

A Study of Estimating the Technical Efficiency of Optoelectronic Firms: An Application of Data Envelopment Analysis and Tobit Analysis(101年7月)

余耀順, 安伯理, 葉鳴朗, 盧明哲, 蔡志宏

財務管理學系

管理學院

yawshunyu@chu.edu.tw

摘要

The aim of this study is to investigate the efficiency and the determinants of efficiency of optoelectronic firms in Taiwan. Initially, the efficiency of each firms were evaluated using data envelopment analysis (DEA) approach. To investigate the determinants of efficiency, the Tobit regression model was used with the intention to explain variation in calculated efficiencies to a set of explanatory variables, such as firm' s size, number of employees, profitability and ownership. The data collected cover the period of year 2010, from the database of the Taiwan' Stock Exchange. The finding reveals that profitable firms are more likely to operate at higher levels of efficiency. In addition, the study also reveals that firm' s size has a positive impact on efficiency, but its effect is statistically insignificant. Also another finding suggests that the size of employees has a statistically insignificant adverse impact on the performance, indicating that the increase size of employees may have increased the cost and affects efficiency negatively. Thus necessary measures should be taken.

關鍵字：Efficiency, Data Envelopment Analysis, Tobit Model, Optoelectronics firms