

## Development and Validation of the Circular Economy Scale

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**Abstract :** This study aimed to develop a circular economy scale to assess the level of recognition among high-level executives in businesses regarding the circular economy. The circular economy is crucial for global ESG sustainable development and poses a challenge for corporate social responsibility. The aim of promoting the circular economy is to reduce resource consumption, move towards sustainable development, reduce environmental impact, maintain ecological balance, increase economic value, and promote employment. This study developed a 23-item Circular Economy Scale, which includes three subscales: "Understanding of Circular Economy by Enterprises" (8 items), "Attitudes" (9 items), and "Behaviors" (6 items). The Likert 5-point scale was used to measure responses, with higher scores indicating higher levels of agreement among senior executives with regard to the circular economy. The study tested 105 senior executives and used a structural equation model (SEM) as a measurement indicator to determine the extent to which potential variables were measured. The standard factor loading of the measurement indicator needs to be higher than 0.7, and the average variance explained (AVE) represents the index of convergent validity, which should be greater than 0.5 or at least 0.45 to be acceptable. Out of the 23 items, 12 did not meet the standard, so they were removed, leaving 5 items, 3 items, and 3 items for each of the three subscales, respectively, all with a factor loading greater than 0.7. The AVE for all three subscales was greater than 0.45, indicating good construct validity. The Cronbach's  $\alpha$  reliability values for the three subscales were 0.887, 0.787, and 0.734, respectively, and the total scale was 0.860, all of which were higher than 0.7, indicating good reliability. The Circular Economy Scale developed in this study measures three conceptual components that align with the theoretical framework of the literature review and demonstrate good reliability and validity. It can serve as a measurement tool for evaluating the degree of acceptance of the circular economy among senior executives in enterprises. In the future, this scale can be used by senior executives in enterprises as an evaluation tool to further explore its impact on sustainable development and to promote circular economy and sustainable development based on the reference provided.

**Keywords :** circular economy, corporate social responsibility, scale development, structural equation model

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