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Data Envelopment Analysis, Truncated Regression and Double-Bootstrap for Panel Data with Application to Chinese Banking

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ABSTRACT

We investigate the impact of earning asset diversification on Chinese bank efficiency from 2006 to 2011. We do this by adapting the current two-stage data envelopment analysis approach to a panel data setting so that we can account for technology change over time. Our Monte Carlo experiments illustrate the advantages and disadvantages of the proposed new algorithm over the conventional approach. When applied to Chinese banking data, the regression results reveal that increasing the asset share of other earning assets (including securities and derivatives) is positively associated with bank efficiency. Decreasing the share of nonearning assets in total assets or increasing total equity has a similar impact. Our results also suggest that financial reforms currently being undertaken in China, including removing the regulatory requirement concerning the ratio of loans to deposits (a draft amendment to the existing commercial banking law) and interest rate liberalization (a proposed draft amendment), are likely to have a positive effect on bank efficiency in China.

JEL classification: D21, C13, G21, C44

Keywords:

Data envelopment analysis; Truncated regression; Bootstrapping; Chinese banks; Asset diversification

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