

ALAMAPI: DEVELOPMENT OF STOCK MARKET  
PRICE TREND FORECASTING SYSTEM USING  
DYNAMIC MODE DECOMPOSITION, ARNAUD LEGOUX  
MOVING AVERAGE, AND LONG SHORT-TERM  
MEMORY NEURAL NETWORK

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## Introduction

### 1.1 Background and Rationale

The stock market is a type of market that allows companies to raise capital by issuing shares of stock to investors. These shares represent a share of ownership in the company and entitle the holder to a share of the company's profits and voting rights. The stock market also provides a platform for investors to buy and sell these shares, allowing for the efficient trading of company ownership. By allowing companies to raise capital and investors to buy and sell shares, the stock market plays a crucial role in the growth and development of the economy (Chen, 2022; The Economic Times, n.d.).

Contrary to popular belief, the stock market is not a form of gambling. It involves a significant amount of analytical thinking and risk management, and the returns are based on the supply and demand for a given stock, rather than on false promises or assurances. In other words, the stock market is a legitimate platform for investing and generating returns, rather than a scam or gamble (Schwab-Pomerantz, 2021; Adams, 2022; Summers, 2022).

#### 1.1.1 The Philippine Stock Exchange (PSE)

The Philippine Stock Exchange (PSE), Inc. is the official stock exchange market in the Philippines. It is a non-stock company that was incorporated in 1992 and manages and operates the stock market in the country. Registered individuals can participate in market exchanges on the PSE. (The Philippine Stock Exchange, Inc., n.d.-a).

Moreover, the main index of the Philippine Stock Exchange (PSE) is the Philippine Stock Exchange Index (PSEI). The PSEI is a market capitalization-weighted price index that is based on the 30 largest and most actively traded companies on the PSE. These companies are pre-determined based on strict criteria, such as liquidity and market capitalization. The PSEI is often used as a benchmark for the performance of the overall stock market in the Philippines. (Bangko Sentral ng Pilipinas, n.d.) The companies that make up the PSEI are often referred to as blue-chip companies, as they are typically large, well-established companies with a history of strong financial performance. As of October 2022, there are 286 companies listed on the PSE, providing a diverse range of investment opportunities for investors. (Fayed, 2022; The Philippine Stock Exchange, Inc., n.d.-b).

### **1.1.2 Economic Relevance and Benefits of Stock Market Investment**

It is commonly accepted that the stock market plays a crucial role in economic growth, as it allocates and provides capital to businesses, which in turn drives economic activity and growth. This is evident from the fact that stock market performance is often correlated with a country's Gross Domestic Product (GDP) (Trade Brains, 2022; Hall, 2022; Bae & Kang, 2017) Additionally, historical trends in stock prices can provide insight into broader economic movements (Campbell, 2021).

Moreover, a study by Balaba (2017) found that the stock market has a positive effect on the economy of the Philippines. The data from the study showed that as the stock market grew, the country's unemployment rate declined. This is because the stock market's performance leads to job creation, which in turn drives economic growth. This relationship has been evident in the Philippines for the past 10 years.

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