



**Asia-Pacific  
Economic Cooperation**

**Advancing** Free Trade  
for Asia-Pacific **Prosperity**

# A Study on the Harmonization of the IP Financial System

**APEC Intellectual Property Rights Experts Group**

July 2023





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Economic Cooperation**

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Produced by

Korea Invention Promotion Association  
18F, Korea Intellectual Property Service Center  
131 Tehran-ro, Gangnam-gu, Seoul, Korea 06133  
Phone: +82234592852

For  
Asia-Pacific Economic Cooperation Secretariat  
35 Heng Mui Keng Terrace  
Singapore 119616  
Tel: (65) 68919 600  
Fax: (65) 68919 690  
Email: [info@apec.org](mailto:info@apec.org)  
Website: [www.apec.org](http://www.apec.org)

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## CHAPTER I IP FINANCING IN THE KNOWLEDGE-BASED ECONOMY

### 1.1. Introduction

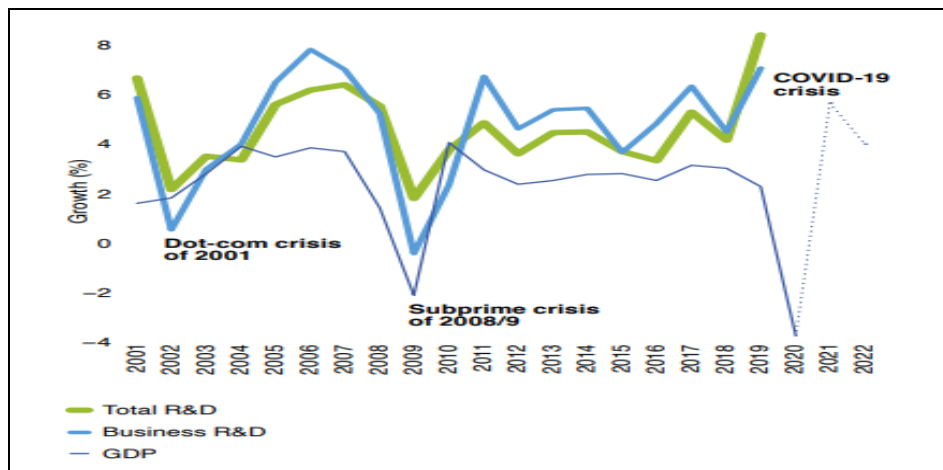
#### 1.1.1. The Need for Intellectual Property Finance

Intellectual property finance combines the concepts of intellectual property (IP) and finance. Intellectual property (IP) refers to the creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce. IP is protected in law, which enables people to earn recognition and financial benefits from what they invent or create (WIPO). Financing is the process of providing funds for business activities, making purchases, or investing (Investopedia). IP finance refers to the process of raising funds from financial institutions and other sources secured by intellectual property rights. It originates from the recognition of IP as a valuable asset that companies can independently generate revenue streams and secure funding, thereby enhancing its perceived worth to the enterprise.

The global pandemic has had a profound effect on the economic activities, and the global output declined by 3.3 percent in 2020. While the global economy was struggling to regain a broad-based recovery from the COVID-19 pandemic, the global GDP grew only by 2.4 percent, but the R&D expenditures grew 8.5 percent in 2019, which is an exceptionally high rate. Despite the global economic slowdown due to COVID-19, innovation investments did not decrease, and in fact, the scientific publications, R&D expenditures, international patent filings, and venture capital deals continued to increase (GII 2021, WIPO, p.11).

The remarkable development of technology during the 4th Industrial Revolution and an extreme dependence on the internet and technology throughout the COVID-19 pandemic further highlight the importance of the intangible assets. In fact, investment in innovation has been resilient during the COVID-19 pandemic and even reached new peaks in certain sectors and regions.

[Figure 1] R&D and GDP Growth, 2001-2022



Source: GII 2021, WIPO.

The international patent filing, a seminal example of an intangible asset, reached a new all-time high in 2020, despite the impact of COVID-19. The global filings increased by 3.5 percent in 2020 as compared to the previous year, and in particular, the growth in medical technologies, pharmaceuticals, and biotechnology fields is notable (GII 2021, p.15). The increase in the international patent filings should be viewed as a strong patent performance based on the recognition of the commercial potential of the inventions in the health sector. Although many economies have experienced a decline in the patent filings due to COVID-19, a rapid growth in the number of patent filings in China and the solid growth in the Republic of Korea (ROK) and the United States have had a positive effect on the increase in international patent filings (GII 2021, p.15).

The process of transforming the innovative ideas into tangible technologies through research and development (R&D), protecting them with IP rights, and commercializing these technologies by producing and selling products, requires continuous financing. Although commercializing these technologies can yield profits for companies and result in the creation of new IPs, there are many cases where the commercialization efforts are hindered by difficulties in securing financing during the early stages.

Specifically, many small and mid-sized start-ups experience the so-called ‘death valley’ because they are unable to raise sufficient funds at the commercializing stage and the growth is interrupted as a result. The role of IP financing is to assist these innovative (creative) startups.

SMEs and startups, even though they have future values, have difficulty in obtaining financing from financial institutions while they are starting the business and commercializing their technology because their future is uncertain in terms of realizing profits and commercializing their IP basis. These technology-focused companies only have intangible assets that are future-oriented, and not tangible assets, that are valuable now, and therefore, they are at a relatively disadvantageous position in procuring funding from investors and banks, etc.

The financial institutions require fixed assets as collateral from the companies that cannot obtain unsecured loans. Many IP-based startups and SMEs fail even before commercializing their technologies due to a lack of funding because they only have IP rights and do not have assets that can serve as collateral to obtain financing, and some excellent technologies are often buried. The role of IP financing is to assist the great technologies of the technology innovative SMEs and startups, facing the death valley, from being lost. IP financing could allow these SMEs and startups to obtain funding using their excellent technologies and strong IP rights portfolio, even when they lack tangible assets.

### 1.1.2. Intangible Assets and Intellectual Property

The global economy is rapidly transitioning from an asset-based economy to a knowledge-based economy, with the industrial structure reorganizing around the knowledge-based industries. Consequently, the significance of intangible assets, including intellectual property rights, is progressively increasing. The era of the 4th Industrial Revolution has witnessed a paradigm shift, with intangible assets, such as patents, assuming a crucial role in determining the value of companies and economies.

Intangible assets can be classified into two categories: those generated by human intellectual activities, such as intellectual property-based intangible assets; and those generated by activities other than intellectual activities, such as non-intellectual property-based intangible assets. Intellectual property rights are a type of intangible asset generated by human intellectual activities.

Intellectual property rights, which are included in intangible assets, can be created by various human intellectual activities, such as technology-related, market-related, art-related, data-processing-related, and engineering-related activities.

Intellectual property rights have an inherent economic value and can generate economic value through a combination with other tangible and intangible assets—ultimately contributing to the creation of new products or services.

