

# Conceptualization, Construction and Theoretical Relationship Between Neuro Science, Neuro Accounting and Neuro Economics in Pandemic Era

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## Abstract

This paper aims to know and investigates of conceptualization, construction and theoretical relationship between neuro science, neuro accounting and neuro economics in pandemic era. The main objective of this research is to collect important developments and contributions of efficient market theory and rationality related to neuro science, neuro accounting and neuro economics. Analysis is conducted by using examining library materials or also called library research. Research findings that neuroscience, neuro science, neuro accounting and neuro economics can help investors by Indonesian publicly traded companies during a pandemic. The results suggest that the literature on accounting behavior is converging into a new field, neuro science, neuro accounting and neuro economics, does indeed take place at the investment decision stage. The results of a review of market data in Indonesia also show that the Composite Stock Price Index (JCI) in Indonesia is also very volatile even though it shows lower volatility during the pandemic compared to before the pandemic. Since the emergence of the Covid pandemic in Indonesia in 2020, investor psychology has been greatly influenced by their irrational behavior.

**Keywords:** Neuro science, neuro accounting, neuro economics and efficient market hypothesis.

## Article History

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## 1. Preliminary

The capital market and financial market are the main drivers of the Indonesian economy. Through the capital market, companies can obtain funds to carry out their operational activities. The Indonesia Stock Exchange is a form of investment institution which is an investment alternative that is easily accessible to the wider community. The economic conditions in the world in 2019 showed positive growth. Prior to Covid-19, the global economy was facing the threat of political tensions. Before the arrival of Covid-19 the investment climate was very good and conducive (Irawan, 2021). The ideal economic growth is around 5%. The capital market is still under pressure amid the coronavirus pandemic situation. The composite stock price index is under pressure, as is the performance of mutual funds.

As the Covid-19 pandemic spreads all over the world. The stock market condition reacted negatively because it was influenced by the arrival of the Pandemic. (Khan et al., 2020). This also caused stock prices to fall, especially after WHO declared (Alali, 2020) and negative response in capital market (Liu et al., 2020).

The capital market in Indonesia is currently more or less affected by the Covid-19 pandemic situation. Many investors were affected by the Covid19 situation and sold their shares a lot (Kusnandar and Bintari, 2020). The pandemic has also affected fluctuations of the stock market (Junaedi and Salistia, 2020; He et al., 2020 and Liu et al., 2020), the significant impact of which is a decrease in trading volume on stock exchanges around the world (Collins, 2020), and increase inefficiency in the market. stocks (Lalwani and Meshram, 2020). The negative impact on the capital market affects investors in making investment decisions (Pitaloka et al., 2020). Economic decisions are at the physical and neural levels, giving rise to the field of neuroeconomics. Developments in the fields of "neuroscience, neuroaccountancy, and neuroeconomics" incorporate insights or methodologies from neuroscience into their analysis to provide unique insights into how individuals process accounting information and react to current circumstances.

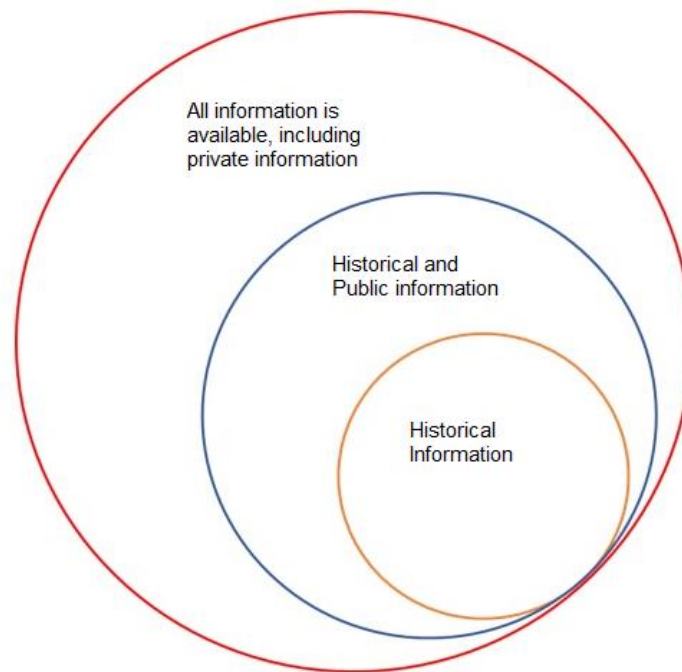
Current neuroscience research discusses how the impact of the COVID-19 pandemic reacts on the nervous system and its impact on investors' perceptions, thinking, and behavior in investing. The nervous system includes the brain, sensory organs, and a highly specialized network of neurons. Collectively, these components send and receive electrical signals to control movement and automatic processes such as heart rate and breathing; processes and interprets external stimuli captured by the eye and coordinates higher-order cognitive processes such as attention, learning, motivation, self-regulation and problem solving.

