2. Fostering the use of Intangibles to strengthen SME access to finance

This chapter provides an overview of how intangible assets can be relevant for SMEs to obtain external funding, with a focus on debt financing. It describes the challenges with respect to intangible-backed financing and presents the case for possible policy intervention. Drawing on government initiatives throughout different countries, the chapter concludes with policy implications and lessons learned.

The chapter is based on a publication in the OECD SME and Entrepreneurship Policy Papers series by Martin Brassell, CFE consultant, and CEO Inngot Limited, and Kris Boschmans, Policy Analyst, OECD/CFE/SMEE.

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Introduction and rationale

Intangible asset-backed finance cuts across two major policy areas: innovation (with its well-documented relationships to growth and competitiveness) and SME access to finance. The chapter builds on previous work of the OECD on these issues, such as the "New approaches to SME and entrepreneurship financing: Broadening the range of instruments", which identified various challenges on both the demand and supply sides of finance markets (OECD, 2015[1]) and OECD work on Knowledge-Based Capital and the economic impact of intellectual property. It follows the two-pronged approach advocated by the G20/OECD High Level Principles on SME financing, which proposes to consider the feasibility of broadening the set of assets suitable for use as collateral to include intangibles, to ease access to lending for knowledge-based companies (G20/OECD, 2015[2]).

What are intangible assets and why do they matter

Intangible assets are assets that lack physical substance and can be broadly catalogued under three headings; (i) computerised information, (ii) innovative property and (iii) economic competencies (see Table 2.1).

Table 2.1. Types of intangible assets

Category of intangible assets	Type of intangible assets included
Computerized Information	Software Databases
Innovative Property	R&D Mineral Explorations Copyright and creative assets New product development in financial services New architectural and engineering designs
Economic Competencies	Brand-building advertisement Market research Training of staff Management consulting Own organisational investment

Source: (Corrado, Hulten and Sichel, 2005[3]).

Chapter one of this publication documents that straight bank debt remains the main source of external finance for the vast majority of small and medium-sized enterprises (SMEs) and most policy initiatives to ease access to finance have consequently centred on bank lending. Banks generally place strong reliance on traditional forms of collateral. As the underlying assets that are typically accepted as collateral are becoming less central to many SMEs' value propositions, this can represent a fundamental funding issue.

In OECD and emerging countries alike, investments in intangible assets have outstripped investments in tangible assets in recent years. In the United Kingdom, for instance, intangible assets account for up to 80% of firms' value by one estimate1. There is not only a link between investments in intangibles and economic performance at the firm level, but also at the country level. Recent studies have concluded that across the EU, contributions made by intangible assets were strongly correlated to overall productivity, spillovers between investing firms and non-investing firms, and venture capital activity

(Corrado, Haskel et al. 2012). Similarly, in the United States, patenting firms have contributed disproportionately to jobs (Graham, Grim et al 2015).

This is especially the case for innovation-driven, high-growth enterprises, a small share of the SME population, but accounting for a disproportionately large share of employment creation and value added. Despite the undoubted contribution IP and other intangible assets make to the business models employed by such companies, to date they remain difficult to harness to access finance. While such firms in particular would benefit from the possibility to collateralise intangible assets, these are prevalent throughout a wide spectrum of sectors and businesses. For example, intangible assets are very important in companies in software and biotech, but they represent a sizeable share of overall assets also in more "traditional" sectors such as textiles or even real estate (Brand Finance Institute, 2017[4]).

Debt

At least three forms of mainstream commercial debt provision, as practiced by banks and alternative lenders, may have something to gain from IP scrutiny.

- The most desirable outcome, in terms of unlocking the hidden value within business-owned intangibles, is to lend against their value and use IP as collateral (secured lending);
- However, unsecured lending that does not place reliance on IP value, but takes the existence of IP into account when assessing a firm's strength, can also be beneficial;
- There can also be a very good fit between asset backed financing techniques and IP, with the possibility of using sale and license-back techniques to unlock value in a manner that can address concerns about title and ownership.

Debt funding is the key context in which intangible asset value is consistently under-utilised, and therefore constitutes the focus of this study. Better understanding and recognition of the connection between a business's commercial success and its use of intangibles has the potential to make lending safer rather than riskier, whether secured or unsecured. However, it is relevant to note that enhanced use of intangibles can foster SME access to other financing sources, including grants, soft loans and equity

Grants and soft loans

Grant and soft loan funding is often awarded for purposes that anticipate the creation of new intangible assets. The intangible assets that will be created with the assistance of grant funding seldom exist prior to the commencement of a project, but the capability to create them – including the "background IP" – needs to be present in order for an SME to make a credible application for support, either on its own or as part of a collaborative partnership. In this sense, there is an implicit link between grant funding and the presence of existing IP and intangible assets, as well as the creation of new ones.

