Based on our knowledge and understanding of Data Envelopment Analysis (DEA), we have conducted a survey and analysis of empirical literature on the efficiency characteristics of Chinese banks using the DEA method. We identified several methodological gaps and shortcomings, which can be summarized as follows:

The first gap is the lack of dynamic network analysis, with only about 30% of the literature considering the temporal dynamics present in the real world. Moreover, these studies are mostly concentrated after the year 2020, such as Wu et al. (2023). Earlier literature, with the exception of Matthews (2013) among others, tends not to use a dynamic framework. This may lead to inaccurate identification by DEA of factors causing inefficiency in banks that are influenced by time.

The second gap is the absence of consideration for all or most of the six types of assessment perspectives. Only a portion of the literature employs a hybrid or integrated approach to combine at most two assessment perspectives, such as Tan, Wänke, Antunes, Emrouznejad (2024), who adopted a combined assessment perspective of the production approach and intermediation approach. These methods are used to estimate the efficiency characteristics of banks. The lack of coverage of perspectives makes it difficult for current DEA research on Chinese banks to meet the information needs of different stakeholders.

The third gap is that no study has examined multiple efficiency measurements (i.e., overall technical efficiency, pure technical efficiency, scale efficiency, cost efficiency, profit efficiency, revenue efficiency, and allocative efficiency) to provide a comprehensive idea of the reasons behind the inefficiency of Chinese banks to all stakeholders, such as shareholders, policymakers, etc.

The fourth gap is the absence of literature using a 3-stage DEA model to exclude the effect of their heterogeneous operating environments. This may lead to environmental biases causing inaccurate identification of the causes of inefficiency in banks.