The accounting knowledge has subfields of cognitive, affective, behavioral, and social neuroscience that focus on higher-order cognitive processes involved in processing information and reacting to stimuli (Adolphs, 2003; Davis & Montag, 2019; National Institute of Child Health). and Human Development, 2018; Society for Neuroscience, 2018). The characteristics of the decision context and the decision maker are converted into judgments and using technology that relates the presentation of stimuli to measures of the decision maker's nervous system activity. Activity is measured using technology that captures blood oxygen levels or electrical currents in areas of the brain.

## **2. Literature Review**

### **Conceptualization, Construction and Theoretical EMH**

EMH is one of the modern financial theories that is considered the most influential assuming that all relevant information has been reflected on the price of the security when the security is traded. The concept of EMH is based on the random walk model, which argues that the information available in the market is random and unpredictable, so investors are unable to make predictions or views on future profits.



**Figure 1; Evecieny Market Hypotesis**

Figure 1 shows how a securities market is said to be efficient if the prices of securities reflect in full the information available. The EMH based on the distribution of information as follows, "the market is said to be efficient towards an information system if and only if the prices of securities act as if everyone is observing the information system". Information intended in the context of EMH is divided into three types, namely (1) historical information on past stock prices, (2) public information and (3) private information or information derived from within the market. Meanwhile, the assumptions that must be built in order to achieve efficient market conditions are as follows:

- a. There are many investors who are rational and try to maximize profits
- b. These investors are price takers, so the actions of one investor will not be able to influence the price of the security.
- c. All market participants obtain information at the same time and at no cost.
- d. The information that occurs is random and unpredictable
- e. Investors react quickly to new information, so the price of the security will change according to changes in its actual value as a result of the information.