Equity

Equity investors are generally cognisant of IP and intangible assets, although their presence is seldom the sole, or even the key, criteria for "conventional" equity investment decisions. The quality of the business owner and the management team, for example, often plays a bigger role in the investment decision (Brassell and King, 2013[5]). Even

factors beyond the individual business and its assets may play a decisive role, for example related tax concessions or other policy measure or the state of the market in which the business operates. In addition, equity investors seldom make detailed enquiries into the presence and value of intellectual property and other forms of intangible assets in the context of earlier stage funding.

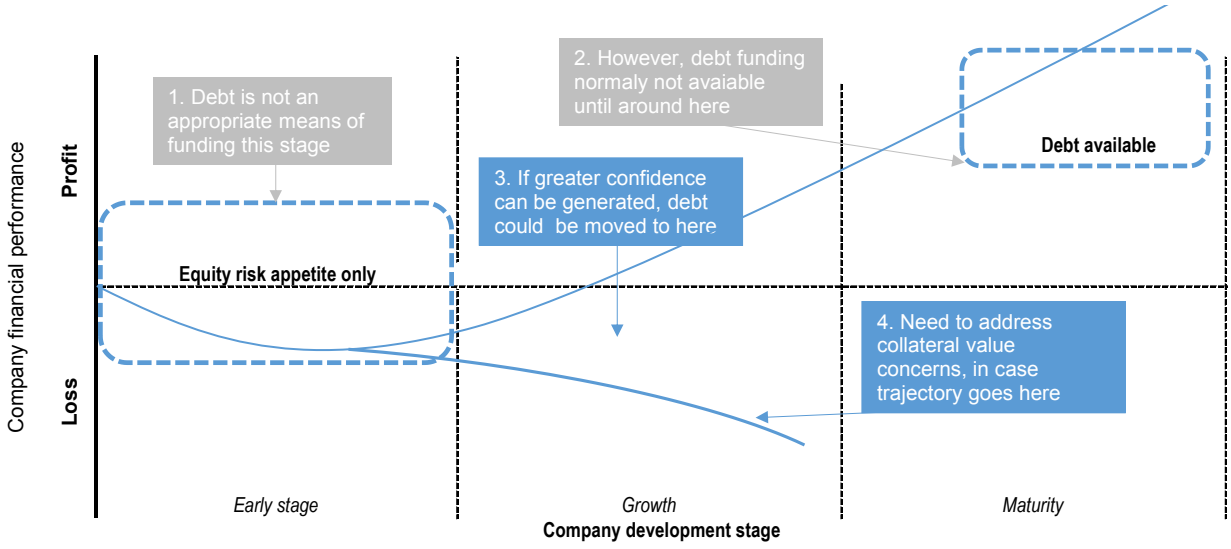
The potential market failure to secure debt financing

Despite their utility as drivers of business value, however, intangible assets are not easily collateralised and have limited usefulness to secure external financing. This is most apparent for debt funding and for firms that are relatively intangible-rich, but lack tangible assets that are easy to collateralise by comparison.

In the early stages of their life cycle, these firms rely heavily on external equity funding, possibly together with grants, while debt generally is not an appropriate source of financing. Usually, equity sources can be complemented by debt financing only when these firms have sufficiently matured and moved decisively into profitable trading. The period in between, that is after the early stages of a firms' life cycle, but before sustained profitability is reached, is sometimes referred to as the "valley of death." Typically, this is a period in which additional external finance is required to realise growth ambitions, but insufficiently available (see Figure 2.1).

Figure 2.1. Illustration of the potential to bring debt finance to bear at an earlier stage of business maturity

The x axis represents an SME's development stage, and the y axis represents their cumulative profit/loss performance



Source: Ingott (2017).

Better availability of debt-based finance during this phase would unlock more growth and enable these SMEs to invest and innovate. SMEs that have mostly invested in intangible assets face considerable difficulties attracting credit, however. Debt funding is the key context in which intangible asset value is consistently under-utilised, and therefore constitutes the focus of this study.

There appears to be a market failure at play, resulting from four primary and ongoing challenges related to intangibles, explained in detail below. While none of these challenges are individually insuperable, government intervention may be warranted to reach sufficient scale and drive down transaction costs. The absence of routine consideration of intangible assets means that systems and standards comparable to those that have developed to support due diligence activities in other contexts have yet to be in common usage, because the need has not been established for them. At the same time, the lack of these systems and standards means that intangible assets are not routinely considered. Policy support may create a virtuous cycle whereby financial institutions become more accustomed to collateralising intangible assets, thereby driving down transaction costs and vice versa.

