

FUSION ANFIS MODEL BASED ON AR FOR FORECASTING EPS OF LEADING INDUSTRIES

LIANG-YING WEI^{1,*}, CHING-HSUE CHENG² AND HSIN-HUNG WU³

¹Department of Information Management
Yuanpei University
No. 306, Yuanpei Street, Hsin Chu 30015, Taiwan
lywei@mail.ypu.edu.tw

²National Yunlin University of Science and Technology
No. 123, Sec. 3, University Rd., Touliu, Yunlin 640, Taiwan
chcheng@yuntech.edu.tw

³Department of Business Administration
National Changhua University of Education
No. 2, Shida Rd., Changhua City 500, Taiwan
hhwu@cc.ncue.edu.tw

Received May 2010; revised October 2010

ABSTRACT. *Earnings per share (EPS) represents the profitability of a common stock and the financial performance of a particular company. Therefore, EPS is often regarded as a major indicator for investors to purchase stocks. The traditional approach is to use a conventional linear time series model for EPS prediction. However, the results would be in doubt when the forecasting problems are nonlinear. For this reason, this paper proposes a fusion forecasting model that incorporates an autoregressive model into an adaptive network-based fuzzy inference system (ANFIS) with three facets: (1) test the lag period of EPS; (2) take fuzzy inference systems (FIS) to fuzzify the past periods of EPS based on the AR concept and use adaptive networks to tune optimal parameters; and (3) employ an integrated ANFIS model to predict EPS. To illustrate the proposed model, 15-quarter EPS data are employed. The experimental results indicate that the proposed model outperforms the listing models.*

Keywords: Earning per share, Autoregressive model, Adaptive network-based fuzzy inference system

1. Introduction. In a mature industry, the leading company that takes the dominant position in the industry earns greater profits because this kind of companies is able to exploit its economic scale and market power better [1]. Taiwan started its IC design research in 1975 under governmental subsidiaries and holds a key position in the world [2]. The electronic industry is a crucial part of economic development in Taiwan, especially in the semiconductor industry. The share of a leading company, such as High Technology Computer Corporation (HTC), often has a high stock market price and a decisive position in the industry, such that we regard this type of share as an industry-leading share.

In terms of investors, they always focus on earnings per share (EPS). EPS is the earnings return on original investment and represents the profitability of a common stock and the financial performance of this particular company. EPS is generally considered to be the most important variable to determine the market share price. In reality, finding out the profitability of a particular company is essential, such that the accuracy of EPS predictions would be critically important for investors.