Contribution mechanisms for financing innovation

Financing for innovation at different stages

In order to understand how finance impacts the development of innovation activity, it is useful to consider three broad stages:

- Develop inventions and conduct research
- Develop prototypes and commercialize inventions
- Technology diffusion and adoption

Develop inventions and conduct research

While inventions can be the result of serendipity, with little investment, typically innovation activity requires substantial investment in research to identify and develop technological and market opportunities. Whether it is scientific R&D or research into consumer behaviours, in this phase there is still much uncertainty about what innovations will emerge, if any. Therefore, it can be difficult to obtain funding for three reasons: First, risk is very high. Second, there is a large information asymmetry between inventor and investor, which creates a significant market failure. Third, the knowledge created may leak, preventing firms from reaping the returns of their investments. As a result, financial constraints emerge. This is one of the reasons why governments typically play an important role at funding the early stages of technological development, undertaking some in government-owned research labs, or providing grants to private firms. Private sources of funding are similarly important at this stage.

Develop prototypes and commercialise inventions

As the innovation becomes more developed, its feasibility is demonstrated, and consumers' appetite becomes more visible, the risk for investors goes down, and so does asymmetric information. As a result, the pool of potential investors goes up. However, the risks associated with those types of investments will often render access to debt financing more difficult. Typically specialized investors who are skilled in assessing new technologies and are capable of absorbing a high failure rate, such as business angels and venture capital funds, play a critical role at this stage.

Technology diffusion and adoption

Accessing finance becomes easier once both technological and market uncertainty have all but disappeared. At this stage, funds are needed to scale up operations as well as to finance purchasers interested in adopting new innovations. The risk involved is lower, and the funding is more likely to be used for assets that can be used as collateral. As a result, standard bank lending becomes easier. A more consolidated business model also makes it easier for firms to tap into stock markets, raising equity
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