Challenges in funding intangibles

Valuation

The first of the challenges is the difficulty in valuing intangible assets. In order for lenders to underwrite loans against IP and other intangibles, a certain level of confidence and comfort in their established values is necessary. At present, however, there is no standard method to value intangibles. Three common methods which are generally accepted within the industry co-exist (see Box 2.1).

Box 2.1. Valuation methods for intangible assets

Under the first method, the cost approach, intangibles are valued according to the historical investments that were required to create them less deductions for legal, functional market or technical obsolescence. There are several variations of this approach with other applications emphasizing replacement cost or reproduction cost rather historical investment. The cost approach is premised on the idea that an arm's length buyer would not be willing to pay more than the amount needed to develop reproduce or replace intangible assets. This method is often employed for valuing software-based intangibles and applying asset-backed financing techniques, but it may not be an appropriate valuation method for certain intangibles and under certain circumstances. First, it is not suitable for assets that are subject to IP rights protection since such assets cannot be legally reproduced or used. Second, in some businesses it may be very difficult to isolate the costs of formulating specific assets with precision if they have been developed over an extended period. Third, buyers can often find grounds to argue that the creation or implementation costs of intangibles can be made lower than suggested by sellers. Finally, businesses typically do not create assets with the expectation that their business value would be limited to their cost and in this sense the very premise of the cost approach may be flawed.

The second valuation method entails assessing the contributions intangibles make to a business's income. This valuation approach focuses on the future benefits one would expect to receive by owning intangible assets. There are several ways by which the value of intangibles can be isolated from other assets within a business. These methods include profit differentials (assessing the marginal earnings companies can obtain with a set of assets compared to other alternatives), excess earnings (calculating earned income from intangibles as a residual of total income), and relief from royalty (assessing the willingness to pay of a third party to license the technology). The relief to royalty

approach has been widely accepted as the most accurate valuation technique since it relies on real world licensing transactions directly related to IP and intangibles. Regardless this method and other income approach methods rely on forward looking estimates to gauge contributions to income. As such, these valuation methods entail inevitable uncertainties that should be scrutinised and risk assessed considering market conditions and companies' actual historical performance. In younger businesses whose cash flows are less established these uncertainties will be more problematic.

The third commonly used valuation method for intangible assets is the market comparison approach. Under this approach, valuation is centred on a comparison of similar asset bundles that have recently been sold. Based on the comparability of assets, "multiples" are calculated and assigned to a target company's financial performance and intangibles. This approach provides the best way of assigning an open market value to intangibles as it is premised on historical buy/sales transactions. However, it is difficult to apply in practice given the absence of transparent markets in which intangible assets are traded and the heterogeneous nature of intangible asset characteristics which often renders them incomparable. Additionally, sales of IP do not tend to occur separately but are rather "wrapped up" with the acquisitions of whole entities. As such extracting the distinct market value of intangibles alone can be a difficult process.

Several published standards and guides, such as the International Standard (ISO 10668), General Principles for Monetary Patent Valuation (DIN77100), Austrian Standard Institute Standards (ONARM A6800 & A6801) and those drawn by the International Valuation Standards Council (IVSC), document the suitability of the cost, market and income methods. These standards, however, do not advocate for any specific method but stipulate that the three approaches can be used individually or in combination depending on the purpose, value concept and brand characteristics of the intangibles in question.

In the absence of a single agreed upon method, valuation outcomes tend to differ drastically depending on the method being used. As such, the values of different intangibles may be inherently incomparable. This problem raises the need for financiers to propose a standard value concept to leverage intangibles as collateral. Under these circumstances, lenders must be careful to attribute accurate values to intangibles they wish to take as collateral, since lender valuations often understate true worth as they are based on possible "fire sale" disposal values.

The possibility of different valuation outcomes may also create conflicts of interest in the determination of accurate valuations. While lenders may understate intangibles values (by factoring in a considerable amount of risk into their disposal values), valuations paid for by companies that own intangibles will naturally be motivated to inflate asset values. As such, policy interventions should focus on generating confidence in valuation reports and incentivizing financiers and valuation experts to act responsibly. Requiring that valuations be conducted by state-backed organizations, multinational accountancy practices or similarly qualified private sector specialists may provide a solution in this regard. However, by concentrating this task among a small number of large companies or the state, market inefficiencies may be created in the form of higher costs which can render such services uneconomic and beyond the reach of SMEs.

Finally, the value of intangible assets can be considerably volatile over time. For example, while most tangible assets depreciate, it is very possible that intangible assets may increase in value if well managed. Valuation methods for tangible assets typically

incorporate the effects of age and condition on future value predictions, but problems arise when applying these methods to intangibles. Accommodating technical obsolescence is far more difficult. The lack of insurance policies that cover losses of intangibles (due to infringement or invalidation) similarly creates substantial risk in their valuation compared to tangible assets that can be more easily covered against theft, fire and other forms of damage. Under such uncertainties, lending activities that make use of intangibles can be conducted over short periods of time to mitigate against intangible asset volatilities. Adopting conservative valuation methods that reduce the proportion of agreed asset values that are considered for collateral may also help in this regard.

