

## 摘 要

建設公司的產業發展，並不可以單純的以經濟活動的一環來看，它也是家與生活場合的提供者。但是，在市場上所見到仍是一案建商的活躍，而績優建商卻相對委屈。問題的根源是，在資本市場大家無法分辨建設公司的好壞，資源無法有效流向好的建設公司，自然在市場上就發生劣幣驅逐良幣的現象。但是，在國內建設公司特有的經營環境，使得建設公司財務報表的功能性大幅受限，進而使其誘導資源的能力也相對降低。本論文之主要目的，即是分析建設公司之經營特性，分析其持有土地、在建工程與待售成屋存貨之經濟意涵與會計處理上之問題。同時，透過四個實證研究，提出建設公司存貨持有對建設公司財務報表影響之相關結論與建議，希望能解決部分目前對建設公司財務報表解讀困境與促進對建設公司之瞭解。本文主要內容，由四個實證研究所構成，分述如下。

第一個實證研究為以國泰建設為例，透過時間序列之共積(cointegration)模型，分析養地型建設公司財務報表之長期結構。研究結果發現，土地、在建工程與待售成屋三種存貨間存在長期穩定關係；此外，土地存貨持有率與毛利率長期間呈現負相關，顯示土地存貨持有，利潤率呈現上有不利的影響。實證結果也發現土地存貨持有率與負債比率，長期間呈現負相關，顯示建設公司將在財務結構較健全時進行土地持有。

第二個實證研究為透過資料包絡法(Data Envelopment Analysis;DEA)建構建設公司之績效指標，並利用 Tobit 迴歸分析比較績效指標與房地產投資開發變數之關連性。研究結果發現，建設公司有能力的購入土地進行策略性等待，可以帶動績效指標上升；待售成屋存貨與在建工程存貨就如同預期，與績效指標呈現負相關。該部分實證結果顯示，分析建設公司之績效時，應考慮其存貨構成項目與其背後策略意涵，分析才會周延。至一般常用財務績效指標方面，結果不是完全無

法掌握土地開發變數，就是在待售成屋存貨此項土地開發變數方面，與本文建構績效指標的符號方向相反，顯示有進一步探討空間。

第三個實證研究為透過 Malmquist 生產力指數，進一步計算績效指標之跨期變動，並以拔靴複製法(bootstrap)進行檢定不同土地持有策略對生產力、效率與技術變動影響為何。實證結果顯示，在房地產景氣之起跌階段，生產力均無顯著變化。在房地產景氣之續跌階段，長期大量持有土地之建設公司效率提升；短期大量持有土地之建設公司，產生技術退步。在房地產景氣之探底階段，建設公司為了在訴求高品質之推案以迴避景氣壓力，所以，全體建設公司均發生技術進步。至房地產景氣上升階段，一般性購屋需求大增，建設公司推案以量取勝，此時全體建設公司均發生技術退步現象，但不影響其生產力。

第四個實證研究，針對建設公司業績具有高度隨機性之特性進行研究。利用三階段 DEA 可以同時調整環境變數與隨機性之特性，深入探討建設公司之純粹技術效率。實證結果發現在一階段 DEA 中，低持有土地的效率值較好，但是，在三階段 DEA 則未達顯著水準。成屋存貨持有率與在建工程成有率在一階段 DEA 都未達顯著水準。在三階段 DEA 調整環境因素與隨機性後，結果發現，即使房地產景氣上升，擁有待售成屋存貨與在建工程之建設公司仍是效率不利。

綜合以上的結論，本文認為目前財務報表分析重點往往置於損益表之上，財務報表使用者非常關心當期損益，但是基於建設公司的營運特性與會計原則特性，透過當期損益根本難以掌握建設公司未來動態。所以，觀察重點應該重回資產負債表之上，尤其是房地產相關存貨的結構與土地持有策略。同時也必須留意景氣變化對建設公司造成的影響，並調整隨機性對其財務報表數字之表達。

關鍵詞：建設公司、土地投資開發、資料包絡法、Malmquist 生產力指數

## Abstract

Construction companies (developers) play a key role in the housing market. However, one-case companies but good performing companies dominate the real estate market. Homebuyers and investors are not able to tell which companies have good quality from their financial reports. Consequently, capitals can not support good companies. The main purpose of this dissertation is to analyze construction companies' operation, financial report, and economic senses. This dissertation employs four essays to figure out the relation between financial report and land holding and development and to propose some suggestions for solving some dilemmas about construction companies' financial analysis.

The first essay tries to find out the relation between financial structure ratios and real estate related inventory ones. Empirically, we find that there is strong relation between these ratios in the long run. We also find there is a negative relation between land inventory ratio and gross profit rate. Finally, an option of buy-and-hold strategy for land will be exercised under a healthy financial structure.

Under considering risk control, the second essay employs Data Envelopment Analysis (DEA) to calculate the efficiency of the listed real estate development firms in Taiwan and to discriminate the factors which cause the inefficiency of those. The results show companies which exercise buy-and-hold-land strategy for land have better performance and it can conform to real option theory. The market beats the companies which own buildings or houses for sale as well as constructions in process. By comparing traditional performance indices and DEA indices, the land purchasing decision and the costs for construction in progress go in the same direction. However, the direction of houses for sale and that of land inventory are the opposite. Therefore, the conclusion is that more information is required when we evaluate the performance of real estate companies.

The third essay tries to use Malmquist productivity index combine some financial ratios and bootstrapping method to test productivity, efficiency, and technical change of listing real estate companies. At the beginning of a recession, there was no significant productivity change for both companies which hold long-term mass lands(LTML) or short-term ones(STML). For an extension of this period, efficiency improvement and productivity enhancement occur to LTML and technical regress to STML. When the economy hits the bottom, technical progress occurs to both but productivity enhancement occurs only to STML because of huge financial pressures upon LTML. At the period of a recovery, mass-production oriental policy causes technical regress for all companies.

Based on the highly stochastic attribute of construction companies operation, the fourth essay applies a three-stage DEA procedure to calculate pure managerial efficiency. We find that the pure managerial efficiency of companies which holding existing houses and construction in progress is at disadvantage. But there is no significant evidence that buy-and-hold-land strategy will lower pure managerial efficiency.

From the above four essays, we conclude that financial report analyst should pay more attention to real estate related inventory rather than income statement. We also suggest that more information for land holding, construction in progress, and existing houses should be required.

Keywords: Real Estate Developer, Land Investment and Development, Data Envelopment Analysis(DEA), Malmquist Productivity Index

