attention (IA) demonstrates a notable influence on stock returns, manifesting both negative and positive impacts, mentioned in Table 5.4, specifically explained in Chapter 4.

Table 5.4: EGARCH- Identification of Portfolio diversification opportunities in crisis periods in emerging markets

Impact	GFC	EDC	Chinese	Brexit	Covid19	Rus-Uk
Positive	Brazil, Chile, China, Egypt, Pakistan, Peru, Philippines, Poland, Qatar, Russia, Saudi Arabia, South Korea, Taiwan	China, Colombia, Hungary, Malaysia, Philippines, UAE	Brazil, China, Egypt, Hungary, India, Kuwait, Philippines, Poland, Qatar, South Korea, Thailand	Argentina, Brazil, China, Egypt, Philippines, Poland, Qatar, Russia	Brazil, China, Colombia, Hungary, India, Kuwait, Malaysia, Pakistan, Peru, Philippines, Poland, Qatar, South Korea, Thailand	Brazil, China, Greece, Kuwait, Philippines, Poland, Russia, Taiwan, Thailand

Negative	Colombia, Hungary, Kuwait,	Brazil, Egypt, Qatar, South Korea	Saudi Arabia, Turkey	India, Malaysia, Saudi Arabia, Thailand, UAE	Czech Republic	Chile, Colombia, Egypt, Indonesia, Qatar, Saudi Arabia, Turkey
Literature support	Chen, Y. and Huang, Z., 2021 Jawadi et al., 2020 Stan, D.E., 2020	Umar et al., 2022	Chen, Y. and Huang, Z., 2021	Bello et al., 2022	Iyke, B.N. and Ho, S.Y., 2021 Smales, L.A., 2021a Smales, L.A., 2021b Butt et al., 2020 Shear et al., 2020 Wan et al., 2021 Szczygielski et al., 2021 Chen, Y. and Huang, Z., 2021	Hachicha, F., 2023

Table 5.5: EGARCH- whole sample period results (2004-2022)

Impact	Whole sample period (2004-2022)	Literature support
Positive	Greece, Indonesia, Peru, and Turkey	Iyke, B.N. and Ho, S.Y., 2021 Mondria, J. and Wu, T., 2011 Yuan et al., 2022
Negative	Argentina, Brazil, China, Czech Republic, Egypt, Kuwait, Malaysia, Philippines, Poland, Qatar, Russia, Saudi Arabia, South Korea, and UAE	Smales, L.A., 2021a Smales, L.A., 2021b Butt et al., 2020 Shear et al., 2020 Wan et al., 2021 Szczygielski et al., 2021 Iyke, B.N. and Ho, S.Y., 2021 Cheng et al., 2019

- In our study, among 26 emerging countries, overall, 14 had a negative impact on stock returns and 4 had a positive impact, in whole sample period 2004-2022. More countries's stock exchanges affected negatively in long-term by investor's attention.
- Crisis specific if results seen, the positive relation countries provide diversification opportunities even during those crisis periods.
- This could be because investors saw these markets as offering good opportunities despite the crisis, potentially leading to higher returns.
- Overall, the study suggests that during uncertain times like the GFC/EDC/CHINESE/BREXIT/COVID-19/RUS-UK crises, Investors may profit from possible diversification in certain emerging stock markets.
- In other words, investing in these markets could help reduce risk and potentially increase returns (Lyke & Ho, 2021).
- These estimates, taken together, are in line with our primary discovery, that stock returns are significantly influenced by investor attention.

5.2.4 Wavelet Analysis

Each of the 26 countries' continuous wavelet transforms showed that there are times of extreme volatility during different crises. Moreover, the vast majority of these fluctuations occur on a short- to medium-sized scale, with large-scale volatility occurring in very few instances. To summarize, there is significant volatility in the investor attention (I) and stock return (R) series across all sample countries, primarily during the GFC and COVID-19 crises. Furthermore, volatility was noted in a few countries, including Chile, China, Greece, Mexico, the Philippines, Russia, South Africa, and the United Arab Emirates, during the Brexit, EDC, and Chinese crises.

Moreover, wavelet coherence's covariance was mostly observed during the GFC and COVID-19 crises in all 26 countries. A few countries also showed covariance in the Brexit, EDC, and Chinese crises. Nonetheless, the majority of the countries experience negative effects (arrow left ended), with only a small number of countries experiencing positive impacts (arrow right ended). Furthermore, the variable Investor attention (I) is influencing R because it is in the lead (arrow upward). Additionally, the stock return (R) in some nations is leading (arrow downward), indicating that R influences I. Essentially, wavelet analysis allows us to state that both series exhibit covariance or corelation, and high volatility is observed across all nations during various crisis times.

To be more specific, Table 5.5 clearly illustrates the results of the volatility that each country experienced during each crisis. Moreover, Table 5.6 presents the overall Wavelet coherence findings for every nation in an efficient manner.

