Factors Influencing Soybean Meal Prices in Thailand's Animal Feed Industry: An Analysis Using PLS-SEM Structural Equation Modeling

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Abstract

This study explores the causal relationships and dynamics influencing soybean meal prices in Thailand, utilizing the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach. The model aims to clarify price transmission mechanisms driven by key determinants, including global economic conditions, trade policies, substitute raw materials, and the efficiency of logistics and supply chain systems, under both normal market conditions and periods of commodity market volatility. The research employs a combination of secondary data spanning 20 years from significant domestic and international sources, alongside primary data gathered from industry experts through a structured questionnaire developed from an extensive literature review and relevant theoretical frameworks. Before main data collection, the questionnaire underwent content validity assessment using the Index of Item–Objective Congruence (IOC), evaluated by a panel of experts in agricultural economics, the Department of Internal Trade, and the feed industry research unit at KBANK. All 46 questionnaire items across 13 constructs passed the acceptance threshold, yielding an average IOC of 0.88, which confirms the instrument's suitability for empirical data collection. This validation process enhances the methodological rigor of the research, ensuring measurement indicators accurately represent the intended constructs. Consequently, this strengthens the robustness of the PLS-SEM analysis in providing a reliable explanation of the key determinants influencing soybean meal price formation in Thailand.

Keyword: PLS-SEM, Structural Equation Modeling, Mixed Methods, Content Validity, Index of Item–Objective Congruence (IOC)