Fostering the use of intangibles to strengthen SME access to finance

by Martin Brassell and Kris Boschmans

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Abstract

The document sets out how intangible assets can be relevant for SMEs to obtain external funding; the challenges and opportunities in this area; and the rationale for policy intervention. It provides some policy trends from a selected group of countries and concludes with some issues to be considered by governments to foster the use of intangibles for SME access to finance. It is part of the 2017-18 Programme of Work and Budget of the Working Party on SMEs and Entrepreneurship (WPSMEE).

Key words: SME finance, Innovation, Intangible assets

JEL codes: L26; G32
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Executive Summary

An increasing proportion of the assets owned by SMEs are non-physical or “intangible”. These fall under a number of headings, ranging from comparatively “hard” assets (such as registered intellectual property rights) to others that are non-contractual and not easily separable, but still important for business success (such as customer and supplier intelligence).

While they seldom feature in company accounts, these intangibles are major contributors to business value. The assets have been demonstrated by many studies to be closely associated with high levels of growth (in both turnover/profitability and employment). Investment in intangibles is therefore desirable for individual SMEs, driving competitive differentiation and merger/acquisition activity, as well as for national economies.

Despite the recognised importance of intangible assets to the success of SMEs, these assets are of limited utility when they seek to attract external sources of financing. This holds especially true for innovative, fast-growing ventures that typically own few tangible assets, but are relatively intangible asset-rich.

These intangibles-rich firms, which are most often SMEs, routinely encounter problems obtaining debt finance because they lack the tangible collateral which both banks and their regulatory environments continue to view as a necessary safeguard and alternative “exit route”. Although these firms rely heavily on external equity funding for their early stage development, the difficulties of attracting enough equity financing are compounded by the relative scarcity of complementary debt instruments at their disposal as they grow.

When firms mature and the risk of failure decreases, the need to leverage their assets to secure debt financing is likely to increase as equity investments become an increasingly expensive and unattractive option. It follows that better availability of debt-based finance should unlock more growth and enable firms to invest and innovate.

While intangible assets have relevance across a range of funding types and purposes, such as grants, soft loans and equity instruments, market failures and hence the rationale for policy intervention are most apparent when it comes to debt financing. 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.

There are a number of hurdles that need to be overcome in order for debt financing collateralised by intangible assets to become more widely established. At present, regulations designed to ensure capital adequacy do not recognise intangibles as having realisable value. This could be overcome once lenders accumulate sufficient experience to share risk data with regulators. It is therefore crucial to address data gaps in this area.

Regulatory considerations aside, the basic challenges facing lenders are to take stock of SMEs’ intangible assets (which requires a working definition of these intangibles) and establish how they contribute to the business. Other issues include how to place a value on these assets; how this value can be realised in case of a default, by whom, and at what price; and how lenders can obtain effective controls over the assets, especially when several jurisdictions are involved.
All these uncertainties have a knock-on effect on transaction costs. Without intervention, lenders are faced with a “Catch 22” situation; debt transactions based on intangibles can only be made to work at deal sizes that are unaffordable for all but the largest and most successful SMEs, for whom access to finance is less of a constraint.

In light of these obstacles, the case for policy intervention to increase the use of intangible assets to enhance SME financing appears strong. There is a market failure in debt funding when it comes to leveraging intangible assets, and lender unfamiliarity with the asset class, the heterogeneous nature of the assets themselves, and the complexities of the current legal and regulatory position all support the conclusion that some assistance is needed to help markets determine with confidence which company-owned intangible assets have realisable value. Specifically, lenders are unlikely to amass sufficient loss and recovery data in the absence of government intervention, even though these data are required to satisfy regulators regarding the level of intangible value on which reliance can reasonably be placed.

Governments have recognised the importance of enabling fast-growing, intangible asset-rich firms to access appropriate sources of financing, and that market failures for these types of SMEs are at play. In some countries, the main approach used to stimulate the flow of credit to innovative businesses has been to use guarantees that are linked to the enterprises rather than secured against their assets. However, a steadily increasing number of countries, particularly in Asia, have gone further and set up special schemes to address the challenges associated with collateralising intangible assets. In certain cases, “ring-fenced” funds have been established by development banks; in others, combinations of subsidies and guarantees have been used to encourage private sector engagement. Some have deployed a number of methods, and most have also made additional efforts to overcome the problems of valuation and high transaction costs.

As set out in Part 4, these initiatives are typically in their early or even experimental phase, but provide an important source of intelligence on the steps necessary to enable intangible asset-backed lending to take place. Good approaches may vary substantially by territory for a number of reasons (such as the size and distribution of lending organisations, cultural and legal attitudes towards intellectual property rights such as patents, and legal frameworks regarding permitted forms of security). However, one common feature of these examples is that they acknowledge the need for interventions that enable risk exposure to be managed.

The experiences to date highlight some criteria interventions have to satisfy in order to be scalable, sustainable and additional. These are set out in Part 5. Key points are that approaches are likely to incur losses in their early stages; they appear to be more successful if they utilise a relatively wide range of intangible assets; and they need to tackle the transaction cost problem (which partly arises from low transaction volumes). It is also evident that data gathering, sharing and analysis will be critical to success - both in operating such schemes, and in determining their effectiveness.
1. Context

1.1. Highlights

- Bank debt remains the main source of external funding for SMEs, but high growth firms face challenges to access credit needed to invest in innovation, in part because the knowledge-based capital they create and possess is an unfamiliar asset class;
- The outputs of knowledge-based activity are wholly or largely intangible. New ways to fund this activity are relevant for two areas of strong policy interest: innovation and SME access to finance;
- This study builds on recent OECD papers considering alternative financing approaches and the role of intangible assets in business value creation;
- The study investigates the assets and their owners, the challenges and limitations inherent in leveraging intangibles for finance, and the policy interventions to address these issues across a range of countries, drawing conclusions regarding the characteristics of a successful policy intervention.

1.2. Background

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. At the same time, there is increasing attention, not least from policy makers, to the need for further developing non-bank financial instruments. This interest is driven in part by the observation that credit constraints are becoming entrenched since the eruption of the financial crisis. Regulatory reforms aimed at strengthening the capital adequacy of lending institutions and bank deleveraging are expected to have a long-lasting impact on credit markets, leading to tighter credit conditions becoming the “new normal”, which will likely remain so for the foreseeable future.

Moreover, debt finance in its current form is not always the most suitable form of funding, especially in the case of innovation-driven, high-growth enterprises. Although these firms form only a relatively small proportion of overall SME numbers, they account for a disproportionately large share of employment created, act as important drivers of innovation, and are key participants in achieving inclusive economic growth. In addition, the growth and success of many of these firms is increasingly dependent on the multiplication of knowledge-based capital (KBC); however, despite the undoubted contribution these knowledge assets make to the business models employed by such companies, to date they remain difficult to harness to access finance. This results in a fundamental, structural funding issue, in particular with respect to the reliance generally placed by banks on traditional forms of collateral, which is no longer central to such firms’ value propositions.

Against this backdrop, the issue of intellectual property (IP) and 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. Bringing about more functional IP and intangibles-backed finance can thus address information asymmetries concerning the contribution knowledge assets make to business growth and
foster a better relationship between credit institutions (including, potentially, capital market participants) and young, innovative SMEs, which are in need of new funding channels.

In the context of its programme of work, the OECD has produced several reports, including policy recommendations, related to these issues. These have included “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, leading to restricted SME uptake of alternative financial instruments (OECD, 2015). The study contributed to the OECD-wide project on New Approaches to Economic Challenges (NAEC) and was welcomed by G20 Finance Ministers and Central Bank Governors in February 2015. It also formed the basis for the development of the G20/OECD High-Level Principles on SME Financing, which was welcomed by Leaders in November 2015. A follow-up study to the NAEC report examined in greater detail the current demand- and supply-side challenges that continue to limit SMEs’ uptake of non-bank financial instruments (Boschmans and Pissareva, 2017).

This work is complemented by earlier case studies on various financing instruments and issues, including mezzanine finance (OECD, 2013a), crowdfunding (OECD, 2014) and securitisation (Nassr and Wehinger, 2015) recognising that “financing gaps” exist for certain categories of SMEs and that excessive leverage may increase financial distress. The current study represents an important step in a longer-term agenda, intended to improve understanding regarding how to broaden the finance options available and accessible to SMEs and micro-enterprises, taking into account the heterogeneity of the sector, the challenges for small firms in actually accessing and using the instruments available, the implications of ongoing financial reforms, and the specific financing needs of certain types of firms, such as innovative and high-growth enterprises, SMEs seeking international expansion or those undergoing a major transition.

In order to build on and advance this body of analysis, this study focuses on IP and intangibles-backed financing and its relevance for SMEs. It follows the two-pronged approach advocated by the G20/OECD High Level Principles on SME financing, and specifically addresses its proposal 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 (with due regard for the associated risks). It also builds on recent OECD/STI work on KBC and the economic impact of intellectual property. In particular, this study provides a detailed, practically-oriented investigation of the topics raised by Chapter 9 of, “Enquiries into Intellectual Property’s Economic Impact” (OECD, 2015).

1.3. Rationale

In OECD and emerging countries, corporate investments in intangibles (i.e. assets that have no physical or financial embodiment) have outstripped investments in tangibles (OECD, 2013b; Corrado, Haskel, Jona-Lasinio and Iommi, 2013). Consequently, intangible assets make up an increasing part of the value of enterprises (Andrews and de Serres, 2012). In the United Kingdom, for example, intangible assets typically make up 70-80% of firms’ value, according to estimates of the UK Intellectual Property Office.

There is an important link between investment in intellectual property and intangible assets and innovation in SMEs (OECD, 2011). However, costs of innovation are more likely to be expensed through a company’s profit and loss account than to be recognised on the balance sheet as an asset. Where such costs are capitalised as assets under current accounting rules, the amortising value attributed will not represent the assets’ true
contribution, and lenders generally ignore it (Brassell and King, 2013) or may interpret any such entries as a liability. The lack of readily identifiable and realisable value in the assets created via expenditure on innovation increases the risk that such investments could become “short-termist” and cyclical, especially among resource-constrained SMEs, which are likely to be juggling many conflicting priorities.

There is ample evidence that SMEs face considerably more pressure than large firms to seek to secure finance based on their intangible assets. A recent study shows that 40% of SME applicants at the European Patent Office applied for a patent in order to facilitate securing external finance, compared with 15% of applications from large firms (de Rassenfosse, 2012). In France, SMEs rely more on internal funds for their R&D expenditure than large enterprises, according to data from BPI France. In addition, public funds cover 39% of R&D expenditure by French SMEs, again a higher proportion than for large businesses, indicating a need for government intervention due to a market failure.

This issue is especially pronounced for innovative firms. Their strong reliance on intangible assets constitutes one of the factors explaining why these enterprises often face particular finance problems. Nonetheless, not only highly innovative enterprises and start-ups face financing problems; established businesses that are not categorised as being technology or R&D-intensive often also experience barriers when seeking to raise money for investment in intangibles.

There are a number of distinct challenges associated with the use of intangible assets in the context of debt instruments, a number of which were summarised in OECD (2015), and are examined in Part 3 in detail. These challenges fall under two broad headings: issues that arise from the difficulties in valuing intangible assets, and in realising any attributed value; and transaction cost issues that hinder the development of data and established practices in this area.

1.4. Scope and structure

This study considers the issues and opportunities inherent in IP and intangibles-backed financing in five sections:

- It considers the relevance of this mechanism by purpose and by financing type (grant, equity and debt).
- Part 2 considers the relevance of intangibles for SMEs, how intangible assets should be defined for financing purposes and identifies the SMEs most likely to own them, which would therefore be the main beneficiaries of any policy intervention activity.
- Part 3 examines the current challenges and limitations affecting financing activity associated with intangibles. Investigates the hurdles that are deterring the wider use of these assets, with a particular focus on valuation and the methods available to take intangibles as security.
- Part 4 reviews existing initiatives to address these challenges, summarising current policy approaches and private sector activities across a number of countries and regions, including China, Japan, Korea, South-East Asia, Europe and the United States, drawing out common features and variations.
- Part 5 draws conclusions in respect of where the market failure lies, why policy intervention is needed, what an intervention might achieve, and which elements such measures need to address in order to be effective.
2. Relevance of intangible assets for SME finance

2.1. Highlights

- When discussing the potential role of intangible assets in finance, it is important to define the types that fall within the scope, as the range of qualifying assets varies according to the context in which they are employed;
- There is strong evidence that investments in intangible assets contribute to SMEs’ success. At the same time, many SMEs find it difficult to raise sufficient external financing to make these investments;
- Studies of IP intensity in the European Union and the United States provide some indications of the industries most likely to demonstrate the availability of assets to benefit from IP and intangibles-backed financing;
- Grant and soft loan funding is often awarded for purposes that anticipate the creation of new intangible assets. Where the subject matter relates to innovation, scrutiny of their scope and intended usage is beneficial to determine whether economic benefits are likely to arise;
- Equity investors are cognisant of IP and intangible assets, though seldom make detailed enquiries into them in the context of earlier stage funding; this is a possible area for policy intervention;
- Debt funding is the key context in which intangible asset value is consistently under-utilised, and therefore constitutes the focus of this study. Aside from the relative importance of intangible assets, firm sector, firm size and development stage will also be important considerations in determining the firms most likely to derive benefit from intangibles-backed finance.

2.2. Defining intangible assets

While there are generally accepted ways of defining the characteristics of an intangible asset – in particular, its lack of physical substance, its non-monetary nature, and its identifiability – there are no statute or regulation-backed taxonomies that detail the range of actual assets that confirm to these definitions. There are also no pre-existing rules or formal guidance regarding the choice of intangibles that are inherently suitable or unsuitable for finance.

If the objective is to use intangible assets as security, there are attractions in having access to independent public records to verify their existence. Such records can also be used to register a charge, pledge or other interest. These two factors (verifiability and provision of a notice mechanism) partly explain why registrable IP rights have formed the core of most policy interventions in this area, as set out in Parts 3 and 4. This is not to say, however, that other categories of intangibles are not of vital importance, since they may create the connection between the capabilities of the firm and the customers who pay for them. A trade secret is an example of an intangible asset that supports value creation (and enjoys some legal protection) but cannot by definition appear on a public register. Identifying the various assets that may be involved is therefore a fundamental enabler to value realisation via finance.

There are several different contexts in which intangibles are currently recognised and discussed as business assets, and a number of rule sets that are used to determine eligibility
for the specific purpose to which they relate. The most relevant reporting standards (accounting, economic and industry-led) are briefly discussed in the Annex to this study and a set of working definitions are proposed based on legal definitions.

2.3. Relevance of intangibles-backed finance for SMEs

2.3.1. Importance by industry sector

One way of determining the relevance of intangible assets is to assess where they are most prevalent within the economy and measure the contribution made by these industries. In the case of IP rights that are registered, this can be determined by analysis of national and regional databases; with other unregistered assets, survey data is generally gathered and extrapolated.

As most businesses make use of intangible assets to some extent, the focus of recent work in the EU (EPO and EU IPO, 2016) and the United States (USPTO, 2016) has been to use similar approaches to identify the industries which make above average use of IP rights on a per employee basis, as compared with other industries that also use IP rights. This research has recently been updated and makes two important observations: firstly, that the proportion of GDP (and in the EU’s case, also of employment) accounted for by these industries is increasing; secondly (in the case of the EU report) that the industries identified as having a higher level of IP rights intensity generally coped better with the 2008 economic crisis.

Table 1. Comparison of the contribution made by intellectual property-intensive industries (IPiI) in the European Union and the United States

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of total employment in IPiI</td>
<td>27.8% (direct)</td>
<td>18.3% (direct)</td>
</tr>
<tr>
<td></td>
<td>38.1% (direct and supported)</td>
<td>29.8% (direct and supported)</td>
</tr>
<tr>
<td>Proportion of GDP attributable to IPiI</td>
<td>42%</td>
<td>38.2%</td>
</tr>
<tr>
<td>Wage premium associated with employment in IPiI</td>
<td>46%</td>
<td>47%</td>
</tr>
</tbody>
</table>

Source: EPO and EU IPO (2016).

These studies provide potentially useful insights into the sectors in which IP rights are most likely to be playing an important role, and may therefore indicate industries that may stand to benefit from any intervention.

The individual IP rights found to be most widely used amongst IPR-intensive industries varies according to sector, and the national variations in the distribution of businesses result in differences in the overall economic contributions identified. In the EU report, for example, manufacturing companies account for 16 of the top 20 patent-intensive industries (the remainder being scientific research organisations and those engaged in IP and mineral rights exploitation) and 13 of the top 20 trademark-intensive industries, though the manufacturing sectors involved have a number of differences.

The United States shows a different picture, with the most patent-intensive sectors being computer, communications and semiconductor-related (though chemical and pharmaceutical manufacture still features in the above-average category). The US report offers various methods of trademark intensity analysis, each of which suggests a higher penetration of service industries. The European Union, but not the United States, also
provides a consolidated analysis of the most IPR-intensive industries measured across all types of rights.

Table 2. Intellectual property intensive industries making the largest contribution to employment in the European Union, and the rights they use

<table>
<thead>
<tr>
<th>EU Industry description (NACE)</th>
<th>Employment (2011-2013 average)</th>
<th>Intensive rights usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering activities and related technical consultancy</td>
<td>1 974 400</td>
<td>Patent, Copyright</td>
</tr>
<tr>
<td>Activities auxiliary to financial services and insurance activities</td>
<td>1 618 540</td>
<td>Trademarks</td>
</tr>
<tr>
<td>Business and other management consultancy activities</td>
<td>1 515 600</td>
<td>Trademarks</td>
</tr>
<tr>
<td>Rental and operating of own or leased real estate</td>
<td>1 483 267</td>
<td>Trademarks</td>
</tr>
<tr>
<td>Sports activities and amusement and recreation activities excluding 9329 – Other amusement and recreation activities</td>
<td>1 444 035</td>
<td>Trademarks</td>
</tr>
<tr>
<td>Computer programming activities</td>
<td>1 121 500</td>
<td>Trademarks, Copyright</td>
</tr>
<tr>
<td>Computer consultancy activities</td>
<td>1 110 133</td>
<td>Trademarks, Copyright</td>
</tr>
<tr>
<td>Other retail sale in non-specialized stores</td>
<td>1 077 133</td>
<td>Trademarks</td>
</tr>
<tr>
<td>Manufacture of motor vehicles</td>
<td>1 032 400</td>
<td>Trademarks, Designs, Patents</td>
</tr>
<tr>
<td>Manufacture of other parts or accessories for motor vehicles</td>
<td>884 567</td>
<td>Designs, Patents</td>
</tr>
<tr>
<td>Engineering activities and related technical consultancy</td>
<td>1 974 400</td>
<td>Patent, Copyright</td>
</tr>
</tbody>
</table>

Source: EPO and EU IPO (2016).

2.3.2. Importance for individual companies

A number of recent studies have investigated the connection between company investment in IP and intangibles and national economic performance, demonstrating the contribution made by this asset class, and suggesting that it plays a strong signalling role when considering investment quality.

Corrado, Haskel et al (2012) take the growth accounting intangibles framework and apply it to a range of European countries, showing how to make it work in a number of different statistical systems. As well as exploring how the role of intangible investment differs across countries (with economies such as Italy and Spain remaining much more dependent on fixed assets), it concludes that overall productivity in the period 1995-2007 was strongly related to the contribution made by intangible assets; that spillovers - the ability of non-investing firms to gain from activities of others - are strongly related to the importance of intangibles in each economy; and that there is a strong relationship between the role of venture capital in business finance and the importance of intangibles. Subsequently, the COINVEST project sponsored by the EU took this analysis further and applied it to 20 EU economies.