Table 5.6: Summary of Volatility results in Wavelet Power Spectrum

WPS	GFC (942-1567)						EDC (1654-2463)						CHINESE CRASH (2988-3132)						BREXIT (3235-3588)						COVID-19 (4176-4240)						RUS-UK WAR (4738-4772)					
	IA			RET			IA			RET			IA			RET			IA			RET			IA			RET			IA			RET		
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Argentina		✓		✓	✓															✓					✓	✓		✓	✓		✓	✓				
Brazil		✓																							✓	✓		✓	✓	✓		✓				
Chile				✓																					✓	✓	✓	✓	✓	✓		✓				
China	✓	✓		✓	✓														✓			✓	✓		✓											
Colombia				✓	✓																				✓	✓		✓	✓		✓	✓				
Czech Republic				✓	✓																				✓	✓		✓	✓							
Egypt				✓	✓			✓																				✓	✓							
Greece				✓	✓					✓	✓		✓	✓														✓	✓							
Hungary	✓	✓	✓	✓	✓																				✓	✓		✓	✓	✓					
India				✓	✓																				✓	✓		✓	✓		✓	✓				
Indonesia	✓	✓		✓	✓																				✓	✓		✓	✓							
Kuwait		✓		✓	✓	✓																			✓	✓	✓	✓	✓							

Malaysia		✓	✓	✓	✓																				✓	✓	✓	✓							
Mexico	✓	✓	✓	✓	✓														✓	✓	✓							✓	✓						
Pakistan				✓	✓	✓																			✓	✓		✓	✓						
Peru	✓	✓		✓	✓		✓	✓		✓	✓																			✓	✓				
Philippines																✓	✓		✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓				
Poland				✓	✓																				✓	✓		✓	✓		✓	✓				
Qatar				✓	✓														✓	✓					✓	✓					✓	✓				
Russia				✓	✓					✓	✓								✓	✓					✓								✓	✓	
Saudi Arabia				✓	✓														✓	✓		✓	✓		✓	✓		✓	✓		✓	✓			
South Korea				✓	✓					✓	✓		✓	✓	✓										✓	✓	✓	✓	✓						
Taiwan				✓	✓					✓	✓														✓	✓	✓	✓	✓		✓	✓	✓			
Thailand				✓	✓					✓	✓		✓	✓					✓	✓					✓	✓		✓	✓	✓					
Turkey				✓	✓					✓	✓		✓	✓											✓	✓	✓	✓	✓		✓	✓	✓			
UAE				✓	✓					✓	✓		✓	✓		✓	✓		✓	✓		✓	✓		✓			✓	✓							

Table 5.7: Summary of Findings of Wavelet Coherence

WAV COH	GFC	EDC	CHINESE CRISES	BREXIT CRISES	COVID-19	RUS-UKR WAR
Argentina	-I→R (L)				-I←R (L)	
Brazil		-I←R (L)	I→R (L)			
Chile					-I←R (L)	
China	-I→R (M)		I→R (L)		-I→R (S,M)	-I→R (M,L)
Colombia	-I←R (L)	I←R (L)			-I→R (L)	
Czech Republic	-I→R (L)			-I←R (L)		
Egypt	-I→R (L)			-I←R (L)		-I←R (L)
Greece		I←R (M)	I→R (L)			
Hungary	-I→R (S,M)			-I→R (L)	-I→R (M,L)	
India	-I←R (L)		-I←R (M,L)	-I→R (M)	-I→R (M)	I←R (L)
Indonesia	-I←R (L)	I←R (M,L)		I→R (M,L)		
Kuwait		-I→R (M)			-I→R (S,M,L)	-I→R (M,L)
Malaysia	-I→R (M,L)				-I→R (S,M)	
Mexico	I→R(M)	I←R(S,M)			-I→R(M,L)	-I→R (L)
Pakistan	I→R (L)	I←R(M,L)			I→R(S,M)	
Peru	I→R(M,L)	I→R (L)		-I→R (M)		
Philippines	I←R (L)	-I←R (L)			-I←R (L)	
Poland	-I→R (L)			-I→R(L)	-I→R (M)	I→R(M)
Qatar	I←R (S)				-I→R(M,L)	
Russia	I←R (L)			I←R(L)		

Saudi Arabia	-I←R (L)		I←R(M,L)		-I←R (L)	
South Korea		I←R (L)	-I→R(M,L)		-I←R(M,L)	-I←R(L)
Taiwan	I→R (L)			I←R(L)	-I←R(M,L)	
Thailand	I←R (L)		I→R (M)		-I→R(S,M)	-I→R(M)
Turkey	-I←R (L)	-I→R (L)			-I→R (M)	
UAE	-I←R(M,L)			-I←R(M)		

Here '-'denotes for negative impact. 'I→R' means Investor's attention affected the stock returns, and 'I←R' means stock returns affected the investor's attention. 'S', 'M' and 'L' means impact stays in short, medium and long run.

