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AN ANALYSIS OF STOCK MARKET TRADING: SMALL LITERATURE REVIEW

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Abstract

A financial market, the stock one in particular, represents a substantial part of every functioning economy. Not only is this market type considered to be one of the basic indicators of the economic condition of a country, but it is also very often viewed as a promising financial investment generating a great fortune on the one hand, but also, due to the presence of volatility, as a considerable risk on the other hand. From the very first beginning of the stock market existence, a number of people tried to forecast its future development, or more precisely, the future development of the stock prices. Currently, the issue of stock price predicting belongs among very important financial topics as it has an enormous potential for both the investors and the whole market economy. The aim of this paper is to provide the theoretical foundations for the topic of stock market trading. First, the paper focuses on the explanation of the core of the issue and the description of the basic terms connected with the capital market, the stock market, the stock as such and, last but not least, the phenomenon of stock market trading itself. The text also presents various authors' approaches to the prediction of stock prices, some also using the neural networks. Based on this paper, it was discovered that the prediction of the stock market development represents a very demanding task for which a number of models were designed although it is not possible to determine which one is the best.

Keywords: stock, stock exchange, stock market, financial market, prediction

ANALÝZA OBCHODOVÁNÍ NA AKCIOVÉM TRHU: MALÝ PŘEZKUM LITERATURY

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Abstrakt

Finanční trh, zvláště pak ten akciový představuje nedílnou složku každé fungující ekonomiky. Nejenom, že je tento typ trhu považován za jeden ze základních indikátorů ekonomického stavu země, ale také je mnohdy brán i jako slibná finanční investice generující velké bohatství, jež je ovšem kvůli výskytu volatility i značně riziková. Již od samého prvopočátku existence akciového trhu bylo ve snaze nejrůznějších osob predikovat jeho budoucí vývoj, respektive budoucí vývoj cen akcií. V současné době patří problematika predikce cen akcí k velmi významným finančním tématům, jelikož má do budoucna pro investory a celou tržní ekonomiku velký potenciál. Tento článek si klade za cíl poskytnout teoretickou základnu k tématu obchodování na akciovém trhu. Zprvu bude text zaměřen zejména na vysvětlení podstaty a popis základních pojmů týkající se kapitálového trhu, akciového trhu, akcií jako takových a v neposlední řadě samotného obchodování na akciových trzích. Text také představuje různé přístupy autorů k predikci cen akcií, některé také pomocí neuronových sítí. Na základě tohoto příspěvku bylo zjištěno, že predikce akciového trhu představuje velmi náročný úkol, pro který byla vyvinuta již řada modelů, přičemž není možné říci, který z nich je ten nejlepší.

Klíčová slova: akcie, burza, akciový trh, finanční trh, predikce

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Introduction

Background

Markets can be divided into money markets where short-term financial instruments and capital are traded, which are markets for long-term financial instruments for which the maturity period is more than one year. Capital market instruments can therefore be considered primarily as shares and long-term bonds issued by the state, trading companies or banks, as

well as unit certificates, mortgage bonds or financial derivatives in the form of options, financial futures and swaps.

Current trend

Investing in shares is nowadays, one of the main ways to capitalize, but it is also one of the most difficult the ways in which an investor can become a very wealthy person, but just as quickly he can lose everything. Investing in stocks is a psyche-intensive process and you need a lot of experience with it. Yet saving savings in stocks is in the right proportion with other financial instruments is the best way to use financial markets.

Review of related literature

Markets

There are a number of entities operating on the capital markets, either acting as investors, issuers of securities or financial intermediaries. Thus, we can consider individuals, firms, financial institutions, states, international and supranational institutions as capital market entities.

Similarly, securities markets can be classified according to a large number of aspects, such as the type of investment instruments traded or the issue of securities.

According to traded securities, we can divide capital markets into (Musílek, 2011):

- Stock markets – where only stocks of different kinds are traded.
- Bond markets – only bonds, i.e. government, banking or corporate, are the subject of trade.
- Derivative markets – primarily traded with the underlying types of derivatives such as options, financial futures and swap trades. It is these markets that have been booming in recent years.