OECD (2013) brings together much of the international evidence available up to that point on KBC, IP and economic performance. It concludes that firms which own IP, especially patents, are consistently more effective in attracting resources, capital and labour, to grow, and revealing strong positive relationships between R&D inputs, IP creation and innovation performance across most economies.

More recently, Graham, Grim et al (2015) have discussed a new longitudinal database tracking inventors and patent-owning firms over time. The report matches patents granted between 2000 and 2011 to administrative databases of firms and workers housed at the US Census Bureau, using inventor information in addition to the patent assignee firm name to improve on previous efforts linking patents to firms. This study finds that patenting firms,
FOSTERING THE USE OF INTANGIBLES TO STRENGTHEN SME ACCESS TO FINANCE

particularly young ones, disproportionately contribute jobs to the US economy. Patenting is a relatively rare event among small firms, but most US patenting firms are nevertheless small, and patenting is not as rare an event for the youngest firms compared to the oldest firms. Patenting firms are more likely to create jobs in their first five to 15 years after grant, and less likely to destroy jobs longer term, than those without. It also finds that while manufacturing firms are more likely to patent than firms in other sectors, most patenting firms are in the services and wholesale sectors.

Two other recent studies investigate the link between IP assets and SME funding prospects. The first, by Farre-Mensa, Hegde et al (2016), focuses on the impact of IP rights on companies’ ability to raise finance. The research presents causal evidence of the direct benefits of patent rights in a large sample of start-ups. It shows that patents offer gains to entrepreneurs and small inventors, especially if processed in a timely manner. In particular, patents appear to play an important role in reducing uncertainty and alleviating information asymmetries in the market for entrepreneurial capital (i.e. fundraising).

This analysis indicates that patent approvals have a substantial and long-lasting impact on startups: firms whose first patent application is approved create more jobs, enjoy faster sales growth, innovate more, and are more likely to be floated on public markets or be acquired. These positive effects of patent rights appear to be due to their role in facilitating startups’ access to capital by overcoming information asymmetries, which in turn helps them turn ideas into products and products into revenues.

The second report, by Hochberg, Serrano and Ziedonis (2016), presents novel evidence on the market for a relatively unexplored arena for innovation financing. The study shows that “thicker” trading in the secondary market for patents, combined with active engagement of equity investors, can facilitate lending to start-ups with risky projects. It finds that borrowing increases when the secondary market for buying and selling patents grows more liquid, particularly for start-ups that own more re-deployable (less firm-specific) patents. This result supports previous findings that lenders’ willingness to supply funds is closely connected to the expected value of patents upon any liquidation of the firm that owns them.

The ability of informed investors to credibly commit to the future support and monitoring of risky projects serves a central contracting function in financial intermediation theory, and the strength of the observed effect hinges on the existence of a well-developed infrastructure of venture capitalists and institutional investors. Nevertheless, the finding that patent assets and their exchange play a meaningful friction-reducing role in innovation financing challenges the assumption that the market for patents is too illiquid to sway lender expectations, and that only tangible assets are relevant in this respect.

2.3.3. Importance by company business model, size and development stage

The availability of intangible assets such as patents does not necessarily determine where the greatest need for IP and intangibles-backed finance may lie. For example, manufacturing SMEs may have somewhat stronger than average balance sheets, owing to their utilisation of tangible assets for production, and may have access to additional funding options (such as stock finance, where lenders purchase finished goods awaiting shipment to free up working capital, or export guarantees) to help them grow.

In addition, some companies that make extensive use of copyright (potentially alongside designs and other IP rights) are agencies or consultancies that are engaged in creating materials for their clients. Such firms are undoubtedly knowledge-intensive, and will obtain reputational benefits as a result of the work they produce. However, these companies may
have assigned the rights to the IP and intangibles in their works to their clients (as would also commonly be the case with software consulting activities). Hence, while valuable assets may well have been created, the benefits that from the trading value such assets produce will be exploited by others.

This will not be the case, however, when the creative activity occurs in-house. Software, designs and other artistic originals that are produced by a company for its own use are likely to represent an important value driver that will not necessarily be apparent from analysis of IP databases. An alternative method of detecting these companies is to use national employment surveys which can provide a “horizontal” means of considering where assets may be found, to complement a “vertical”, sector-specific approach.

As well as considering the availability of IP rights that can be charged or pledged by industry, there are at least two further ways to segment the companies that might benefit most from policy interventions to help leverage their intangible assets. These methods relate to their absolute size (in turnover, or employees) and their stage of development (early stage/growth stage/maturity). Each is briefly considered below.

Regarding business size, analysis of US data indicates that security interests are routinely placed against patents owned by multinational corporations in the context of financing deals. There have also been other high-profile cases in Europe of companies using their IP assets creatively in this regard (including securitisation in some instances). However, as examined in more detail in Part 4, such companies have not been the primary focus of IP finance interventions (though some may have benefited in China), and there is little evidence to suggest that patents or other IP rights unlock value for these companies that could not be realised in other ways, since they typically have a range of possible funding options open to them.

In comparison, the funding challenges facing SMEs, which make up the overwhelming majority of the business population within all national economies, are well documented. Clearly, and as further explored in Parts 3, 4 and 5, only a subset of SMEs in any country will own IP of obvious business and strategic value. However, given the dominant role now played by KBC in determining company value, and the many different types of intangible asset that may contribute to it, this subset is likely to be sufficiently large to justify consideration of support interventions.

The beneficial role that might be played by IP and intangibles comes into clearer focus when a company’s development stage is also considered. As with SME financing generally, there is an established body of literature documenting the difficulties typically faced by high potential businesses in seeking to cross the funding “valley of death” typically experienced between first trading and sustainable profitability.

In the very earliest stages of development, a company is likely to be reliant on grant and equity funding sources, because it will not be generating sufficient cash to be able to service any debt. Under normal circumstances, non-dilutive debt funding only becomes available at the point that a company has moved decisively into profitable trading. In particular, aside from certain specialist methods of lending (such as venture debt – which is always reliant on strong, pre-existing equity funding partnerships), a company will need to have “rebuilt” its balance sheet before it can attract debt financing at reasonable conditions.

Since intangibles represent assets whose value contribution is not shown on a company’s balance sheet, enabling SMEs to collateralise (at least some of) these assets can compensate for this apparent weakness and provide a lender with sufficient confidence to provide
funding – but only if the lender can be assured that the value attributed to these assets will be recoverable in the event of default.

**Figure 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.

Before investigating (in Part 3) the challenges in introducing intangible assets into the business financing mix, it is first necessary to consider which types of funding are likely to be most relevant, and whether the funding purpose plays a role.

### 2.4. Relevance by funding type

#### 2.4.1. Grant funding (including soft loans)

Grant funding is primarily relevant in support of two purposes: business start-up and R&D (though some, limited assistance is provided by some governments in respect of expansion). Grants may come from government agencies, and may also be available from charitable trusts (often to encourage more fundamental forms of research) and industrial partners (usually to support the development of inventions that are closer to market). The State Aid considerations that are designed to prevent unfair competition and market distortions nevertheless permit assistance to be provided to entrepreneurial start-ups and to SMEs that are actively engaged in innovation. 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 (for example, with a higher education institution). 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.
Depending on the nature of support being offered, there are three respects in which the presence of IP and intangible assets has the potential to be well aligned with grant funding schemes (or the soft loans that are increasingly replacing grants, especially in Europe and North America):

- The economic and societal impact of grant-funded R&D will be greatest when inventions and creations reach the market – which may be more likely to happen if IP rights can be obtained for them. Some collaborative funding schemes require an explicit statement of the IP protection strategy to be made at the time of the application: an intention to apply for IP rights signals an intention to commercialise results (even if the commercialisation pathway is not finalised at the point of application);

- Where a grant application leads to a patent, it can be demonstrated that the associated invention was independently determined to be novel, inventive and capable of industrial application – showing that the funding has produced distinctive results, rather than spent re-inventing things that already exist. Some grant schemes require enquiries to be made into the “prior art” within a particular field prior to award in order to increase confidence that the funding is being appropriately directed;

- Active consideration of the IP position at the time of grant application may prevent a failure to agree ownership of foreground IP and consent to use background IP, which if left unaddressed could subsequently prevent successful commercialisation.

Where grant funding schemes do not currently have specific provisions to examine the status of IP and intangible assets already held or to be created, there appear to be good reasons for introducing them.

2.4.2. Equity finance

There are four main contexts where equity financiers may take an interest in IP and intangible assets: start-up (including spin-out company creation), R&D, growth finance and acquisition finance. It is less likely that equity and IP would have a role to play in providing working capital, other than as part of supporting a business at an early stage of development. However, it is also usually the case that IP and intangibles will be one of a number of elements requiring consideration rather than the dominant factor (other than potentially in an acquisition context).
Figure 2. Relevance of IP and intangible assets for key equity investment drivers

<table>
<thead>
<tr>
<th>Start-up/spin-out</th>
<th>R&amp;D/growth finance</th>
<th>Merger/acquisition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-existing IP and intangibles form the basis for an investible new company based on anticipated returns.</td>
<td>IP is the “growth engine” that provides freedom to operate and creates barriers to entry (but may not be generating much cash yet).</td>
<td>IP provides a proven competitive advantage that can best be leveraged by joining forces with another business.</td>
</tr>
</tbody>
</table>

- **Angel investors, specialist funds**
  - e.g. a new technology from a university or research institute

- **Angel Investors, specialist VC firms**
  - e.g. a rapidly expanding product or service business

- **Mainstream VC firms, private equity houses**
  - e.g. technology, software, brands with clear demand

*Source: Inngot (2017)*.

The range of equity participants is potentially broad. A recent development gathering momentum in some countries (particularly the United Kingdom and the United States) relating particularly to the start-up phase concerns crowdfunding, which may take the form of equity investment (as well as rewards-based mechanisms and debt-based approaches).

There are other, additional ways in which capital markets could engage with intangibles, particularly at a time when yields are depressed in conventional asset classes. Hedge funds and other institutional investors, for example, could welcome the opportunity to invest in companies where the collateral has been underwritten and insured in the manner discussed in Part 5. There have also been some well-publicised investment experiments featuring securitisation of IP assets, such as the “Bowie Bonds” issued in 1997 to unlock value in the future income associated with David Bowie’s back catalogue of 25 pre-1990 albums.

However, it is important to note that intangible assets are seldom the sole, or even the key, criteria for “conventional” equity investment decisions, even where they are present. For example, research (Brassell and King, 2013) indicates that investors place more importance on the quality of the team involved and their track record, on the basis that an excellent team can make a moderately good idea work well, while a moderate team may struggle to develop even an excellent idea. In addition, the individual and collective propensity of equity investors to make an investment will depend on many factors that are unrelated to an individual business and its assets – some of which are matters for policy (such as the existence of tax concessions to help offset losses or reduce capital gains made on successful investments), while others are a factor of the state of the market (such as levels of confidence, and the perceived availability of exit opportunities that enable investors to obtain a return which might potentially be redeployed in other opportunities).

While returns on private investments made into early stage businesses are inherently unpredictable, there is evidence (Wiltbank, 2009) to suggest a direct correlation between improved return levels (or at least avoidance of failure and total loss) and the thoroughness of the enquiries that are made into a company and its assets prior to making a commitment. Despite this evidence, however, it is comparatively rare for private investors or start-ups to engage in detailed enquiries into intangible assets. The reason generally stated is that the company cannot afford to subsidise the cost of such activity (as indicated by the fact that it is fundraising) and the investor making a modest investment does not have the budget or
time available to do it for themselves. By contrast, venture capital companies and private equity firms do engage in due diligence of this nature once they have reached term sheet stage, because the size of the deal in prospect is generally large enough to justify the cost, and the risks of “getting it wrong” are material.

The main area for possible intervention in relation to IP and intangibles therefore concerns the process of conducting due diligence enquiries into the assets an investee business owns or controls prior to making an investment. To avoid policymakers appearing to be involved in the process of “picking winners”, it would be important for any such intervention to be widely available.

2.4.3. Debt funding

As discussed in section 2.5 below, the combination of debt finance and intangible assets is most likely to be relevant for R&D (up to and including its application to new products and services), expansion capital and acquisition finance. Debt is not well suited to start-up situations, and while it is commonly used for short-term working capital facilities such as overdrafts, these are unlikely to incorporate scrutiny of IP. The natural partner for IP and intangibles is therefore a term loan.

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; venture debt typically falls into this category (though it is driven primarily from the opportunity to use reliable equity partners as a secondary exit route, rather than rely on IP and intangibles to fulfill this function). 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.

Figure 3. Summary of the three main debt-based routes to utilisation of intangible asset value with national examples

<table>
<thead>
<tr>
<th>Unsecured lending</th>
<th>Secured lending</th>
<th>Asset-backed lending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use knowledge of the assets and their “materiality” to strengthen credit decisions (&amp; take appropriate controls)</td>
<td>Value the assets and underwrite a minimum collateral value</td>
<td>Purchase assets known to be business-critical and license them back to the company for an agreed period</td>
</tr>
<tr>
<td>e.g. Japan</td>
<td>e.g. China, Malaysia, Singapore</td>
<td>e.g. UK, Korea</td>
</tr>
</tbody>
</table>

Source: Inngot (2015)

Of the three high-level funding methods considered here, debt is the area where IP and intangible assets have the greatest potential to add value. It is also the funding type that offers the greatest number of opportunities to frame support packages (direct lending is
generally less problematic for policymakers than direct investment owing to the elevated risk profile this entails; as Part 4 demonstrates, governments can also stimulate private sector activity without lending state funds, for example through provision of guarantees. Successful approaches may also have applicability beyond traditional, mainstream forms of lending; for example, IP-backed financing also has the potential to make convertible debt more attractive than it is at present (because it may not qualify for the same tax reliefs as equity investment in some markets).

2.5. Relevance of IP and intangible assets by funding purpose

SMEs may require access to external funding for a number of reasons. Purposes commonly encountered include initial start-up, research and development activity, investment for growth and expansion, acquisition finance and additional working capital. The contribution that IP (and related intangible assets) makes to a business’s prospects and performance make it a more natural complement for some of these purposes than others. Each of these is briefly considered below, together with the type of funding (debt, equity or grant/soft loan) that is considered most applicable.

2.5.1. Start-up finance

Start-up finance may be required if a business needs to create, rent or buy assets (whether tangible or intangible) or materials or recruit staff in order to commence trading. It may also be needed to cover the business’s running costs for a period of time until its activities return profits. Depending on the type of activity, this period may be short (measured in weeks) or long (measured in years). In either event, the natural funding route involves equity investment. Debt is difficult for a new or very young business to service; founders may make use of personal savings, loans or credit cards, but these will be on their own account, rather than that of the company.

Interviews with investors (Brassell and King, 2013) indicate that IP and intangibles are a relevant consideration for this type of funding, for three main reasons. Firstly, it is very unusual to find a start-up business with significant value in tangible assets. Secondly, early stage investors are primarily interested in the return on the capital they provide, and the highest returns (as explored further under acquisition finance, below) are frequently associated with business models, technologies, products and services that are disruptive, innovation that is primarily associated with intangible assets. Thirdly, in order to achieve these returns, a business must have “freedom to operate” (i.e. it must not be vulnerable to challenge on the grounds that it is infringing other companies’ rights), and there must be barriers to discourage market entry for competitors, qualities that are primarily achieved through the use of IP protection. If the idea is particularly novel, and well aligned with a sector that a government views as a strategic priority, investors may be able to make their money go further and increase the chances of successful commercialisation through grant funding (though a number of countries in Northern Europe are moving towards repayable loans rather than grants under such circumstances).

IP and intangibles therefore have a part to play in early stage funding. This is especially the case if a start-up is created with the benefit of technology that has already been developed to demonstrator/prototype stage, for example by a university or research institution. It is far less likely to be the case for a business that does not purport to be doing anything particularly new or distinctive.
2.5.2. Research and development (R&D) funding

More IP-intensive business models are likely to have an ongoing requirement to invest in research and development (“R&D”), a need that may be particularly acute at an early stage (since a substantial amount of effort may be required in order to create an initial product or service capable of being traded). R&D may be performed by the company itself; conducted in collaboration with the knowledge base or commercial partners; or sub-contracted to other parties. While R&D may involve the acquisition or adaptation of tangible assets, it is typically a labour-intensive process whose costs may exceed the company’s ability to service them from retained profits alone. Where not financed at start-up in the manner described above, this may be paid for using any or all of the three main sources of external business finance, i.e. grant, debt or equity.

Since successful R&D is closely associated with innovation and growth (through the creation of value-producing intangible assets), it is a strong focus for policy attention. A range of grants and tax benefits are in place to either co-fund the creation of the assets initially, or to reward companies for making their own investments on a retrospective basis, as noted in Part 4.

The challenge in utilising IP and intangibles to finance R&D is that the new assets to be created may only exist in a very preliminary form, if at all, at the point that the funding is required. The emphasis in any debt instrument therefore has to be on leveraging the intangible assets that have already been created (through prior R&D work) and whose contribution to past, present and future company performance can be assessed. If there are no such assets, then funding appetite is only likely to be found from equity sources.

2.5.3. Growth/expansion capital

Investment for growth and expansion may be required to build capacity or enter new markets (whether in terms of geographical scope or sector focus). It may involve debt and/or equity (and certain activities may also be eligible for regional or national grant funding schemes). The decision regarding the chosen funding route will generally depend on the level of maturity of the underlying business, but whichever form of finance is ultimately involved, intangible assets may be a relevant consideration.

Debt will generally be the preferred growth funding mechanism, provided that the company generates enough cash and profit to meet lender serviceability criteria. There may also be an opportunity to use tangible assets that are needed, or are already owned (such as property, plant or machinery), to fund purchasing or leasing using asset finance. If the company’s primary need is to enlarge its workforce, asset finance is more difficult; furthermore, in order to make either tangible assets or its workforce productive, a company may need to make accompanying intangible investments (such as marketing, training, software coding and/or IP protection).

Where the conditions do not lend themselves to debt (for example, because the products and services a business sells are still comparatively immature), the business may need to seek equity finance and suffer ownership dilution to raise the necessary funding, in the expectation that this will result in a net gain due to increased overall business value. However, irrespective of the funding method, it is common to find that IP and intangible assets form part of the foundation for the planned expansion, by virtue of underpinning the processes or methods that need to be scaled up, being embedded within the products and services themselves, or providing a protected environment in which they can be sold without infringing other companies (or being infringed).
2.5.4. Acquisition finance

Acquisition finance may be needed when a company wants to buy another business, where the purchase amount exceeds a company’s existing reserves. The associated finance may take the form of debt or equity. Borrowing for an acquisition may involve taking security over the assets that are being acquired, or the assets the buyer already owns. A diverse range of equity arrangements are found, which may involve restructuring of either or both businesses, or may simply involve part or all of the consideration being paid in share capital of the acquiring company rather than cash.

Acquisitions may be made for a number of reasons (offensively/defensively; to access new customers and/or new markets; to expand an existing area of capability, etc). There appears to be a reasonably high degree of compatibility between IP and acquisition finance, for two reasons: firstly, a substantial proportion of the assets ultimately acquired through acquisition are intangible, and deemed to be of utility and value; secondly, intangible assets may, in some circumstances, be a decisive contributor in the appetite of the purchaser to buy, and the price they are willing to pay. Each of these two aspects is briefly considered below.

Under international accounting rules, specifically IFRS 3, post-purchase accounting requires an assessment to be made of the value of the fixed assets, identifiable intangible assets and goodwill that have been purchased, so that these can be suitably represented on the acquiring company’s balance sheet. Past research into these filings conducted by Deloitte (2007) and KPMG (2010) has found that the identifiable intangible assets component can represent a substantial part of the value attributed.

Whilst these values vary according to sector, it is not uncommon to find one-third (33%) or more of the price paid ultimately allocated to identifiable intangible assets (in telecommunications, software, logistics and automotive, with some sectors as high as 45% (life sciences and computers). These figures are elevated because in high technology sectors, it is often the presence of scalable IP and related intangible assets that prompts the acquisition activity.