5.3 CONCLUSION

This section brings the study to a conclusion by addressing the three research questions outlined in chapter 3:

1. **Is there any causality between investor's attention and emerging stock markets?**

Yes, there is a unidirectional short-term relationship (in which investor attention affects the stock returns) in Brazil, China, Malaysia, Mexico, and Thailand. And unidirectional short-term relationship (in which stock returns affect the investor's attention) in Chile and UAE. And bidirectional short-term relationship in India, Poland, Russia, South Korea, and Turkey in whole sample period 2004-2022.

Null Hypothesis 01 = There is no significant short-run relationship between investor's attention and emerging stock markets.

$$\mathbf{H_{01}} = \textbf{Rejected}$$

2. **Is there any cointegration between investor's attention and emerging stock markets?**

Yes, there is the existence of a long-run relationship between the stock market and investor attention in countries, China, and Turkey, with a significance level of 1%, and 5%. From the Error Correction Regression coefficient, we can say that among

these countries, only in Turkey, there is a positive relationship between investor's attention and the stock market in the long run. In China, there is a negative long-run relationship among investor's attention and stock market.

Null Hypothesis 02 = There is no significant long-run relationship between investor's attention and emerging stock markets.

H_{02} = Rejected

3. Is there any impact of investor's attention on emerging stock markets?

Yes, from the entire sample period in EGARCH model, the findings reveal a negative impact of Investor Attention (IA) on stock market returns in countries including Argentina, Brazil, China, Czech Republic, Egypt, Kuwait, Malaysia, Philippines, Poland, Qatar, Russia, Saudi Arabia, South Korea, and the UAE, with a significance level of 1%. Conversely, a positive impact of IA on stock market returns is noted in Greece, Indonesia, Peru, and Turkey, at a 1% significance level, for whole sample period. And there is positive and negative, both impact is also found in different crisis period also. And through wavelet analysis, there is significant volatility in the investor attention (I) and stock return (R) series across all sample countries, primarily during the GFC and COVID-19 crises. Furthermore, volatility was noted in a few countries, including Chile, China, Greece, Mexico, the Philippines, Russia, South Africa, and the United Arab Emirates, during the Brexit, EDC, and Chinese crises also. Furthermore, the covariance in wavelet coherence was primarily noted during the GFC and COVID-19 crises. Covariance was also observed in few nations during the Brexit, EDC, and Chinese crises. However, the impact is negative (arrow left ended) in most of the countries, with positive impacts (arrow right ended) only occurring in a small number of countries. Wavelet analysis allows us to state that both series exhibit covariance or correlation, and high volatility is observed across all nations during various crisis times.

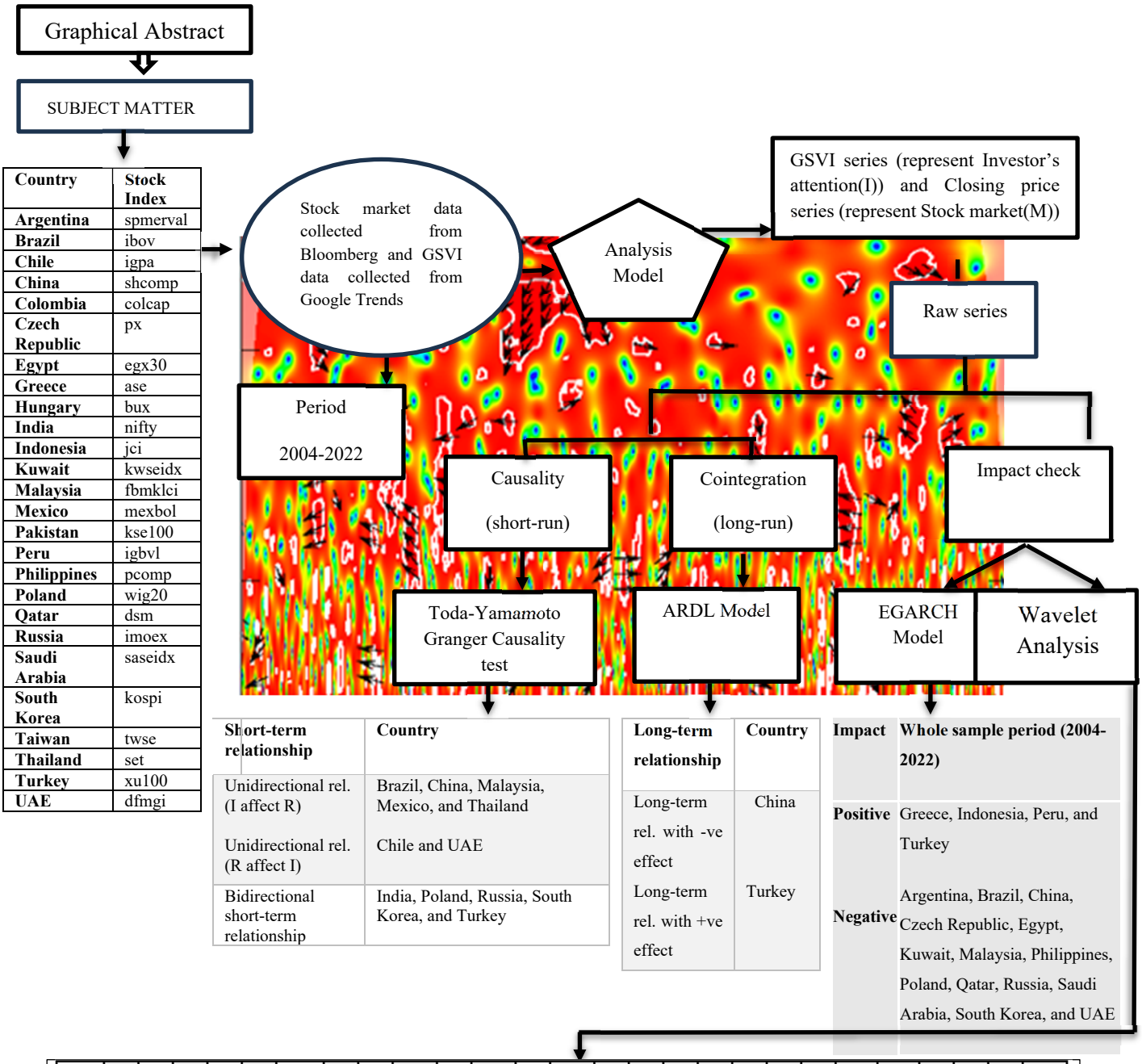
Null Hypothesis 03 = There is no significant impact of investor's attention on emerging stock markets.