Difficulties in obtaining effective security over intangible assets

The second challenge related to intangibles is the difficulty in obtaining effective security over them. This challenge is exacerbated by variations in the security interest regimes of different countries and the sometimes lack of enforceability of security interests during distress events. These create practical challenges for lenders in establishing controls over intangible assets. There are two main methods lenders can pursue to secure intangibles: asset-backed finance structures or security mechanisms commonly associated with term loans.

Under asset-backed approaches, establishing security involves a contractually binding purchase of the asset(s) in which lenders obtain legal title to the assets while companies obtain their usage rights. In the event of a loan default, lenders simply re-possess the assets and there is no need for a formal transfer of ownership. Asset-backed approaches have been applied to intangible assets in several countries including Korea and the United Kingdom.

The second mechanism for obtaining security over IP is a fixed charge or pledge. These exempt lenders from maintenance obligations and prevent assets from being disposed of or used outside of a company's ordinary course of business. Although it is possible to use mortgages over intangibles, doing so is complex and creates difficulties for companies that need to act against a suspected infringer. Fixed charges or pledges are the preferred security mechanisms in some territories.

Establishing security interests over intangible assets requires three considerations: verification of the existence and ownership of the asset, prior interests on the asset at the time of the loan agreement and any occurrences that may undermine lenders' legal rights to the asset after the security facility has been created. Once these enquiries have been made, security interests must be perfected through registration of the asset to establish the lender's priority position over the asset and notify other relevant stakeholders of the security interest. In registering liens and security interests, lenders should be cognizant of the time lapses that occur in the updating and publishing of registries. In China, for example, there are separate authorities responsible for registering pledges against patents, trademarks and copyright materials, and each registrar is published at different time intervals (with the exception of the copyright pledge register which is not published at all).

When companies have assets that relate solely to their domestic territories, lenders are unlikely to experience difficulties in registering security interests against most types of IP. However, when companies have extensive IP portfolios that are registered internationally, enforcement of security may be more problematic, especially if assets pertain to countries that do not have a common law or established security regime. In this

regard, standardization of practices and information sharing between lenders who require security documentation in diverse territories can help lower underwriting costs.

Redeployment issues and absence of liquid secondary markets

The third constraint relates to the redeployment of intangible assets, that is, one company's ability to utilise the intangible assets of another. When redeployment is considered, the business performance of the company owning the intangibles is of particular importance. If the owner of the intangibles is financially distressed, the realisable value of its assets may have been eliminated especially if the IP and intangibles are a causal factor of the distress. Under certain circumstances, intangible assets may still be desired by other companies even in the midst of a potential liquidation. In other cases, practical concerns exist regarding the separability of intangible assets from their parent organisations. For example, the assets may be associated with a business model so unique that no other company can derive value from them. Alternatively, the assets may have been impaired or damaged through neglect or be incomplete and missing crucial factors (such as the know-how) needed to realize their full value. Under any of these circumstances, there may be several legal and technical obstacles to the redeployment of intangible assets from a distressed company.

The lack of transparent, open markets for intangible assets (compared with the tangible assets a company typically owns) is another well acknowledged structural issue. Markets do exist for IP and intangible sale, but are mostly informal. Those that are formal (such as IP auctions) tend to deal principally (though not solely) in assets offered by trading businesses. This adds to the difficulties in redeploying these assets as well as realising value upon liquidation.

Transaction costs

The fourth key constraint related to intangibles in the context of debt finance is the high transaction costs they entail. The heterogeneity of intangibles often renders them incomparable and as such limits financiers' ability to gain substantial transaction experience from a well-defined set of intangibles. This lack of routine activity makes scaling debt services difficult.

Insufficient corporate reporting of intangibles (which often do not appear on company balance sheets) further increases transaction costs of intangibles-related debt financing. Even when corporate reporting is clearer, lenders still often view intangibles as having zero value or as a liability, which understates their true contributions. The absence of standardised definitions regarding assets that should be reported on financial statements creates an information gap between companies and their stakeholders (both on the supply side and demand side). Overcoming these information asymmetries require lenders (and other stakeholders) to engage in further enquiries which results in additional transaction costs. Intellectual capital statements, integrated reporting and other standardised reporting methods can address these information gaps and lower the transaction costs of collateralising intangibles. However, the development of such standards will have to originate from accounting regulators and this is only likely to occur once transparent and active markets exist to recover values from intangible asset classes. A third constraint to reducing transaction costs is the insufficient bank understanding of intangible assets and the contributions they make to business models (which may arise from underreporting of intangibles). In the increasingly digitalised marketplace, numerous points of parity exist between intangible assets and tangible assets and as such many financing schemes

already take account of intangibles values. For example, in the IT sector, computer hardware (a tangible good) can only be made functional through software (an intangible good). The interdependence of hardware and software similarly pervades the automobile industry. Raising awareness of the sometimes-symbiotic relationship between tangibles and intangibles can reduce the information asymmetries described above. In this regard, policy interventions (both tools and incentives) that provide a framework within which experiments can be conducted, data extracted/analysed and lessons learned will be useful for overcoming this barrier.