In such contexts, the focus on intangible asset value would typically be on how the acquirer anticipates using it to enhance existing operations or defend its market position in the future. In addition, such purchases are sometimes motivated by a perceived need to ensure that control over the technology does not pass to a competitor.

2.5.5. Additional working capital

Working capital (usually defined as a business’s net assets including cash minus its current liabilities) is needed to pay for the day-to-day running costs of a business. If direct costs are incurred when providing a product or service (as is usually the case), and if there is a delay between producing and supplying goods and receiving payment for them, additional working capital may be need to be obtained from external sources. Survey data suggests that this is the most common motivation for companies to seek finance, with 53% of respondents to a UK business survey (British Business Bank, 2016) highlighting it as the reason for an application. However, a need for working capital does not lend itself particularly well to the use of intangible assets.

While some of the areas of expenditure for which working capital is needed may be intangible (such as the need to invest in marketing or training in order to obtain or fulfill a larger volume of sales), the tenor of working capital is generally short-term. Within the 2016 survey, when asked to name the reasons the funding was required, most respondents were looking cover a short-term shortfall (51%). 33% wanted it as a safety net; 24% said
they needed to cover unexpected costs; and only 33% were seeking to use it for growth. Accordingly, an overdraft facility represents the most usual means of accommodating such a requirement, and this typically requires the use of personal guarantees rather than other forms of security that would take longer to verify and value.

Other measures that can be used to address short-term working capital needs include the use of invoice finance (which does not add to cash flows, but accelerates payment to reduce gaps between supply and settlement). It is unusual to seek equity funding for working capital, except in the start-up funding context discussed above.
3. Current challenges and rationale for policy interventions

3.1. Highlights

- Current challenges fall under two broad headings: issues that arise from the difficulties in valuing intangible assets, and in realiseing any attributed value; and transaction cost issues that hinder the development of data and established practices in this area;
- There are well-established and documented methods for intangible asset valuation and some industry standards, but there is much wider variation in “value concepts” and approaches than for tangible assets. The causes of volatility in IP and intangible asset value are also less familiar to lenders, who may not trust information they are given, principally because of the difficulty in obtaining validation via the market;
- The security principles used in asset-backed lending and term loans may be used with IP and intangibles, but significant national variations exist, and current systems do not support easy and accurate identification of pre-existing interests, especially in the case of unregistered intangible assets;
- The rationale of policy intervention is three-fold. First, there appears to be a market failure to value intangibles properly, especially in debt markets. Second, several challenges need to be addressed at once in order to enable SMEs to leverage these assets to obtain finance. Third, given the importance of intangible assets, especially for fast-growing, innovative ventures, policy intervention in this area could bring large benefits to countries’ economies and societies.

3.2. Challenges in funding intangibles related to valuation and value realisation

3.2.1. Difficulties in IP valuation

In order to lend against IP and intangible assets, or use them to add confidence or comfort in any debt or equity scenario, it is necessary to arrive at a value for them. Depending on the structure of the transaction being contemplated, this may need to be a precise value or an indicative one.

There is no one agreed method of valuation

A number of different intangible asset valuation approaches exist, most of which are generally accepted within the industry, though some are partly or wholly proprietary. Such valuations are nearly all based on one or more of the three fundamental methods summarised in Box 1 below.

Whilst these International Valuation Standards can be applied to intangible assets and are widely practiced, the valuation process is inherently more complex than it is for many categories of tangible assets. The difficulties stem from two main factors: the absence of transparent markets on which these assets are frequently traded, and the heterogeneous characteristics of individual intangibles. This means that pricing data with which to make comparisons is not generally available, and even where it does exist, there may be legitimate questions regarding the validity of comparisons made.
Box 1. Intangible asset valuation methods

The **cost approach** starts from the premise that an arm’s length buyer of the intangible assets would not pay more than the amount needed to reproduce or replace them. Assuming that the methods by which these assets have been created has been reasonably efficient, the starting point is generally the value of the historical investment made in bringing these assets to their current state of completion and value contribution, less deductions for legal, functional market and/or technical obsolescence. Where the emphasis is on reproduction cost, the “value concept” relates to the amount someone else would need to spend to bring the same set of assets to the point that the original inventors or creators have achieved; if related to replacement cost, it expresses how much would need to be expended to create something of equal utility, but not necessarily using the same methodology.

In theory, making comparisons between the IP and intangibles under scrutiny and sales of similar asset “bundles” provides the best way of arriving at an indication of open market value. This is known as **market comparison** and is the approach most commonly used to value tangibles. It is sometimes possible to obtain sufficient detail on comparable intangible asset transactions that “multiples” can be extracted and be applied to a target company’s financial performance. Additionally, a few companies operating IP marketplaces or brokerage services have their own unique insights into how assets in certain sectors have performed when offered for sale or auction; as one example, interviews indicate that ICAP Patent Brokerage in the United States holds information gathered from intangible asset sales over a ten-year period, and uses these for its own valuation and reserve price setting activities. There are also a few companies that settle on an IP value by identifying named companies that may have a strategic interest in purchasing a given set of assets in the future.

In most cases, valuation of an IP and intangible asset portfolio relies primarily on an assessment of **the contribution it makes to income**. Often, since the reason for valuation centres on expected future benefits, the incomes in question are forward-looking estimates which need to be scrutinised and risk assessed in the light of market conditions and actual historical performance. There are a number of generally known methods, all of which aim to isolate the value of the IP and intangibles from other assets in use within a business. These methods include profit differentials (considering the extra earnings a company can realise with the identified set of assets, compared with alternative approaches); excess earnings (modelling the overall value of future incomes and subtracting the aspects attributable to tangible assets); and relief from royalty (determining how much a third party would pay to license the technology).

**Each IP and intangible asset valuation method has its limitations**

The cost method is generally recognised to offer some benefits when considering the value of software-based intangibles. It has also been used when applying asset-backed financing techniques, as a means to consider the amount of value that would have been present on a company’s balance sheet if the assets in question were tangible. It is also fair to observe that since few assets of very large value can be created without significant investment, consideration of cost has utility as a “check and balance”. However, its underlying premise becomes problematic where the assets are subject to IP rights protection, as they could not
Fostering the use of intangibles to strengthen SME access to finance

Legally be reproduced and used. Its use also discounts the fact that few if any businesses would create assets in the expectation that their ultimate business value would be limited to their cost.

Further, cost-based calculations are vulnerable to two external criticisms concerning the validity of the data used to drive them. Firstly, it can be very difficult (particularly in a research-intensive organisation) to isolate the costs relating to a specific group of assets with precision, especially if they have been developed over an extended period. Secondly, a buyer can often find grounds to argue that its costs of invention, creation and/or implementation could be lower.

Turning to market comparison, there are a number of challenges in applying this method to intangibles. Sales of IP tend to be “wrapped up” with the acquisition of entities rather than dealt with separately; also, such asset sales as do occur are often conducted in secret, and those that are made public are seldom entirely comparable due to the unique and uncommoditised nature of the assets involved.

In the absence of confidential or proprietary insights into prior transactions (such as those discussed in the accompanying panel), valid market comparisons are difficult to perform. In the financing context, the circumstances of a relevant prior sale become especially important; if data relates to a transaction involving a “going concern”, it may not address the concerns of a lender regarding value upon liquidation, which may lie substantially below the estimated value.

Owing to these shortcomings, UK research (Brassell and Maguire, 2017) indicates that the income approach, and the relief from royalty method in particular, is the most commonly used and widely accepted valuation technique. It is already, as further noted in Part 4, the recommended method specified in Malaysia. Relief from royalty has the advantage of being based on “real-world” licensing transactions that are directly related to IP and intangibles, thus providing a market dimension.

However, income methods are not beyond criticism. Like any forward-looking approach, they have to cater for the uncertainties inevitably present in financial forecasts. The younger a business is, and the less well established its cash flows, the more uncertainties there will be. Typically, the risk element is assessed and used to adjust the weighted average cost of capital used in a discounted cash flow calculation, which brings the cumulative future value back to a present day estimate. However a “weighted” view of this kind may not take full account of the sometimes binary nature of IP value in transactions (there is either some realisable value, or there is none).

*Intangible asset valuation standards only offer broad guidelines*

In addition to the standards that determine how intangible assets may be represented in company accounts, set out in Part 2, a number of standards have been written and published to govern or guide the manner in which value is attributed to them. The best known, and most widely adopted within the industry, are those have been drawn up by the International Valuation Standards Council (IVSC), and (to a lesser extent) the International Standard, ISO 10668, introduced in 2010. There are a number of other less frequently referenced documents, such DIN77100 – General Principles for Monetary Patent Valuation (published in German as *Grundsätze der monetären Patentbewertung*), and two Austrian Standard Institute standards ONORM A6800 & A6801, relating respectively to trade marks and patents. All of these documents discuss the use of the cost, market and income methods briefly summarised above; while some commentary is provided on the suitability of
different methods, none of these documents establishes or advocates a specific method by which a particular type of intangible asset should be valued.

The IVSC sets out its standards in a Framework and Requirements document, which sets out the valuation concepts, principles and definitions, and separately publishes guidance covering applications and technical information intended to cover most forms of valuation in business. In the case of intangible assets, the relevant standard is IVS 210. It supplies working definitions that distinguish between price, cost and value, pointing out that “Price is the amount asked, offered or paid for an asset… Cost is the amount required to acquire or create the asset… [and] Value is not a fact but an opinion of either the most probable price to be paid for an asset in an exchange, or the economic benefits of owning an asset. A value in exchange is a hypothetical price and the hypothesis on which the value is estimated is determined by the purpose of the valuation.”

ISO 10668 is focused on monetary brand valuation. The value concept set out in this document is to represent the benefit conferred by a brand over its expected useful economic life, which implies (provided that the asset is not already at the end of its life) an emphasis on forward-looking estimates. However, like IVSC standards, the ISO standard specifies that the income, market or cost approach can be used, either individually or in combination, providing some further guidance on their applicability, indicating that the ultimate choice depends on purpose, value concept and brand characteristics.

The flexibility provided within these standards, and absence of a single favoured method, reduces the comparability of valuation outcomes. The process is complicated further by the variances in identified “value concepts”, a point considered further below.

Different valuation contexts can yield different results

The financing context highlights a challenge sometimes encountered in other IP valuation scenarios, namely that independently of the method chosen, the different situations in which value may need to be realised may produce divergent outcomes. In the experience of ICAP Patent Brokerage in the United States, for example, there are at least three distinctly different valuation contexts, or “value concepts”, that could be asked of a patent: what value it contributes to a trading business; how much someone will pay to settle an infringement case if the patent is valid and enforced; and what it will sell for if its value needs to be realised (particularly if this needs to be done urgently, which may happen if a company is in financial distress).

The reason for the divergence is that the first scenario will be modelled on a specific, existing use case; the second relates to resolution of a dispute over unauthorised use (likely to be dependent on the scale of the infringement, but also on confirmation of the patent’s validity, and ultimately determined by potential damages); and the third is the value a third party might see in adding a patent to its own asset portfolio (a use case further complicated by the different considerations in play; these might be based on added value in a trading context, on possible enforcement, or on defensive advantage). It would not be surprising to find that the attributable value was substantially different in each case.

This raises the question of how the valuation assessment should be framed in finance. The answer could vary depending on the form of funding being sought (for example, when seeking to value a business in the context of an equity funding round, an investor might be most interested in the IP’s likely longer-term contribution). However, it may be possible, and advantageous, to propose standard value concept questions within each financing type, particularly if the intention is to leverage the assets as collateral.
It is reasonable for a lender to build a substantial safety margin into any collateral asset value relied upon to accommodate uncertainties regarding the prospects for successful disposal, as is routinely done with other asset classes (such as stock in trade, whose theoretical value will often be heavily discounted when used for these purposes). However, it is also important that a lender should not be overcollateralised to the extent that it fails to attribute an appropriate level of value to the assets over which it obtains security. If a lender gauges the potential security value of IP and intangibles offered for consideration solely on the basis of a possible “fire sale” disposal value, this may significantly understate the contribution that the assets make to the business on a day-to-day basis, which is their expected use. This point is considered further in Part 5.

Questions over report transferability can be raised

Given the legitimate variations that may exist in valuation reports as a result of using different valuation methods and value concepts, a practical difficulty may arise in relation to report origin. Whilst IP and intangible asset valuation reports should always make the basis for their calculations clear, a lender or investor may be sceptical regarding whether a valuation paid for by a company (which may naturally be motivated to put the best possible complexion on their assets’ value) will take the same view of risk as would be present in a report commissioned by themselves. Generating confidence in the values found, while ensuring that financiers are incentivised to act responsibly (for example, by not placing undue reliance on the presence of a guarantee), is an important area of policy concern.

One way of generating confidence is to require all IP and intangible valuations to be conducted by state-backed organisations or by large multinational accountancy practices or other similarly qualified private sector specialists. Both of these approaches have been used by countries that operate IP financing schemes, as explored in Part 4, but each can be problematic. Control over valuations by the state introduces both a potential bottleneck and a level of intervention in the operation of the market which many countries (and lenders) would consider undesirable; also, imposing a requirement for all valuations to be “bespoke” exercises conducted by multinational accounting firms introduces a high level of cost into the system and makes smaller financing deals uneconomic to transact, placing them beyond the reach of SMEs. This effect is of particular concern in constructing an approach that meets policy objectives, can collect a large quantity of comparable data, and avoids concentrating risk in a small number of large deals (which the market might be willing to finance in any event, thus undermining additionality).

The estimated value of intangible assets can be volatile over time

Few, if any, asset categories have a constant value that does not change over time. In many respects, the behaviour of intangible assets is not very different from that typically associated with tangible assets, but because some of the major causes for changes in value are different, the points of parity may be less obvious.

For example, financiers are well acquainted with the concepts of depreciation/amortisation (which normally apply to fixed assets deployed in a business context), but intangible assets may increase in value over time if well managed (as real estate may also do). Similarly, while sophisticated models exist to allow for the effects of age and condition in predicting future value, these do not normally have to accommodate technical obsolescence caused by external market factors, as may happen when a company’s technology is overtaken. Furthermore, complete loss of asset value due to theft, fire or damage is typically mitigated through the use of insurance policies, but there has not historically been an active insurance
market to cover the actual loss caused by invalidation or infringement (IP and intangibles insurance cover has generally focused on mitigating the costs of defending a position or pursuing an infringer).

Notwithstanding the existence of some parallels, it follows from the preceding summary of valuation methods that where the method chosen is income-related (a concept less commonly used with tangible assets), a shortfall in the performance of the company compared with initial expectations could produce a fall in the notional value of the assets were they to be re-valued. Thus, at the time when pressure on a loan agreement may be greatest, the reliability of the assets might come into question, especially if there is in fact a connection between profit performance and the IP and intangibles that support the business model.

While there are a number of ways in which this risk may be mitigated – for example by ensuring that the period of time over which lending activity takes place is reasonably short, and reducing the proportion of agreed asset value that is used as collateral remains substantial – these characteristics (combined with the absence of transparent retail markets) are likely to remain a concern for lenders considering the use of IP and intangible assets. They further support the need for short- to medium-term assurances to be provided as part of any policy intervention.

3.2.2. Obtaining effective security over intangible assets

In order to be able to realise value from intangible assets in distress, it is necessary for a lender to be able to exercise control over them. This is typically done by taking security. A number of instruments exist which can be used for this purpose, but the process is typically regarded as somewhat challenging compared with tangible assets.

In essence, the process of taking security establishes actual or conditional ownership of the assets it covers. A lender may choose to impose a security requirement for a number of reasons, but is usually motivated by either or both of two considerations: whether it is necessary to obtain rights over an asset (or set of assets) because it is relying on their realisable value when making its lending decision, or whether it gains benefits in terms of borrower incentives to repay or sanctions it can apply in default or loss, regardless of whether value has actually been assigned to the assets in question. For example, as further explored in Part 4, it is now fairly common practice in the United States to pledge patents in large financing transactions, but this appears mainly to relate to the second of the two considerations referenced above.

There are some important variations in the security interest regimes between different countries and also in the enforceability of these interests in the event of administration or liquidation that pose practical challenges for lenders whose customers own intangible assets across a range of different countries. There are essentially two routes that a lender can pursue, summarised in Box 2: to use an asset-backed finance structure, or (as is more commonly the case in existing schemes) to use the security mechanisms more commonly associated with term loans.

Whilst there are technical challenges regarding the use of a lease, other asset finance approaches such as sale and license-back offer the advantage that any administrator will have to note the lender’s ownership in any business-critical asset and continue to pay for the use of the intangible assets while the business is being put up for sale as a going concern. Also, whilst there are national variations, debt interests generally take priority over equity
when it comes to any ultimate distribution of proceeds from a company liquidation and sale.

However, an asset sale of this kind may not be the preferred structure in the view of the company or any equity funders already supporting it. The problem is not so much the use of intangible assets to raise growth capital (equity investors are generally supportive when non-dilutive approaches can be used) as it is the principle of losing ownership control over assets that are regarded as core to the business (even if when appropriately configured, sale and license-back agreements can allow for the possibility of re-purchasing the asset at any time).

In the United Kingdom and United States, the mechanism applied to intangible assets (within finance-related agreements such as a debenture, a type of debt instrument that is not secured by physical assets or collateral) will usually be a general intangible lien or a floating charge. Neither of these identifies the assets in question, or does anything to stop a company from using them in any way they wish, including disposing of them. The floating charge is more suitable for covering assets such as cash, stock and raw materials, as it would be impractical and inconvenient for a lender to approve their disposal and use.

The types of instrument available also vary, posing a challenge to lenders seeking to put arrangements in place that will be effective in a number of territories. For example, in the United Kingdom and other territories with common law regimes, a pledge is possessory in nature and therefore not suitable for use with IP and intangibles; however, in the United States and, for different reasons, in China, it may not be possessory. It is also a requirement for charges or pledges to be registered appropriately in order to establish a valid interest that can be enforceable, and it is not always obvious where the security interest should be registered; additionally, it is necessary to ensure that the assets in question are not already encumbered under another, pre-existing financing agreement – in other words, that the lender’s interest will have priority over any other claims.

In practice, lenders usually address this question by focusing on obtaining security in a limited number of countries whose security regimes are easier for them to understand and use (see box 2).
Box 2. Taking security: asset and term loan approaches

In asset-backed approaches to finance (using hire purchase, leasing or sale and leaseback), and when funding commercial property transactions by way of a mortgage, establishing security is relatively straightforward, because the process typically involves a contractually binding purchase of the asset(s). This gives the lender legal title, and the company the full use of it. In the event that an agreed set of debt repayments based on the asset is not forthcoming, there will be a need for the lender to obtain possession, but no need to transfer ownership.

These structures have been applied to intangible assets in some countries (including Korea and the United Kingdom). The mechanism in question is a sale and license-back, under which the lender obtains ownership but the originator of the assets can continue to enjoy exclusive use.

In other forms of lending, the usual course of action is to put in place a charge, pledge or lien against any tangible asset that is being used as security. These mechanisms have different meanings and confer different rights and obligations depending on the country in which they are implemented.

As one example, in the United States, intangible assets may be caught within a common structure called the “general intangible lien” which only applies in the event of a loan agreement going into default; however, in United Kingdom law, a lien is inherently possessory in nature and would not be a preferred structure, because a company has to continue to possess the intangible assets that are being financed in order to generate value from them and meet its obligations. The approximate equivalent mechanism in the United Kingdom is the floating charge, which similarly attaches to assets in the event of default.

