

## The Value of Audit in Managing Supplier's Process Improvement

**Authors :** Mohammad E. Nikoofal, Mehmet Gumus

**Abstract :** Besides the many benefits of outsourcing, firms are still concerned about the lack of critical information regarding both the risk levels and actions of their suppliers that are just a few links away. In this paper, we study the effectiveness of audit for the manufacturer in managing her supplier's process improvement effort when the supplier is privately informed about his disruption risk and actions. By comparing the agency costs associated with the optimal menu of contracts with and without audit, we completely characterize the value of audit for all the cases from the perspectives of both manufacturer, and supplier as well as total supply chain. First, the analysis of value of audit from the manufacturer's perspective shows that she can strictly benefit from auditing her supplier's actions. To the best of our knowledge, this result has not been documented before in the principal-agent literature under a standard setting where the agent is assumed to be risk-neutral and not protected by limited liability constraints. Second, we find that not only the manufacturer but also the supplier can strictly benefit from audit. Third, the audit enables the manufacturer to customize her contract offerings based on the reliability of the supplier. Finally, by analyzing the impact of problem parameters on the value of audit, we identify the conditions under which an audit would be beneficial for individual supply chain parties as well as total supply chain.

**Keywords :** supply disruption, adverse selection, moral hazard incentives, audit

**Conference Title :** ICGHOST 2020 : International Conference on Ghost Conference

**Conference Location :** ghost city, Other

**Conference Dates :** December 12-13, 2020