# When Failure Signals Ability: Promotion Design with Task Ease*

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## Abstract

We study optimal promotion design when observed success pools two latent fundamentals: managerial ability and task ease. We build a two-period career-concerns model in which project success depends on ability, ease, and observable effort, while the firm commits to an outcome-contingent promotion rule and a continuation decision. The key object is the posterior dispersion of the promoted worker's ability ("reputational volatility"). We show that its comparative statics with respect to first-period success are pinned down by the technology's modularity: under sufficiently strong *sub*modularity (ability and ease are substitutes), success lowers reputational volatility; under sufficiently strong *super*modularity (complements), it raises it. With convex utility over reputation, the optimal rule is for the firm to promote after failure under substitutability and after success under complementarity. The continuation decision co-moves: promotion may be paired with termination even when continuation is profitable in expectation under supermodularity, and conversely, the firm may continue projects with negative expected profits to preserve reputational option value under submodularity.

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