

## Where is the Price of Silver Going?

Throughout the course of civilization, silver has played a fundamental role in the way societies have organized, viewed themselves, and thrived. For centuries, silver was used as a primary component of currency and, today, remains very popular as a precious metal, alongside its counterpart, gold. Although the primary popularity of silver resides from its appearance and value, principally manifested in jewelry and collectables, silver — unlike gold — enjoys substantial application in industry, with usage in items such as solar panels, conductors, and batteries. Owing to its precious metal status and historical position as a form of currency, silver is widely used as an investment vehicle as a hedge against inflation of the dollar and a safe haven during periods of economic recession. However, the recent advent of cryptocurrencies has called into question whether traditional precious metals like silver can maintain this role going forward. In this study, a time series of the price of silver covering a roughly 15-year period is examined in an effort to forecast the next 12 months of silver price behavior.

In this study, the exchange-traded fund (ETF), SLV, will be taken as a proxy for the price of silver. Although this ETF from iShares does not perfectly match the price of silver traded on the market, its aim is to generally reflect the performance of the price of silver, and it is the most traded asset related to silver on the New York Stock Exchange. SLV daily historical price data, going back to April 28, 2006 and extending to October 8, 2021, is obtained from Yahoo Finance. The seasonality and stationarity of SLV will be explored, with the aim of stationarizing the data for time series analysis. From this result, exploratory data analysis will be conducted. Then, statistical models for time series, e.g., ARIMA, SARIMAX, will be fit to the stationarized data to determine the model most appropriate to describe the time series data. Finally, a forecast for twelve months into the future will be generated and discussed within the context of the current economic environment.