Chapter 6

Forecasting:
Investigating the Structural Relationship Among Financial Ratios and Stock Prices

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ABSTRACT

The chapter covers a study on forecasting stock prices, which can be a challenging task due to the amount of information and variability involved. The test approach, research, and results cover 50 companies on the US stock market over a 6-year period. Company quarterly and annual financial reports, along with daily stock prices, form the data set analyzed. The financial ratios were tested as independent variables against stock price as the dependent variable. Also, ratio type comparisons and timing scenarios for leading or lagging indicators were covered. Correlation and multiple-regression tests were used to eliminate some ratios, and to find a combination of 12 ratios that successfully account for 35% of the variability in stock prices. The results point to leading indicators, statistically significant ratios, and a predictive model for forecasting stock price.

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INTRODUCTION

General Summary

The purpose of this study is to identify which financial ratios are more relative to the daily stock price in order to develop predictive modeling. Ample data is available for publicly traded companies, including their financial reports, fundamental ratios and stock prices. The research is intended to analyze the relationships between financial ratios and stock price, ratios to ratios, and the timing of information.

Financial Reports of publicly traded companies are submitted to the Securities Exchange Commission (SEC) on a quarterly and annual basis, in the forms of 10-Q and 10-K reports. According to the SEC, “The quarterly report includes unaudited financial statements and information about the company’s business and results for the previous three months and for the year to date. The annual report includes the company’s audited annual financial statements and a discussion of the company’s business results.” (U.S. Securities Exchange Commission, 2019, para. 3).

Components of these reports are the Balance Sheet, Income Statement, and Statement of Cash Flows, which together reflect the financial condition of the company. Financial analysts use numerous financial ratios, derived from figures in the 10-Q and 10-K reports, to determine the health and challenges of the company. There are several categories of financial ratios that cover different aspects of the business and how the company performs: Profitability, Liquidity, Efficiency, Leverage, and Valuation.

Problem Statement

Many of the financial ratios are derived from the 10-Q and 10-K reports. A few financial ratios change daily, for example, by moving with the market price per share. An example of this is the Price/Equity (PE) ratio. While the Equity value, established in the 10-Q and 10-K, holds that value until the next report, the Common Stock Price/market price per share does change daily. This creates a ratio that is half positioned on a quarterly basis, while the other half of the ratio fluctuates daily. These ratios will be referred to as FR2 type ratios. The rest of the financial ratios are fixed for the quarter, that is, all values are tied directly to the 10-Q or 10-K and will be referred to as FR1 type ratios.

The problem statement is that many of the financial ratios only update, or catch up as a lagging indicator, when the 10-Q and 10-K are posted, while a few data points move daily (reactively or in anticipation of market news, company opportunity, changes in the overall market, etc.). This lead/lag of information can be averted, in predictive modeling, by determining which financial ratios best correlate to the
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