Depending on the territory, the preferred mechanism to obtain security over IP and intangibles is likely to be a fixed charge or pledge. This establishes lender rights over an identified asset that prevent it from being legally disposed of or used other than in the ordinary course of business, while not requiring the lender to take on responsibilities for maintenance. It is theoretically possible to use mortgages over IP and intangibles, but their structures are unnecessarily complex, and could make it difficult for a company to take action against a suspected infringer.

There is a need for enquiries to be made into the assets

Since IP is (by definition) property that can be owned, assigned and transferred, there is no conceptual problem with establishing a security interest over it in exactly the same way as a tangible asset. The position is slightly less clear cut with other types of intangible asset, as they are not always separately identifiable in the same way, and there is no external register that can be consulted in order to check their status.

There are four key questions that need to be addressed when taking any asset as security, namely:

- Whether the asset exists;
- Assuming it does exist, whether the company really owns it and is able to grant title to it;
• Whether at the time of agreeing the loan anyone else has a prior interest (and if so, whether they are prepared to relinquish this interest in order for the new loan to take place);

• Whether anything could happen after the facility is put in place which would undermine the legal rights a lender would otherwise have.

The security interest then needs to be “perfected”, normally through registration, which is intended to establish priority in favour of the lender and provide a means of notifying anyone else who might wish to purchase the assets or use them as security. In the case of charges, this notice mechanism is important in ensuring that the lender’s interest is maintained. It is generally considered advisable to register charges against both the company and the official record corresponding with any registrable asset such as a patent, requiring two sets of information to be filed.

Even where interests can be registered against identifiable assets, there may be difficulties caused by the frequency with which some registers are updated and made available. In China, for example, pledges need to be centrally registered in Beijing (except where there is a special dispensation in place, as in Shanghai); there are separate authorities responsible for registering pledges against patents, trade marks and copyright materials; the patent pledge register is only published every six months (though is available on inspection), while the trade mark pledge register is only published annually, and the copyright pledge register is not published at all (it is necessary to have the required standing, for example as a lender considering using the copyright as collateral, to gain access to it).

*The enforcement of security can be an issue*

Once the enquiries set out in the preceding section have been satisfactorily concluded, lenders dealing with companies whose assets solely relate to its domestic territory are unlikely to experience significant difficulties in registering an appropriate form of security interest, at least against most types of IP. Provided that the lender has appropriate measures in place to ensure compliance with the terms of its registered interest, including checking that the assets continue to be protected and maintained, it should be able to exercise its rights when and if needed.

The position is less certain with other intangibles, which will generally need to be covered within the detailed wording of the charge or pledge documentation. This is less satisfactory, as it may not provide an adequate notice mechanism, and to lend against intangible assets at scale, the issue of access to information on pre-existing security interest data will need to be addressed. On this topic, the Chinese Government has announced plans to set up a detailed security interest register to simplify the mechanisms of registration and notice.

The main complication likely to be encountered with companies having extensive portfolios of IP registered internationally is that local laws governing areas such as security perfection and (particularly) bankruptcy may render a lender’s standard charging instruments invalid or unenforceable. This is most likely to be the case where the IP is held in countries that do not have a common law tradition or an established security regime such as the Uniform Commercial Code in the United States.

Ideally, the enforceability of the proposed security documentation should be confirmed in advance in each territory where IP is held and modified accordingly. However, in practice (due to the substantial legal costs that may be involved), lenders currently engaged in this activity tend to take a view regarding the territories where the IP is believed to have most value, and make these the focus for any necessary checks and registrations. This, too, is an
area where standardisation of practices, templates and information sharing between lenders could usefully help to drive down costs.

3.2.3. Redeployment issues

Redeployment concerns relate to the ability of one company to use the IP and intangibles that have been developed by another, an important consideration in value realisation. Fundamentally, they arise from the tendency for intangibles to be seen as supporting, and/or only associated with, one company’s specific business model. There may also be concerns about the extent to which the assets are separable from the business, from a practical, legal or technical viewpoint.

The relationship between intangible assets and the specific business model of the owner of the asset causes a particular problem in circumstances where the company as a whole is financially distressed, and at risk of becoming a “gone concern” (at which point the focus may shift from enabling the business to continue towards breaking it up and realising value from its assets). The fact of the distress may be viewed as having eliminated (or at least substantially reduced) the assets’ realisable value, because the weakness of the associated financial performance implies that these are lacking in quality. This will be especially relevant if the IP and intangibles are a causal factor of the distress, rather than these difficulties being caused by business mismanagement or external factors. Brand-related intangibles are particularly prone to impairment of this nature.

However, financial performance is not the only driver of intangible asset value, because the assets have utility beyond their day-to-day use in a business model. The clearest evidence of this comes from the disposal of the patents owned by Nortel Networks of Canada in administration. The basis of their realisable value was that a number of corporations were interested in the potential defensive/offensive value of these assets in litigation, and were prepared to pay a high price (in this case, over USD 4 billion) to gain control over them.

Three practical concerns over separability are commonly expressed. The first is that the assets themselves are associated with a business model that is so unique that no other company can derive value from them. Whilst theoretically possible, this is essentially an expression of concern about associated financial performance. If the results achieved through use of the assets by a business have been strong, and especially if customers continue to exist for them, then subject to obsolescence (considered below), it is likely a buyer will exist – the only difficulty will be to find them.

The other two practical difficulties are that the assets may have been impaired or damaged through neglect (something that can be addressed through appropriate controls), or that they are incomplete, for example because the know-how needed to realise value from them is now missing.

Legal or technical obstacles to transfer may take a number of forms. In principle, intellectual property of all kinds is a property right that can be assigned, transferred or licensed. In practice, however, pre-existing contracts may place restrictions on how and whether this can be done. As one example, an exclusive licence to IP rights granted to one company may fall away if it ceases trading, without a lender or its administrator being empowered to negotiate transfer to a potential purchaser of that company.

In terms of technical hurdles, these may relate to dependence on a particular platform or system that is not in general use; to the need for specialist support that is not widely available; or more generally to obsolescence. For example, a firm may have developed
software on a platform which is not widely used, which requires continuous specialist maintenance, or for which manufacturer support is no longer available. In any event, this places obstacles in the way of a successful disposal.

In summary, redeployment becomes an issue if a business is not able to continue as a going concern. Whilst it may be difficult to determine in advance that other companies will definitely be able to utilise a firm’s intangible assets under such circumstances, it is possible to identify indicators to the contrary.

3.2.4. Absence and illiquidity of secondary markets

The lack of transparent, open markets for intangible assets (compared with the tangible assets a company typically owns) is an 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. The presumption made by lenders is often that no good disposal options are likely to exist for distressed intangible assets, especially as insolvency practitioners tend not to specialise in this area of value recovery either. However, when considering the experience on which this assessment of IP and intangibles markets is based, it is important to bear in mind what lenders are using as points of comparison, and also that few lenders have historically made serious enquiries regarding the possibility of re-sale at the point of investment or lending.

If it becomes necessary to sell an item of real estate, a vehicle, or an article of plant or machinery, multiple routes are available. More profoundly, the price at which disposal may be achievable can be predicted in advance with a degree of accuracy, based on deep, longitudinal data on current and past prices achieved. Markets have also developed ways of dealing satisfactorily with tangible asset depreciation, as is shown by the sophisticated financing structures available to purchasers of motor vehicles. The fundamental difference at work here is that tangible assets are recognisable, individually identifiable commodities.

There are a number of circumstances in which a firm’s IP and related intangible assets might be offered for sale “at arm’s length” in the ordinary course of business. For example, assets may have been developed by a non-commercial entity such as a university or research institution, or might arise from research enquiries that are not core to a company’s business. Alternatively, the usefulness of particular intangibles may be reduced or eliminated over time due to a change in corporate or product strategy, or because they relate to markets that are no longer being served (IP being territorial in nature). Even where assets continue to be commercially useful, a company may perceive that another business could exploit them more profitably, and would therefore be prepared to offer more value for them than the present owner could realise on its own. Under such circumstances, sale may be a more attractive option than licensing, as it offers the prospect of a lump sum payment that is not dependent on future performance, though in many countries such a process may also lead to a taxable capital gain.

There are also a number of reasons why another party might wish to purchase intangible assets. Sometimes the desire to buy will be driven by a requirement for access to a particular enabling technology, or a need to boost market presence by acquiring customer-related intangibles. In recent years, the dominant factor in intangibles markets in the United States has been the desire of corporations to acquire portfolios of patent rights for defensive reasons (either individually or by providing financial support for specialist companies), as a response to the activities of non-practising “offensive aggregator” entities. The business model of these offensive aggregators relies on the successful enforcement of acquired
patent rights, without practicing the inventions itself, thus isolating itself from infringement counter-claims.

It is these markets for which the existing secondary markets for intangible assets were primarily designed to cater. However, the dynamics of this market have changed considerably in the last couple of years, following legal changes (principally those contained within the Leahy-Smith America Invents Act, passed in 2011). These have had the effect of altering the risk/reward ratio in patent litigation, for example by making it easier to challenge patent validity (through the establishment of the Patent Trial and Appeal Board) and by facilitating awards of costs (already available in other countries).

If a company wishes to sell some or all of its assets, it currently has three main options. If it is adequately resourced, it may identify prospective buyers and contact them directly, usually under conditions of confidentiality (as financial markets may not react well to the news that a company is selling its assets). More often, it will appoint a specialist broker or agent to act as an intermediary: it is estimated that there are at least 75 active patent brokers in the United States, which is regarded as the most active market for such transactions (though there has been a significant reduction in broker numbers over the last five years). Alternatively, it may choose to put assets up for an open or closed auction, both of which operate in a similar manner to auctions for tangible assets; the main difference is that the participants in a closed auction, and the outcomes in terms of assets sold and prices achieved, are not generally released.

In summary, secondary markets do exist for intangibles, but are less formalised, structured and predictable. This argues in favour of additional scrutiny of possible resale pathways at the time of the original loan.

3.3. Debt funding challenges relating to transaction costs

3.3.1. Absence of scale and asset heterogeneity result in high transaction costs

The availability of rich and deep data sources, well-established secondary markets, regulatory support and lender familiarity all assist in driving down the costs of financing tangible assets. Over time, a virtuous circle has developed driving down transaction costs as the practice becomes more common and vice versa, thereby enabling asset-backed finance to be offered affordably and reliably. The key contributor here is scale, achieved by rising supply and demand, which has led to the development of specific transactional due diligence packages. For example, when property is purchased, there are a number of clearly defined elements that interlock; these ensure appropriate surveys are conducted, legal title is confirmed, and ownership transfer is successfully completed.

Apart from the questions of value attribution, realisation and security, addressed above, the aspects driving IP and intangible asset transaction costs (and generally requiring most careful scrutiny in intangible asset financing) relate to utilisation, ownership, status and validity/enforceability. These areas can be summarised as follows:

- A financier will wish to be satisfied that the assets offered by a company make a material contribution to its business model. This creates a connection with cash flow, and provides comfort that the assets will have a positive influence on payment performance. This is in accordance with established asset-backed finance principles regarding incentives to repay;
- The ownership of an intangible needs to be confirmed, as assets are routinely assigned, created by suppliers/sub-contractors, or may be licensed-in rather than
owned. Even where statutory registers are available as a point of reference, these may provide an incomplete or inaccurate picture;

- Status, particularly important in the case of registered rights, relates to the stage an application for protection has reached (has a patent, for example, actually granted or simply been applied for?) and if it is registered, whether it is being renewed when necessary (in most countries, this is required annually for patents);

- Certain rights, including patents, trade marks, designs and copyright, can be susceptible to challenges based on their validity (should they have been conferred?), enforceability (can they be used to stop others?) or alleged infringement (does another party own rights that may affect a company’s freedom to operate?).

Apart from absence of scale, asset heterogeneity also contributes to high costs. Whilst intangible assets fall into a number of clearly definable types, there are wide variations within individual types in terms of the role and importance the assets play within a business, and what might broadly be termed their quality. As a consequence, two companies in different industries may rely on patents to protect their business models, but these patents will not be directly comparable with each other, and the lessons that can be learned from dealing in a particular asset sub-category will only be applicable in broad terms.

In terms of scale, this factor is in part a logical consequence of heterogeneity; to build up the experience needed to create confidence in the asset class, financiers not only need to gain experience from a reasonable volume of transactions, but also a wide range of assets. However, there appears to be a “Catch 22” situation at work. 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. If these intangible assets are indeed an untapped potential driver of economic growth, this forms a basis for policy intervention in order to ensure the cycle is broken.

In summary, there are undoubted complexities to intangible assets in comparison with tangible ones, due in large part to their heterogeneous nature. Even the most detailed and costly enquiries may be unlikely to yield a definitive answer to all questions and completely eliminate risk. This risk is exacerbated by the absence of scale in the market, which (were it present) would enable systems to be developed to drive costs down to acceptable levels. In the absence of these systems (or to provide the space needed to encourage them to be developed), other measures to address risks (such as guarantee programmes) are a desirable intervention.

3.3.2. Insufficient use of IP rights

The subset of intangible assets most commonly featured in the literature concerns formal IP rights. Because these are legally recognised, separable assets that can be traded broadly like other forms of property, they have tended to be the main focus for the interventions set out in Part 4. Within the four main types of IP right (patents, trade marks, designs, copyright), patents have been a particular point of focus, as they are generally held to be the “hardest” (generally meaning, most robust) of all IP rights in enforceability terms. Like trade marks and some design rights, they have the advantage that their existence can be demonstrated by external sources and, if granted, they provide a signal that the owner’s
activities are likely to be inventive. The implications of this focus on patents are explored in Box 3.

It is clear, as noted in Part 2, that some industries have a relatively high utilisation of registered IP rights. However, the data also reflect the fact that patents are only relevant for certain types of company. There also appear to be significant “cultural” and operational variations between countries that affect the propensity of companies to apply for and obtain patent protection for their inventions; these do not appear to be related to the ranking of the individual nations as determined by the Global Innovation Index (2016). For example, the United States ranks well above Japan on overall innovation indicators, but files far less patents locally, relative to working population. This supports the view that patents are not necessarily a robust indicator of innovative capacity or output.

| Table 3. Selected country Global Innovation Index rankings and levels of patenting per 10,000 workers |
|-------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Global Innovation Index ranking, 2016          | United States  | United Kingdom | Singapore       | Japan           | China           | Korea           |
| Working population (2014), m²                   | 146.6           | 30.8            | 3.4             | 63.6            | 772.5           | 25.7            |
| 2016 % of workforce in knowledge-intensive industries² | 38.0            | 47.4            | 53.1            | 24.4            | 7.4             | 7.4 (2005)      |
| Estimated workers in knowledge-intensive industries, m | 55.7            | 14.6            | 1.8             | 15.3            | 57.2            | 5.6             |
| Total patents filed pa, 000s⁴                  | 565.5           | 22.8            | 10.3            | 318.7           | 1,101.9         | 213.7           |
| Total patents filed locally pa, 000s⁴          | 286.4           | 14.9            | 1.3             | 258.8           | 968.3           | 167.3           |
| Patents filed locally pa/per 10,000 workers     | 20              | 5               | 4               | 41              | 13              | 13              |
| Patents filed locally pa/per 10,000 knowledge workers | 51              | 10              | 7               | 169             | 169             | 299             |

¹ Source: Global Innovation Index 2016
² Sources: all OECD employment rate data, except for: Singapore, DSS; China, statista.com
⁴ Source: national published figures from latest available year (US is 2013: Denmark, Singapore are 2014: China, Korea, UK, Japan are 2015). All countries’ figures except US exclude design patents (an adjustment has been made to the US data using WIPO data)
Box 3. Intellectual property asset availability

As shown in Part 2, many of the studies into SME IP holdings, innovation and finance have focused on patenting. Patents are comparatively data-rich and undergo independent scrutiny to confirm their novelty, and so are an important signalling mechanism as well as a potentially valuable asset class (arguably, the fewer firms own them, the stronger the signalling effect). However, because they require an invention to have a technical effect that is capable of industrial application, they are only applicable to a minority of companies – sometimes a small minority. The comparative shortage of studies into other IP rights may create the impression that there is not enough IP in SMEs (or not enough SMEs with IP) to justify a policy intervention.

Many of the firms which do own patents may well fit into the high potential/high growth category that can create a disproportionate number of jobs, and so intervention may be justified for that reason. However, it is important to ascertain whether IP is only relevant to a small proportion of SMEs, and whether this is an issue for intangibles-backed financing in general. This raises the question of whether the use of IP rights as a whole really is insufficient; and also, whether this represents a genuine barrier to intangibles-backed financing.

On the first of these points, the nature of copyright and the manner in which it arises makes it reasonable to assume that this is a very commonly owned form of IP right (national surveys appear to back up this conclusion). Variations in the scope of automatic design protection make it difficult to reach a clear view on the extent to which it is applicable, and how enforceable (and valuable) it is. In terms of the rights that must be registered, there are clear and significant variations in the use of patents and trade marks (the most numerous registered rights) between different developed economies. Part of this is attributable to differences between their patenting systems, though it nevertheless affects the number of rights available for financing purposes.

On the second point, the independent evidence of existence and status that official registration provides (as well as an identification number) is an important advantage when seeking to use these assets as collateral. However, the value that is associated with intangible assets is not primarily determined by the intrinsic quality of a patent or trade mark, but rather by the use to which it can be put (be it in support of day-to-day trading, litigation, or simply blocking). This suggests that the role of the registered rights is that they enable other, more directly value-generative intangibles to be created and deployed – in particular contractual assets, under which heading licenses and franchising agreements also fall. Without these intermediate intangibles, which have the direct connection to cash flows, the value of the underlying assets would be reduced or eliminated.

The practical difficulty this raises is that companies are not accustomed to viewing their intangibles as being assets, and so are not well equipped to calculate and communicate their contribution. This is a point that requires further consideration.

In summary, the intangibles that are of the greatest direct importance in lending are probably not the IP itself, but the revenue-generating assets it creates. Nevertheless, a policy conclusion may be reached that for reasons of obtaining satisfactory security (a point considered further below), the starting point for intervention should focus on companies with registered IP assets. While only a small subset of SMEs own such rights, the impact of these firms on the wider economy may be material nonetheless.
A recognised route to harness IP for business finance would produce wider beneficial effects by causing more companies to give these assets proper consideration, a by-product likely to address a much broader information asymmetry issue.

3.3.3. Insufficient corporate reporting

As referenced in Part 2 and explored in the Annex to this study, intangible assets only appear on a company’s balance sheet under certain defined circumstances. This perceived under-reporting means that stakeholders may have very limited visibility of (potentially) important assets. One of the motivations for the introduction of initiatives referenced in the Annex, such as intellectual capital statements and integrated reporting, is to provide a means to address this information gap (though some such initiatives are primarily directed at internal management rather than stakeholders). A problem that these raise is that they do not offer standard definitions regarding the assets that should be identified.

It is certainly the case that SME balance sheets typically contain very little information on the identity of any underlying intangible assets. Also, it is apparent from previous studies that where intangibles do appear on a balance sheet, lenders will generally attribute zero value or even view them as a liability. Furthermore, where assets are accounted for in this way, they will be shown at cost (or a factor of cost), which is very likely to underestimate their contribution. These issues are an inevitable consequence of current accounting rules; rather than being a separate barrier, they are another source of information asymmetry that needs to be overcome with further enquiries (and so increases transaction costs).

Currently, the intangible asset information provided by financial accounting is so imperfect that no-one interested in IP and intangibles-backed financing is likely to rely on it. There is a possibility that this will improve over time: as an example, some changes are currently being debated by the UK’s Financial Reporting Council in respect of strategic reports which would increase transparency, particularly in respect of intangibles investment, amongst larger and quoted companies, which may percolate through to SMEs in time (FRC, 2017).

If there were an agreed, more accurate way of representing the value contribution made by intangible assets in SME accounts, or potentially in accompanying reports, it would doubtless be helpful; however, in order for such a change to occur, it appears a consensus first needs to emerge among accounting regulators that transparent and active markets exist to recover value from this asset class.

