Abstract - Information filtering is an important task for business executives. However, this task is usually involves spending a lot of time, doing tedious work and requires full concentrating to obtain the relevant information. For example, business companies requires only on a significant number of indicators to be able to sustain in the world market. Past literature highlighted that three indicators to seven indicators were recommended in measuring performance. Rough set theory, which is one of data mining techniques, is proposed to filter information and identify the most important indicators. The technique involves finding data dependencies in a dataset and then reducing the number of indicators based on rules that it discovered earlier. Several experiments were conducted using the technique to filter collected information of E-Commerce companies. The final result is a reduced set of information containing only important indicators that can be used to evaluate business performance.

Key words: E-Commerce companies, filtration, sustainability, performance, financial indicators, data mining

1 Introduction

Globalization and the adoption of information technologies have greatly influenced the performances of businesses and organizations. The studies of companies' performances have long being conducted by many research groups. A good performance indicates that a company is successful and poor performance indicates otherwise. One approach to evaluate performance of an organization is in terms of sustainability. The term sustainability comes from the word sustain which, in general, means to continue without lessening, to nourish or to allow to flourish. Sustainability can be viewed in many different perspectives. In business, sustainability is the ability to continue business operations without lessening in the world market. Business sustainability in this study is described as business operations that are able to remain in the world market since their existences.

Companies in today's business market have overloads of information and thus, requires business executives to filter information. However information filtration usually involves spending a lot of time, doing tedious work and requires full concentrating to obtain the relevant information. For example in measuring business performances there are many indicators that can be used. Since business companies requires only a significant number of indicators to measure their companies' performances, top management thus, find it difficult to identify the best ones to use.

Financial data has been a popular source and used to analyze companies' performance by many research companies such as Multex Investor, Media General Financial Services Corporate, Nasdaq, and Reuters. Measures from financial data are many and among these are current ratio, quick ratio, net income, working capital, operational income, revenue, sales growth, earnings per share, gross profit, book value, stock price, stock volume, and others [1]. These indicators have been found to have great influence on the performances of companies and are relevant to measuring the sustainability of business companies. However, the number of these sustainability indicators is enormous and to include all relevant sustainability indicators in evaluating companies' performances is a tremendous burden in terms of data collection, manpower, analysis, and costs. Evidence in the literature, indicates that there are a limited number of critical areas necessary to the successfullness functioning of organizations [2]. Three indicators to seven indicators were found to be commonly used [3, 4, .]. In getting a good predictive power the correct combination of indicators is important. Aronson (as cited in [5]) found that combination of right information produced significant results. However, there has been no studies that show a structured way of obtaining a good set of indicators that consist of a minimum number of sustainability indicators required and the correct combination of those indicators.

This paper presents a new method of information filtration. The method used rough set as the underlying theory to analyze the data set and obtain an explicit model consisting of a minimum set of indicators. Thirty-one business sustainability indicators, denoted as V1 to V31 were identified and used to illustrate the method. These indicators are several popular financial indicators that have been used to analyzed company business performance by many researchers such as [1, 6, 7, 8, 9, 10, 11, 12, 14]. A dataset of 50 sustainable Electronic commerce companies (ECC) obtained from Fortune 500