Current practices of public support to intangible-backed financing

The challenges and constraints presented above provide a compelling argument for the existence of an external financing market failure for SMEs as it relates to intangibles-backed debt financing. The lack of scale and experience may well be the main obstacle to develop market-based solutions. For example, secondary markets would remain illiquid without sufficient scale. Lenders remain reluctant to accept intangibles as collateral as a consequence, which hampers the development of liquid markets and so on. As another example, the costs to estimate the value of intangibles will only go down with sufficient experience, but these high costs make it unlikely that procedures and processes will be developed. This vicious cycle or "catch 22 situation" can likely only be resolved by the provision of a "safety net" provided or facilitated by policy makers.

Many countries have recognized the existence of this market failure and implemented support-systems to address it. It should be noted that while initiatives to stimulate the collateralisation of intangibles are relatively uncommon and often in their infancy, many countries have developed other support mechanisms to ease access to finance for intangible-rich SMEs. A number of countries have used credit guarantee structures tailored to innovative SMEs who typically rely on intangibles rather than tangible assets for their business models. "Innovation Boxes" or "Patent Boxes" that reduce the tax paid on product or service revenues associated with qualifying IP rights are other means to that end. Over 30 countries (many in Europe) also provide tax credits against R&D expenditures to incentivise innovation. Chapter one of this publication, as well as the individual profiles for every country participating in the scoreboard exercise (Chapter three), provide an overview of the main policy instruments to support SMEs in need of finance. The focus of this section is to describe policy initiatives in a number of countries supporting intangible-backed financing directly.

Europe

France has designed a number of policies to support innovative companies at their various stages of development to access finance. In October 2017, an investigation of the issues concerning intangibles and their financing was published by France's Business Financing Observatory (OFE, 2017). The digital transformation of SMEs represents a significant challenge in the coming years, which may be difficult to finance from retained profits. However, Bpifrance, the French public investment bank, supports companies in their intangible investment project, notably through uncollateralized loans and bank loan guarantees. In addition, the ministry of the economy and finance recently launched a new website (https://www.cap-immateriel.fr/) gathering different tools that aim to encourage business leaders and investors to implement business strategies based on fostering the use of intangibles

In a similar vein, Italy has a wide range of SME finance support mechanisms, especially by the extensive use of credit guarantees, some of which are targeting innovative SMEs, and where the presence of certain intangible assets may function as a signalling device to prove innovativeness. The country has not initiative policies specifically to collateralise intangibles, however. However, in 2008, a Memorandum of Understanding concerning the economic evaluation of patents was signed with the aim to establish a shared methodology for attaching an economic value to patents. This proved to be a technically challenging exercise incorporating 86 indicators on five different modules.

In the United Kingdom, the Intellectual Property Office (IPO) has for some years operated a programme of subsidised IP audits for SMEs (around 300 being made available annually). Whilst these are primarily aimed at encouraging companies to develop and strengthen IP protection strategies, evaluations make it apparent that they also increase awareness of asset value, and have assisted a number to raise finance, and there is appears to be interest from the government to develop additional policy support.

China

China is the most active market for state-backed IP financing which began in 2006 and has grown rapidly since then with approximately 2 000 companies receiving some form of IP-financing in 2015. Support for IP financing in China has been driven by a number of actors including the state (through its State Intellectual Property Office or SIPO), the Ministry of Finance, and a number of dedicated funds in high-growth areas aimed at encouraging commercial lender participation in the space.

The dedicated funds have proven particularly crucial for growing IP-backed portfolios in China and Shanghai has been a focal area in this regard, given its sizeable high-tech SME population. The goal of Shanghai's dedicated fund has been to expand the use of short term loans to SMEs. The fund has been successful over the past 10 years due largely to three main initiatives:

- The establishment of standards and approved financial practices covering IP pledge evaluation criteria and operational guidelines;
- The use of pilots and experiments, for example, the establishment of a RMB 100 million fund in Pudong in 2006 which guaranteed loans to high-tech, early stage SMEs based on IP and goodwill;
- Streamlining administrative processes such as the registration of IP pledge contracts.

