

CELEBRATING
COMMERCIALISATION
YEAR 2014

iiindex 2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

invention
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exposition 2014

INNOVATEUR
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2014

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UNIVERSITI TEKNOLOGI MARA
MALAYSIA

*Bridging
the valley of death :
advancing the
commercialisation
of research*

RESEARCH BOOK

iiindex2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

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FOREWORD

The Honourable Minister of Science, Technology and Innovation (MOSTI) has launched 2014 as Malaysia Commercialisation Year 2014 (MCY2014) with the theme Science Technology and Innovation (STI) for Wealth Creation. In line with this theme, Invention, Innovation, Design & Exposition 2014 (iidex2014) is an annual exposition organized by UiTM and is the ultimate platform to highlight and commercialise new inventions and innovations. Researchers and inventors will exhibit their products which cater to the needs and wants of the community and the country.

The iidex2014 creates a new dimension by fusing two competitive concepts, a competition among innovative products and a competition to invite Innovateur Wannabes to perform live pitching of their products to the audience. The iidex2014 focuses on comprehensive commercialization and creating opportunities for entrepreneurs to carry out R&D as well as to provide avenue to commercialise their products. Through expositions such as iidex2014, MOSTI hopes to inculcate the culture of commercialisation of new technology designed and created by Malaysians.

I wish to congratulate all the participants of the iidex2014 and this is the opportunity for all researchers to show their ideas and exhibits their products and creativity. Apart from showcasing their products, innovators will have the opportunity to provide a window to the industry for business matching during the exposition.

Tan Sri Dato' Sri Sallehuddin Mohamed
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FORECASTING SHARE PRICES OF COMPANIES IN BURSA MALAYSIA USING GEOMETRIC BROWNIAN MOTION

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Investment in stock market is a way of generating extra income. Essentially the objectives of investment are to reduce the risk, increase the return and better diversifications of capital investment. However, investment involves risk and investment in stock market is risky. The higher the risk is, the higher is the return. But, to choose the suitable counters to invest is difficult and with the uncertainty of market prices, it will lead to the decline of the investors' confidence level. Wise investment decision has to be made in order to prevent any loss of capital investment. Therefore, forecasting future closing price is essential. To help the investors, this research and product forecast the future closing prices by using geometric Brownian motion (GBM). GBM has been initially introduced as a basis for options pricing in financial field.. A GBM model is a continuous-time stochastic process, in which the logarithm of the randomly varying quantify follows a Brownian motion also known as Weiner process. GBM is important in the modelling financial process mathematically. It is the derivatives of continuous model from discrete model that can be used to predict the movement of the stock prices in the short term period. The pattern of the stock market prices is unpredictable and follows the random walk where random walk model in the GBM can outperform other methods. Thus in this study, GBM is used to forecast the future closing prices for companies, especially the small sized companies in Bursa Malaysia. The GBM which involves randomness, volatility and drift can be used to forecast a maximum of two week investment closing prices. Forecasting is restricted to short term investment because most of the investors aim to gain profit in short period of time. This study focuses on small sized companies because the asset prices are lower, hence the asset are affordable for all level of investors. This method is accurately proven by the lower value of the Mean Absolute Percentage Error. In addition, the uses of data is also investigated and found that one week data is good enough to forecast the share prices using this method. The mathematical model used for forecasting is beautifully designed in a system and placed in a compact disc. It is user friendly and easily monitored. All that are needed for the user to forecast the share prices are to enter the name of company of interest, the initial date, 10 previous inputs of daily share prices from the initial date, and to choose the type of volatility (1 week or 2 weeks volatility). The system will give the output of the forecast share prices for the next two weeks for both types of volatilities. Graphs are also provided for the user to further understand and study the progression of the forecast share prices. A forecast percentage profit is calculated for better decision making. The system or the product requires the Window XP, Window Vista or Window 7, Adobe Reader, Adobe Flash Player and a screen resolution a minimum of 1024x1768. The software requirements are easily obtained online. The generated information can be printed and saved for future discussion. Besides decision making in investment, the system can certainly initiate other researches. Hence it can definitely be commercialised.