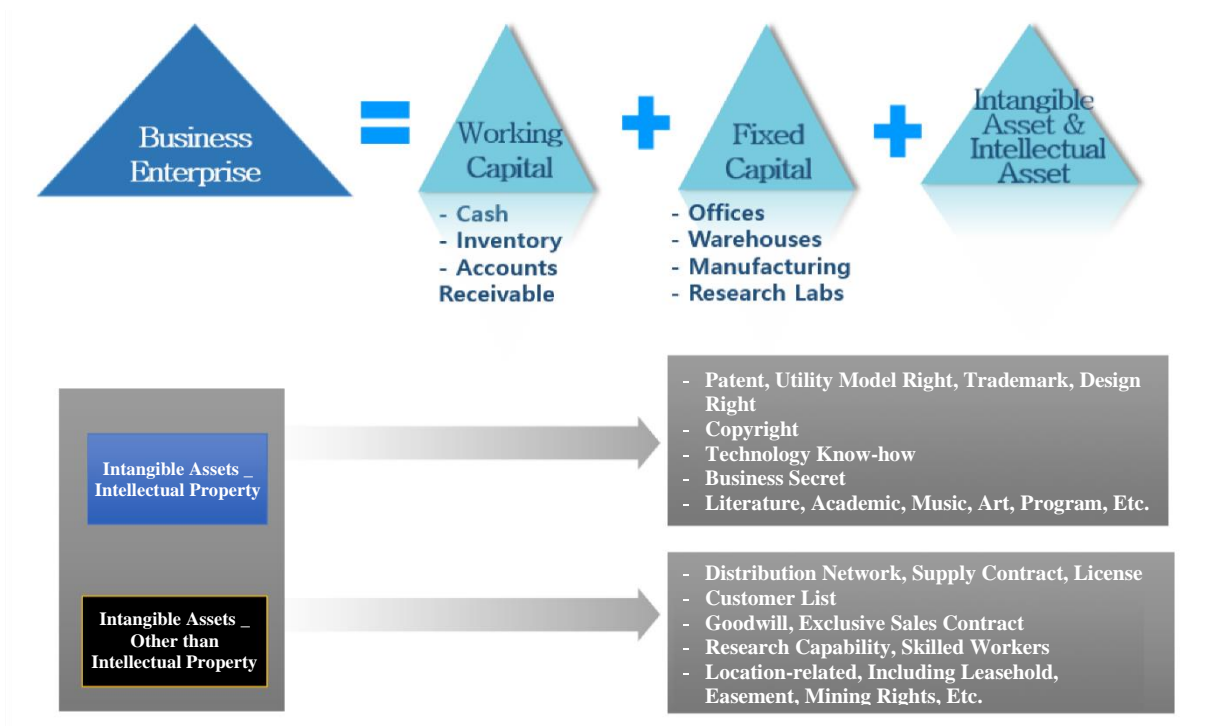
The US Financial Accounting Standards Board's (FASB) Statement of Financial Accounting Standards (SFAS) No. 141 classifies intangible assets into the following categories:

**[Table 1] Classification of Intangible Assets under the US Financial Accounting Standards Board (FASB)'s Statement of Financial Accounting Standards (SFAS) No. 141**

<b>Classification</b>	<b>Type</b>
Technology-related	Process patent, patent-application technology, technical certificate, test notes, technology know-how, etc.
Market-related	Trademark right, trademark, brand name, logo, etc.
Arts-related	Literary works and copyright, music creation, map, sculpture, etc.
Data-processing-related	Software, software copyright, database, etc.
Engineering-related	Industrial design, product patent, blueprint, monopoly certificate, etc.
Customer-related	Customer list, customer contract, customer relationship, order balance, etc.
Contract-related	Priority supply contract, concession agreement, exclusive distributorship, non-competition contract, etc.
Human capital-related	Skilled and unified workers, employment contract, labor union contract, etc.
Location-related	Leasehold, mining right, easement, right to sleep, air right, etc.
Goodwill-related	Corporate business right, expert ability, fame, going concern value, etc.

The intangible assets and intellectual property rights held by a company can be classified as follows:

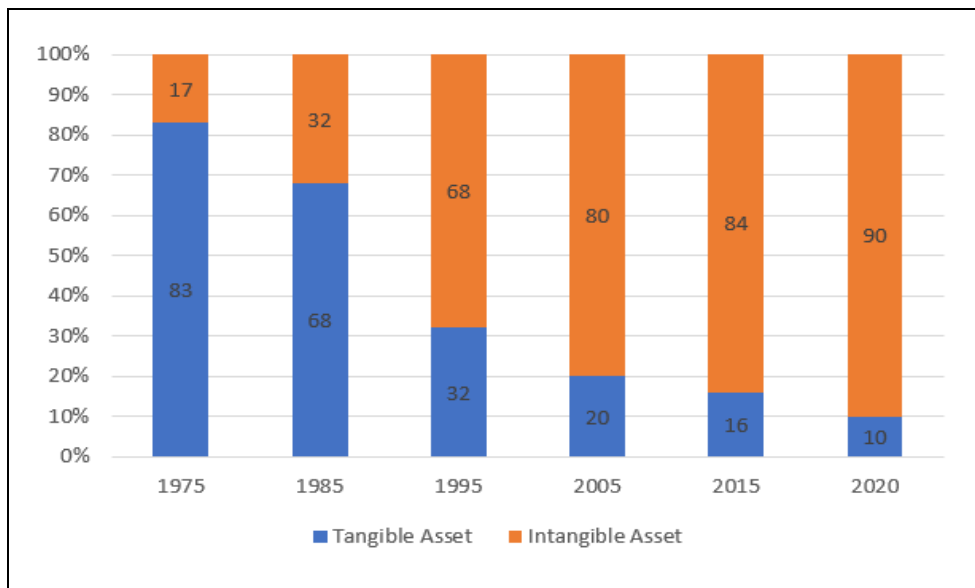
[Figure 2] Intangible Assets and IP Rights as an Element of the Value Creation of Companies (Businesses)



The company's performance is not reflected on the accumulation of the intangible assets immediately, but is reflected with a certain time gap, and R&D and patent acquisitions, etc. directly affect the value of the company. The corporate value is determined by the future cashflow, and a company's cashflow is determined by its business activities, financial activities, and investment activities (Samsung Economic Research Institute (SERI), 2008). R&D, brand, employee training expenses, acquiring patents, etc. are considered investment for business activities, and a company's investment in intangible assets for these business activities is closely related to the success of the business.

Businesses are increasingly relying on their intangible assets to finance growth and promote innovation. The driving force behind global economic growth has shifted from industrial and real estate-oriented industries to services and knowledge-based industries. The key factors determining a company's value have similarly evolved, moving from tangible assets such as property, plant, and equipment to intangible assets such as IP, R&D, data, software, and computerized information. In 1970, intangible assets accounted for only 17 percent of the total assets of US S&P 500 companies. By 2020, the value of these businesses' intangible assets had grown to comprise 90 percent of their total assets.

[Figure 3] Tangible Assets vs Intangible Assets of the S&P 500 Companies



Source: The Soaring Value of Intangible Assets in the S&P 500,  
<https://www.visualcapitalist.com/the-soaring-value-of-intangible-assets-in-the-sp-500/>

## 1.2. Technology Finance and IP Finance

Technology finance and IP finance is different from the general corporate finance, in that the general corporate finance is based on a company's collateral, revenue, financial status and cashflow, but technology finance is not only based on the company's financial situation and collateral, but also based on the technology evaluation of its technology, and the IP finance is based on the company's intellectual properties, such as patents, trademarks, designs, utility models, and copyrights, etc.

'Technology' in the technology finance is an area of corporate finance that combines technology and finance, and the technology finance refers to providing funds needed for the entire process of technology innovation, from 'R&D technology development, business establishment, commercialization and growth,' through an evaluation focusing on the company's technology. It is a comprehensive concept that includes information and knowledge, whether the right has been established or not.

