

# **Essays on Efficiency Measurement and Corporate Social Responsibility**

av

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## **AKADEMISK AVHANDLING**

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## Table of Abstracts

### **Paper 1: Ranking corporations based on sustainable and socially responsible practices. A Data Envelopment Analysis (DEA) approach**

This study ranks publicly listed corporations based on social and environmental (i.e. sustainable) achievements in relation to financial results, by using a Data Envelopment Analysis (DEA) approach with financial performance indicators (return on assets, return on equity and yearly stock return) as inputs and sustainability scores as outputs. The sustainability scores cover a wide range of sustainable practices and were provided by a specialized screening company. Our calculated DEA indices provide a measure of the commitment of firms towards sustainable practices. The main findings are that many companies are positioned well below best practice in their respective industries. Industry sectors that are less scrutinised by the public (e.g. banking) are found to be less competitive in terms of sustainable practices.

### **Paper 2: Strategic Corporate Social Responsibility and Economic Performance**

This paper studies the link between Corporate Social Responsibility (CSR) and economic performance of companies. Acknowledging the argument that companies might behave socially responsible strategically, i.e. favoring the CSR dimensions that provide competitive advantages, we construct a novel CSR index based on a Data Envelopment Analysis (DEA) model. We argue that this index accounts for CSR achievements from a strategic perspective, and use it to analyze the link between CSR and economic performance expressed by Return on Assets (ROA). When explicitly accounting for strategic behavior of companies, our findings reveal a significant positive relationship between CSR and economic performance.

### **Paper 3: The effect of IT capital on the efficiency of Swedish banks**

This paper uses a balanced panel of 85 banks during 1999-2003 to analyze the impact of Information Technology (IT) on the technical efficiency of Swedish banks. Employing a stochastic frontier production function that allows for time-varying technical efficiencies shows that the efficiency increased with the amount of employed IT expenditure i.e. IT capital had an exogenous positive effect on the technical efficiency of Swedish banks despite a downward shift in the production frontier, during the period analyzed.

### **Paper 4: Are all DMUs efficient in DEA? DEA meets the vintage model.**

In this paper I develop a model of capacity expansion that accounts for differences in the productivity of the installed capital due to technical progress exhibited by the *ex ante* production function. A putty-clay set-up is assumed, meaning flexible input coefficients and substitution possibilities *ex ante*, but fixed input coefficients *ex post*. Based on the model, I generate a capacity distribution of DMUs (vintages) for a homogenous industry and perform an efficiency analysis employing data envelopment analysis, a popular non-parametric method for estimating efficiency. The results show that in some circumstances older vintages might appear on the efficiency frontier, unlike some newer vintages that are found to be inefficient, despite benefiting from the advancement of the technology.

**Keywords:** Corporate Social Responsibility, Sustainable Development, Data Envelopment Analysis, DEA, Strategic CSR, System-GMM, Information Technology, Technical Efficiency, Stochastic Frontier Analysis, SFA, Panel Data, Technical Efficiency, Vintage, Putty-Clay, Best-Practice

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