Stock Markets

Stock markets as securities markets are one of two important components of the financial system of all developed countries, the second component is banking system. As profit is the main goal of doing business, they pursue the same goal investors in trading in securities markets. Currently these increasingly for managing investment and financial risks, asset management and conducting investment analyses, employ mathematical-econometric models. Their competitiveness is to some extent related to the quality of the financial engineering.

The stock market contributes to mobilizing population savings, increasing the amount financial instruments, thereby enabling the investment portfolio to be diversified. Functional and a liquid stock market allows investors to diversify unsystematic risk, thereby increasing marginal capital productivity (Kohout, 2008).

Shares

Jílek (2009) says that shares (stock, equity security) is a security that represents a share of ownership joint stock company. The company issues share to raise money for its emergence or development of their activities.

Each stock has a certain nominal or nominal value; the sum all the nominal values of the shares are the registered capital of the joint stock company (Radová, 2008).

Stock Exchange

The stock market is a special organized gathering of people. We can distinguish the stock exchanges, where trading takes place directly on the stock exchange floor, where the participants are personally present at the trading and conclude trades with each other. Another type may be an electronic exchange, where trading takes place through a certain computer system and last but not least, we can find a combination of the two previous types, which is referred to as a hybrid exchange. Trading on the stock market is based on exchange rules and their institutional arrangements vary considerably from country to country (Musílek, 2011).

With the general prestige of the stock exchange and its significance is also the quality of valuable securities traded on its major or quoted markets. The most important are the so-called supranational stock exchanges, which reach the highest market capitalization and the volume of deals concluded. Excluding domestic securities, the highest volumes are also traded on the highest quality securities issued abroad. Such stock exchanges include New York Stock Exhange, International Stock Exchange London or Tokyo Stock Exchange. International stock exchanges complement the activities of multinational exchanges, with lower capitalization also the volume of trades realized, there is also a lower share of foreign traded securities. In Europe, for example, these stock exchanges include Frankfurter Wertpapierbörse, Bourse des Valeurs de Paris and others. The smallest number of deals is implemented on national stock exchanges; these may be added in larger states regional (local) exchanges (Rejnuš, 2001).

Prague Stock Exchange

The Exchange is a place to buy and sell, where the offer meets the demand, the most important stock exchange in the Czech Republic is the Prague Stock Exchange (PSE), which, as the name implies, is based in Prague. It operates the main stock market and its history dates back to 1871. This year the Prague commodity and stock exchange was established for the first time. Due to World War II and the Communist regime, there was an almost sixty-year break in operation, which was opened again in 1993.

All stock exchanges are online, benefiting the process. The Prague Stock Exchange publishes all business data with a delay of 15 minutes, while indices are without delay.

Two groups meet on the stock exchange: issuers and investors. The group of issuers includes companies or public corporations (municipalities, state) that issue securities to raise funds for business development. Strict conditions are necessary to enter the capital market.

The second group includes investors who buy securities for appreciation. Securities traded on the stock exchange include mainly shares, bonds, investment certificates and warrants.

Stock Markets and Real Economic Activity

Kaplan (2008) has focused on relationship between Stock Market Performance and Real Economic Activity. Recently, it was argued that the traditional links between stock market and real activity broke down since the early 1980's that movements of stock prices are independent from subsequent changes in real activity. In contrast to the studies carried out for developed countries, the results of this study show that there is a close connection between stock market prices and real economic activity and stock market causes real economic activity.

Kaplan (2008) said that share prices are closely linked to real economic activity through a number of different channels. However, theoretical literature provides contradictory results on the causal direction of the underlying relationship.

Morck et al. (1990) identifies the five main channels that share prices are associated with actual economic activity, which most likely includes most of the existing stock market valuation theories. These established channels are related to the fact that firms and managers base their investment decisions on information provided by the equity market and share prices reflect the current discounted value of all future dividends. These theories suggest that stock prices should lead to real activity if stock price movements are related to bases.