The technology finance provides the general funding needed for the company to create the technology and to start a business and commercialize the technology created by evaluating the technology possessed by the company (level of technology, applicability), marketability (market size, demand forecast, etc.), and feasibility (competitiveness, financial structure, etc.).

'Intellectual property' is defined as knowledge, information and technology created or discovered by human's creative activities or experiences, expression of ideas or feelings, indication or business or objects, breed of living things or genetic resources and other intangibles that could create having property value, and the IP finance is a financing activity that supports commercialization, an increase of asset value, or a transfer of intellectual property rights for the intellectual property with a right or that could be created as a right.

[Table 2] Classification of IP Finance and Technology Finance

<b>Classification</b>	<b>Intellectual Property Finance</b>	<b>Technology Finance</b>
Target	- SMEs and startups with excellent IP rights	- SMEs and startups with excellent technology
Evaluated On	- IP rights, such as patents, trademarks, etc., owned by a company and can be transacted	- Technology evaluation assesses the company on its ability to obtain, handle, use, transform and create technologies
Description & Examples	- Calculate the ability to create value of products or services applied with IP rights in a monetary value - Allows financing through excellent IP rights - Loan products secured by patents, Products guaranteed by intellectual property, etc.	- Evaluate the future cashflow of technology-related know-how accumulated with the company (intangible technology assets not shown on the financial statements) - Transform from an unsecured loan based on financial records to financing that reflect the technologies (non-financial) - Technology-based financial products
Evaluation Method	- Present the value of IP rights in a monetary value by using the royalty approach, etc. (loan products secured by patents) - Present a rating through the quality evaluation of the individual patents (products guaranteed by intellectual property)	- Evaluate with a rating based on 40 technology items (system with 9 or 10 ratings) - Combined with a credit rating or use as a technology credit rating
Collaborating Institutions	- Government (Korean Intellectual Property Office & financial authorities), Financial institutions (banks and guarantee institutions), intellectual property assessment agencies, etc.	- Government (financial authorities), financial institutions (banks), technology credit assessment institutions, etc.

The technology finance is connecting to financing through evaluating the technology of innovative SMEs and startups. The technology finance is an area of corporate finance that combines a company's technology finance, and the target

companies are SMEs and startups with excellent technologies but having difficulty obtaining unsecured loans from financial institutions due to insufficient financial records.

A company's technology refers to the ability of the main user of the technology to obtain, handle, use, transform and create the technology. The concept of technology includes engineering and technical know-hows, as well as knowledge on the behavioral patterns of employee or customers, organizational structure, and procedures (OECD, Technology and Economy, 1992). A company requires many supplementary assets and abilities when it creates, introduces, or improves the technical abilities, and it includes the flexibility of the organization, quality of human resources and the sophistication of the support services, information management and coordination, etc.

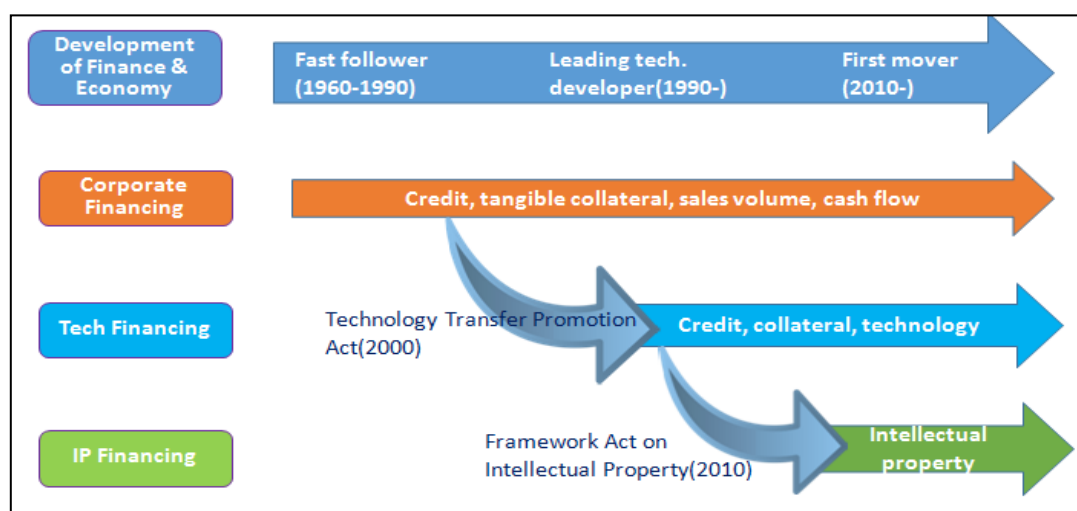
Technology evaluation assesses the ability of the main user of the technology in acquiring, handling, using, transforming, and creating the technology. From the perspective of financial institutions, evaluating the innovative SMEs and startups refers to evaluating the elements accumulated within the company that allows the company to create a cashflow, and not evaluating the individual technologies of the company. The individual patent rights owned by a company is the subject of the patent-based IP finance. Technology evaluation is conducted through a comprehensive approach, not only based on the technology itself, marketability, and commercial feasibility, but also on the structure of the organization that uses the technology, technology R&D ability and the commercialization skills of the principal user of the technology, technical human resources, support services and information management, etc. The result of the technology evaluation cannot be in a fixed amount and is presented as a rating through expert opinions and grades.

The technology finance refers to connecting to loans, not investments, by rating a company's technology. The purpose of the technology evaluation is to assess the future cash flow (future growth potential) of a company based on the technologies accumulated within the company for the financial institutions to make a determination on providing a loan and to predict the viability of the company as a going concern.

An experience in Korea which illustrates the evolution of IP financing shifted from technology financing will be discussed as an example.



[Figure 4] Development of IP Financing in Korea



As can be seen in Figure 4 above, the Korean economy was a fast follower during the period between 1960 and 1990. Korea became a leading technology developer after 1990 and has aspired to be a primary mover since 2010.

When it comes to the types of financing secured from the financial institutions, corporate financing was available from 1960. Corporate financing provides funding based on the credit rating of a company and tangible collateral. Under the corporate financing system, the revenue and cash flow are much more favored by the financial institutions than the technology potential of a company applying for a loan.

With the enactment of the Technology Transfer Promotion Act in 2000, financial institutions began to realize the value of technology as one of the possible forms of collateral, in addition to the traditional value of the corporate credit rating and collaterals.

In 2010, the Framework Act on Intellectual Property was enacted, and this law provided a basis for IP financing in Korea. With this new legislation, patents, industrial designs, trademarks and copyrights became potential collaterals for IP financing. As a result, the holders of IP rights were able to establish a basis to make a profit through the new forms of investment products, even if the IP right has not been commercialized.

To sum up, the IP finance originated from the technology finance. This is

attributed to the characteristics of IP rights which can be legally transferred and secured with great potential to be used as a financial instrument.

This research aims to harmonize the IP finance system of APEC members, and intends to study the means of policy support for resolving the difficulties in establishing IP finance programs and to harmonize the IP finance system between the members by reviewing the concept, model, legal basis and support policies of each member on the IP finance.