3.3.4. Insufficient bank understanding

The lack of familiarity with intangible assets and the contribution that they may make to business models, particularly amongst lenders accustomed to gauging financial strength based on balance sheet assets, is undoubtedly an obstacle to the wider use of such assets in financing. The same is true of credit guarantee schemes; whilst some programmes exist which are targeted at innovation financing, these do not have a track record of asset-based experience on which to draw.

As referenced in Part 2, however, intangibles are not as unfamiliar to lenders as it may first appear. The position may be better characterised by saying that financiers, like businesses, have not always recognised that some things they are already factoring into lending decisions are in fact members of an intangible asset class. This point is explored further in Box 4.
**Box 4. Existing use of intangibles in finance**

Whilst intangibles are unfamiliar as an asset class when viewed in isolation, there are some existing contexts in which macro-economic trends such as digitalisation have made intangibles an inevitable part of financing activity. The most clear-cut example of this trend is the widespread dependency of all but the most basic forms of hardware on software to make them usable, from highly specialised industrial machinery to motor vehicles.

In this context, software clearly is an intangible asset, but its value is likely to be expressed as an integral part of a tangible good. Depending on its characteristics and the context in which it is deployed, this software may be patentable in its own right, may require a separate licence to permit its use, and is likely to need periodic updating in order to make the asset as a whole continue to function, or operate to its full capabilities. The value a financier attributes to the machine has to include the value of the intangible.

Sometimes, an intangible such as software may be packaged and presented in such a way that its purchase can be financed in its own right as an asset. For example, if a large organisation needs to update its desktop software, it is often possible to obtain finance to cover purchase of the necessary licences. However, this is only the case because such software has been commoditised to the point that it has a clearly identifiable market price and value.

The connections between intangible assets and tangible ones may also be more subtle. For example, when valuing some items of commercial real estate, such as in the hospitality and retail sectors, it is apparent that they will only be of value to a relatively limited number of businesses. Assumptions concerning their value therefore find it difficult to avoid constructing an association with known brands. Furthermore, once a brand is actually in place, there may arguably be a difference in real estate value. Are (for example) a prestige branded hotel and a theoretically identical building owned by another, less well-known chain worth the same, given that their income-generating potential may differ substantially?

At the other end of the scale, the role of intangibles is particularly pronounced in the creative industries, such as film and broadcasting, and these intangibles do not reside solely in the creative work itself. In film, for example, financing structures have evolved to take account of the value of pre-sale or distribution contracts or TV programme commissions (because these advance agreements create confidence that a minimum level of income will be realised, provided a work is completed) as well as completion bonds (which provide a safety net to reassure financiers that the film will be made) and tax incentives.

The value of many films is also attributable to the many franchising and licensing opportunities that arise from their commercial success. The Walt Disney Company is reported to have generated USD 56.6 billion in licensed merchandise retail sales in 2016 (Licensemag, 2017), and digitisation has massively increased the number of ways in which licensed content can be generated and distributed.

Specialist sub-sectors within the creative industries are always likely to lend themselves to more “bespoke” financing approaches. However, the interdependent nature of tangible and intangible assets in a digitalised economy provides a compelling argument that there
are already some relevant points of parity between existing lending practices and IP and intangibles-backed financing approaches. For example, contract-based intangible assets are already recognised as being important in lending decisions because of the confidence they may create in the likelihood that forecast cash flows will materialise, underpinning debt serviceability.

Whilst points of parity exist, raising awareness of them is unlikely to be sufficient to overcome the lack of lender familiarity with intangibles as an asset class (or series of classes). The underlying area of concern is closely linked with the discussion on high transaction costs above, namely the absence of standardised approaches for interpreting and utilising intangible assets. This not only increases the costs of investigation, but makes it more difficult to benchmark decisions and outcomes. In the absence of a commercial necessity to look more closely at intangible assets, a policy intervention that provides a framework within which experiments can be conducted, data extracted and analysed and lessons learned is perhaps the only way to overcome this barrier.

Education can form part of a programme of intervention, however. As reviewed in Part 4, the Japan Patent Office has chosen to incorporate lender education within its new scheme (focused on smaller regional banks) so that they may be better equipped to interpret and act on IP evaluation reports. This initiative is not intended to turn bank representatives into experts, but to equip and motivate them to interpret information received on company intangible assets as part of credit decision-making.

It is also possible for support agencies concerned with innovation (as opposed to IP rights) to play a role in increasing lender confidence. Bank decisions could be facilitated, for example, by providing expert resources equipped to scrutinise the intangibles a company has developed, and to provide an independent market- and technology-based assessment of their importance and commercial prospects. However, such interventions need to be tempered with the recognition that lenders are under an obligation to act responsibly, particularly with regard to debt serviceability; a new technology may have exciting prospects, but equity funding could still prove to be the only viable option for commercialising or exploiting it.

In summary, just as current financial reporting does not promote visibility of intangible assets and their business contribution, so the omission, discounting or (in some cases) “penalisation” of on-balance sheet intangible assets within the systems and procedures that consider risk in lenders discourages further development of understanding. This is another driver for the incorporation of confidence-building measures and standards within existing policy interventions; the provision of tools as well as incentives.

3.4. The case for policy intervention

A market failure in debt financing seems apparent

Policy intervention is typically required in, and justified by, instances of market failure. The potential failure in this instance relates to the difficulties faced by SMEs in obtaining external finance to support innovation and growth when they are intangible-rich but light on tangible assets. This finance may come from grant, equity or debt sources, but the evidence of underutilisation of intangible asset value (and need for steps to address it) is most compelling in the case of debt, as briefly summarised below.
Although equity funders are likely to be more heavily influenced by the qualifications and experience of the management team and the scale of the potential opportunity, they typically give consideration to the presence or absence of IP and intangible assets (but would benefit from initiatives to make their enquiries cheaper and easier to conduct).

By contrast, the lenders on which the majority of SMEs continue to rely have a very different risk/reward perspective and appetite compared with equity investors. The best they hope for in a transaction is a repayment of capital with interest. Their comparatively small margins have a strong effect on credit appetite and, together with the current regulatory and economic climate, discourage experimentation. A combination of incentives and assurances are needed to unlock the opportunity intangible asset value may represent.

The innovation represented by IP and intangibles-backed financing is that it can help establish a new, fundable asset class (or series of classes). If knowledge assets truly are the drivers of business value that the literature indicates, then it is reasonable to propose that they ought to be considered much more routinely. Should this not happen, there will be a growing asymmetry between the deemed and actual sources of business value, as viewed by financiers.

In their desire to ensure capital adequacy, promote the flow of capital to business and prevent future shocks, regulators have reinforced the centrality of tangible assets in lending. Whilst there is no doubt that having strong, adequately capitalised financial institutions is highly desirable, it is arguable that a more diversified approach to security would enable their standing to be enhanced. In this regard, a vital contribution that policy measures relating to intangibles-backed financing can make is to facilitate generation of the necessary evidence to demonstrate which intangibles can in fact have realisable value, under what circumstances.

*There is an issue of scale to be addressed*

None of the lending challenges identified and documented in the preceding sections is individually insuperable, and most would be resolved with greater scale. Intelligence derived from lending experience would enable risks and opportunities to be better understood and increase confidence in valuation levels. Similarly, increased lender acceptance of IP and intangibles’ importance could be expected to drive market development of increasingly efficient assessment approaches that would address the issue of high transaction costs.

The difficulty is that scale requires standard processes and procedures to be implemented, in order to gather a sufficient volume of comparable data to generate confidence in the suitability of part or all of the intangible asset class for lending purposes. While many of the necessarily tools and approaches do exist, few (if any) lenders have used them much, because of their current lack of confidence in the realisable value of intangible assets.

This impasse is only likely to be overcome by the provision of a “safety net” provided or facilitated by policy makers. With an appropriate mechanism to address potential losses in the short to medium term, scale can start to develop and market solutions will emerge to accommodate the growing demand. Just as importantly, it will become possible to establish where appropriate boundaries lie, in terms of the types and characteristics of asset with greatest value recovery potential, and the proportion of theoretical asset value that can safely be used for lending.

Also, if the underlying hypothesis is correct (that lack of scale is the main obstacle to market development of capacity), any such intervention has the potential to be temporary,
FOSTERING THE USE OF INTANGIBLES TO STRENGTHEN SME ACCESS TO FINANCE

regardless of the risks involved. The expected outcome is that certain, selected intangibles will prove to provide a suitable form of security, in which case government support can be progressively withdrawn. If, on the other hand, recoveries prove too problematic even after the market has had an opportunity to develop solutions, governments should withdraw support as well.

*Policy intervention could improve consistency and facilitate data sharing*

Even with the presence of the “safety net” described above, it will take time for intangibles-backed lending levels to reach the point that the experience gathered can be viewed as representative. It also appears likely, given their lack of historical experience, that lenders acting entirely independently would take a considerable period of time to amass a sufficient volume of evidence on opportunity and risk, in part because intangibles-backed lending will need to be selective. While few, if any, SMEs will ultimately prove to own no intangible assets at all, some assets are peripheral to their business model and do not contribute meaningfully to value generation; and some will never create assets that have identifiable or realisable value upon liquidation.

It is also the case that, irrespective of the availability of suitable assets, the risk appetite of lenders can vary quite widely. This may manifest itself in a number of ways, such as varying sector preferences, loan amounts, risk ratios and security and collateral requirements. These differences are likely to influence the results that each lender experiences in respect of intangibles-backed financing. Understanding their effects (by comparison with lenders that have different appetites) should prove to be beneficial to all parties.

A policy intervention linked to the provision of transitional guarantees and/or insurance creates an opportunity to do two things. Firstly, it exercises an influence over the boundaries of risk appetite, loan amount and tenor (i.e. term). Policy intervention may prevent a situation where lenders only fund the very safest deals, enabling a deeper pool of data to be obtained without compromising responsible lending.

Secondly, policy involvement should facilitate sharing of risk experience (both positive and negative). Policymakers administering guarantee programmes will need to have visibility of possible future claims and the extent to which these have been mitigated by recoveries; they should therefore be well placed to collate data across a range of lenders.

*A policy focus on intangible asset financing may bring large economic and societal benefits*

A further reason for policy makers to foster IP and intangibles-backed financing centres on the spill-over effects that it could bring. It could enable SMEs to invest more in knowledge-related assets, which would act as a stimulus for growth and wealth creation, both at the firm-level, and for the society.

As discussed in Part 2, while the immediate beneficiaries of intervention in IP and intangibles-based finance are the qualifying SMEs themselves, banks and other financiers also stand to benefit from being able to lend, or lend more, to businesses that they would otherwise have considered to be too risky.

*Policy coordination at the supranational level would bring benefits*

A useful area for policy coordination at the international level relates to the harmonisation of how creditors are given a claim against identifiable intangible assets such as IP rights. Whilst there is a considerable degree of convergence between countries regarding
registration processes and requirements for the rights themselves, there is much less consistency regarding the effectiveness of legal charges, pledges or other forms of security that may be taken when providing a company with finance, or in respect of the available notice functions.

As set out in Part 4, some countries have identified the need for legal changes to be made in order to make these assets available as security, often affecting several distinct pieces of legislation. There is also a need for clarity on what a lender has to do to make its security interest valid and enforceable in each case.
4. Government initiatives to support intangibles-backed financing

4.1. Highlights

- IP and intangibles financing schemes are one of a number of policy responses intended to stimulate greater investment in knowledge assets in support of competitiveness;
- In recent years, public policy attention to the use of IP and intangibles for SME finance has been concentrated in Asia, with systems to apportion collateral value to IP rights being most advanced (in volume terms) in China;
- In contrast to most other policy interventions, Japan’s current focus is on influencing lender behaviour by providing subsidised IP evaluation reports to its regional banks and credit unions;
- Patents are routinely taken as collateral by US lenders, but there is little evidence to suggest that this process unlocks lending that would otherwise not occur;
- The provision of guarantees in relation to intangible asset value is a common strategy;
- Most countries with financing schemes have taken steps to stipulate standards and/or rules.

4.2. Nature and focus of national responses

Providing support for IP financing is one of a range of possible policy responses to the need to stimulate knowledge economy investment and increase business competitiveness, and can be part of a broader set of support measures.

In many countries, governments are accustomed to using credit guarantee structures to address the absence of tangible asset collateral that acts as one of the barriers making access to finance more difficult for innovative companies. Also, because they are backed by government, such guarantees may make a positive contribution in respect of lender capital adequacy requirements, as specified in Basel III regulations. These programmes and their effects have previously been a focus for detailed research, and constitute the most widely used instrument to ease SMEs’ access to finance in OECD countries and beyond (OECD, 2012, 2018). While these schemes are typically not explicitly aimed to foster intangible-backed financing, they provide an alternative avenue for SMEs to access bank debt (some of which may be intangibles-rich).

Whilst not the main focus of this report, it is also noteworthy that enabling finance for growth is not the only way in which innovative activities are rewarded by governments. For example, a number of countries have also introduced ‘Patent Box’ or ‘Innovation Box’ measures that reduce the tax paid on product or service revenues associated with qualifying IP rights (though studies such as Atkinson and Andes, 2011 indicate that present evidence of their impact on innovation and tax receipts is inconclusive). Furthermore, over 30 countries, including most of the largest nations in the European Union, provide tax credits against expenditure relating to research and development activity, as an incentive to
innovate; many of these schemes offer cash rebates or similar payments to earlier stage SMEs that are yet to pay tax, so that they are not excluded from the benefits.

Figure 4.1. Map summarising the geographical distribution of three state-backed measures to encourage innovation – IP finance initiatives, Patent Box schemes and R&D tax credits


To date, state-backed IP financing has proved most popular in Asia. Key measures adopted are set out in detail in the following sections, and take a number of forms. These include provision of dedicated funds, subsidised interest rates, guarantees, educational programmes and initiatives to promote standards or good practice when lending against the asset class (focusing mainly on valuation). All are essentially debt-based.

The amount of private sector involvement varies substantially by country. Of those studied, the lowest level of private sector engagement is found in Korea, on the basis that the source of the funds advanced, the guarantees provided and the valuations issued all appear reliant on state backing. The highest amount is arguably in the United States (though as explained below, this does not necessarily indicate that the assets themselves are responsible for unlocking value).

This section provides a non-exhaustive overview of policy initiatives that directly harness IP value in selected countries (who may also support SMEs in other ways, such as via the provision of credit guarantees). For comparison, brief commentary is also provided on the relationship between intangibles, IP rights and access to finance in Europe and the United States.

Finally, this section excludes countries who have revised their regulatory framework to allow intangible assets to be pledged, but have taken no additional initiatives otherwise. For example, Turkey has adopted a “Law on Movable Collateral in Commercial Transactions” in 2016, allowing movable assets including intellectual property and other intangibles to be used as collateral for bank loans.
4.2.1. China

This is the most active market for state-backed IP financing, first experimenting with bank lending against intangible assets in 2006. In 2015, an estimated RMB 60 billion was reportedly lent against IP. It is separately estimated (quoted by Relecura, 2015) that the total number of companies obtaining loans has now reached around 2,000, though given the distributed nature of the programmes (as explained below), an exact figure is difficult to obtain.

Support for IP financing in China occurs at a number of levels. The State Intellectual Property Office (SIPO) acts as a central registry of pledges and sets policy regarding permissible financing structures and evaluation regimes. The latter typically require ten parameters to be addressed, dealing with three main aspects (legal status of the rights, stage of development and lifecycle of the technology, and the IP’s markets and their value). The Ministry of Finance has also been involved in establishment of relevant standards, including those relating to IP valuation, in which respect some core documentation was issued in July 2012, and is overseen by the China Appraisal Society.

SIPO’s National Intellectual Property Strategy includes measures to stimulate service provision to facilitate greater use of IP financing techniques, and its latest five-year plan (SIPO, 2017) sets an aspiration for annual patent pledge financing to reach RMB 180 billion in value. It has also encouraged the development of pilot schemes that are operated and led at a regional, or sometimes local, level. These tend to take one or more of a number of forms:

- State-backed compensation schemes to cover bad debts;
- Establishment of guarantee companies or “risk and compensation funds” to provide indemnities relating to the secured IP, covering up to 100% of the net loss, with subsidies for fees payable by companies. As an example, Techina, a Beijing-based company, has a recently-established fund of RMB 2 billion and is authorized to provide guarantees of up to 10 times this amount (it reports that it backed around 100 companies in 2015, of which around 80% were hi-tech businesses);
- Lender incentives, for example provision of a 1% “reward” for lending a certain number of RMB millions to IP rich companies, and other measures aimed at keeping associated interest rates affordable;
- Direct financial support for companies to reduce the amount of interest paid on an IP-backed loan (typically by 1-2%).

In some areas, dedicated funds have been established, (for example, a new 10-year revolving IP fund for key industries was created in Beijing in 2015, targeted primarily at mobile internet and biotechnology). However, the main emphasis of the schemes has been to encourage commercial lender participation, and banks such as the Bank of Communications, China Merchant Bank, Beijing Bank and China Construction Bank have been active in IP-backed lending.

Shanghai has been one of several focal points for intervention, owing to its sizeable hi-tech SME population, estimated to number 30,000. Its focus is on enabling relatively short-term lending, typically lasting for two years and averaging around RMB 3 million (up to a maximum of RMB 10 million). The development of its schemes was summarised in a paper to the World Intellectual Property Organisation (WIPO) (Shanghai IPO, 2014). Its scheme began in 2007 and was officially launched in 2009, in response to the global financial crisis: by the end of 2013, 500 loans had been provided at a total value of RMB 1.8 billion.
The Shanghai Government sees its role as creating a platform that brings together financial institutions, guarantee companies and evaluation firms, as well as providing subsidies. Three key sets of initiatives are referenced that have helped make the scheme a success. The first of these relates to the establishment of standards and approved financial practices covering IP pledge evaluation criteria and operational guidelines. In this instance jointly issued by Shanghai’s Finance Bureau, Financial Affairs Office and IP Office. These build on principles set out by SIPO.

The second is the use of pilots and experiments. Shanghai has built on an earlier experiment, which was the establishment in Pudong in 2006 of a fund of more than RMB 100 million to provide guarantees for loans to hi-tech, early stage SMEs based on IP and goodwill, at up to RMB 2 million each over a maximum term of three years. This was followed in 2011 by a national pilot for a guarantee company, set up to serve hi-tech companies in collaboration with banks, which by 2014 had facilitated loans worth RMB 200 million.

The third element relates to process streamlining. While laws originally stipulated that all IP pledge contracts must be filed in Beijing, Shanghai obtained permission from SIPO to register them locally in May 2012 on a trial basis. The following year, 90 patent pledge contracts were registered in Shanghai out of a total of 369 across China, for a value of RMB 1 billion. The developing trend suggests that it may take a number of years before lender acceptance, company awareness and system maturity can combine to produce significant impact.

Figure 2. The development of the Shanghai IP financing market, 2007-13

![Graph showing loan value from 2007 to 2013](source: Luo, 2014.)

In its 2014 WIPO paper, the Shanghai IP Office identified a number of bottlenecks requiring additional action, many of which are aligned with the issues identified in Part 3. Generally, it identified the barriers to scale as being market immaturity, high costs and lender risk concerns. It specifically highlighted the need to diversify beyond patent rights; a subsequent workshop (held by UK Intellectual Property Office, 2015) confirmed that trade marks are now being used, and valuer interviews in Beijing in 2016 confirmed that
copyright assets were also being leveraged in some cases, though these also highlighted the need for further steps to streamline non-patent-related pledge registration practices and reduce the associated costs. The Shanghai IP Office has also been seeking to make evaluation criteria and frameworks sounder and more consistent, to improve support service provision. It highlighted a role for IP insurance in building confidence and supporting tailored financial derivatives, and also indicated an intention to prioritise developing a market for the transfer of pledges, including an IP trading platform.