But on the contrary, Binswanger (2000) claims that Several studies published in the early 1990s found that a large fraction of stock return variations can be explained by future values of measures of real activity in the United States by using data samples from the 1950s to the 1980s. Binswanger (2000) presents evidence that the relation does not hold up any more during the most recent stock market boom since the early 1980s indicating that stock returns ceased to lead real economic activity. Therefore, the current stock market boom seems to be fundamentally different from the first stock market boom after World War II from the late 1940s to the mid-1960s, when the stock market was clearly leading real activity. A possible explanation of our results is the existence of bubbles or fads, which make movements of stock prices more independent from subsequent changes in real activity.

Stock market price forecasting

Yu (2010) says that neural networks have been popular due to their capabilities in handling nonlinear relationships. He intends to apply neural networks to implement a new fuzzy time series model to improve forecasting. He includes the various degrees of membership in establishing fuzzy relationships, which assist in capturing the relationships more properly. These fuzzy relationships are then used to forecast the stock index in Taiwan. With more information, the forecasting is expected to improve, too. In addition, due to the greater amount of information covered, the proposed model can be used to forecast directly regardless of whether out-of-sample observations appear in the in-sample observations.

Yu (2010) study performs out-of-sample forecasting and the results are compared with those of previous studies to demonstrate the performance of the proposed model.

Stock price movements forecasting is an important topic for traders and stock analyst. Timely prediction in stock yields can get more profits and returns. The predicting stock price movement on a daily basis is a difficult task due to more ups and down in the financial market. Therefore, there is a need for a more powerful predictive model to predict the stock prices. Most of the existing work is based on machine learning techniques and considered very few technical indicators to predict the stock prices (Naik, 2019).

Naik (2019) extracted 33 technical indicators based on daily stock price such as open, high, low and close price. This paper addresses the two problems, first is the technical indicator feature selection and identification of the relevant technical indicators by using Boruta feature selection technique. The second is an accurate prediction model for stock price movements. To predict stock price movements, he has proposed machine learning techniques and deep learning based model. The performance of the deep learning model is better than the machine learning techniques. The experimental results are significant improves the classification accuracy rate by 5% to 6%.

The same topic is also dealt with Anbalagan (2014). By him is stock market price forecasting one of the challenging tasks due to the difficulty in predicting the non-linear and non-stationary time series data. Fuzzy Metagraph (FM) based stock market decision making, classification and prediction are proposed for short term investors of Indian stock market. Simple Moving Average (SMA), Exponential Moving Average (EMA), Moving Average Convergence Divergence (MACD) and Relative Strength Index (RSI) are some of the Technical Indicators which are used as input to train the system which is integrated with Fuzzy Metagraph. This approach of incorporating FM with SMA, MACD and RSI would be a new attempt in classification and prediction on share market investment. Stocks listed in Bombay Stock Exchange (BSE) in India are used to evaluate the performance of the system. The results obtained from the proposed FM based model are found to be satisfactory with very low risk error.

Predicting stock exchange index is an attractive research topic in the field of machine learning. Numerous studies have been conducted using various techniques to predict stock market volume. Ghazanfar (2017) presents first detailed study on data of Karachi Stock Exchange (KSE) and Saudi Stock Exchange (SSE) to predict the stock market volume of ten different companies. In his study, we have applied and compared salient machine learning algorithms to predict stock exchange volume. The performance of these algorithms have been compared using accuracy metrics on the dataset, collected over the period of six months, by crawling the KSE and SSE website.

Findings

As Kara (2011) says prediction of stock price index movement is regarded as a challenging task of financial time series prediction. An accurate prediction of stock price movement may yield profits for investors. Due to the complexity of stock market data, development of efficient models for predicting is very difficult.

Various authors are dealing with this subject, as it is a way for easier trading. There are many models for predicting stock prices, but it is not possible to say which is the best.

Conclusion

The aim of this paper was to explain the issues connected with stock market trading. First, the reader is familiarized with the essence of a capital market, its possible classification and the tools for realizing it. Furthermore, the issue of investing into stocks is explained in more detail. Last but not least, the paper concentrates on explaining the basic terms connected with the stock market, referring to its significance and defining the notion of a stock. It was also explained how the Prague Stock Exchange is traded and what it is. In the review of related literature section, the main approaches to stock price prediction and models to predict indices have been identified.

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