By 2013, 500 loans had been provided to Shanghai SMEs for a total value of RMB 1.8 billion. Despite the program's success several bottlenecks still remain that are being addressed by the Shanghai IP Office. These include barriers to scale (market immaturity, high costs, risk concerns), the lack of diversity in intervention targets (which have focused largely on patents) and inconsistencies in evaluation criteria and frameworks.

Japan

In Japan, IP-backed finance began in 1995 and grew steadily until 2015 at which point approximately 260 companies had benefitted from IP related loans for a total transaction volume of JPY 16 billion. Japan's current focus is to address asymmetric information by supporting the credit decision-making processes of regional business lenders, primarily qualifying banks and credit unions. The efforts have been led by the Japan Patent Office

(JPO) and the country's Financial Service Agency with an emphasis on two pillars. The first is the funding of up to 150 IP evaluation reports annually for qualifying banks which identify the intangible assets owned by key SMEs and their role in companies' credibility and financial strength (which is expressed as a financial value). The second initiative is intended to complement the first and focuses on enhancing institutional education through annual symposia and seminars that provide lenders with information on existing IP rights and their contributions to SMEs' cash flows and business models. The reports and education initiatives have allowed lenders to incorporate similar information-gathering routines in their underwriting processes, which is expected to translate into more standardised forms of IP-backed financing.

Korea

In its drive to become a "creative economy," the Korean Government has made several enhancements to its existing support of IP and intangible asset financing since 2013. The most prominent IP financing initiatives are operated by the Korea Development Bank (KDB) with the "Techno Banking" initiative the most prominent. Under this scheme, loans for purchasing, commercialising and collateralising IP are provided while the "Pioneer" IP fund invests in intellectual property and obtains income from licensing. The KDB simultaneously established a collection fund for distressed IP which addresses the issues regarding the disposal of intangible assets. Korea also benefits from well-developed credit guarantee schemes, some of them supporting intangibles-backed financing with the Korea Credit Guarantee Fund (KODIT), KOTEC and CGF comprising the primary actors. KODIT is the oldest and most established of these companies with a capital fund totaling USD 4.7 billion. It offers underwriting of up to 95% of an IP valuation for lending and securitisation. Its loan programmes have been helpful in obtaining some commitment to IP funding from other banks though exact details on the provision of these kinds of loans remains unclear.

Malaysia

In Malaysia, IP-related financing has been driven by MyIPO, Malaysia's IP Corporation with assistance from the Ministry of Finance and Multimedia Development Corporation. The focus of MyIPO's work has concentrated on two focus areas. The first is the development of standards to cover IP valuation. The model is intended to increase lender confidence in IP values and spells out the steps of the IP-financing and valuation process, specifying that the relief from royalty method should serve as a standard valuation approach for loan underwriting (the model provides examples of how relief from royalty should be applied to patents, brands and copyright materials). MyIPO's second focal area of investment has been in the development of local firms' and individuals' understanding of IP assessment and valuation through a training and certification programme delivered in conjunction with specialist IP valuation consulting firms from abroad. The consulting firms were also used to facilitate all of Malaysia's early loans which have thus far been financed by Malaysia Debt Ventures using a MYR 200 million fund provided by the government. The fund offers firms 5-year, guaranteed loans (insured through Malaysia's Credit Guarantee Corporation) of up to MYR 10 million or 80% of the value of the IP which include a 12-month grace period and 2% interest rebate as borrowing incentives. Uptake has been slow with only 11 companies receiving loans so far. The lack of provision of similar services by other lenders and the presence of several legal constraints relating to the validity of charges made against IP rights are thought to be the main constraints discouraging wider adoption these IP-backed loans.

Singapore

Singapore does not have any dedicated funds for IP finance but instead provides mainstream banks with guarantees of up to 80% of borrowers' IP value (subject to a cap). The guarantees are provided through an SGD 100 million guarantee facility administered by IP ValueLab, a subsidiary of the Intellectual Property Office of Singapore and cover patents, trademarks and copyright materials. IP valuations on which the financing is based must be conducted by an approved valuation panel member. The initiative began in April 2013 but gained traction slowly due to bank unfamiliarity with IP assets, the programme's relatively informal application process and high prospective transaction costs. To address these bottlenecks, applicant companies were encouraged to undertake a low-cost valuation exercise to gauge lender interest in the guarantee scheme. Two local banks, DBS and UOB, have since offered several loans to patent-owning businesses and are soliciting the interest of other prospective borrowers.

