

## 摘要

創新無論在經濟成長或是企業競爭中，都扮演非常重要的角色，其中專利權又是保護創新的重要關鍵，但基於專利價值分佈呈離散且偏態的特性，企業在從事研發活動時，必須重視專利品質，以避免專利與技術貿易收支之矛盾情形。過去在專利品質的研究上，被引證次數是最有效的衡量指標，但目前作法卻僅考慮直接被引證次數，而忽略間接被引證次數，此作法造成三個問題：忽略了間接引證資料的攸關性、未考慮各個被引證次數的品質差異、未考慮引證專利的品質差異。因此，本研究以實證研究方法，探討間接被引證次數對企業價值的影響，進而評估間接引證資料於專利品質評估的應用。

本研究以在美積極從事專利活動的美國公開上市企業為樣本，期間為 1980 年至 2002 年，以二因子固定效果模型，觀察化學、電腦與通訊、電子與電機產業的創新活動對企業價值的影響。本研究有兩點重要發現：一、研發強度與專利產出效率與企業價值相關性低，甚至呈負向相關，而兼顧量與質的專利指標則與其呈現正向相關，表示研發必須值、量並重；二、間接被引證次數具有價值攸關性，且其影響力會逐層遞減，此結論不僅提供未來相關研究的重要基礎與新的研究方向，更表示在從事專利分析或專利指標設計時，需將間接引證資料納入考量。

**關鍵字：** 專利、專利指標、專利價值、專利品質、間接引證

## Abstract

Innovation always plays an important role in both economic development and corporate competition, therefore patents that protect innovation are key. But because patent values are highly dispersed and skewed, corporations must focus on quality and not merely on quantity in R&D management to prevent a technology trade deficit while increasing the quantity of patents granted. Much literature has found that the number of citations received is a good proxy for patent quality. But most people only consider direct citations and ignore indirect citations in their research and practices. These people ignore three important facts: the value relevance of indirect citations, the weight difference of each citation count, and the quality dispersion of citing patents. As a result, this study utilizes empirical methods to discuss the influence of the number of indirect citations received on corporate market value and then assesses the relevance of indirect citation in patent indicators.

The samples used in this study are 1,624 U.S. listed firms that have been active in applying for patents in three areas: chemical, computer and communication, and electric and electronics between the years 1980 and 2002. This study uses two-way fixed effect model to evaluate the influence of innovation activities on corporate value. The first conclusion suggests that patent indicators based on quantity and quality has positive correlation with corporate value while R&D intensity and R&D efficiency based on patent quantity both have low correlation and sometimes even a negative correlation with corporate value. This implies that corporations must develop a R&D strategy that focus both on quantity and quality at the same time. The second conclusion confirms the value relevance of the number of indirect citations received and finds the progressively declining influence of ascending citation orders. This study not only offers an important basis and brings up new issues for future related research

but also confirms that taking indirect citation data into consideration is necessary.

*Keywords: patent, patent indicator, patent value, patent quality, indirect citation*