## **CHAPTER II LEGAL AND REGULATORY FRAMEWORK FOR IP FINANCING**

### **2.1. Introduction**

For IP finance to be utilized effectively, the legal and regulatory framework to support IP finance must be preceded. Specifically, IP rights must be legally transferable; IP must be recognized as the object of collateral so that it can be used as an asset; there must be a method of disclosure such as registration to indicate the changes of rights ownership through IP finance; IP rights should be reflected in the company's financial statements as assets; IP should be reliably and accurately valued; and a market should be created in which IP can be traded for financial purposes. Furthermore, considering the nature of the intellectual property rights, it is difficult for IP finance to become an attractive financial purpose for financial institutions. Therefore, in order to address the need for IP finance for small and medium-sized enterprises, a government-level cooperation system and support policy should be established.

The transferability of IP rights is generally accepted in most economies. Recognizing IP as collateral varies depending on economies and governing laws and it is closely related to traditional security rights. A security interest is a legal right granted by a debtor to a creditor over the debtor's property, which enables the creditor to secure payment or the other performance of an obligation through an interest in personal property. Recognizing IP as collateral means that the debtor grants the creditor the right to secure IP owned by the debtor to satisfy the obligation when the debtor defaults. The legal framework and governmental support policies that buttress IP finance exhibit considerable diversity, contingent upon the legal system and socio-economic exigencies of individual member economies. The ensuing analysis endeavors to scrutinize the legal underpinnings, support policies, and initiatives concerning IP finance across the member economies.

## 2.2. Legal Framework and Governmental Policies to Support IP Finance

### 2.2.1. China<sup>1</sup>

Covering several decades, the Chinese government and the China member's Intellectual Property Administration (CNIPA) have provided policies for IP financing to boost the innovative activities of businesses. The development and implementation of initiatives by local, provincial, and municipal governments aim to increase the public understanding of the value of intellectual property, encourage SMEs to innovate, and strengthen the competitiveness of the local and member's economy.

In China, government initiatives to encourage the use of intellectual property rights as collateral include: banks special funds; interest subsidies; valuation guidelines; and instruments to reduce the loan risk. According to reports, "thousands" of businesses benefited from the schemes between 2018 and September 2019, with the total value of patent-collateralized loans in the Guangdong province alone possibly reaching CNY30 billion (more than USD4 billion).

Since its inception in 2006, China has been the most active market for state-backed IP financing with almost 2000 enterprises receiving funding based on an IP in 2015. The Ministry of Finance, SIPO (State Intellectual Property Office) and some special funds in high-growth regions have all contributed to the support for IP financing in China. These funds were established to motivate commercial lenders to enter the market.

Given the huge number of high-tech companies in Shanghai, special funds have played a crucial role in expanding IP-backed portfolios. The dedicated fund in Shanghai was created with the intention of increasing the use of short-term loans for SMEs. Over the past ten years, the fund has been successful, largely as a result of following three key initiatives:

The creation of criteria and authorized financial procedures governing the operating standards and evaluation guidelines for IP pledges;

The application of pilot cases and experiments, such as the formation of an

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<sup>1</sup> Amy Tindell, 2022

CNY100 million fund in Pudong in 2006 that provided guaranteed loans to high-tech, early-stage SMEs based on the value of their intellectual property.

Improvement of administrative procedures, including the registration of IP pledge contracts. SMEs in Shanghai had received 500 loans totaling CNY1.8 billion by the year 2013. Several impediments persist despite the program's success, and the Shanghai IP Office is working to resolve them. These barriers include: immature markets, high costs, risk management and a lack of diversity in intervention targets and inconsistent evaluation frameworks and standards.<sup>2</sup>

### 2.2.2. Hong Kong, China

In Hong Kong, China, IP (including patents, designs, copyright and trade marks), which is personal property (as expressly recognized in various local IP legislation, e.g. section 50(1) of the Patents Ordinance (Cap. 514), section 32(1) of the Registered Designs Ordinance (Cap. 522) and section 27(1) of the Trade Marks Ordinance (Cap. 559)), can be mortgaged or be the subject of a charge for grant of a security interest (see section 50(2) of the Patents Ordinance, section 32(2) of the Registered Designs Ordinance and section 27(7) of the Trade Marks Ordinance) as a means for IP owners to secure financing. The mortgage of or grant of a security interest over a registrable IP (i.e. patent, design, trade mark) is a registrable transaction, the registration of which gives—

- (a) the registrant priority over subsequent transactions of third parties (see section 52(1)&(3)(b) of the Patents Ordinance, section 34(1)&(3)(b) of the Registered Designs Ordinance and section 29(2)(c)&(3) of the Trade Marks Ordinance); and
- (b) the mortgagee or the grantee who becomes the IP owner by virtue of a mortgage or grant of a security as a registrable transaction the rights to claim damages or an account of profits in respect of any infringement of the relevant IP occurring after the date of the transaction, provided that the application for registration of the transaction is made before the end of the period of 6 months beginning on or with the date of the transaction (see

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<sup>2</sup> Martin Brassell and Kris Boschmans, 2019

section 87 of the Patents Ordinance, section 52 of the Registered Designs Ordinance and section 29(4) of the Trade Marks Ordinance).

IP financing is mainly driven by market forces and financial institutions are, subject to applicable regulatory regimes, at liberty to enter into loan agreements with IP owners and accept IP as collaterals as the parties see fit. An earlier report of the Working Group on Intellectual Property Trading (“Working Group”)<sup>3</sup> however noted that the intangible nature of IP, in particular its valuation, its security and its disposal in the event of distress, encompass difficulties in making use of IP to secure financing. It also identified the lack of awareness and understanding amongst the relevant stakeholders of the business value, economic growth potential, and potential use of IP as a collateral to access finance to support business growth. Following the Working Group’s recommendations, Hong Kong, China has been enhancing capacity building (particularly amongst the small and medium enterprises (“SMEs”)) with a view to building up the stakeholders’ understanding and appreciation of the value of IP, through education and other promotional efforts, and help businesses engender confidence in IP assets which could be leveraged effectively to support growth as a means of nurturing and facilitating the market’s progressive development for engaging in IP financing. The initiatives and measures of such capacity building include—

- (i) the Government’s support to publication of “Intellectual Property Valuation Reporting Standard” by the Hong Kong Business Valuation Forum in 2015 and its inclusion in the Business Valuation Standards;
- (ii) joint publication by the Intellectual Property Department of the Government (“IPD”) and the Law Society of Hong Kong (“Law Society”) of the “IP Audit and Due Diligence Booklet” in 2017 to provide basic guidance for SMEs on how to conduct IP audit and due diligence;
- (iii) IPD’s cooperation with the Law Society since 2014 for provision of free IP consultation service to SMEs;

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<sup>3</sup> The Working Group was set up by Hong Kong, China in March 2013 to advise on the overall strategy to promote Hong Kong, China as a premier IP trading hub in the region. It was chaired by the then Secretary for Commerce and Economic Development and comprised Government representatives, industry stakeholders and experts from different fields. Its Report released in March 2015 ([https://www.ip.gov.hk/filemanager/ip/en/content\\_47/IP\\_Trading\\_Report-Final.pdf](https://www.ip.gov.hk/filemanager/ip/en/content_47/IP_Trading_Report-Final.pdf)) contained a host of recommended measures for further promotion.