United States

The United States is relatively advanced in the use of IP and intangibles-backed financing. These initiatives are almost exclusively private sector-led with the US Patent and Trademark Office primarily focused on the rights regime rather than sponsoring business support, however. In the United States, patents are routinely used as collateral for the provision of loans. Analysis by the US Patent and Trade Mark Office indicates that these types of lending activity are highly concentrated between a few lenders and patent owners (the top six lenders account for 2/3 of total number of security interests and the top 7 patent owners account for 20% of loans). This high-degree of concentration of intangibles-related financing activity among large stakeholders and large transactions (which involve many other assets such as accounts receivable, inventory and cash) indicates that the value of patents is not necessarily a finance enabler. As such, it appears that lenders may be using patents to obtain an additional degree of control over borrowers in the event of a default (as specified in Article 9 of the Uniform Commercial Code) irrespective of the actual value of a patent. In this regard, it is unlikely that this practice helps SMEs secure financing they could not have secured otherwise.

Common features and variations of policy interventions

Confidence-building measures are a common feature of all state-backed schemes. A key point of comparison relates to the level and nature of the guarantee coverage provided. This ranges from 50% in Malaysia to 80% in Singapore, 95% in Korea and up to 100% in China.

Measures to broaden the availability of skilled valuers are apparent in several markets, though the Japan Patent Office has taken a more direct approach by directing the provision of the valuation reports itself, albeit provided by private sector companies. State control over this process appears strongest in Korea; present but indirectly applied in China; provided by way of guidance or provision of a control/administrative function in Malaysia and Japan respectively; and left to market forces in Singapore, which is more in line with practices in other regions of the world in this regard.

Centrality of control of these policy measures varies greatly from one country to the other. In Korea, its IP financing initiatives is decided at the central level of government, while In Japan, the emphasis is on supporting locally-based lenders, helping them to understand more about their customers' IP rights, rather than seeking to build scale quickly by working with the largest lending institutions. China takes an intermediate

position by permitting regions and localities to develop their own schemes, and has actively experimented with decentralisation of certain aspects, such as pledge registration.

Policy implications and lessons learned

Although the policy approach will vary depending on the characteristics of a country's SME population, the nature of their business activities, the culture that exists regarding the use of IP rights and the importance of various intangible assets as drivers of business value, some lessons can be drawn from policy experiences so far.

Reaching scale will require lowering transaction costs and the adoption of a long-term approach

Finance schemes should be designed to work at scale and have capacity to absorb potential losses. Absent aid or intervention, private lenders will naturally gravitate towards larger deals which are better able to absorb high transaction costs and generate higher absolute profits, but will not probably benefit smaller or younger firms mostly in need of additional finance. A similar conflict arises when considering the risks of underwriting intangibles-backed loans. During the underwriting process, conservative lenders are likely to scrutinise IP and intangibles and back the very strongest firms and their assets, which are unlikely to be SMEs that are not (yet) profitably trading. This selective lending would limit opportunities to develop insights across a broad range of businesses and ultimately hinder financial services from being scaled more widely, especially to SMEs who would not be able to access external debt otherwise..

To achieve scale, policy interventions must address the current issue of high transaction costs, particularly in the early stages when parties are still gaining familiarity with the product, deal volumes are small and due diligence requirements are high. Subsidies that cover key underwriting costs such as valuation costs may help incentivise bankers to take less conservative lending approaches at early stages of development. Such measures have been important features of policy interventions in Japan and Singapore. Further experimentation will also be required to establish new interventions to address longer-term costs and sustainability. A potential solution is to develop a system analogous to that routinely used for credit scoring, which has a proven ability to operate at scale and is better aligned with data-driven approaches to policy interventions (described below).

Achieving scale will also require time. It is likely that interventions will have transformational effects on the economy after a number of years given the lack of lender experience with IP and other intangibles. As such, stakeholders (lenders, governments, SMEs, consulting firms) will need to be patient over the medium term following the policy action. A considerable time lapse would also be required for sufficient loan volume to complete a loan cycle, a prerequisite condition for generating useful data regarding repayments, defaults, losses and recoveries. In short, successful schemes may demonstrate some short-term benefits for SMEs in terms of capital availability but will require longer time periods to effectively assess their success in developing lender confidence in intangible assets.

Guarantees (and insurance) appear to be crucial elements of the policy mix

Guarantees provided by the state or by state-backed organisations have featured in all countries where intangibles-backed financing schemes have been implemented. State-backed guarantee programmes help develop confidence in the use of intangibles for

financing and reassure lenders of the values ultimately attributed to assets. They address the private sector's gap in risk experience by encouraging it to disburse risk capital all the while addressing any shortfalls in intangibles value in the event of a recovery. As such they are an important safety net that helps mitigate potential losses to lenders in the medium term and accommodate growing demand.

The private sector needs to be engaged

Another desirable feature of policy interventions is that they must effectively engage the private sector so as to be not reliant on government support indefinitely. In short, while guarantees and other support measures are important for kick-starting policy initiatives and addressing immediate short-term risk-related concerns, ways should be sought to create interest from the private sector absent of government involvement.