Workshop sessions and visits have confirmed that experimentation continues, including the introduction of insurance products. In 2016, for example, the Zhongguancun office in Beijing was acting as a pilot site for a patent insurance offer enabling companies to purchase cover for the costs of pursuit and defence of infringements. Interviews also indicate a desire to involve insurers in the wider IP underwriting process.

4.2.2. Japan

The number of domestic patent applications in Japan (about 259,000 in 2015) is currently running below its historical peak. Nevertheless, the use of granted IP rights to protect innovation remains popular and more widespread than in many other OECD countries. This creates conditions of asset availability that may be a contributory factor in the country’s long-term engagement in IP-backed finance. Lending activities through the Development Bank of Japan began in 1995 and continued throughout a period of at least ten years, during which time it is reported (Relecura, 2015) that 260 companies benefitted from IP-backed loans totaling JPY 16 billion.

More recently, the approach in Japan has changed to focus on supporting the credit decision-making processes of the country’s regional business lenders (consisting of around 530 qualifying banks and credit unions) rather than directly providing funds for lending or introducing a guarantee scheme. Its primary target could therefore be said to be addressing information asymmetry, though this form of support also has the effect of driving down transaction costs associated with the assessment of intangible assets. The scheme is led by the Japan Patent Office (JPO) and was developed in discussion with the country’s Financial Service Agency, and is targeted specifically at SMEs as defined in Japanese law.

The scheme currently operated by JPO has two pillars. The first pillar is an agreement to fund up to 150 IP evaluation reports per annum for qualifying banks, administered via a central control office function, but provided by independent researchers, who construct them based on publicly available data and information supplied by the SME. The emphasis of these reports is on identifying what the intangible assets are and exploring how they give a company credibility and financial strength, which is also expressed as a financial value. The second pillar is a programme of institutional education (currently, two annual symposia supported by smaller seminars), with an accompanying manual, intended to provide bank lending teams with a better understanding of the IP rights that exist and how they may support a company’s cash flow and underlying business model. This is intended to encourage a degree of familiarisation with IP assets, so that credit assessors are equipped to interpret information provided under the first pillar. The seminars may be delivered in-bank; these have proven popular, and include case studies/success stories.

The combined training and evaluation report programme was originally piloted in 2014-15, when 22 banks were supported with 51 reports and at least two loans happened as a consequence (both made by Shoko Chukin Bank). During 2015-16, this increased to 150 reports for 63 institutions spread across the whole country. At the time of initial interview
(June 2016), at least six loans had materialised, with more expected. An update has subsequently been provided at the 2017 IGL Conference, confirming that a further 150 reports were funded in 2016-17, and that the number of lenders providing loans to companies as a result of these reports had risen to at least 15, with more in the pipeline.

There are some early indications that, due to access to these externally sourced reports, individual lenders are starting to incorporate similar information-gathering routines within their existing credit decision processes. Additionally, Japan’s Ministry of Economy, Trade and Industry (METI) has for some years offered a toolkit targeted at technology businesses to help them identify their intangible assets and develop strategies to exploit them.

4.2.3. Korea

Korea is an active user of the patent system, with 167,000 locally filed applications in 2015. In recent years the Korean Government has provided a range of support to knowledge-based SMEs, including cost sharing support in IP disputes and facilitating the establishment and use of commercial IP insurance (reportedly bearing up to 70% of premium costs). In 2013, the government launched a new strategy to transition towards a “creative economy” (viewing this as an evolution of the “knowledge economy”), and has made a number of enhancements to IP and intangible asset financing support since this time.

The most prominent IP financing initiatives are operated by the Korea Development Bank (KDB), which operates a “Techno Banking” initiative providing loans for purchasing, commercialising and collateralising IP. Interviews with KDB in 2016 established that since the launch of the new creative economy strategy, KDB had advanced around USD 100 million to 80 companies in collateralised loans. It has also established a collection fund for distressed IP to address known issues around asset disposal (either to sell or license the patents, or to recoup funds by enforcing them). Separately, KDB has introduced a “Pioneer” IP fund to invest in intellectual property and obtain income from licensing (there is also a partly privately funded company in Korea, Intellectual Discovery, that operates a similar patent acquisition model, and also makes IP-backed investments).

Korea benefits from a well-developed group of credit guarantee organisations; the Korea Credit Guarantee Fund (KODIT), KOTEC (specialising in technology businesses) and CGF (a regional fund focusing on small and micro businesses). KODIT is the oldest, established in 1976, and has a total capital fund worth USD 4.7 billion, which is provided by a combination of central government funding and contributions from individual banks (mandated by a Credit Guarantee Fund Act). KODIT offers underwriting of up to 95% of an IP valuation for lending or securitisation, focusing on the quality of patents. The valuation activity is subsidised by the Korean Intellectual Property Office (KIPO), and the valuation work itself is done by others such as the Korea Invention Promotion Association (KIPA). This has been helpful in obtaining some commitment to IP funding from other banks (the Industrial Bank of Korea, Woori Bank, Shinhan Bank and Kookmin Bank), though it is not clear that loans of this kind are routinely being offered, and some commentary indicates that while private commercial lenders are prepared to support high growth, IP-rich businesses, they would prefer to do so using preferential interest rates rather than the riskier route of using the IP as collateral.

KIPA also has a wider role in developing the IP ecosystem, and the Korea Institute of Intellectual Property Evaluation and Transaction has been established in January 2014, though 2016 research suggested that of the 11 authorised valuers, nine were state owned.
4.2.4. South-East Asia: Malaysia and Singapore

Two countries in South-East Asia with policy agendas strongly geared to the encouragement of innovation have launched IP-backed programmes aimed at improving the borrowing prospects of high potential businesses lacking tangible collateral. There are a number of policy similarities between the two schemes, but the manner in which they have been implemented differs. Primarily, both rely on a government-backed guarantee, but provide it through different organisations and at varying coverage levels; one operates a dedicated fund, while the other has chosen to focus on influencing bank behaviour.

**Malaysia**

Malaysia’s IP financing scheme, which is specifically targeted at SMEs, was the first to be launched in the ASEAN region, announced in 2010 and initiated in its 2013 budget. Malaysia’s IP Corporation, MyIPO, and had primary responsibility for the programme, with the Multimedia Development Corporation (MDeC) and Ministry of Finance included among other agencies that have been closely involved in its development. MyIPO received MYR 19 million to develop its scheme, and has invested mainly in two areas of activity: the development of standards to cover IP valuation, and up-skilling of local firms and individuals in IP assessment and valuation. The scheme was also intended to cover the development of an IP marketplace: initially this took the form of links to other portals, but an “IP Mart” has now been established on the MyIPO website featuring mostly patent listings, though no information on trading activity has been published.

The Malaysian IP financing standard takes the form of an IP Valuation Model intended to increase confidence amongst lenders. This sets out in diagrammatic form the steps in the financing and valuation processes, and specifies that the relief from royalty method (an income-based approach to IP valuation) should be the primary means of determining value for lending purposes, providing examples of how it should be applied to patents, brands and copyright materials.

The training and certification programme run in parallel with development of these standards was directed at Malaysian companies and delivered in conjunction with specialist IP valuation consulting firms from Australia, Singapore, the United Kingdom and United States, whose services were also used to facilitate all early loans. It is not known how many local valuers have completed the programme, as no directory has been published by MyIPO at the time of writing.

All the loans made thus far are understood to have been financed by Malaysia Debt Ventures (MDV) using a MYR 200 million fund (USD 45 million) provided by the Malaysian government. This IP Financing Scheme has provided loans of up to MYR 10 million, or up to 80% of the value of the IP, over a five-year term with an initial grace period of up to 12 months, and provides a 2% interest rebate as an incentive. The loans are have been backed by a credit insurance mechanism provided by the country’s Credit Guarantee Corporation, which underwrites up to 50% of the loan advance in exchange for a (discounted) premium of 0.5% per annum. To qualify, business must fall within one of MDV’s mandated high growth sectors, such as ICT, biotechnology and green technology; from public announcements made, most beneficiaries appear to have been creative and digital businesses.

To date, the number of SMEs receiving funding appears to have been modest. At interview (PWC, 2015), MDV stated that 11 companies have been backed with loans of MYR 40 million (five of which were involved in the first cohort). At this time, MDV said there were
six further applications in the final stages of evaluation and 16 more in the pipeline, accounting for a further MYR 70 million in total.

One factor constraining volumes is that no mainstream banks or other specialist lenders are known to have followed MDV’s lead; in turn, one reason for this may be the low level of guarantee backing available (which based on prior announcements appears to have been reduced from an initial target figure of 70%). However, there are also known to have been some legal constraints relating to the validity of charges made against certain IP rights, including patents, which may have discouraged wider adoption.

Singapore

A proposal to create an IP financing scheme for Singapore was included as a central plank of its Intellectual Property Hub Master Plan, published in April 2013. A subsidiary of the Intellectual Property Office of Singapore, IP ValueLab, administered an SGD 100 million guarantee facility to support IP finance applications. First launched in August 2014, this scheme was subsequently extended for a further period to include trademarks and copyright materials (having originally been restricted to granted patents). It was not renewed in March 2018, and is likely to be replaced by new initiatives, some of which are referenced in an updated Hub Master Plan (dated May 2017).

Unlike Malaysia, Singapore’s scheme had no dedicated funds. It focused on recruiting lenders, mainly mainstream banks, in support of the scheme, which provided a guarantee for 80% of the IP value, subject to a cap (originally set at SGD 5 million, but later increased). After companies had drawn down the whole of their loan, they can could reclaim 50% of the cost of their valuation (or 2% of the advance, subject to a SGD 25 000 maximum) from IP ValueLab. The valuation report on which the financing is ultimately based had to be done by an approved valuation panel member. A number of these firms were international or based outside Singapore, and the updated Hub Master Plan (recently updated) includes measures to address this by supporting the development of more locally-based IP valuation expertise (to support a wide range of IP transactions, not just finance).

The scheme started relatively slowly, with little reported activity over the first two years. Factors involved appear to have included bank unfamiliarity with IP assets, a relatively informal application process, the insistence on companies having granted Singaporean patents, and high prospective transaction costs (particularly in respect of the IP valuation itself). These points were progressively addressed, with prospective applicants encouraged to undertake a low-cost, indicative valuation exercise to gauge bank appetite at the outset, though it is likely that the ultimate transaction costs would have made the scheme more attractive to companies seeking larger loans rather than smaller ones. As a result, al number of loans are now known to have been drawn down by patent-owning businesses, financed by two local banks, DBS and UOB.

4.2.5. Europe

Many countries within Europe have measures in place targeted at encouraging innovative companies to invest in growth. For the sake of brevity, this section focuses on three countries only where some specialist provision related to intangible assets is being provided or contemplated regarding access to finance: France, Italy and the United Kingdom.
France

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.

Bpifrance offers a range of financial instruments, including grants and “soft” loans, subsidised long-term loans, a loan guarantee scheme and support for both direct and indirect equity investment. These can operate individually or in combination, being intended to support different stages of an SME’s development, providing the basis for what is sometimes referred to as a “funding escalator”. Apart from the very early stage forms of support, they usually require match funding to be in place from the private sector as a risk mitigation strategy.

As well as being a lender and guarantor, Bpifrance has its own internal resources able to conduct technology assessments, to help determine the prospects of an SME’s success and thus to decide whether it qualifies for innovation support.

In 2016, Bpifrance provided a total of EUR 1.3 billion in financing for innovative companies, including EUR 320 million of its own loans to 1,165 companies, mostly less than five years old. Its guarantee programme developed specifically for bank loans to innovative companies supported EUR 80 million in lending: however, this accounts for a comparatively small proportion of the EUR 320 million in total guarantee cover it provided for loans of all types. In addition, around 300 venture capital firms and investment funds in France are eligible to benefit from a Bpifrance guarantee relating to their investments in young innovative firms; in 2016, EUR 152 million of this type of support was provided.

This experience indicates that, at least in terms of guarantees provided, the French lending market continues to exercise caution in its dealings with companies at the innovative end of the spectrum.

In October 2017, a fresh investigation of the issues concerning intangibles and their financing was published by France’s Business Financing Observatory (OFE, 2017). This aims to address the issue that SMEs (including micro-businesses) cannot use intangible assets as security for credit. This, in turn, is prompted by the recognition that the digital transformation of SMEs represents a significant challenge in the coming years, which may be difficult to finance from retained profits.

A key concern for the Observatory is the competitiveness of SMEs. Its benchmarking finds that French companies are generally in the mid-range of intangible asset investment across Europe, and could spend more. The situation is perceived as being particularly acute for smaller firms. Whilst the nature of the investment needed will vary by sector, these will be most likely to find that failure to invest in the “new economy” can be life-threatening. Their situation is potentially exacerbated by the fact that start-up equity funding is less easy to obtain in France than in other countries, such as the United Kingdom or (especially) the United States, owing to crowdfunding and private investor communities being less well developed.

The Observatory also finds that intangible investment is not well defined and problematic to communicate. As set out in Part 2, treatment of intangibles expenditure in accounts is complex, and French companies tend to adopt a relatively cautious approach, seldom
seeking to capitalise their intangibles investment, but rather to treat it as a regular business expense. In terms of planning future expenditure, both companies and lenders find it difficult to identify assets, assess risk and to accurately estimate the level and type of investment required, particularly when compared with tangible asset acquisition.

Whilst banks do not have an “in principle” objection to providing finance for intangible investment, the Observatory’s research indicates that the absence of related collateral can be a barrier. It also highlights some other potential hurdles, one of which concerns information asymmetry. While all large French banks have structures aimed at supporting innovative companies, front-line relationship managers still need to have a better understanding of the business and its associated risk profile in order to make an appropriate diagnosis and referral.

The Observatory’s report underlines the importance of Bpifrance in providing financing, guarantees and advice or expertise, as set out above. It also recognises that other sources of support for innovative companies exist, including funds available from the European Investment Bank, which may be reviewed and extended in the coming year. However, it also concludes that there are opportunities to take intangibles more fully into account during the credit assessment process, which in turn will be reliant on finding better ways to communicate the investment that is required, and has already happened. Further discussions with the French Ministry of Finance and other stakeholders are expected on this point.

**Italy**

In October 2008, a Memorandum of Understanding concerning the economic evaluation of patents was signed between the Directorate for the Fight against counterfeiting - Italian Patent and Trademark Office (UIBM) of the Italian Ministry of Economic Development, ABI (representing banks), Confindustria (representing industry) and CRUI (representing universities). Subsequently referred to as the “UIBM project”, this aimed to establish a shared methodology for attaching an economic value to patents, based on the added value accruing to enterprises from the exploitation of new patented technologies, with the intention of simplifying their consideration in financing transactions.

This was a technically challenging exercise, seeking to find a framework in which patent value could be expressed in the business context while remaining relevant to existing international standards, including those set out in Part 2. The model that was developed featured five separate modules, looking at the invention/patent perspective (novelty, inventive step, ownership); the internal perspective (resources for development, complementary assets); access to market (competition, third party rights, customers); the technology perspective (time to market, costs/benefits); and the external perspective (sectors, segments, growth factors).

To determine patent value, it applied a rating/ranking approach to 86 indicators across these five modules, applying both points and relative weightings to each aspect and representing the outcomes graphically on a matrix for each module. This suggests that its claim to being a “simplified” method of evaluation may be ambitious.

The model did not attribute a financial value to the patents, the view being that subsequent valuation (using the cost, market, income or possibly “real options” method) would draw on this initial assessment. It is believed to have gone through some revisions since first introduction, but has not been applied generally (though one or more individual banks involved in its development may make internal use of it).
Fostering the Use of Intangibles to Strengthen SME Access to Finance

Current intangibles-related activity relates primarily to the use of credit guarantees, which are widely adopted within Italy. Some of this support is directed specifically towards innovative start-up companies and SMEs. These are defined as having at least two of the following three characteristics: spending 3% or more of turnover or operating costs on R&D and innovation; having highly qualified personnel (at least one-third being Masters graduates, or one-fifth being PhD holders, researchers or students); and being the owner, depositary or licensee of a registered patent, or the owner of registered software.

SMEs defined in this way have access to a range of financial incentives and allowances which benefit the company, its investors and its staff. These have recently been strengthened. As examples, increased tax concessions now apply from 2017 to investors and companies when equity investment is made; income tax is waived where employees and consultants choose to work for stock options; a new category of “hyper-depreciation” has been introduced for qualifying investments in Industry 4.0; and R&D tax credits have been increased to 50%.

In bank lending, innovative SMEs receive preferential access to Italy’s credit guarantee fund (Fondo di Garanzia per le PMI), being able to use a “fast track” application process. Instead of a 60% guarantee, they are eligible for coverage on up to 80% of the total amount, up to a maximum of EUR 2.5 million; furthermore, no evaluation of the company’s business plan and balance sheet, and no due diligence on companies that have an “A” or “B” credit rating, are required. Banks are also not allowed to request additional collateral on this part of the loan, though they are not prevented from taking personal guarantees. Repayments can be made over terms of up to seven years.

Participation in this innovative SME guarantee scheme has generally been limited to larger banks, though a programme of additional financial support has been announced in 2017, involving assistance for Tier 2/Tier 3 banks from Italy’s Development Bank (supported by the European Investment Fund).

In this arrangement, therefore, the presence of selected intangible assets is used as one of three “signaling devices” to indicate that a company is innovative. The assets themselves are not subjected to special scrutiny; no reliance is placed on any recoverable value for them; and they do not necessarily eliminate the requirement for personal guarantees. However, there has also been historical provision made for SMEs to receive a separate contribution towards the costs of developing and implementing their IP strategies, with patenting costs reclaimable at 80%, up to a maximum of EUR 140 000. This may be viewed as a more explicit acknowledgement of the contribution intellectual property may make to business growth.

United Kingdom

The United Kingdom does not currently have a scheme providing support for SME finance based on IP and intangibles, but has nevertheless been active in the policy space, primarily because of the growing body of evidence indicating the importance of intangible asset investment for individual companies (Goodridge, Haskel and Wallis, 2014 and 2016). In addition, the UK Intellectual Property Office (UK IPO) sponsored research into the issues around IP-backed finance with its Banking on IP report (Brassell and King, 2013). This has been followed by a series of other initiatives, including an overview of proposed measures (UK IPO, 2014a), a series of activities intended to promote IP insurance, and an IP finance toolkit (UK IPO, 2015), a document setting out (among other aspects) fundamental principles of IP valuation and methods of obtaining security over IP assets. The most recent publication is an examination of the UK IP valuation market (Brassell and Maguire, 2017).
At the 2016 IP Week Conference in Singapore, UK IPO presented a high-level summary of a scheme under consideration by the British Business Bank, a wholesale funder providing finance in support of equity and debt provision that already administers other schemes (such as the Enterprise Finance Guarantee scheme, also aimed at assisting SMEs lacking suitable collateral for bank debt). This presentation put forward a model in which an initial pre-qualification and valuation process would enable a bank to benefit from a combination of private sector insurance cover and a matching government guarantee element.

In this model, the role of the guarantee is to underpin the use of a defined process (as eligibility needs to be confirmed first) and to address the high transaction cost element which would otherwise be incurred as a result of purchasing insurance cover for a risk which is not fully quantifiable in the absence of direct experience. There may be more than one layer of cover involved, as it may be a requirement to obtain insurance for IP-related legal risks (principally the costs of pursuit of, and defence against, infringement claims) and possibly also insurance (to compensate for loss of important know-how).

The scheme is still under discussion. The 2017 Budget included a statement that “The government will [also] work with businesses, lenders, insurers, the British Business Bank and the UK Intellectual Property Office to overcome the barriers to high growth, intellectual property-rich firms, such as those in the creative and digital sector, using their intellectual property to access growth funding”.