- (iv) IPD's launch of the IP Manager Scheme (since 2015) and the IP Manager Scheme Plus (since 2020) to enhance the SMEs' IP manpower capacity and boosting their competitiveness through IP management and commercialisation;
- (v) the Government's launch of the "Hong Kong – Regional IP Trading Centre" website (as revamped in Jan 2023) to provide one-stop information about Hong Kong, China's IP trading; and
- (vi) IPD's engagement in various other promotional activities to promote IP's literacy, particularly for enhancing the public awareness of the importance of IP as potentially valuable assets.

### 2.2.3. Indonesia

The Indonesian Patent Law (Law No. 13 of 2016) and Copyright Law (Law No. 28 of 2014) provide for the regulation of patents and copyrights to be used as collateral, however, the specific implementing regulations were lacking. In July 2022, Indonesia introduced the Creative Economy Law's implementing regulation (Government Regulation No. 24 of 2022), which went into effect on 12 July 2023, to promote the support of knowledge-based enterprises through IP financing in the era of the creative economy. The newly established regulation (GR 24/2022) defines the creative economy as the implementation of the added value of knowledge assets derived from cultural heritage, science and technology, and human creativity (Article 1(1)). The regulation stipulates that the government shall support IP-based financing through banks and non-bank financial institutions (Article 4(1)). Individuals, businesses, or corporations interested in using IP financing are required to possess legally registered intellectual property rights, operate creative economy-related businesses, hold intellectual property-related contracts, and submit financial proposals (Article 7(2)).

In regards to the requirements for possessing registered intellectual property rights, not only industrial property rights that are registered as a requirement but also copyrights that arise simultaneously with creation are subject to IP finance, and the registration of copyrights and related rights would serve as the prima facie evidence of ownership. Trade secrets are not required to be registered for protection purposes, but registration is required for the licensing or transfer of confidential business information. Financial institutions shall verify the registration status of the IP, which are

the collateral for an IP loan, and must conduct an IP valuation as collateral. Article 11 of GR 24/2022 further stipulates that the MOLHR shall provide financial institutions access to data on an IP used as collateral. Currently, the Directorate General of Intellectual Property (DGIP) provides access to a publicly available database “Pangkalan Data Kekayaan Intelektual” for trademarks, patents, industrial designs, and copyrights. However, the information included in this database is very limited and there is a need to provide more comprehensive information, including information regarding the assignment and license of IP rights used as collateral, that can be accessed by financial institutions.

#### 2.2.4. Japan

Recently, there has been a growing recognition of the limitations imposed on SMEs and startups due to the constrained financing methods for intangible assets. Japan is therefore trying to expand IP finance by encouraging investors and financial institutions to provide funds based on evaluating the overall value of the business, including IP and intangible assets.

The most common forms of security interests over IP are pledges and security assignments, and the security assignment is widely used in practice despite the fact that it is not specified in law. In addition, the Japanese Intellectual Property Law stipulates that pledge rights can be set for patents, utility models, trademarks, and designs when they are used as collateral for finance.

Article 96 of the Japanese Patent Act states that when enforcing security interests in intellectual property rights (IPRs), the royalties earned should be considered, along with the conversion of those rights to cash. Additionally, the secured party’s ability to exercise the IPRs independently, based on their commercial or technical skills, can also impact the enforcement strategy.

In Japan, IP financing began in 1995 and grew steadily until 2015, with 260 enterprises receiving IP-related loans worth JPY16 billion in total transaction volume. Currently, Japan is working towards reforming the issue of asymmetric information by supporting regional business lenders, including banks and credit unions, and placing a special emphasis on improving their loan decision-making processes.



The Japan Patent Office (JPO) has taken the initiatives focusing on the financial support to create IP valuation reports and enhancement awareness of IP finance. The first initiative is the support of financing up to 150 IP evaluation reports each year for eligible banks that identify SMEs' innovations and their potential to the credibility and financial soundness of businesses. The second effort, which is meant to be a complement to the first, emphasizes on improving institutional education by holding annual symposiums and seminars that enlighten lenders about current IPRs and their effects on SMEs' cash flows and business models. Through these initiatives, lenders are able to equip comparable information-gathering procedures in their underwriting procedures, which are anticipated to result in more standardized types of IP financing.

By creating and submitting "Intellectual Property Business Evaluation Forms" and "Intellectual Property Business Proposal Forms" to financial institutions, the JPO has supported SMEs for financing with IPRs. These forms are a helpful tool for financial institutions which must evaluate the value of IPRs when determining a business' potential, even though they tend to concentrate on evaluating the value of a firm rather than the IPR itself. By the end of 2019, 204 financial institutions had performed business assessments based on IPRs, and 55 of those institutions had granted 93 companies 98 loans totaling roughly JPY4.38 billion.<sup>4</sup>

In Japan, there are challenges in converting intellectual property rights (IPRs) into monetary value when they are used as security interests and traded on the secondary market. This is considered to be one of the main obstacles that hinder the wider and more active use of IPRs as a basis for security interests.

#### 2.2.5. Republic of Korea

The Republic of Korea (ROK) stipulates various collateral rights under the Korean Civil Act. This act provides a pledge, mortgage, and lien as security rights and the security agreement has been widely used in practice despite the fact that it is not specified in law.

A pledge is a security right dealing with movable property. A pledge of movables entitles a person to possess the movables which he or she has received from the

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<sup>4</sup> Baker McKenzie 2020 Japan: Financing using IP rights

debtor or a third person as security for his or her claim, and to obtain the satisfaction of his or her claim out of the movables in preference to other creditors. A mortgage is a security right over the immovable property and a mortgagee is entitled to obtain satisfaction of his or her claim in preference to the other creditors out of the immovable which has been furnished by the debtor or by a third person as security without transferring its possession. The lien is the same as the pledge to use movable property or bonds as the object, but there is a difference in that the object is possessed by a creditor until the debt is paid. Of the above security rights, only a pledge can be used as a means of establishing security rights for IP rights, but the pledge in the Civil Act is designed to secure movables, so there was a limit to being applied to IP, which is an intangible asset. In addition, the disclosure method was also incomplete.

In 2010, the ROK enacted the “Act on Security over Movable Property, Claims, etc.” and security rights over IP as collateral were stipulated. This act aims to facilitate the borrowing of funds and increase the safety of financial transactions, and to contribute to the robust development of the member economies by providing for matters regarding security interests in movable property, obligations, and intellectual property rights, and the registration or record thereof. Under the act, if an IP right holder provides two or more intellectual property rights to secure one and the same claim under an agreement, a security interest under this act may be registered in the original patent register, copyright register, or other official register relevant to such intellectual property rights. In order for an intellectual property right to be provided as security, the relevant registers shall be administered by one and the same administrative agency, and the type and scope of the eligible intellectual property rights shall be specified or the eligible intellectual property rights shall be identifiable in any similar manner.

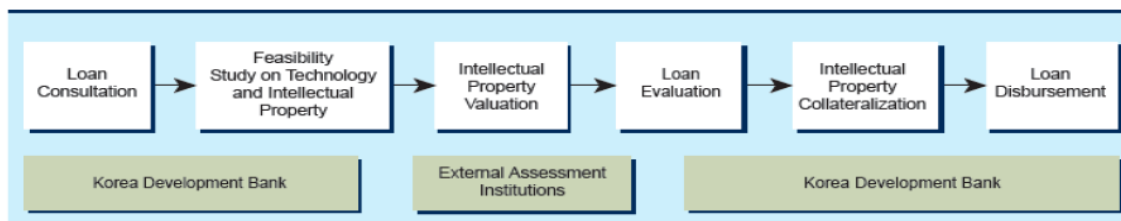
Along with this, the Patent Act also provides that the establishment, transfer, amendment, or expiration of a pledge right over a patent or an exclusive license or restrictions on the disposal of such a pledge right shall take effect upon registration (Article 101). Furthermore, the Technology Transfer Promotion Act enacted in 2000 stipulates that the government should establish a foundation for financial support such as investment and loans to facilitate the commercialization of technology transfer transactions, enabling mid-sized companies to achieve early success in commercialization.

