Event Study Analysis of Share Price

and Stock Market Index Data

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Abstract

This project involves creating a software system to aid Event Study analysis of share price and stock market index data. Event study analysis is used to "Determine whether there is an 'abnormal' stock price effect associated with an unanticipated event. From this determination the researcher can infer the significance of the event" [10].

The problem with conventional event study methods carried out is that the collection and preparation of relevant stock and index data for the event period can take time and as there are many individual steps to preparing the data it is prone to human error. There are commercial, dedicated event study software packages however these can be expensive solutions requiring local installation of software on the users computer.

The objectives of the project were to develop a free, zero client installation, user friendly, web based interface to an 'Event Study' analysis software package that could both, connect directly to online financial data, and run statistical analysis on the data retrieved. Results of the analysis should be presented both graphically and textually and returned within a reasonable time.

The approach to the problem was to first assess the strengths and weaknesses of alternative solutions and to incorporate the strengths into the solution where possible. An understanding of the event study methodology was achieved through online research enabling accurate creation of a software model that mapped all the steps required to carry out the analysis. An object oriented approach was maintained throughout the software implementation to allow the solution to be extended and developed further.

The project delivered a web based, client / server solution incorporating a feature rich web enabled interface using jQuery and jsp/Servlets. The statistical analysis and many of the graphical features were achieved using R (www.r-project.org). R was also used to provide the environment where the software could connect and retrieve the financial data direct from an online resource. The graphical requirements were achieved using a number of solutions including XML based data, and using the graphical abilities of the R environment. The solution could be further developed to include more complex models and also to carry out multiple stock analyses, however it has successfully achieved its main objectives.

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