



Health Economics / Volume 19, Issue 8 / p. 1002-1005

Health Economics Letters

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

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First published: 12 July 2010

<https://doi.org/10.1002/hec.1538>

Citations: 74

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.

REFERENCES

DiMasi JA, Hansen R, Grabowski HG. 2003. The price of innovation: new estimates of drug development costs. *Journal of Health Economics* 22: 141–185.

| [Web of Science®](#) | [Google Scholar](#) |

Fama EF, French KR. 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics* 33: 3–56.

| [Web of Science®](#) | [Google Scholar](#) |

French KR. 2007. Data Library, http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

| [Google Scholar](#) |

Grabowski HG, Vernon JM, DiMasi JA. 2002. Returns on research and development for 1990s new drug introductions. *PharmacoEconomics* 20(Suppl. 3): 11–29.

| [PubMed](#) | [Web of Science®](#) | [Google Scholar](#) |

Graham J, Harvey C. 2001. The theory and practice of corporate finance: evidence from the field. *Journal of Financial Economics* 60: 187–243.

| [Web of Science®](#) | [Google Scholar](#) |

Poterba JM, Summers LH. 1995. A CEO survey of U.S. companies time horizons and hurdle rates. *Sloan Management Review* (Fall) 37(1): 43–53.

| [Web of Science®](#) | [Google Scholar](#) |

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