Therefore, the “Act on Security over Movable Property, Claims, etc.” stipulates that if a security interest in an intellectual property right is registered in accordance with this act and a pledge is also registered in the same intellectual property right under a particular act that regulates the intellectual property right, the order of priority vis-à-vis the security interest and the pledge shall be determined by the order of registration.

The origin of the Korea IP finance system can be traced back to the late 1990s and officially launched in 2013 after being split from technology finance. The IP financing system in Korea was expanded with the introduction of timely policies focusing on an IP-backed loan and IP guarantee.

For an IP-backed loan, intellectual property rights are pledged as collateral for loans given up to the value of the assets, which are then utilized for commercialization by the company to make money and pay back the loan. Since its introduction, IP-backed loans have become a popular means of IP-based financing for SMEs.

[Figure 5] Procedure of an IP-backed loan in Korea



For an IP-backed loan, intellectual property rights are pledged as collateral for loans given up to the value of the assets, which are then utilized for commercialization by the company to make money and pay back the loan. Since its introduction, IP-backed loans have become a popular means of IP-based financing for SMEs.

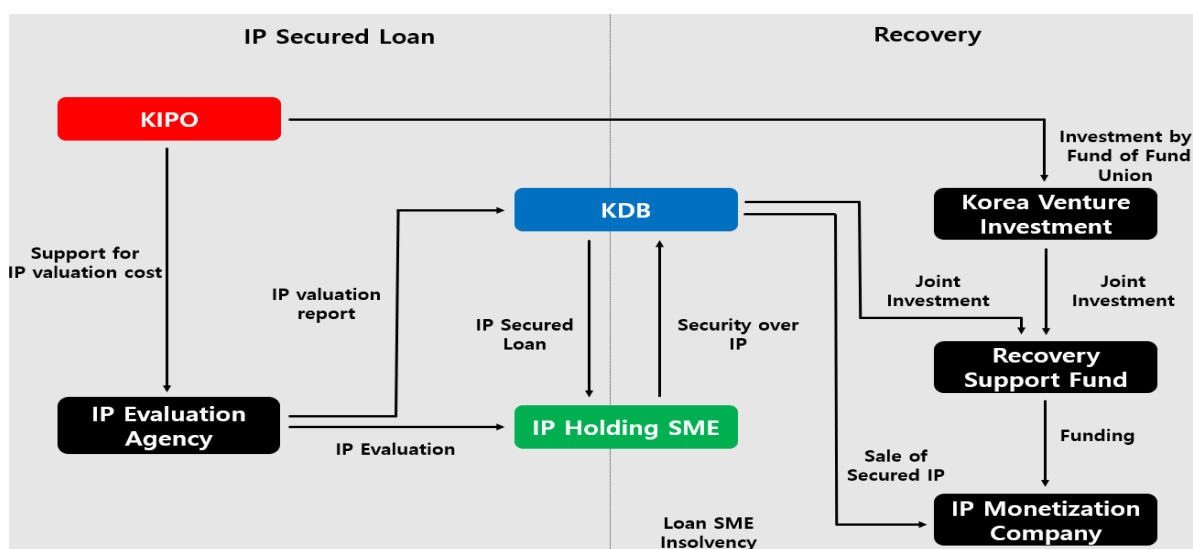
[Figure 6] IP guarantee and IP loan products in Korea



Commercial banks including Woori Bank, Shinhan Bank, and KEB Hana Bank started accepting IP-backed loans for startups and venture capital firms in 2019.

Since 2013, the Korean government has improved its current support of IP and intangible asset financing in an effort to turn the economy into a “creative economy.” The “Techno Banking” program of the Korea Development Bank’s (KDB) is one of the most well-known IP financing initiatives.

[Figure 7] KDB’s IP Secured Loan Flowchart



This program provides loans for IP acquisition, commercialization, and collateralization while the “Pioneer IP” fund makes IP-based investments and generates revenue from IP licensing. A collection fund for a distressed IP was also established by the KDB to address concerns about the liquidation of intangible property. With the Korea Credit Guarantee Fund (KODIT) and Korea Technology Finance Corporation (KIBO), as the main operating organizations, Korea has managed highly established credit guarantee programs, some of which facilitate intangibles-backed funding. The oldest and most established of these organizations is KODIT, which has a capital fund worth USD4.7 billion. For loans and securitization, it provides coverage of a maximum 95% of an IP valuation.<sup>5</sup>

SMEs have received significant assistance from public institutional investors including KVIC (Korea Venture Investment Corp.) and the Korea Finance Corporation.

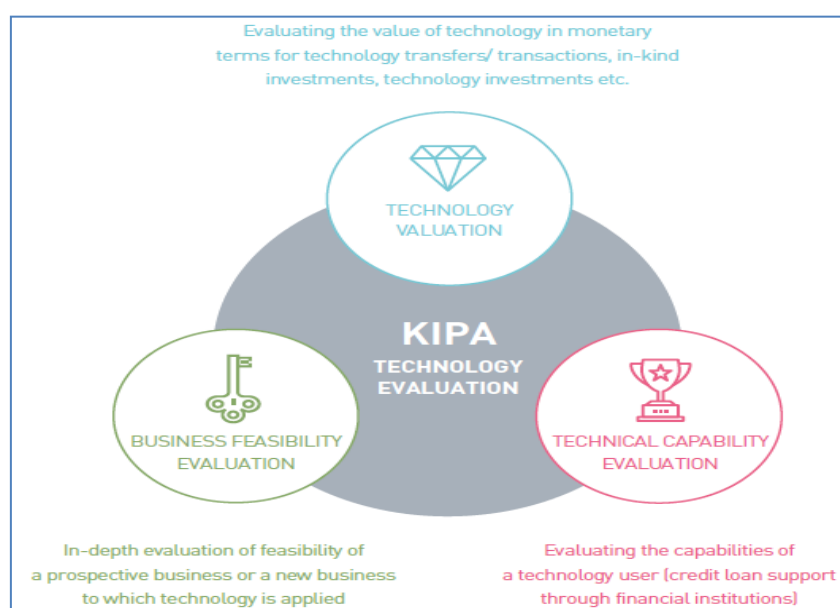
<sup>5</sup> Martin Brassell and Kris Boschmans, 2019

The “Invention Capital Fund,” “Growth Ladder Fund,” and “Fund of Funds” are three significant funds for IP investments. In particular, the credit guarantee mechanism has been crucial and has helped to mitigate the SMEs’ lack of financial resources.

In 2018, the Financial Services Commission and the Korean Intellectual Property Office (KIPO) introduced the “Comprehensive Measures to Revitalize IP Finance” which includes policy support to enhance IP guarantees and establish a recovery support system for IP-backed loans.

