

Drug development costs when financial risk is measured using the Fama-French three-factor model

John A. Vernon , Joseph H. Golec, Joseph A. Dimasi

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Abstract

In a widely cited article, DiMasi, Hansen, and Grabowski (2003) estimate the average pre-tax cost of bringing a new molecular entity to market. Their base case estimate, excluding post-marketing studies, was \$802 million (in \$US 2000). Strikingly, almost half of this cost (or \$399 million) is the cost of capital (COC) used to fund clinical development expenses to the point of FDA marketing approval. The authors used an 11% real COC computed using the capital asset pricing model (CAPM). But the CAPM is a single factor risk model, and multi-factor risk models are the current state of the art in finance. Using the Fama-French three factor model we find that the cost of drug development to be higher than the earlier estimate. Copyright © 2009 John Wiley & Sons, Ltd.

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