

Value-added intellectual capital and productive efficiencies: evidence from Taiwan listed electronics companies

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Abstract

Purpose – This study examines the effect of value-added (VA) intellectual capital on business performance from the perspective of productive efficiency, which is derived from its main contributors, namely, profitability and marketability efficiencies in two stages.

Design/methodology/approach – First, this study applies a dynamic network slacks-based measure in a data envelopment analysis (DEA) approach to estimate productive efficiency and its components of 766 Taiwan listed electronics companies over the period of 2010–2018. Second, this study performs regression analyses of the association between intellectual capital (IC), which is proxied by VA intellectual coefficient (VAICTM) and estimated DEA efficiency scores through various regression techniques.

Findings – Empirical evidence shows a significantly positive association between VAICTM and productive efficiency. This study finds the same result from the IC components after splitting VAICTM into (1) IC efficiency, which comprises human capital efficiency (HCE) and structural capital efficiency and (2) capital employed efficiency. Further examination reveals that HCE is the sole main contributor of the productive efficiency, and profitability and marketability efficiencies of a company.

Practical implications – The findings of this study highlight the need to discuss the values of intellectual coefficient (IC) from the perspective of productive efficiency for better comprehensiveness.

Originality/value – Although previous studies have shown that IC is a contributor of business performance, this study further zooms in VAIC and examines its effect on the efficiency of a company in transforming its inputs into outputs.

Keywords Intellectual capital, Productive efficiency, Network data envelopment analysis, Value-added intellectual coefficient (VAICTM)

Paper type Research paper



1. Introduction

Intellectual capital (IC) has been regarded as a value-added (VA) asset of a company. From academics (Martín-de Castro *et al.*, 2019) and practitioners' perspectives (Tayles *et al.*, 2007), IC, whether in the form of knowledge and expertise or technological capacity, contributes toward business performance because it is one of the primary sources of knowledge-based competitive advantage (Chowdhury *et al.*, 2019) and strategy implementation (Singla, 2020). To illustrate, human capital (HC) helps in intellectually and knowledgeably executing a corporate strategy by capitalizing on supportive process and design systems. In the end,