KIPO has approved the valuation institution for IP-based loans and provides financial support for IP valuation for SMEs. Korea Invention Promotion Association (KIPA) is one of the IP valuation institutions designated as a technology assessment organization by the Ministry of Trade, Industry and Energy in 2001. The Korea Intellectual Property Evaluation Center of KIPA was established in 2013 in accordance with Articles 35 of the Technology Transfer and Commercialization Promotion Act and Article 28 of the Invention Promotion Act as a technology evaluation agency with government certification. It comprises a professional staff of engineers, patent attorneys, and accountants along with over 400 highly qualified outside professionals from universities, research institutions, and industries. For in-kind investments, technological transactions, obtaining investments, and patent infringement lawsuits, these internal and external experts perform technology valuations.

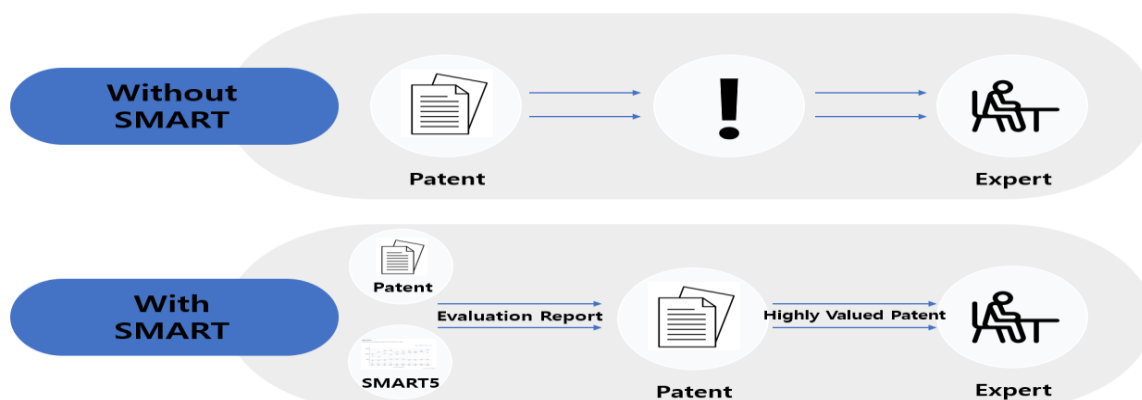
**[Figure 8] Role of KIPA in technology evaluation**



Further, an automated online IP valuation tool, the ‘System to Measure,

Analyze, and Rate patent Technology' (SMART) was introduced by KIPA in 2010. Through an evaluation model founded on objective and quantitative patent data, SMART offers online patent analysis and evaluation results for registered patents in Korea, the US and Europe in real-time at a reasonable cost. SMART is also used for corporate patent administration, R&D performance measurement, and IP finance and transactions tools as well.

[Figure 9] Advantage of SMART in IP valuation



In 2020, guarantees through the use of the online patent evaluation system reached KRW250 billion, which is a 44.5% increase from the previous year. This substantial increase indicates a growing demand for a timely evaluation in order to quickly secure funds.

The Korea Credit Guarantee Fund (KODIT) and the Seoul Credit Guarantee Foundation are currently expanding its “IP Smart Guarantees” based on the SMART5 grade evaluation system; the SMART5 evaluation calculates grades in real-time. The Korea Technology Finance Corporation (KIBO) operates its “IP Fast Guarantees” based on the KIBO Patent Appraisal System II (KPAS II) of which the evaluation process takes about one week.

KODIT completed the development of the Intellectual Property Value Evaluation System (KIVE: Big Data Based IP Valuation Electronic system) together with the Korea Institute of Science and Technology Information (KISTI) in January 2022. KIVE enables to quickly evaluate the value of IP within a week without additional evaluation costs, greatly increasing the efficiency compared to the evaluation of external experts, which takes an average of 5 weeks or more. In July 2022, the ‘IP Value Guarantee’ was launched with a linkage to KIVE for SMEs that have patents

and sales records through related technology commercialization. It can support up to KRW300 million within the final IP value automatically calculated through KIVE.

With the development of a number of modules for evaluation criteria and the expansion of valuation targets as well as institutions, a systematic IP valuation system and the growth of IP financing was accomplished.

Since 2018, trademarks and industrial designs as well as patents have been covered by an IP guarantee and IP fund investments. The Korean government made plans to expand lending based on intellectual property at the end of 2018. This helps the IPR holder by providing assistance for risk sharing programs, cost-sharing in IP disputes, and sharing up to 70% of the IP insurance premium to improve the value of IP Assets for financing.

The declaration of Financial Investment Promotion Strategy in 2020 was another big step for the next jump. The creation of very lucrative patents was encouraged as part of this program. Further, promising IPRs were chosen and offered to the private sector to find and generate investment. Private investment opportunities were explored to diversify IP investment, and investor-friendly tax and patent fee structures, as well as a lump-sum collateral system, were introduced to encourage capital inflow into the IP financing market.

In addition, a market-friendly infrastructure was created, and the IP expertise base was further increased by running an IP financial center, promoting an IP protection environment, and growing professionals on IP financing and investment.

As a result of these governmental initiatives, the size of Korea's IP finance market has steadily expanded. In 2019, its size reached KRW1 trillion, subsequently crossing KRW2.5 trillion in 2021. The total IP financing balance during the period between 2018 and 2021 was KRW6.9 trillion. As to the form of IP financing, loans with IP guarantees totaled KRW3,214.7 billion, loans with IP backing were KRW1.93 trillion, and IP investments totaled KRW862.8 billion. Particularly, the amount invested by firms with patents in the major 3 industries, including future automobiles, semiconductors, and biotechnology, represented 55.2% of the total. This indicates that IP investment is evolving into a source of funding for creative enterprises.

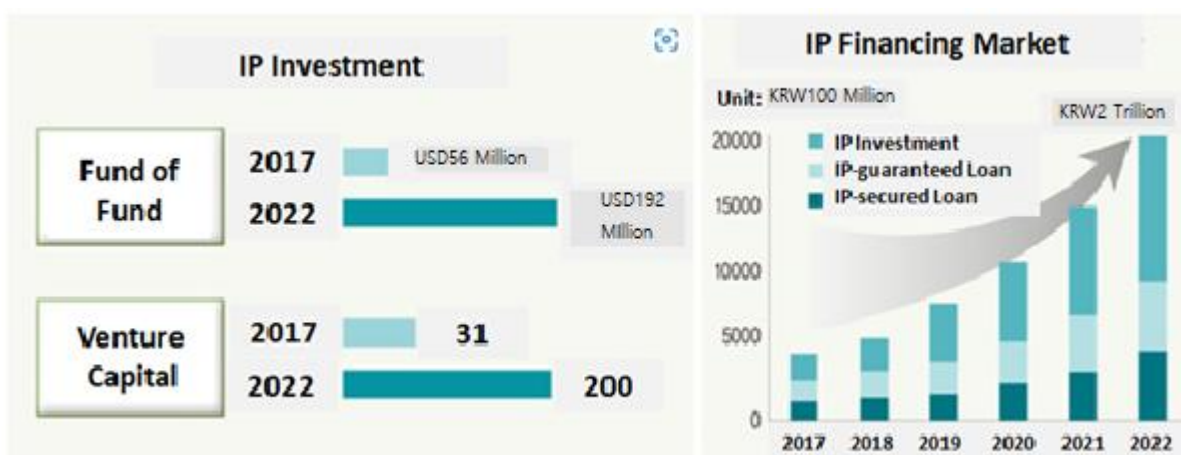
The total annual investment in intellectual property increased by 35.6% (KRW68.8 billion) to KRW262.1 billion. An increased awareness of IP investment among private investment institutions and the implementation of a policy for IP financing investment vitalization published on July 2020 have led to the growth of IP-based investment.