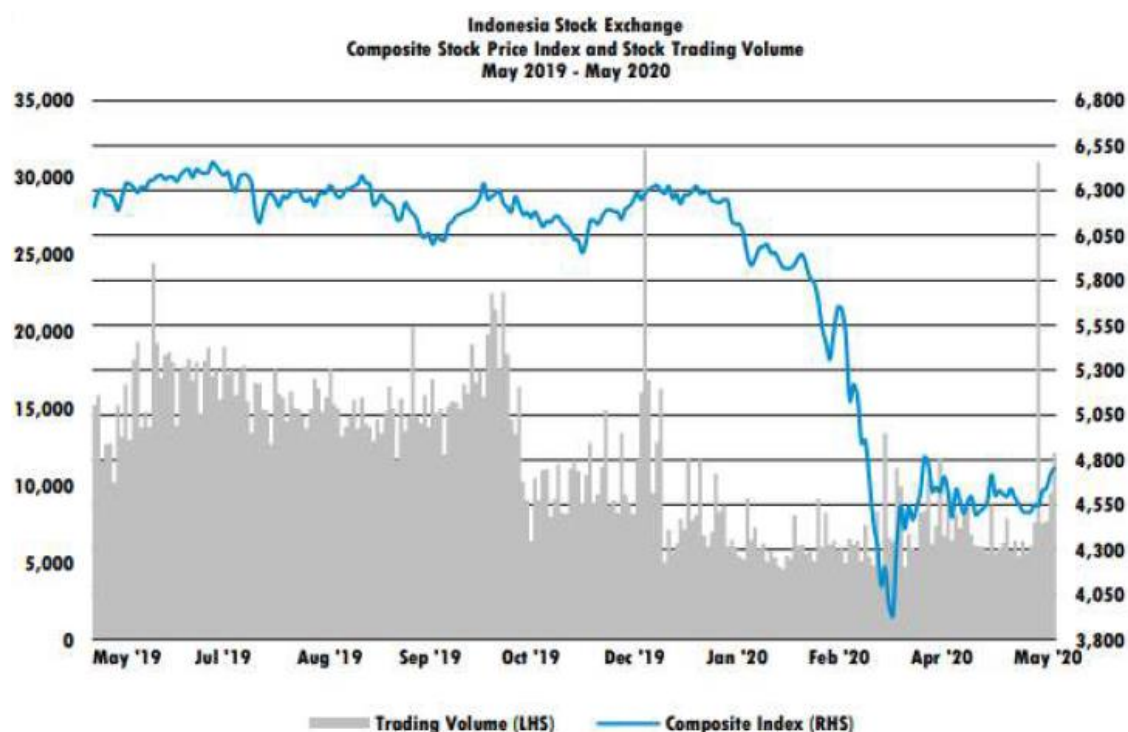
### **3. Design Methodology**

This research method uses qualitative methods. This research source uses indexed journals that have been published, proceedings, working paper magazines and news online and offline, then examined again and withdrawn to be the basis in events or cases that will be examined by the author. To do so, we identified literature that links neuro science, neuro accounting and neuro economics.

## 4. Result and Discussion

### 4.1. Result

The impact of the Pandemic on JCI is a moment that makes market behavior uncertain. The weakening also contributed to the weakening of the JCI which was also 6.87 percent in the period year to date.



**Figure 1; Composite Stock Price Index Periode Mei 2019-Mei 2020**

Source: (IDX, 2020)

Based on Table 1 shows that Indonesia's economic growth before Covid-19 in 2014-2019 tends to be stable in the range of 4.97%-5.20%. Decline in the stock market has a negative impact on economic growth. This can have a fairly large domino effect as discussed earlier that the stock market contributes to the economic growth of a country. The stock market in Indonesia before Covid-19 was quite stable. Graph 1 shows that the JCI tends to be stable towards 2020. In January 2020 there was a decline in the value of the joint stock price.

During the pandemic, the public discussion was widely discussed in Indonesia, stock prices in general experienced a decline. The share buyback by an issuer that can harm shareholders (Maulana et al., 2022). They think that this condition is only temporary and if conditions return to normal then the stock price will increase and bring a lot of profit. Investors included risk averter will be frightened, some of these investors will sell shares because they are worried that the value of the shares will decrease further and harm. Others do not sell but also do not buy shares, they maintain the number of shares owned in the hope that conditions will normalize and the stock price will increase again, but they also dare not buy or increase the number of shares because they are worried that their value will decrease further. For moderate investors, in general they increase the number of shares but are thoughtful, they will buy a certain amount

(not much), thus if the stock price falls then the loss is not too big and if the stock price rises it will get a profit.

Investors must have technical and fundamental knowledge, not only having capital so they can take the right attitude in buying and selling in the capital market (Santoso, 2020). The industrial sector to be purchased shares must be ensured to be safe. The property industry sector is currently not well developed because most people are more focused on health and meeting basic needs.. The information and technology (IT) industry sector is currently also experiencing rapid progress due to the high needs of the public related to IT during the pandemic. Next is the analysis of individual companies, what shares of the company will be purchased. Investors must conduct a thorough analysis of the company, starting from the financial statements must show a healthy condition as seen from the financial ratios, the company's management must be professional, and the company's performance shows an increase from period to period.

## 4.2. Discussion

Dimensional Theoretical Framework Neuro Science, Neuro Accounting and Neuro Economics show in Table 1 as a follows :

**Table 1. The Dimensions of Neural Functioning**

	The cognitive	The Affective
Controlled Process		
- evoked deliberately		
- serial	I	
- effortful		II
- good introspective access		
Automatic Proecess		
- parallel		
- effortless	III	IV
- reflexive		
- no introspective access		

According to Table 1, it is a series that agents tend to call out on purpose.

## 5. Conclusion

Based on discussion that the literature on accounting behavior is converging into a new field, neuro science, neuro accounting and neuro economics, in a way that reflects the pattern of development of the same field, neuro economics – suggesting that neuro accounting does indeed take place at the investment decision stage. The results of a review of market data in Indonesia also show that the Composite Stock Price Index (JCI) in Indonesia is also very volatile even though it shows lower volatility during the pandemic compared to before the pandemic. Since the emergence of the Covid pandemic in Indonesia in 2020, investor psychology has been greatly influenced by their irrational behavior.

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