H_{03} = Rejected

By comparing the findings of the Toda Yamamoto test and the Wavelet test, the following nations show similar patterns: Brazil, China, Malaysia, Mexico, and Thailand

are all affected by investor attention in terms of stock returns. Comparative data indicate that stock returns have an impact on investors' attention in the UAE and Chile. and a bidirectional effect was discovered in Turkey, South Korea, and India, in both tests. Additionally, the following countries exhibit comparable trends when comparing the EGARCH model and wavelet test results: A few instances, such as those from Pakistan, China, Russia, and Qatar, demonstrate the positive impact of investors' attention on stock returns throughout the GFC crisis period. Additionally, during the Chinese crash, Brazil, China, And Thailand demonstrated positive impact during the Chinese crash period, and in Colombia, Hungary, And Kuwait showed negative impact during the Brexit crisis, and INDIA and the UAE showed negative impact of investor's attention on stock returns during Brexit crises period. We can assess the reliability of our findings by comparing the results of all tests.

5.4 Graphical Abstract



WAV COH	GFC	EDC	CHINESE CRISES
Argentina	-I→R (L)	-I←R (L)	I→R (L)
Brazil			
Chile			
China	-I→R (M)		I→R (L)
Colombia	-I←R (L)	I←R (L)	
Czech Republic	-I→R (L)		
Egypt	-I→R (L)		
Greece		I←R (M)	I→R (L)
Hungary	-I→R (S,M)		
India	-I←R (L)		-I←R (M,L)
Indonesia	-I←R (L)	I←R (M,L)	
Kuwait		-I→R (M)	
Malaysia	-I→R (M,L)		
Mexico	I→R(M)	I←R(S,M)	
Pakistan	I→R (L)	I←R(M,L)	
Peru	I→R(M,L)	I→R (L)	
Philippines	I←R (L)	-I←R (L)	
Poland	-I→R (L)		
Qatar	I←R (S)		
Russia	I←R (L)		
Saudi Arabia	-I←R (L)		I←R(M,L)
South Korea		I←R (L)	-I→R(M,L)
Taiwan	I→R (L)		
Thailand	I←R (L)		I→R (M)
Turkey	-I←R (L)	-I→R (L)	
UAE	- I←R(M,L)		

WAV COH	BREXIT CRISES	COVID - 19	RUS-UKR WAR
Argentina		-I←R (L)	
Brazil			
Chile		-I←R (L)	
China		-I→R (S,M)	-I→R (M,L)
Colombia		-I→R (L)	
Czech Republic	-I←R (L)		
Egypt	-I←R (L)		-I←R (L)
Greece			
Hungary	-I→R (L)	-I→R (M,L)	
India	-I→R (M)	-I→R (M)	I←R (L)
Indonesia	I→R (M,L)		
Kuwait		-I→R (S,M,L)	-I→R (M,L)
Malaysia		-I→R (S,M)	
Mexico		-I→R(M,L)	-I→R (L)
Pakistan		I→R(S,M)	
Peru	-I→R (M)		
Philippines		-I←R (L)	
Poland	-I→R(L)	-I→R (M)	I→R(M)
Qatar		-I→R(M,L)	
Russia	I←R(L)		
Saudi Arabia		-I←R (L)	
South Korea		-I←R(M,L)	-I←R(L)
Taiwan	I←R(L)	-I←R(M,L)	
Thailand		-I→R(S,M)	-I→R(M)
Turkey		-I→R (M)	
UAE	-I←R(M)		

