IP and markets for finance

Impediments to access to finance are huge obstacles for budding innovators and innovative entrepreneurs. However, market failures in markets for finance are often substantial, as innovative ventures can be risky and barriers to information can create challenges for innovation financing. IP can potentially help provide access to resources by providing a title over inventions, which signals the value of such inventions to financial markets, without exposing innovators to the risk of revealing the nature of their inventions to others. In practice, financial market development is necessary for IP to effectively be able to provide this type of service. Several large and successful companies have taken advantage of this and used their IP portfolios accordingly. Bank securitization backed by IP assets is one way to access finance. In this context, the need for monetary valuation of IP becomes particularly important when it is used as a financial tool by IP holders, and as an investment asset by financial institutions and venture capitalists.

What is meant by access to finance for innovation?

Financial instruments and fiscal mechanisms help transform an idea into an invention, and an invention into an innovation. These can be divided into internal sources of finance, i.e. resources used for investments in innovation within the firm, and also diverse external sources of finance (Figure 1) (see Financing innovation [1]).

Figure 1: Major financing instruments for promoting innovation

Financing instrument	Key features in financing	Remarks
Bank loan	Used as one of the most common tools for access to finance, It needs collateral or guarantees in exchange for loans.	Obligation to repay as debt
Grant, subsidy	Used as seed funding for innovative start-ups and SMEs at the seed and early stage: small business innovation research in the United States, the United Kingdom and the Netherlands; feed-in-tariffs in Denmark and Germany: OSEO funding in France; Innovation Investment Fund in the United Kingdom.	Complements market failures, financing at seed and initial stage
Business angel	Financing source at early riskier stage and provides financing, advice and mentoring on business management. Tends to invest in the form of groups and networks, *e.g.* Tech Coast Angels and Common ANGELS in the United States, Seraphim Fund in the United Kingdom.	Financing at start-up and early stage
Venture capital	Tends increasingly to invest at later, less risky growth stage. Referred to as patient capital owing to the lengthy time span (10-12 years) for investing, maturing and finally exiting, *e.g.* Pre-seed Fund and Innovation Investment Fund in Australia, Yozma Fund in Israel, Seed Fund Vera in Finland, Scottish Co-investment Fund in the United Kingdom.	Financing at later expansion stage
Corporate venturing	Used by large firms to invest in innovative start-ups with a view to improving corporate competitiveness with either strategic or financial objectives.	Strategic motive
Crowd funding	A collective funding tool via the Internet which makes it easier for small businesses to raise capital at the seed and early stages.	Potential for fraud
Tax incentive	A broad range of tax incentives for R&D and entrepreneurial investments in most countries, *e.g.* Enterprise Investment Scheme in the United Kingdom, tax relief on the wealth tax (ISF) in France, Business Expansion Scheme in Ireland.	Indirect, non-discriminatory

Source: OECD (2012). See reference for sources.

Impediments in access to finance are huge obstacles for budding innovators and innovative entrepreneurs. This is particularly the case for small and young businesses and, therefore, affects innovative entrepreneurs disproportionately. From an investor's perspective, the risk associated with a product or idea that requires funding is of paramount importance. A riskier venture is likely to result in either a lack of willingness to lend or relatively higher lending costs to compensate for the above average risk.

How does IP relate to access to finance?

IP rights can deal with two potentially important sources of market failures in markets of finance and

in this way can help improve access to finance for innovation:

- First is the challenge of trading a non-rival knowledge that, once revealed, can be appropriated by other parties without returns to the inventor. This might lead to deals not being consummated because inventors do not reveal sufficient information to financiers.
- The second type of market failure is an information asymmetry challenge, in that financial markets cannot adequately assess the value of the invention, which might be partly signaled by an IP title. In this way, IP can support the commercial application of inventions.

Moreover, IP can support access to finance by providing needed collateral. Start-ups based on technological breakthroughs have, in most cases, no other asset than their IP. Their financing needs and access to it is based on how these intangible assets can be leveraged. IP can serve as collateral for credit.