UK 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. In a recent evaluation report (UK IPO, 2014b), 30% indicated that the process had improved their ability to access grant funding; 23% thought it helped them access equity funding; and 9% thought it had helped them to access loans.

There has also been some relevant private sector activity concerning selected intangible assets. Some is venture debt activity focused on a company’s IP and technology, typically involving patents and software, and practiced by specialist funds, domestically-based banks (such as Clydesdale Bank) and some international lenders (such as Silicon Valley Bank). However, as in the United States, while security interests will be registered against patents, the secondary exit route for such lenders in the event of default is likely to involve recourse to existing equity participants rather than direct reliance on IP value, and the due diligence conducted by such lenders has a strong focus on this aspect.

Other initiatives have focused mainly on software, using principles applied in asset finance. Lombard Technology Finance is one of a small number of UK lenders offering a financing product that purchases business-critical software and licenses it back to the originating company over a limited period, unlocking funds for re-investment. The specific asset being leveraged is the copyright in the software itself.

4.2.6. United States

In contrast with other national IP offices discussed above, the US Patent and Trademark Office is solely focused on the rights regime itself and does not generally sponsor business support schemes. There is, however, a long standing programme of credit guarantee provision linked to enterprises, principally the 7(a) Loan Program initiated in 1953 and operated by the Small Business Administration (OECD, 2012).
All of the initiatives that relate to the use of IP and intangibles-backed financing in the United States are private sector-led, there is considerable activity in this area, including the use of mechanisms such as venture debt (whereby a lender provides a tranche of non-dilutive growth funding based on the strength of the incumbent equity participation).

The United States was home to one of the first recorded examples of IP-backed financing, when Thomas Edison used his patent on the incandescent light bulb as collateral when financing the establishment of the General Electric Company in the late 19th century. In more recent times, it has become customary for banks providing loan capital to innovative companies to take a charge over relevant patent assets, a trend that has been analysed (Relecura, 2015) from both lender and company viewpoints based on charges recorded at the US Patent and Trade Mark Office (US PTO). Its analysis suggested a relatively high degree of concentration, with the top six lenders accounting for two-thirds of the total number of recorded security interests, and the top seven patent owners accounting for 20%.

### Table 4. Analysis of charges taken over patent assets by lender and by borrower

<table>
<thead>
<tr>
<th>Top lenders taking patent collateral</th>
<th>Top borrowers providing patent collateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP Morgan Chase – 48 804 patents</td>
<td>General Motors – 15 866 patents</td>
</tr>
<tr>
<td>Bank of America – 46 897 patents</td>
<td>Avago – 12 946 patents</td>
</tr>
<tr>
<td>Citigroup – 34 658 patents</td>
<td>Alcatel-Lucent – 10 023 patents</td>
</tr>
<tr>
<td>Wells Fargo – 32 716 patents</td>
<td>Kodak – 8 438 patents</td>
</tr>
<tr>
<td>Wilmington Trust – 31 369 patents</td>
<td>Freescale Semiconductor – 8 149 patents</td>
</tr>
<tr>
<td>Deutsche Bank – 27 172 patents</td>
<td>Seagate – 5 910 patents</td>
</tr>
<tr>
<td></td>
<td>Dell – 4 609 patents</td>
</tr>
</tbody>
</table>

*Source: Relecura, as reported in Intellectual Asset Management, 2015.*

The use of patents as collateral provides a degree of confirmation that these assets are recognised as having potentially realisable value. However, the fact that large corporations are providing patent collateral in the context of very large transactions, where many other assets are potentially involved (such as accounts receivable, inventory and cash) indicates that the value of the patents is not necessarily acting as a finance enabler in its own right.

A particular feature of the US market, which explains why patents feature so prominently, relates to Article 9 of its Uniform Commercial Code (which regulates how security can be taken over most assets other than real estate); this provides an incentive for lenders to require, and to attach, a specific interest to property owned by a debtor in order to obtain rights over it in the event of default. In other words, the presence of a pledge does not necessarily indicate that value has been attributed to the actual asset in question – it is simply the bank registering an interest to obtain an additional degree of control.

A more direct use of patents as collateral for lending, with an attributed value, has been used in the United States, primarily following the global financial crisis where lenders found themselves under-collateralised owing to the associated fall in real estate values. During this period, an organisation called M-CAM developed a proposition used by several lenders to address this collateral value shortfall using IP assets. Its system operated by assessing the patent portfolios of companies with existing loans in place (over which a lender would already have enforceable rights under US rules regarding “general intangible liens”), determining which of these portfolios was sufficiently well protected and marketable. M-CAM’s proprietary rating approach enabled it to produce a “certified asset purchase price” in the event of foreclosure. The price in question was then underwritten using specialist re-insurers, whose ratings provided the necessary assurance in respect of...
capital adequacy ratings. It was a condition of payout that the assets had to be surrendered for recovery.

A number of US banks have used this system, which appears to have established an important precedent in demonstrating the capacity for insurers to provide the rated cover needed for collateral requirements to be met. Enquiries with M-CAM indicate that it is not essential for a company to own patents in order to utilize this approach. However, to date, the approach has not been applied to companies at the point of initial finance application, or specifically targeted at SMEs.

Some individual IP finance specialists have also emerged in the United States in recent years. A particular example is Fortress IP, whose loans against patent portfolios have been based directly on the realisable value of the assets secured. This model for value realisation may involve enforcement activity against infringers as well as sale or license. In February 2017 the Fortress Investment Group, including its IP activities, was purchased by Softbank of Japan.

4.3. Common features and variations

Many countries have taken steps to target innovators and address their financing needs. When it comes to policy measures that specifically leverage intellectual property assets for this purpose, there is a clear concentration of activity in East and South-East Asia. Targeting financing interventions at companies with IP assets available to be pledged is a response to evidence indicating that these businesses are more likely to grow and generate wealth and employment; it also serves a signalling purpose (a statement of intent) regarding the characteristics of businesses that policymakers wish to encourage. There are also, as shown in Part 3, some variations in IP asset availability.

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 (though it is notable that other security, including equity, may be required by some guarantee providers in China which will affect the effective risk/reward ratio).

It appears doubtful that Chinese banks would have engaged as actively in lending against IP in recent years were it not for concrete assurances that the sums would be mostly or wholly recoverable in the event of default; the absence of private lender engagement in Malaysia may also indicate that 50% coverage does not provide enough comfort. It is also noteworthy that the tenor of these loans, when provided by commercial banks, is relatively short (commonly 1 year in China, otherwise generally 2-3 years or less), compared with the approach taken by dedicated funds such as MDV in Malaysia (over 5 years with up to 12 months’ repayment holiday).

Some Asian countries appear to have recognised the need for greater comfort over IP valuation levels, to accommodate the issues articulated in Part 3. 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.
The governments that have implemented such policy initiatives may be in a position to exercise a greater degree of top-down control over the operation of such schemes than their counterparts in other parts of the world, and the architecture of the state is particularly well utilised in the model Korea has adopted to implement its IP financing initiatives. However, it is important to note that this model is not universally applied. Whilst exercising some central control over key aspects of the financing infrastructure and promulgating certain standards, China has permitted regions and localities to develop their own schemes, and has actively experimented with decentralisation of certain aspects, such as pledge registration. 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; this strategy may also recognise that smaller lenders are likely to be more flexible.
5. **Policy implications**

5.1. **Highlights**

- The market failure in IP and intangibles-backed financing is most evident in debt funding, which has been the main focus for interventions to date;
- Intervention is warranted due to lack of lender familiarity with intangibles, the heterogeneous nature of the assets, the current regulatory position and the need to harmonise the effect of taking security over them;
- The need does not solely relate to the problem of insufficient tangible collateral in knowledge-based enterprises. There is also a need to align security practices with actual sources of business value;
- Important contributions of policy intervention include ensuring that effective security interests can be taken over intangibles, and helping the market determine which company-owned intangible assets have realisable value;
- Analysis of measures to date suggests that to meet these tests, interventions should be designed to work at scale and absorb some losses; be patient over the medium term; be data-enabled and data-driven; take a pragmatic approach to asset valuation; incorporate guarantees and/or insurance, look beyond patents; engage the private sector from the outset; and contain costs.

5.2. **Variations in policy drivers**

A more direct linkage between intangibles and finance is of practical policy interest because these assets represent an untapped form of value and security, and high growth innovative companies tend to be rich in them. However, policy priorities will vary by territory, and will determine how much focus is placed on IP and intangibles-backed financing and what approach is adopted. As noted in Part 4, it is not essential to have a specific focus on intangible assets to introduce initiatives that may benefit innovative companies by improving their access to capital, including debt funding: enterprise-based guarantee schemes provide an example of this.

As noted in Part 3, the characteristics of a country’s SME population, the nature of their business activities, and the culture that exists regarding the use of IP rights, will all have an impact on the profile of assets that can be harnessed (for example, Malaysia’s emphasis on creativity and software means that its state-backed finance scheme has started from a less “patent-centric” set of criteria).

Effectiveness is here defined as the need for an intervention to have a material and sustainable impact over and above existing provision (i.e. it must offer additionality). Furthermore, policies need to be impactful; as set out above and below, scale is important in any event, in order for sufficient data to be gathered so that risk can be properly understood. A key determinant of success is that policy interventions are usually aimed to bring about lasting change by successfully addressing the causes of market failure so that the market itself can take the initiative forward (and ultimately make the principles mainstream). The following sections consider the emphasis needed to deliver effectiveness.
5.3. Schemes should be designed to work at scale, and able to absorb some losses

If left unaided, privately owned institutions such as banks will naturally gravitate towards the deals that are most profitable. Historically, in the cases where IP and intangibles have been considered, these are the larger ones (in part because of their absolute levels of profit, and in part because of the need to have headroom to absorb the present high transaction costs, as discussed in Part 2). This is potentially at odds with efforts to encourage SMEs to grow, because they will not be able to afford large repayments, especially if the loan tenor is short. It may also limit the volume of data generated, which will slow down the rate at which confidence can be built and regulatory issues addressed, and makes it harder for insurers to obtain intelligence and comfort from a relatively broad spread of risk.

Understanding risks is an important potential output of any IP and intangibles-backed financing intervention. However, it is important that any system determining the eligibility of companies and their assets is not too tightly drawn. It would be possible (arguably easier) to construct an approach for scrutinising IP and intangibles that accepts almost no risk by only backing the very strongest SMEs and their assets, but this would not generate insights across a broad base, so would not facilitate a wider scale-up or roll-out and would leave many SMEs without access to finance at a critical juncture of their life cycle. To build confidence, it is imperative that a scheme mitigates the losses that might otherwise be incurred by lenders, but does not prevent all of them from occurring.

Scale and risk management (rather than risk avoidance) are therefore legitimate policy concerns. However, as Part 3 concludes, any and all support should not undermine the capacity for financiers to make their own decisions regarding credit acceptance. They must not be encouraged to place undue weight on the availability of a government support package (of whatever nature), as this runs counter to longer-term sustainability, and would introduce an unacceptable degree of moral hazard. One of the ways in which this can be done is to ensure that a material, but not too substantial, element of risk stays with the lender.

5.4. Patience over the medium term is required

The lack of lender experience in dealing with IP and intangibles as an asset class (or classes) suggests that it is likely that interventions will need to be maintained and managed over a number of years in order to have any transformational effect. Lenders that agree to participate will seek a degree of certainty that support will continue into the longer term, in order to justify the time and cost needed to equip themselves to sell, deliver and administer the related credit facilities.

As well as needing time to build familiarity and therefore scale, a substantial number of loans will need to pass through at least one complete cycle before they will yield the necessary data - not only on repayments and defaults, but also on losses and recoveries. Since debt “work-out” stages can take a substantial period of time, even if the tenor of advances made is relatively short (two years for example), it could take around five years before one or more lenders could prepare the necessary case for regulatory acceptance or change.

Longer-term commitments of this nature are not always easy undertakings for governments to make. However, experiences from existing interventions bear out the need for this form of support to be “patient”. Having historically experimented with Development Bank loans, it is interesting to note that Japan has opted for an education-based approach as the
centerpiece of its IP finance support strategy (as described in Part 4), which is bound to take a number of years to have an effect. Singapore took two years before it was in a position to announce the first loans under its IP finance scheme. Most significantly, the figures on loans made in Shanghai (where there is the benefit of longitudinal data stretching back to 2007) indicate that it took four years following the formalisation of local initiatives in 2009 before a large impact on lending behaviour became apparent. Therefore, whilst any successful scheme should be in a position to demonstrate some shorter-term benefits in terms of additional capital availability for SMEs, levels of confidence in the assets (or sub-categories of assets) will take longer to build.

5.5. Private sector engagement is key

IP and intangibles funding schemes have sometimes been constructed around state-backed funds (typically administered by development banks) and in other cases have focused on the enrolment of private sector organisations from the outset. In a few cases, these approaches have been used concurrently; in others, the use of state funds has been considered necessary to establish a “proof of concept” as a precondition to the involvement of more conservatively minded banks.

The limited evidence available to date suggests that the use of dedicated funds is helpful for producing early results, but is of less utility in “seeding” private sector appetite in line with the sustainability objective references above. Korea and Malaysia’s debt-based funds have supported a number of deals (quite a substantial number in Korea’s case), but the available evidence suggests that mainstream lenders are yet to follow suit. In China, there have been a variety of initiatives including some dedicated funds, but the majority of lending appears to have originated from commercial banks, assisted by the necessary incentives, such as guarantee funds and interest rate concessions, but also by measures intended to streamline administration. However, engaging the private sector, as described above, requires a patient approach, as bank behaviour is slow to change.

5.6. Digitalisation creates opportunities to gather and use more and better data

Behaviours and attitudes towards intangible assets will only change if there is good evidence to support increased confidence. This is particularly important in terms of producing evidence with the rigour necessary to satisfy any case for regulatory change. Part of the design of any policy measure intended to support finance therefore needs to include the means to capture and analyse data on all aspects of the process. Digitalisation offers the potential to make this process much more straightforward.

At present, what evidence has been gathered on risk – specifically, on rates of default and recovery – seems to have been retained within the individual lending institutions (whether government backed or private). Wider dissemination is needed in order to build confidence, but needs to be designed in from the outset.

The initial requirement of a data-driven approach is to formulate a set of qualifying criteria and assumptions, to be applied across funding opportunities. Whilst it is very important not to compromise ultimate lender responsibility or prejudice decision-making, some consistency of approach is needed in order to ensure that all data gathered can be appropriately baselined and compared. As noted in Part 4, all schemes currently active have paid at least some attention to standards, but none have yet published the data needed to generate confidence in the programmes, or to establish a clear performance baseline.
A number of inputs will be required in order to make a balanced judgement on any scheme’s outcomes:

- On eligibility criteria, information will need to be captured on the characteristics (including the intangible asset holdings) of all applicants that appear to qualify, regardless of whether they are ultimately successful in obtaining support under a scheme. Otherwise, opportunities may be lost to review the various criteria applied to discover which combinations are most predictive of a positive outcome;
- The identity and mixture of assets available for lending, the value attributed to them, and the proportion of this value ultimately relied upon by the lender will need to be monitored, as will the performance of the loan throughout its duration;
- Once a finance agreement commences, any threats associated with the intangible assets (for example, that might lead any IP rights to be invalidated) will need to be tracked and monitored carefully;
- Should an agreement go into default – whether or not any such default is attributable to a failure or lack of quality of the assets that have been used as collateral – the measures taken by the lender to address the situation will need to be tracked (especially in regard to any effect these may have on the intangibles or their ownership);
- Ultimately, the means of recovery (and the extent of the value recovered, against which assets) will be of particular importance.

Data exchange is an important principle in ensuring that all participating institutions can benefit from the lessons learned. However, it will also be important to take an holistic view of what the data is saying over time, particularly in relation to recoveries, in order to reach a properly evidenced view of risk-related findings. Otherwise, financier appetite could be undermined before the pool of data has been adequately populated.

Whilst a data-enabled approach demands (and imposes) some structure, it should not prevent experimentation. The USD billions invested by companies in intangible assets across a range of countries represents a substantial stockpile of knowledge assets, with the potential to unlock a very substantial amount of value, but it is very unlikely that a “one size fits all” approach will successfully accommodate the varying business models, asset concentrations, sizes, strategies and aspirations of all SMEs. Examination of where most intangible asset financing has been achieved (China) suggests that regional and local variations and experimentation with a number of elements are likely to be important.

There is no reason why a variety of different funding instruments should not be deployed concurrently, as long as the inputs, outputs and outcomes of each one are closely monitored. For example, sector-specific funds to leverage intellectual assets could be deployed alongside guarantee facilities; and policies to encourage wider use of IP insurance, which should increase lender and investor confidence, would be compatible with any other initiatives.

### 5.7. The approach to asset valuation should be pragmatic

In order to leverage intangible assets for lending, it will invariably be necessary to attach a value to them. Valuation has been an important consideration in each of the IP and intangibles funding schemes to date, with all countries taking, or considering taking, steps either to reinforce quality standards and/or to augment the pool of valuers capable of...
providing the necessary reports. A separate, but closely related, question concerns the proportion of value on which reliance should be based.

As set out in Part 3, there is no single, standardised way of considering the value of a given set of IP and intangible assets. However, it may be possible to define a standard method for the particular value concept of using IP as security for finance (Malaysia, for example, has already specified a single standard method, relief from royalty, for applications to its IP financing scheme, as set out in MyIPO, 2014).

To be successfully applied, any standard has to be practical, as well as theoretically robust. Income methods are generally most suitable because they are relatively well understood. Also, since a company seeking finance will need to present a lender with historical and forecast financial information, one set of figures can be used for valuation and for credit assessment. However, since it will be the realisable value of the IP and intangibles that is of most relevance to the financier, a view will also be taken regarding the likelihood of successful asset disposal and the price at which that might be achieved.

This potential downside risk can also, or additionally, be accommodated by introducing a familiar “point of parity” with tangible assets; namely, to use only a proportion of the asset’s theoretical value as the basis for lending. As explained in Part 3, it is common practice in other lending contexts to apply what is colloquially known as a “haircut” to the proportion of asset value used as collateral. This is already being done in contexts where IP is serving this purpose; interviews with Techina relating to its Chinese state-backed guarantee fund indicated that this is proportion is currently being set at a relatively low level (the typical range being 20%-30% of deemed value). In other words, if an IP valuation concludes that a company owns IP representing a value of USD 5 million to it, the maximum amount used as collateral may be conservatively set in the region of USD 1 million, to take account of the likely value reduction if the owner gets into difficulties. This has the additional benefit of reducing the level of reliance on the precision of the original valuation, which is very important given that such exercises are always imprecise.

As mentioned in Part 3, some care is needed to ensure that lenders do not benefit from being over-collateralised in respect of the assets they take as security. At such an early stage of IP and intangibles financing market development, when the assets normally have no value attributed to them (but may still be caught by legal provisions such as the general intangible lien in the United States), it is unlikely that this would cause any legal or practical difficulty. Also, at the present time when recovery rates for each sub-category of asset are uncertain, applying a substantial risk weighting is surely prudent. However, it is worth noting that this position might change as experience increases, resale markets improve, and (in particular) if the regulatory status of the assets for security purposes were to be modified.

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

As noted in Part 4, guarantees provided by the state or by state-backed organisations have featured in all countries where intangibles-backed financing schemes have been implemented. Ranging in value from 50% of the finance amount to 100%, these are essentially confidence-building measures to reassure funders that reliance can be placed on the level of value ultimately attributed to the assets. Like credit guarantee schemes, these offer policymakers the advantage that they encourage the flow of risk capital from the private sector, rather than substituting it with government money. However, unlike credit guarantee schemes, they are based on the principle that the company has intangible assets
State-sponsored guarantees address the gap in risk experience and a lender’s and/or insurer’s ability to predict and manage losses while this knowledge is being accumulated. They also compensate for the absence of the transparent markets to which a lender would otherwise look for sale of assets (a market failure which would otherwise jeopardise appetite). As United States experience shows, it is possible to supplement or even substitute a state-backed guarantee with private sector insurance cover, which has the advantage that the credit rating associated with the insurer can be used in place of the intangible assets to lend at secured finance rates. This, in turn, can drive down the cost of credit and/or improve lender margins, until such time as the evidence can be gathered to review the regulatory position.