5.5 Discussion

Our results reveal that stock returns tend to be driven by the behavioral factors due to the investor attention in short run in Brazil, Chile, China, Malaysia, Mexico, Thailand, India, Poland, Russia, South Korea, Turkey, and UAE. There was no lead-lag relationship found in some countries between the two variables. Therefore, when examining the relationship between investor attention and stock returns, it is important to take local factors and market conditions into careful consideration. According to TY Granger Causality results, there is variation in the relationship between investor attention and the stock market depending on the state of the market. The reasons behind this could include market structures that are unique to a given nation, laws limiting investor participation, information asymmetry, market efficiency and structure, and data availability and quality. The stock market may not be as accessible to a wide range of investors or as actively monitored in some of these nations. The effect of investor attention on stock returns may have been mitigated by this low participation.

- According to the Investment Climate Statements from 2023, Egypt: limited participation may be caused by political unrest and regulatory obstacles (Investment Climate Statements: Egypt, 2023). Among the challenges faced by investors are a dearth of skilled labor, onerous customs procedures, a lack of transparency, inconsistent enforcement of laws and regulations, excessive bureaucracy, problems obtaining foreign currency to repatriate profits or import goods, and intellectual property issues. In the ICT industry, investors still confront legal and regulatory obstacles.

- In Hungary comparatively smaller stock market than larger economies, with a lower number of listed companies (Hungary investor trip, 2023). There are plenty of options available on the Budapest Stock Exchange, which has 151 listed (and diverse) companies. With a market capitalization of approximately EUR 37 million, less than 10% of the shares of the Budapest Stock Exchange are presently in free float.
- Due to geopolitical unrest and regulatory obstacles, there has been little investor participation in country like Pakistan (Shahid and Strohecker, 2024).
- Dominance of SOEs in Qatar typically indicates that the government controls or has significant influence over a sizeable portion of the market. Private investors may be left with fewer varied investment options as a result, and stock returns may become less sensitive to shifts in investor interest as measured by search keyword usage. State-owned enterprises (SOEs), many of which function as monopolies or possess exclusive rights in the majority of economic sectors, are under the supervision of the State Audit Bureau (Rigo et al., 2021).
- The information asymmetry between retail and institutional investors in Saudi Arabia could potentially break the relationship between GSVI and stock returns due to limited disclosure requirements and institutional investors' dominance (Alqarni, A. A. M, et al., 2021).
- Market structure and efficiency in Indonesia: slower price adjustments resulting from reduced liquidity and efficiency erode the correlation between GSVI and stock returns.
- Data Quality and Availability in Greece: Greece has a history of economic instability and financial crises, which has an impact on the correlation between stock returns and GSVI. According to Papadimitriou et al. (2016), there is a limited amount of data available in Greece's financial markets.
- In Brazil, there are fewer retail investors because of historically high interest rates and negative market risk premiums, which compelled individual investors to place their money in fixed-income instruments like government bonds. Because of this, it is more difficult for individuals to significantly pressure stock prices, which typically follow the demand of institutional investors (Iglesias, M.C., Boston, B., Battisti, J.E.Y. and von Maltzan Pacheco, J.).

Regarding the long-term relationships, the ARDL model verifies that there is long-term relationship found in Turkey and China. Compared to institutional investors, a greater percentage of retail or individual investors reside in these nations, and they may be less knowledgeable or more susceptible to behavioral biases. As a result, when these investors respond to news or market events, there may be an increase in price volatility and longer periods of mispricing. Their decisions are frequently impacted by sentiment rather than fundamental analysis, which increases the duration of the effects of specific market trends. In markets dominated by individual investors, such as many developing nations, stock prices may be more susceptible to news and events that receive significant media coverage.

- Turkey demonstrates both short- and long-term relationships, suggesting that the time horizon for consumers in developed marketplaces is lower than that of ignorant investors in emerging economies such as Turkey. According to the study of Tan, S. D. and Taş, O., (2019), individual investors' actions have a greater influence on Turkey's stock price, and as a result, stock return predictability effects last longer because of investor attention and increased market inefficiency.
- The second-biggest equities market in the world, China's, offers a perfect environment for researching the diversity of retail investors. Retail investors make up 85% of the everyday transactions on the Shanghai Stock Exchange, whereas institutional investors make up only 15%, according to the exchange's annual report (Jones et al., 2021). It is evident that retail investors are in the forefront of this market due to the prevalence of retail trading. Tens of millions of retail investors in China, who make up the most significant number of retail investors in the worldwide capital market, are the driving force behind the substantial trading volumes.
- Furthermore, China's investors and market are isolated from the global economy. For the most part, China forbids foreign investors from participating in its local stock market and domestic investors from participating in overseas markets (Liu et al., 2019). Since there are more Chinese stock anomalies, it makes sense to look into the long-term impact of IA or stock market returns. There are distinctions between the Chinese and US markets because of the distinctive investor structure

of the Chinese market. China's market has a far higher percentage of retail investors than other major capital markets. The majority of trading activity is made up of individual investors (Li et al., 2023).

