

天主教輔仁大學圖書資訊學系碩士班碩士論文

指導教授：董蕙茹 博士

研發密度及技術產出與公司財務績效之
關聯性研究-以台灣資通訊科技產業為例



The Relationship of R&D Intensity and Technical
Output on Firms' Financial Performance:
A Case Study on ICT Industry in Taiwan

研究生：蔡佩庭 撰

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摘要

台灣從 1990 年起，以資通訊科技產業為發展重心，致使台灣在資通訊科技業發展中，具有全球優勢與市場競爭力。但要如何維持市場佔有率、提高銷售量、提升競爭力與技術領導地，這一直是業界相當重視的問題。本研究以台灣資通訊科技產業為分析對象，並以研發密度作為投入指標，以專利數、專利被引用次數及專利技術布局作為產出指標，探究投入及產出會與公司財務績效有何種關聯。在專利的部分，以台灣及美國核准的發明專利，再以國際專利分類號之數量代表專利技術布局。因台灣資通訊科技業包含八個產業，故在進行分析時，分別以台灣資通訊科技業整體及八個產業分別進行探究。

研究結果發現，(1) 在投入與產出的量面向，ICT 產業整體之研發密度與台灣及美國專利數無相關性，但各產業中通信網路業的研發密度與台灣及美國專利數有正相關。(2) 在產出的量與財務績效面向，ICT 產業整體僅美國專利數與財務績效之稅後淨利率有正相關，各產業中半導體業的台灣及美國專利數及資訊服務業的台灣專利數與財務績效之每股盈餘有正相關。(3) 在投入與財務績效面向，ICT 產業整體之研發密度僅與財務績效之毛利率有正相關，半導體業、電腦及週邊設備業、其他電子業三個產業亦是。(4) 在產出的質與財務績效面向，ICT 產業整體的台灣及美國專利被引用次數與財務績效之稅後淨利率及每股盈餘有正相關，各產業中光電業及電子零組件業的台灣及美國專利被引用次數與財務績效之營業利益率及每股盈餘有正相關。(5) 在產出的質與財務績效面向，專利技術布局在 ICT 產業整體與財務績效無正相關，僅與半導體業的每股盈餘有正相關。

關鍵詞：

研發密度、專利、技術產出、財務績效、台灣資通訊科技業

Abstract

Taiwan has concentrated on the information and communication technology industry (ICT) since 1990, which has led to Taiwan's advantages on the world stage and market competitiveness in the growth of the sector. The industry has long placed a high value on the question of how to maintain market share, boost sales volume, and improve competitiveness and technological leadership. The ICT industry in Taiwan is the study's analysis object. It examines how input and output will impact the company's financial performance using R&D Intensity as the input indicator, and the number of patents, patent citation counts, and patent breadth as the output indicator. In the part of patents, utility patents approved by Taiwan and the United States, and represented by the number of IPC to represent the patent breadth.

The research results found that (1) In terms of the input and output, only the R&D Intensity of the communication network industry has a positive association with the number of patents in Taiwan and the United States, and the R&D Intensity of the ICT industry as a whole has no link with either number. (2) In terms of the output and financial performance, only the number of US patents has a positive link with the financial performance's net profit margin in the ICT industry as a whole. In each industry, there is a positive link between the number of patents in Taiwan and the United States in the semiconductor industry and the number of patents in Taiwan in the information service industry. (3) In terms of input and financial performance, like the three industries of semiconductor, computer and peripheral equipment, and other electronics, the R&D intensity of the ICT industry as a whole is only positively connected with the gross profit margin of financial performance. (4) In terms of the output and financial performance,

financial performance, net profit margin, and earnings per share are all favorably connected with the quantity of Taiwan and US patent citation counts in the ICT industry as a whole. In the optoelectronics and electronic components industry, there is a positive association between the number of Taiwan and US patent citation counts and financial performance, operational profit margin, and earnings per share in each industry. (5) In terms of the quality of output and financial performance, the patent breadth in the ICT industry as a whole has no positive correlation with financial performance, but only has a positive correlation with the earnings per share of the semiconductor industry.



Keywords:

R&D Intensity, Patent, Technical Output, Financial Performance, Taiwan's ICT industry