Industry Volatility and the Slack-Innovation Nexus: Evidence of Resource Reallocation Under Uncertainty

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Abstract

This study examines the slack-innovation relationship among firms experiencing different levels of environmental volatility. We pay particular attention to the pharmaceutical biotechnology sector, whose extreme and sustained volatility from protracted development cycles, binary clinical and regulatory outcomes, and uncertain access to financing, makes it a uniquely demanding and theoretically revealing setting. Three mechanisms were considered (amplification, reallocation, and suppression) to organize prior conflicting results regarding the slack-innovation relationship, and underline the criticality of considering industry environment in these analyses. Our model was tested on Compustat North America Fundamentals Annual data, including over 15,500 unique firms and a final sample of almost 150,000 firm-year observations. The results of this study point unanimously to reallocation, the selective narrowing of resources towards their structurally matched innovation type. In volatile environments, firms withdraw each form of slack from the innovation channel where it has no structural advantage, ultimately inverting traditional slack-innovation pairings and demonstrating the stability of absorbed slack → exploratory innovation and unabsorbed slack → exploitative innovation relationships under volatility. This reallocation pattern is most pronounced among pharmaceutical biotechnology firms, where slack is withdrawn most sharply from its structurally mismatched channels while its matched deployments remain stable, underscoring reallocation as the dominant response to uncertainty precisely where uncertainty is greatest.

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