



# **Indian Institute of Management Shillong**

**IIMS/WPS/01/FIN/2015/01**

**A**

**Study on**

**Predicting Gold Price: An Auto Regressive Integrated Moving  
Average (ARIMA) model Approach**

**By**

**Dr. Naliniprava Tripathy,**

**Professor -Finance& Accounting**

**Indian Institute of Management Shillong**

**Mayurbhanj Complex, Nongthymmai, Shillong Meghalaya INDIA**

**PIN 793 014, Phone: +91-364-2308037**

**Email: [nt@iimshillong.in](mailto:nt@iimshillong.in)**

## ABSTRACT

Financial sector development and economic development are inter-related. Economy cannot improve the living standards of peoples in the absence of a well-functioning and efficient financial sector development. In the current scenario, the activities of financial markets and their relationships with the real sector have assumed significant importance. Over the past few years, the financial market has observed financial crises all over the world. Those crises have considerably affected asset prices that led to give negative portfolio return to investors. As a result, Investors are looking to shift their investments from risky instruments to less risky instruments with the object of minimizing their potential risk of loss. Gold is one among these instruments which protect the investors from such particular risks. Investors are investing in gold, either to locate a safe haven or to anticipate a higher return. Gold bullion coins are traded daily throughout the world and their price depends on the prevailing international gold price. Investors are encouraged to invest in gold because its price depends on the international gold price and not very subjected to inflation. Further Investors reduce their risk in case of a sudden shot in the stock market or increased inflation rate. Additionally, gold provides high liquidity and an investor can exchange gold for money anytime. Many studies suggested that gold is one of the best investment instruments for diversification. Gold investment can also be used as a hedge against inflation and currency depreciation. Since gold is frequently traded, its price and relationship with stock market assumed significant importance from the investor, traders, policy makers, and academicians' point of view. From the policy perspective, gold's price rise has raised a concern as to whether a future crash in gold prices would have financial stability implications. Therefore gold have become the main focus of research in the field of finance today.

Gold investors depend on historical data of gold price to forecast future prices prior to making their investment decision. In spite of proclamations, Analysts, Many multinational corporations, dealers in foreign exchange, exporters, importers and speculators continue to make hedging decisions based on forecasted price using ex-post data as the basis. They commonly believe that past patterns provide an indication of future movement at least in the short run. To solve these types of problems, the time series analysis is the best tool for forecast and also to predict the trend. In this research study an attempt has been made to develop a forecasting model for gold price. The sample data of monthly gold price (in US\$ per ounce) are taken from July 1990 to February 2015. The study has used Box-Jenkins, Auto Regressive Integrated Moving Average (ARIMA) methodology for building forecasting model. For testing the forecasting accuracy, Mean Absolute Error, Root Mean Square Error, Maximum absolute Percentage Error, Maximum absolute Error, and Mean Absolute Percentage Error are estimated. The research study suggest that this model may be used for forecasting the gold prices for future.