- Han, C. and Shi, Y., (2022), said that without access to insider knowledge, the investors behave irrationally, taking noise as knowledge that could provide them with a competitive advantage. Because of their high population density, Chinese stocks are particularly sensitive to investor sentiment.

After seen all the results from EGARCH model for different crises period and whole sample period, we can say that there is strong impact of investor's attention on stock market returns. In every crisis period, IA gave impact on stock returns, negatively and positively both. In whole sample period, there is negative impact of investor's attention (IA) on stock market returns in 14 countries Argentina, Brazil, China, Czech Republic, Egypt, Kuwait, Malaysia, Philippines, Poland, Qatar, Russia, Saudi Arabia, South Korea, and UAE. And there is positive impact of IA on stock market returns in 4 countries Greece, Indonesia, Peru, and Turkey. Additionally, both positive and negative effects were shown at different periods. If results specific to crises are observed, the positive relation countries offer opportunities for diversification even in times of crisis. This might be the case because, in spite of the crisis, investors believed that these markets presented good opportunities. Overall, the study indicates that certain emerging stock markets may provide investors with possible diversification benefits during volatile periods like the GFC, EDC, Chinese, COVID-19, and RUW crises. and if a negative relaionship is observed, you should avoid from making investments in those nations in order to protect your financial resources. These estimates generally agree with our main finding, which is that stock returns are significantly influenced by investor attention.

The results of wavelet analysis show that across the various crises such as the Global Financial Crisis, the European Debt Crisis, Chinese financial turmoil, Brexit, COVID-19, and the Russia-Ukraine conflict, the impact of investor attention on stock returns tends to vary significantly. Stock returns typically seem to respond over time to structured economic downturns such as the Global Financial Crisis and Brexit, suggesting a gradual market adaptation to investors' shifting priorities. More abrupt

shocks, like COVID-19, have a wider range of effects, some of which are felt right away and others of which take longer to manifest. This illustrates how complex investor behavior is in reaction to world events. The information shows how the medium- to long-term market responded to investor focus amid the conflict between Russia and Ukraine. This implies that before the effects of geopolitical tensions are reflected in stock returns, investors may need some time to consider the implications. The main conclusion to be drawn is that, while investor attention can affect stock returns, when and how much of an impact it has depends largely on the type of crisis and the unique economic circumstances of each nation.

The study on basis of Wavelet Coherence concludes that Investor attention being a leading indicator can serve as a potential predictive indicator for stock market returns, no matter that the influence is varying significantly across different regions and time scales. The results are in line with previous studies (Drake et al., 2027, Chen et al., 2022; Audrino et al., 2020: Smales et al., 2021)). In Latin America, the effect of investor attention is prominently long-term, suggesting that investors in this region could consider a longer horizon when using attention metrics to predict market movements. The investment landscape in Latin America reveals significant shifts in individual investors behavior from conservative investment preferences for safer asset classes such as cash and real estate, as highlighted in the 2014 BlackRock survey due to high volatility and inflation to renewed investor interest in equities due to gradual stability of these economies with loosening of monetary policies. There is significant uptick in optimism among investors, with many expressing a heightened interest in equity investments, reflective in the surge of registrations on stock exchanges like Brazil's B3[1,2]. This suggests that investor attention, catalyzed by economic improvements and more favorable market conditions, has been a critical driver of the stock market's performance over this extended period. **Europe** displays a blend of medium to long-term influences, indicating a gradual integration of investor sentiment into stock prices, useful for strategies that are not reliant on immediate market reactions. Europe's

[1] https://latinfinance.com/magazine/2015/01/16/retail-investors-a-question-of-safety/

[2] https://www.morganstanley.com/articles/investment-opportunities-in-latin-america-brazil-mexico

diversified investor base, driven by retail participation, generates stable investment demand, enhancing market liquidity and vibrancy (EFAMA, 2024). **Asia** shows predominantly a mix of short and medium-term effects, offering opportunities for quicker trading strategies that capitalize on swift changes in investor attention. Since in Asia, the number of retail investors, especially the younger demographic, is proliferating, the active retail investor base can immediately drive stock demand and stock returns[3]. Lastly, the **Middle East and Africa** predominantly exhibit medium to long term effects, suggesting that investor attention metrics could be effective for intermediate to long term investment planning in these markets. The economic diversification in Saudi Arabia and the UAE, highlighted by significant reforms and strategic investments, is reshaping the investment landscape in the Middle East. As these countries transition from oil dependency to sectors like technology and tourism, and with Saudi stocks included in the MSCI Emerging Markets Index, retail investors are presented with burgeoning opportunities[4]. These developments, coupled with socio-economic reforms, are drawing sustained investor attention, suggesting that diversified portfolios in these dynamic sectors could offer promising long-term returns for investors in the region. Overall, the utility of investor attention as a predictive tool varies by region and desired investment term, offering strategic insights tailored to regional market dynamics and investment timelines.

