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Presentation Title
Life Cycle of Startup Financing

Abstract

Capital constraints are usually regarded as the main obstacle to entrepreneurship, yet models of innovation financing that use exponentially distributed arrival time of the first success do not capture the fact that success may be related to accumulated investment funds. Models of crowdfunding emphasize the fact that an innovative project cannot be successful unless a target level of pledge is reached, but do not consider the case when a fully funded research idea may be erroneous, and therefore unsuccessful. I present a model of financing of a startup (that may be successful or not), where the rate of arrival of success depends on accumulated investment stock. The model explains why the startup has to rely on different ways of financing in different stages of its life and why venture capital (VC) financing is not feasible in early stages of development of the startup. I show that government financing at full rate begins earlier and last longer than VC financing. All high valuation startups get the highest feasible rate of VC financing as soon as they accumulate sufficient investment capital with alternative means of financing. Startups of moderate valuation need either to accumulate a significant initial capital to get the highest feasible rate of VC financing, or they have to start with a smaller rate of financing and ``upsize'' the project gradually. Low valuation startups are never financed at the highest rate; the rate of financing of such startups is hump-shaped. When VC financing becomes feasible for moderate or low valuation startups, relationship financing (observable actions) provides higher rates of investment than arm's length financing (unobservable actions). At later stages of startup evolution, arm's length financing is possible at higher rates than relationship financing.

Keywords
Startup financing, venture capital, hump-shaped distributions

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