Guarantee or insurance schemes can also influence borrower behaviour in a positive way. Where no particular value is placed on a subset of a business’s assets, as is often the case with intangibles, it has been relatively straightforward for the founders of a failed business to re-acquire them for a fairly nominal sum and resume trading. By providing a credible route to value recovery from these assets, this possibility is removed, as it means that the borrower stands to lose the assets if the business fails. However, for this effect to be realised in practice, it needs to be a condition of the guarantee that any assets still extant when a business fails are handed over; any recoveries that are made on commercial terms then help to defray the cost of payouts.

To date, the use of insurance in support of IP and intangibles-backed lending has been limited. However, structures are being developed which may make the underwriting process more straightforward, and address insurer concerns regarding moral hazard by agreeing a suitable proportion of lender risk retention.

Insurance may have a role to play beyond underpinning a recoverable asset value. It may be helpful to incorporate (or require) some level of insurance-backed protection to support the pursuit of IP infringers or defend the business against accusations of infringement (some experimental schemes are being introduced in China to encourage wider take-up).

It may also be considered important to have measures in place to address the risks of losing essential internal know-how. In some markets, risk of death or serious injury can be achieved to a degree using “keyman” insurance, which offers payments to compensate companies for the loss of access to these resources. However, other internal measures will be needed to mitigate the effects of technical and operational staff leaving a business.

5.9. Patents have been the focus of many policy initiatives, but it is important to look beyond them

Patents have been central to a number of intangibles-backed financing initiatives. As well as being regarded as the “hardest” of the IP rights, they have a number of attractions because of the level of detail contained within official documents and the fact that they have been examined for evidence of inventiveness and novelty prior to grant. Their relationship to innovation and to finance, is also well documented. However, it is interesting to note that schemes in China and Singapore have diversified beyond patents, and there are a number of reasons for suggesting that while patents remain a useful signaling device, they should not be a precondition for IP finance eligibility.
Patents take a considerable period of time to obtain, and until they are granted, cannot be enforced. The patenting regime is currently experiencing a significant amount of upheaval, particularly in China and the United States. This makes it harder to predict the prospects of a successful grant. Furthermore, prior to publication, the existence of patent applications is not verifiable using statutory databases, meaning there is always a potentially substantial backlog of competitor activity that is not visible; also, since companies do not always keep these systems fully up-to-date in terms of legal ownership, the information that is visible is not always entirely accurate. Even when granted, in addition to the “normal” uncertainties present in IP rights (summarised in Part 3), the monopolistic rights associated with patents make them particularly susceptible to legal challenge, and defence can be costly.

More seriously, the requirements relating to patentable subject matter prevent many businesses that would generally be considered innovative from being able to obtain protection of this nature (OECD, 2011). The statistics shown in Part 3 show that in some countries, a comparatively small proportion of SMEs is motivated or eligible to obtain them, but this does not mean that they are short on intangible assets more generally. Software, for example, whose development is a major driver of growth in many economies, is automatically protected by copyright; increasing reliance on this right is likely, given the recent US court judgments that have cast doubt on the validity of many patents implemented via software.

Where patents are present, they usually generate most value when they are associated with successful products or services, but these are likely to rely on a range of intangible assets rather than simply the patented material in isolation. Accordingly, a lender is likely to wish to obtain security over all a company’s identifiable intangible assets when financing it, and so it is sensible for policy interventions to be aligned with this requirement.

5.10. Cost containment constitutes a challenge

In view of the need to achieve a degree of scale (to gather sufficient data, and encourage a spread of risk), it is important to tackle the problem of high transaction costs, particularly in the early stages of any scheme when parties on both the demand and supply sides will still be familiarising themselves with it, and deal volumes are likely to be a fraction of their true potential. In this early phase, both financiers and insurers are likely to adopt conservative approaches to risk; left to their own devices, they may require extensive, and therefore expensive, due diligence enquiries to be conducted, as summarised in Part 3.

A number of schemes have addressed this by providing subsidies to cover the costs of key elements such as valuation (this being the cornerstone of the current approach in Japan, and an important element in Singapore, though its subsidies are subject to a number of conditions). Other measures that can usefully be considered to address this risk include interest rate subsidies directed at borrowers, and measures to control the cost of the necessary guarantees or insurance policies.

The establishment of new interventions provides an opportunity to consider alternatives to perpetuating a bespoke, consultancy-led approach to intangible assets, which may exacerbate the perception that they are complex and difficult. Experiments should also consider longer-term cost and sustainability by encouraging and facilitating the development of systems analogous to those routinely used for credit scoring. These have an ability to operate at scale, and are better aligned with the data-enabled and data-driven approach advocated above. If operation at scale is facilitated, solutions will emerge.
The key test of containment will be whether the overall, all-in cost of taking out an IP and intangibles-backed loan can be affordable on a monthly or quarterly basis while still providing a level of capital that can make a genuine difference to growth. This requires the scheme to work at loans totaling well under EUR 1 million or USD 1 million – preferably, at EUR 250 000 or less.

5.11. Areas for further research

Intangibles-backed finance requires a number of elements to be in place in order to work successfully. These include the questions of how an asset’s suitability as security for lending can best be determined, how value is attributed to it, and how this value can be recovered. Each of these aspects may benefit from closer study.

The OECD has already produced some influential research directed at indicators of patent quality (Squicciarini, Criscuolo et al, 2012). While this did not specifically consider this concept of “quality” from a financing perspective, it may form a useful starting point for the development of approaches that can provide a more objective assessment of whether a patent is likely to have recoverable value. Just as important, given the trend for national intangibles financing initiatives to move towards inclusion of a broader range of IP rights, some of the principles used may prove to be applicable to, or capable of being modified for, other types of asset. Such work may provide evidence-based inputs into lender views of what constitutes a “good” asset. This work would be of particular relevance for SMEs which are less likely to use formal intellectual property rights than large companies.

Further consideration needs to be given to ways of supporting investment in those intangible assets that are most likely to be value-generative in today’s increasingly digitalised societies and economies. Many of these assets are rendered in software, which enjoys automatic copyright protection, but may not be patentable. A difficulty with the use of copyright-protected assets is that they do not require registration, and only a few countries (such as the United States) offer an “official” voluntary service to record them. Providing effective ways to confirm the existence and ownership of these assets could be a significant finance enabler, especially for SMEs which face more challenges in managing their intangible assets and are more reliant on these assets to secure external financing at the same time. This aspect could be studied as part of the WPSMEE’s work on digitalisation and SMEs.

There have been a number of recent studies that have covered the determination of IP value in whole or in part (such as the EU Expert Group, 2013 and Brassell and Maguire, 2017). These reports have established that there are methods of valuation that are routinely used and well-established, but that the majority of cases where IP valuation is required are not related to finance. Rather, these use cases address the need for values to be determined when assets are bought and sold (usually in conjunction with the enterprise that owns them), transferred to another entity (when the Base Erosion and Profit Shifting work of OECD is of direct relevance) or become the subject of litigation. In addition, evidence suggests that the valuation of intangibles is less common practice for smaller firms than for large companies. The methods of asset valuation that are adopted in the various IP and intangibles-backed financing schemes that already exist (and which may be created in future) are therefore of considerable interest and could form the basis for further primary research, in particular regarding financing schemes targeted to SMEs.

For intangibles-backed financing to be sustainable, it must be possible to sell the assets that become available when businesses fail. OECD (2012) and others have previously examined
the role of IP marketplaces, noting that most transactions are proprietary and confidential, but few studies appear to have specifically considered what happens to “distressed” assets, in terms of the disposal values that can be achieved and the sales approaches that ultimately prove to be most successful. Better evidence in this area could identify existing good practice and highlight further potential areas for intervention.

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Annex A. Approaches to asset identification

Accounting rules

The starting point for examination of the assets owned by a specific business is usually its statutory accounts. The balance sheet is the section of these accounts which sets out the company’s assets and attributes values to them.

While national accounting standards may exhibit variations, international accounting and financial reporting standards provide an important baseline that govern how multinational companies treat assets that may be shown on their balance sheets. The key regulations are IAS 38 and IFRS 3, which respectively define the rules concerning when intangible assets can be capitalised, and how they should be treated in the event of a business combination, i.e. merger or acquisition.

Important principles embodied in IAS 38 are that an intangible is “an identifiable non-monetary asset without physical substance” (IAS 38.8) that cannot be capitalised unless it demonstrates “identifiability, control over a resource and existence of future economic benefits” (IAS 38.10). This principle of identifiability is further defined at IAS 38.12 as whether an asset:

- “is separable, i.e. is capable of being separated or divided from the entity and sold, transferred, licensed, rented, or exchanged, either individually or together with a related contract, identifiable asset or liability (regardless of whether the entity intends to do so); or
- arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations.”

The Standard further specifies that an intangible asset should only be recognised at cost, and can only be revalued if there is an active market in the asset class (which it considers is not applicable in the vast majority of cases). Additionally, at IAS 38.21, it states that recognition is only applicable if:

- “it is probable that the expected future benefits that are attributable to the asset will flow to the entity; and
- the cost of the asset can be measured reliably.”

As a result, balance sheets constructed in accordance with IAS 38 will omit many assets which contribute value to an organisation (such as anything created as a result of research, and many marketing-related assets, some of which are specifically excluded). It is therefore clear that an accurate assessment of a company’s intangible assets and their value cannot be made based on statutory accounts.

IFRS 3 is regarded by the industry as an important aid to IP and intangibles valuation because when introduced, its notes set out for the first time a series of illustrative examples to assist with asset identification. It sets out five headings under which assets may be found: marketing-related, contract-related, customer-related, technology-related and artistic-related. Its definitions of eligible assets are therefore broader than IAS 38, though it still applies some similar tests, such as that of separability, meaning that non-contractual assets built up over time by a company will not be included.
These differences in definition often mean that when two businesses are combined, investigation of the intangibles that have been purchased in accordance with IFRS 3 will lead to assets being identified and amortised on an acquirer’s balance sheet that were never present in the acquired company’s accounts. The transaction has not created these assets; it has simply made them “visible”.

**Economic reporting approaches**

In recognition of the need to identify and quantify the various categories of investment being made by businesses, including costs incurred while generating assets internally, national statistical offices and economic analysts have adopted other definitions to assist in defining intangible assets created by companies.

Much of the historical work conducted on knowledge-based capital, including OECD’s studies in this area, is based on growth accounting principles formulated by Corrado, Hulten and Sichel (2005) setting out an expanded framework for measurement. This work was prompted by questions regarding the fundamental sources of economic growth, which had been measured since the 1960s in terms of labour and capital inputs with a residual factor to describe efficiency (known as “Total Factor Productivity” or TFP). The challenges to this approach were prompted largely by the rise of ICT-intensive industries.

The paper proposed an approach whereby the principal determinant of whether expenditure constituted capital investment was whether the outlay was intended to increase future, rather than current, consumption, stating: “When this deferred-consumption rule is applied to one of the most important ‘new economy’ questions – whether business intangible outlays and knowledge input should be expensed or capitalised in national accounting systems – an unambiguous answer is obtained: there is no basis from the consumers’ point of view for treating investments in intangible capital differently from investments in plant and equipment, or tangible capital”.

The authors set out a view that there were three broad groups of business intangibles that could be distinguished: computerised information, innovative property and economic competencies. Of these, only part of the first category (the computer software element) is normally capitalised. These three headings were subsequently expanded to form a list of nine types of assets.
Table A A.1. Comparison of categories of intangible assets

<table>
<thead>
<tr>
<th>Computerised information</th>
<th>Innovative property</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Computer software</td>
<td>Improved process efficiency, ability to spread process innovation more quickly, and improved vertical and horizontal integration.</td>
</tr>
<tr>
<td>2. Computerised databases</td>
<td>Better understanding of consumer needs and increased ability to tailor products and services to meet them. Optimised vertical and horizontal integration.</td>
</tr>
<tr>
<td></td>
<td><strong>Economic competencies</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Intellectual capital statements</strong></td>
</tr>
<tr>
<td>3. Science &amp; engineering R&amp;D (costs of new products and new production processes, usually leading to a patent or licence)</td>
<td>New products, services and processes, and quality improvements to existing ones. New technologies.</td>
</tr>
<tr>
<td>4. Mineral exploitation (spending for the acquisition of new reserves)</td>
<td>Information to locate and access new resource inputs – possibly at lower cost – for future exploitation</td>
</tr>
<tr>
<td>5. Copyright and licence costs (spending for the development of entertainment and artistic originals, usually leading to a copyright or licence)</td>
<td>Artistic originals, designs and other creative assets for future licensing, reproduction or performance. Diffusion of inventions and innovative methods.</td>
</tr>
<tr>
<td>6. Other product development, design and research expenses (not necessarily leading to a patent or copyright)</td>
<td>More accessible capital markets. Reduced information asymmetries and monitoring costs. New designs leading to output in future periods. Product and service quality improvements, novel designs and enhanced processes.</td>
</tr>
<tr>
<td>7. Brand equity (advertising expenditures and market research for the development of brands and trademarks)</td>
<td>Improved consumer trust, enabling innovation, price premia, increased market share and communication of quality. Better understanding of specific consumer needs and ability to tailor products and services.</td>
</tr>
<tr>
<td>8. Firm-specific human capital (costs of developing workforce skills, i.e. on the job training and tuition payments for job-related education)</td>
<td>Improved production capability and skill levels. Externally acquired improvement in decision making and business processes.</td>
</tr>
<tr>
<td>9. Organisational structure (costs of organisational change and development; company formation expenses)</td>
<td>Internal improvement in decision making and business processes.</td>
</tr>
</tbody>
</table>

Source: Corrado, Hulten and Sichel (2005) with mechanisms of output growth for the company investing in them, as amended by OECD (2013).

_**Intellectual capital statements**_

One of the ways in which companies can explain the positive influence their intangible assets have on their trading performance and outlook is to provide a separate report to supplement statutory accounts. During the 1990s, a movement to establish greater credibility for this additional form of reporting gained popularity, using principles developed by Stewart (1997), Edvinsson (1997) and Sveiby.

An intellectual capital statement usually divides up this capital into three parts: human capital (people), structural capital (organisation and knowledge) and customer capital. It introduces an important difference compared with accounting-based methods (which for example do not count human assets available to the firm as capital, because they are not owned by the business). Some variations of the model divide customer capital into relational capital and social capital.

The principles embodied in intellectual capital have been employed for a number of different purposes, some of which have been focused on helping companies improve their internal performance, with others directed at improving communication with external stakeholders. Examples of the latter approach can be found in Germany, where the intellectual capital principles have been used to create a statement of knowledge capital or
Wissensbilanz, supported by the Federal Ministry of Economics and leading to the creation of a checklist with intangible factors and assigned indicators, and separately to a toolbox. Some of the purposes for which intellectual capital statements were originally produced have now largely been replaced by corporate social responsibility reporting or integrated reporting (briefly discussed below). Also, as observers have commented, these statements never got as far as implementing a common language to describe intangibles; nor do they separate those assets created and/or owned by the business from those that are simply available to it. This is an important distinction when considering whether such assets might form the basis for security in lending.

**Integrated reporting**

While intellectual capital statements have not been very widely adopted, the need for firms to be able to report the role played by assets that do not feature in their statutory accounts remains a point of focus. It is generally recognised that standard formats are required if these reports are to offer any comparability to external stakeholders.

In December 2013, the International Integrated Reporting Council (IIRC) launched a new integrated reporting framework. IIRC is a global coalition of regulators, investors, companies, standard setters, the accounting profession and NGOs with an interest in encouraging value creation for the long term. The primary purpose of the reports is “to explain to providers of financial capital how an organisation creates value over time”, and to do this it advocates a structure featuring six types of internal capital: Financial Capital, Manufactured Capital, Intellectual Capital, Social and Relationship Capital, Human Capital and Natural Capital.

The integrated thinking model is that these capitals are “stocks and flows”; they act as inputs for the company and are then transformed through the business activities into outputs and outcomes. These strengthen the capitals over time, but also cause movements in value to occur between them.
The area of most obvious relevance for intangible asset finance is Intellectual Capital, defined in the framework document as “organisational, knowledge-based intangibles, including: intellectual property, such as patents, copyrights, software, rights and licences [and] ‘organisational capital’ such as tacit knowledge, systems, procedures and protocols”.

However, not all intangible assets are necessarily found within this heading; for example, the definitions of social and relationship capital include “intangibles associated with the brand and reputation that an organisation has developed”. It is therefore unlikely that a financier could look at a report prepared under integrated reporting principles and discover a comprehensive listing of a company’s IP and intangible assets under any one heading.

**Working definitions**

Analysis of the various approaches that involve the use of intangible assets concludes that there is no common language to describe them. Past attempts to introduce categories that describe the purpose for which an asset may be deployed have brought with them some artificial and unhelpful distinctions between assets that have similar legal status, which may make due diligence enquiries more complex and costly than they should be. For example, IP assets that are protected by copyright law may commonly be found within all five categories of intangibles proposed in IFRS 3 (marketing-related, contract-related, customer-related, technology-related and artistic-related).

With greater financing activity involving intangible assets, it is quite likely that a “hierarchy” of intangible asset types may emerge (if only because some assets may offer greater legal certainty concerning their ownership and enforceability than others). A possible approach based on legal form is explored in the following paragraphs.
A solution to the lack of standardisation and observance of legal asset form is particularly important in the financing context, where a “holistic approach” to identification is needed in order to ensure that all the primary sources of value creation are being understood and utilised. Otherwise, lenders may choose to focus on assets that are easy to capture because they are externally evidenced (such as registered IP rights), whose relationship to cash flows may be peripheral or non-existent.

If the approach is taken to categorise available assets according to their legal status first, a different model emerges:

- Registered IP assets (patents, trade marks and designs, and in some countries, copyright) form the first category. As property rights, these are relatively straightforward to assign or licence, and their existence can be independently confirmed;
- Unregistered copyright is the default right covering a number of important assets beyond artistic originals, such as software and databases (which may also be covered by separate database rights – essentially a form of copyright in a compilation). Copyright, being another property right (and one which is generally well aligned and consistently applied internationally) can also be transacted in a number of ways, though providing a notice function of any security interests is less straightforward;
- Contracts are individually identifiable binding documents which underpin an organisation’s ability to deliver its customer promise. Some deliver value in their own right (such as licensing agreements), and others increase the value of other categories of intangibles (for example, non-disclosure agreements, confidentiality undertakings, employment contacts and sub-contractor agreements are all important elements in determining whether a company can effectively manage any asset described as a trade secret).

This then leaves a number of other categories that may not satisfy separability criteria but are nevertheless identifiable (and, importantly, are capable of being monitored on an ongoing basis):

- Internal resources provides a heading for assets such as trade secrets, proprietary processes or technologies, proprietary products and unique service formats, and also unregistered designs and trade names that contribute value during a company’s day-to-day operations;
- External relationships takes account of non-contractual customer and supplier relationships and other networks of influence which add business value (but may not be transferable);
- Approvals and endorsements relate to non-unique, homogeneous intangible assets associated with a business that are also non-contractual but which support its operations, such as its conformance with quality standards, recognition with awards, or specialist accreditations needed to serve particular markets.

All of the types that a company is capable of owning should fall under one or other of these headings. However, it should be stressed that the assets that deliver most value to an individual enterprise will vary; for example, it is possible for a company to own a great many patents, brands and/or designs, but only derive income from comparatively few of them.