Our analysis focuses on emerging stock markets in particular, which are an important subset of the larger financial market that are selected for their distinct characteristics and substantial influence on world economic patterns. This emphasis was prompted by the need to comprehend investor behavior in settings that differ from more established markets in terms of regulation and have higher levels of volatility. Although our results might not be readily applicable to other financial markets, such the bond or derivatives markets, the knowledge acquired is invaluable for anybody involved in or impacted by emerging stock markets. This limitation also creates

[3] https://www.forbes.com/sites/zennonkapron/2022/11/22/empowering-the-asian-retail-investor/

[4] https://www.alliancebernstein.com/corporate/en/insights/investment-insights/a-new-frontier-for-equity-investors-the-middle-east-transformation.html

opportunities for future studies to investigate comparable dynamics in different kinds of marketplaces, maybe with modifications to the approaches we have used. By doing this, the research community will be able to develop a more thorough knowledge of investor attention in all financial markets.

5.6 IMPLICATIONS AND RECOMMENDATIONS

The study has following ramifications:

Implications of this study include those for future researchers and the academic community.

- By closely monitoring investor attention and its correlation with stock returns, policy-regulators can better understand market dynamics and implement timely interventions to safeguard market stability during periods of heightened uncertainty.
- The lead-lag relation between investor attention and the stock market returns illustrates how fast one market reflects new information relative to the other, and how well the two markets are linked. By looking at investor attention, one can predict the stock returns. The result highlights the importance of investor attention to asset pricing. Therefore, traders should take into account this factor before making any informed decisions.
- In theoretical implication, investor's attention also used as a input for framing models like in CAPM, to check the asset pricing.
- Negative relation in some countries shown investor's attention negatively affecting investor attention. Therefore, by watching increasing investor attention index, one can avoid investment in these countries since it reflects negative returns.
- On the other hand, positive relation in some countries show diversification opportunities in those countries where increased investor attention in crisis period leads to enhanced returns. China has proved to be resilient in all crisis periods, showing positive relation between investor attention and returns

- In some countries, no lead lag relation observed between two variables. Therefore, there is need for careful consideration of local factors and market conditions when analyzing the relationship between investor attention and stock returns.
- The results have implications for retail investors seeking to trade optimally and suggest that caution should be taken in adding to portfolio risk during periods with high levels of investor attention.
- Thus, increasing the number of institutional investors in the securities market would aid in stabilizing the composition of the market. Stock prices can be brought closer to their true values and the number of noise traders can be decreased by raising the overall investment quality of market traders (Peress and Schmidt, 2020).
- From the standpoint of the supervising agency, these organizations employ a variety of techniques to assist investors in developing sound investment philosophies and improving their emotional intelligence and financial literacy. Investors, whether institutional or individual, should always differentiate between various sectors, nations, and businesses, as well as between short-, medium-, and long-term investments, in order to handle each one appropriately.
- Furthermore, by closely monitoring investor attention and its correlation with stock returns, policy-regulators can better understand market dynamics and implement timely interventions to safeguard market stability during periods of heightened uncertainty.

5.7 CONTRIBUTIONS

Overall, the study has significant contributions in the literature on IA and Returns nexus.

- First, the re-examination of the current study with number of econometric models is conducive for seeking additional evidence so as to draw a more reliable conclusion about the impact of investor attention on stock returns.
- Second, in lieu of concluding a single attention-return nexus, this study is able to break down the relationships of attention and stock market into short, medium, and

long-term through wavelet analysis. This is very important especially for planning and decision making, where investment strategies are expected to vary for different time-frequency domain to overcome the existing policy implementation issue.

- Third, 26 emerging markets stock data allow us to conduct a natural out-of-sample test for these findings. Moreover, pooling data across 26 countries improves the power of tests and thus generates more robust estimates.

5.8 LIMITATION

The current study has its limitations, despite the fact that it has greatly presented the best results to various interested stakeholders. The following are these restrictions:

- For the sample stock indices, only daily closing price observations are used as the data sample set.
- This study only takes into account emerging stock markets when conducting research.
- The sample period only includes years after 2004, as Google Trends began operations in that year.
- Present study only checks relation of investor's attention with stock closing prices and returns.
- Although our results might not be readily applicable to other financial markets, such as the bond or derivatives markets, the knowledge acquired is invaluable for anybody involved in or impacted by emerging stock markets.

5.9 SCOPE FOR FUTURE RESEARCH

- The current study can be expanded by examining other financial markets, such as bond, commodity, and currency markets, trade channels, in order to examine the volatility and relationship between investors' attention and the other assets market.
- Additional behavioral factors, such as investor perception, and other factors like role of government policy, and regulation, could be included in future research.
- Additional variables like trading volume and volatility can also be used to relate with investor's attention in future research.