Bank securitization backed by IP assets is another way to access finance. It is essentially the "process of taking an intangible asset (such as a patent being licensed to a third party) and utilizing the future cash flows from the license payments or royalties to secure current financing for the licensor" (EC, 2006). The 1997 asset-backed securities called "Bowie Bonds", which were the first ever music royalties securitization based on future receivables, gave rise to IP securitization as a valuable financial vehicle.

Commercialization of research innovation (in some cases referred to as "technology transfer activities") entails building strategic partnerships. This acts as a catalyst in the development of IP markets (Pelly and Cramer-Eis, 2011). For example, the objective of the European Investment Fund's IP financing programme is "to provide European universities, research laboratories, innovative SMEs and corporations a viable mechanism for monetizing their inventions. The design of this IP fund is based on the assumption that by gathering a large number of patents it will be possible to establish IP clusters, which are increasingly necessary for large companies, as well as SMEs developing innovative products and services" (Pelly and Cramer-Eis, 2011). This IP fund invests in patents via licensing and acquisition, to allow SMEs access to critical intellectual property assets.

A critical step is to get valuation of the IP done in order to decide finance avenues the IP holder can take. Angel investors and venture capitalists are very interested in knowing the value of the IP, on the basis of which (along with other indicators) they make an informed decision to invest. The need for monetary valuations becomes particularly relevant when they are used as financial tools by IP holders, and as investment assets by financial institutions and venture capitalists (EC, 2006).

What is the evidence to support the role of IP in access to finance?

There is evidence to suggest that IP titles are indeed important for access to finance. A propriety product or one that can be protected by legal means is considered to be an important selection criterion for venture capitalists. Studies have shown that patent applications have a high and positive correlation with pre-IPO financing, i.e. VC financing and private investments (MacMillan at al., 1985; Baum and Silverman, 2004). Haeussler et al. (2008) find that in the presence of patent applications, VC financing occurs relatively earlier. Lerner (1994) has shown a positive relationship between patents and the valuation of the company. Hsu and Ziedonis (2008) confirmed this, finding that patents increase the value of start-up companies, as estimated by venture capitalists in the semiconductor industry. Bottazzi (2009) claims that along with financial performance, VCs may also consider such indicators as product performance, approvals by the Federal Drug Administration (FDA) and patent approvals (emphasis added).

Moreover, Hoenen et al. (2012) empirically demonstrate that biotechnology firms with pending patent applications substantially increase the level of funding they receive during their first round of financing. Further, they find that once the initial investment has materialized, patents (both

applications and grants) have no effect on the growth of venture capital funds raised during the second round of financing. Sichelman and Graham (2010) provide evidence suggesting that investors weight patents more heavily in biotechnology when they decide to invest in a particular firm (compared to other high tech firms). According to Wild (2011), R&D tax credits are important for encouraging investment in innovation and should be very relevant to creative industries.

Several large and successful companies have taken advantage of this, and have used their IP portfolios accordingly. Small and medium firms, however, still face challenges in signaling their technological potential in financial markets, including the use of IP as collateral. There are also differences regarding how IP titles will serve in markets. For example, a report on how businesses in creative industries raise finance found that finance providers readily lend to music businesses with back catalogues, as these assets are viewed as good security. In contrast, intellectual property held by software firms was viewed as lower quality security because it quickly becomes obsolete (Fraser, 2011). A study by the UK Department of Culture, Media & Sports (DCMS) also stated that the intangible nature of the music industry, trading on its intangible knowledge and contributing over GBP 3 billion in sales (DCMS, 2001, p.2), actually made it difficult for financing institutions (such as banks) to make lending decisions.

In Europe, financing institutions have been more skeptical about such financing methods based on IP. This is partly because of a lack of consensus on the best methods to assess the value of intangibles. Intellectual property, in this context, was often seen as an unreliable form of collateral in Europe. The EC Report of the Independent Expert Group on R&D and Innovation stated that easy financing requires an effective VC industry and highlighted the importance of innovative financial instruments tailored for knowledge-based industries relying on IP.

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