To date, IP and intangibles funding mechanisms have typically been formulated by a mix of state-backed endeavours and private sector action. The current evidence available suggests that the use of dedicated funds produces early results but is less useful in establishing private sector interest in the space. For example, in China and Malaysia, intangibles-related lending appears to have originated from banks or lenders that are the direct recipients of aid/incentives (guarantee funds, interest rate concessions, administrative streamlining), with few others following suit, possibly because of the time it takes to change banking behaviour.

A strong evidence base needs to be established and shared

Policy interventions should facilitate the generation of evidence and risk-sharing experience amongst lenders to communicate best practices and demonstrate that intangibles can have realisable value. This would allow lenders to more routinely consider them as an asset class capable of being collateralised. Routine consideration by lenders would result in more transaction experiences, a better understanding of intangibles and increased confidence in valuation levels, all of which would enhance market development and lower transaction costs, creating a virtuous circle driven mainly by private sector actors. In this regard, digitalisation should be used as a data collection and analysis tool to measure progress, produce evidence and disseminate information to the wider market.

The initial requirement of a data-driven policy approach is to ensure that the information gathered is appropriately baselined and comparable. As such, an established set of qualifying criteria and assumptions should be created and applied across funding opportunities in the space. For example, regarding eligibility criteria, ensuring that information is captured on the characteristics of all applicants and their asset holdings (including intangibles) will be insightful for understanding which types of businesses and assets produce the most positive outcomes. Ensuring that such data is exchangeable across stakeholders will also allow participating institutions to benefit from any lessons learned. Finally, digitalisation will better facilitate information gathering when multiple funding instruments are deployed concurrently. Data-driven approaches should also not discourage experimentation which is ultimately the necessary tool for engaging and accommodating the wide array of business models, assets, sizes, strategies and aspirations of all SMEs.

The market would benefit from more standardised valuations methods

To be successful, valuation standards should be practical but also theoretically robust. To date, the income method (based on historical and projected financials) has demonstrated the most suitability in this regard. Approaches that better assess the realisable value of IP, taking into account the likelihood of successful asset disposal and potential recovery prices should also be considered given their relevance to lenders. Introducing standard "haircuts" that can be applied to intangibles (which would outline to what extent the asset's market value should be reduced for the purpose of collateral levels)can provide lenders with more accurate and conservative valuations regarding the disposal value of intangibles in the event of a default or collection. Such standards would also be beneficial for avoiding too much reliance on original valuations which are often imprecise and ensuring that lenders do not benefit from being over-collateralised.

Patents are a solid starting point, but other types of intangibles should also be considered for collateralisation

Policy measures should seek to adopt a broad definition of intangibles suitable for collateralisation. Patent rights have received the majority of attention in terms of IP-backed financing due largely to the fact that they are data-rich, undergo considerable scrutiny to confirm their novelty and can be registered in a relatively straightforward manner. While patents remain a useful signalling device, they should not be a precondition for IP finance eligibility. Due to the technical requirements needed to obtain and exercise them, however, patents are only utilised by a small minority of SMEs and also tend to be inseparable from other intangibles in terms of value (such as contractual agreements, organisational capital and knowhow, and brand recognition). As such, they should not be a precondition for IP finance eligibility and other intangibles should be considered as well for collateralisation. Software and other intangibles protected by copyrights for example, present a strong opportunity in this regard.

Potential future research

Intangibles-backed finance requires a number of elements to be in place in order to work successfully for SMEs. These include the questions of how an asset's suitability as security for lending can best be determined, how value is attributed to it, how this value can be recovered, and what the appropriate regulatory framework should look like. Each of these aspects merits closer study.

In addition, more research could be developed to link the emergence of intangible assets as a primary driver of SMEs' success with SME finance trends, as identified by the annual Scoreboard on SME and Entrepreneurship Financing. Collateral requirements have remained broadly constant over the 2007-17 period, even though the relative importance of assets that banks typically accept as collateral has declined. This could explain, to some extent, why SME lending has remained weak in recent years, even though financing conditions as well as the macro-economic environment has improved. At the same time, volumes for most other sources of finance than straight debt have gone up in recent years, possibly suggesting firms that have relatively few tangible assets turning to other sources of finance than straight debt. More research is necessary to analyse if that is indeed the case and, more generally, to gauge how the increasing importance of intangible assets influence SME financing trends.

Notes

[1] Most intangible assets are capitalised in national accounts, and spending on intangibles is most often accounted as an intermediate expenditure. This makes intangible assets inherently hard to quantify. Researches typically estimate the investments in intangibles, and the overall importance of intangible assets, through expenditure data (such as the INTAN-Invest dataset) (Corrado et al., 2018[6]).

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