- Quantile ARDL, Quantile regression, Quantile connectedness and other functions of wavelet can be used to capture the interactions between these 2 variables at different quantiles.
- Future research may be expanded by analysing the results by classifying emerging countries on basis of local factors, regulatory factors geo location, cultural factor etc.

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List of Publications

- Research paper, **"Impact of Investor's Attention on Global Stock Market: A Bibliometric Analysis",** authored by **Sheenam Lohan**, Dr. Arpit Sidhu and Shubham kakran has been published in Scopus-based **Indian Journal of Finance**

- Research paper, **"Hydrogen Energy in Brics-Us: A Whirl Succeeding Fuel Treasure",** authored by **Sheenam**, Dr. Arpit Sidhu, Shubham kakran, ashish kumar, adel ben youssef has been published in **Applied Energy**.

- Research paper, **"Indian Stock Exchanges 'NSE' and 'BSE' During Russia-Ukraine War: A Conceptual Framework",** authored by **Sheenam**, Dr. Arpit Sidhu has been published in the International Edited Book titled "Contemporary Issues in Business and Economics".

- Research paper, **"Green Finance: A Conceptual Framework",** authored by **Sheenam**, Dr. Arpit Sidhu has been accepted and in published stage in the International Edited Book titled "Contemporary Issues in Business and Economics".

- Research paper, **"The Impact of Investor's Attention on Global Stock Market: Statistical Review of Literature",** authored by **Sheenam Lohan**, Dr. Arpit Sidhu and Shubham kakran has been published in **International Journal of Business Forecasting and Marketing Intelligence.**

List of conferences

- Participated and presented paper titled "**Investor Attention and Blockchain Concept Stocks**" in the International Conference on "blockchain for Business: Embracing Digital Disruptions" held on 14 oct 2022, Lpu, Punjab.

- Participated and presented a research paper titled **"Emerging stock markets and Investor's Attention: EGARCH model"** at the **International Conference on Humanities, Social Science and Business Management** hosted by the Institute of Research and Journals held in New Delhi on 29th July 2023.

- Participated and presented a research paper titled **"Investor's Attention and Emerging stock markets: EGARCH model"** at the **International Finance and Accounting Conference (IFAC-2023)** hosted by **IIM JAMMU**, conducted from 8 to 9 September 2023.

List of workshops

- Participated in **FDP** on **"Overcoming Barriers of Research"** conducted on 23 July 2022.

- Participated in **FDP** on **"Time Series Econometrics (basic, intermediate & advance level) using Eviews & R"** conducted from 4 June to 2 Oct 2022, Research Shiksha.

- Participated in **Workshop** on **"Literature review, research problem identification and research gaps in your study"** conducted on 1 September 2022, Sabaragamuwa University of Sri Lanka.
- Participated in **FDP** on **"Advanced Systematic Literature Review"** conducted from 24 May to 27 May 2022.

- Participated in **FDP** on **"Online Workshop on Data Analytics Using R"** conducted from 19 March to 22 March 2022.

- Participated in **Workshop** on **"Handy Tips on writing the introduction of your research"** conducted on 8 September 2022, Sabaragamuwa University of Sri Lanka.

- Participated in **Research Paper writing competition** jointly organized by **Bharatiya Shikshan Mandal-Yuva Aayam & Research for Resurgence Foundation** conducted in September 2022.

- Participated in **Workshop** on "Research Methodology & Academic Writing with Hands-on SPSS" conducted from 12 to 16 September 2022.

- Participated in **Workshop** on **"Research mentoring programme: 2022"** conducted on 29 September 2022, Sabaragamuwa University of Sri Lanka.

- Participated in **Workshop** on "Research Methodology & Academic Writing with Hands-on SPSS" conducted from 16 to 20 January 2023.

- Participated in **Workshop** on **"Handy Tips on writing the introduction of your research"** conducted on 8 September 2022, Sabaragamuwa University of Sri Lanka.

- Participated in **Research Paper writing competition** jointly organized by **Bharatiya Shikshan Mandal-Yuva Aayam & Research for Resurgence Foundation** conducted in September 2022.

- Participated in **Workshop** on "Research Methodology & Academic Writing with Hands-on SPSS & Mendeley" conducted from 13 to 17 March 2023.

- Participated in **Workshop** on "Research Methodology & Academic Writing with Hands-on SPSS & Mendeley" conducted from 12 to 16 June 2023.

- Participated in **Workshop** on "Research Methodology & Academic Writing with Hands-on Mendeley" conducted from 30th Oct-3rd Nov 2023.

Sheenam

Signature
Scholar- Sheenam
Date- 31/08/2024

Rupinder

Signature
Supervisor- Dr. Rupinder Katoch
Date- 31/08/2024