[Table 3] Expansion of IP financing in Korea

Type	2016	2017	2018	2019	2020	Total
IP-Secured Loan	202	866	884	4,331	10,930	17,213
IP-Guaranteed Loan	4,934	4,930	4,872	7,240	7,089	29,065
IP Investment	638	1,075	1,876	1,933	2,621	8,143
Total	5,774	6,871	7,632	13,504	20,640	54,421

Unit: KRW100 Million

[Figure 10] Growth of the Korean IP financing market



There are circumstances, nevertheless, when the loan must be repaid by selling the IPRs that served as collateral in the event of the borrower's insolvency. The difficulty in recovering the collateral IP presents an issue if there is a possibility that it is likely to be invalidated.

With this in mind, a recovery support fund was established by the Korean government to assist financial institutions in selling their IP collateral to patent management firms in order to keep their loans intact. In general, the revalued purchase amount is significantly less than the loan amount. Thus, it is not easy for financial



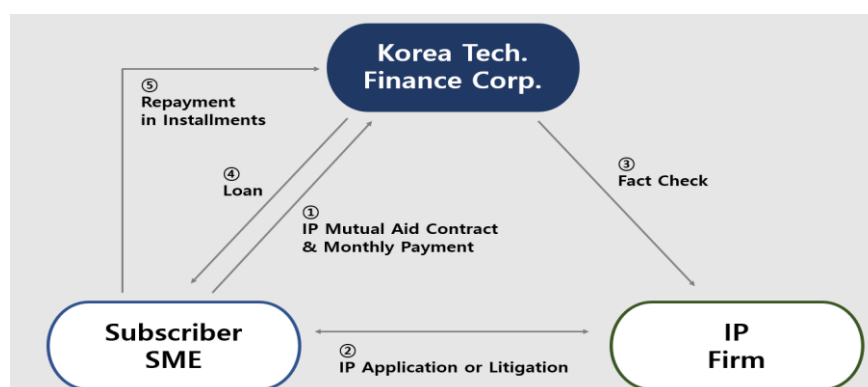
institutions to manage risks and to monetize after the purchase of insolvent collateral IP. This is because it is challenging to estimate the purchase price of the recovery support fund when buying insolvent collateral IP.

The Invention Promotion Act was revised in 2019 to lessen these restrictions for immediately purchasing and utilizing collateral IP in the event of the borrower’s insolvency. The recovery of IP collateral is further supported by the “IP Collateral Recovery Support Organization,” which was established in 2020. The Organization directly buys IP that has been pledged as collateral and helps financial institutions would not be reimbursed for IP-backed loans. By reclaiming purchased IPRs through licensing or disposal, the Agency will be able to generate profit.

Along with IP investment, direct investment products are starting to grow in Korea as IP finance shifts from government-led indirect investment to the private sector. IP investment strategies are varying with the introduction of crowd financing investment solutions.

One good example of IP financing product is IP Mutual Aid managed by the Korea Technology Finance Corporation. Since the launch of IP Mutual Aid in 2019, over 10,000 SMEs have become subscribers. IP Mutual Aid allows subscribers to borrow up to five times the amount of money paid (in installments) when SMEs need a large amount of money for IP applications or to respond to IP disputes.

[Figure 11] IP Mutual Aid



In January 2021, a guarantee system with IP investment options was introduced. This allows a guarantee agency to convert part of the patent guarantee amount into an IP stake.

## Cases

In spite of the COVID-19 outbreak, the growth of IP financing has helped Korean SMEs overcome financial obstacles. There are a number of success cases for this.

- A SME needed funds to conduct clinical tests to develop a COVID-19 vaccine but had already reached its maximum credit line. The company was able to use seven of their patents on “genetic scissors” as collateral to successfully receive a KRW2 billion loan and was able to continue with vaccine development.
- In 2013, an SME that produced LED and semiconductor materials received a KRW1.6 billion investment based on their material-related patent value and successfully localized their materials. By 2020, it was recognized as the No. 1 company in the global solar battery material (TMA).

### 2.2.6. Malaysia

A program that can assist SMEs in growing their businesses through the development of their intellectual property and its usage as collaterals was launched by the Malaysian government in 2013. The Malaysian Debt Ventures Bhd (MDV) is managing the MYR200 million IP Financing Scheme (IPFS) initiative, which supports the use of IP as collateral. In addition to this fund, they offer a 50% guarantee through Credit Guarantee Corp Malaysia Bhd and a 2% interest rate subsidy.<sup>6</sup>

MyIPO, Malaysia’s IP Office, has expanded IP-related financing in Malaysia along with the Ministry of Finance and Multimedia Development Corporation. There are two focus areas that have been emphasized in MyIPO’s work.

The creation of guidelines for IP valuation is the first focus area of MyIPO. This guideline outlines the processes of IP-financing and valuation method and provides that the relief from royalty method should be used as a standard valuation strategy for loan underwriting in order to enhance lender trust in IP values. The guidelines include examples of how the relief from royalty method should be used for patents, trademarks and copyright materials.

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<sup>6</sup> APEC Intellectual Property Rights Experts Group January 2018

The enhancement of local enterprises' and individuals' understanding of an IP evaluation and valuation has been MyIPO's second main area of activities. To this end, a training and certification program has been offered in collaboration with the foreign expert IP valuation consulting organizations. All of Malaysia's initial loans, which have so far been funded by Malaysia Debt Ventures using a MYR200 million fund supplied by the government, were also provided through the consulting organizations.

The fund gives businesses up to MYR10 million or 80% of the value of the IP in 5-year, guaranteed loans assured through Malaysia's Credit Guarantee Corporation with a 12-month grace period and a 2% interest rebate as borrowing incentives. Only 11 businesses have received loans so far, indicating a modest rate of uptake. The primary barriers to a more widespread acceptance of these IP-backed loans are believed to be the absence of equivalent services offered by other lenders and the existence of many legal restrictions pertaining to the legitimacy of charges against IPRs.

#### 2.2.7. Mexico

In Mexico, IPRs are recognized as legally transferable intangible assets and may be the subject of security interests under a non-possessory pledge agreement (Rodrigo Castelazo, Lending and Taking Security in Mexico: Overview), but there have been no reported cases of use IP as collateral for finance. Based on the recognition that tangible assets can be monetized more easily, corporate financing is made in the form of collateral or guarantee with real estate as the object (APEC IP Finance Workshop, 2022).

Under the Public Brokerage Federal Law, public brokers evaluate the value of tangible and intangible assets, including IPRs. Certified Technology Transfer Offices and firms conduct the valuation of technology and IPRs. Financial institutions with valuers also conduct IP valuations themselves rather than relying on the results of valuations conducted by other institutions. This is related to the current IP valuation status with the lack of standardized criteria for IP valuation and a low level of expertise (APEC IP Finance Workshop, 2022).

IPR-related information is not fully disclosed because there is a misperception

that there may be disadvantages, such as high taxes if IPRs are included in the financial statements. Therefore companies tend to practice not listing IPRs in accounting books as a business strategy. There is no secondary market in which IP collateral retrieved or seized is traded due to the perception that those IPRs may not generate cash flow (APEC IP Finance Workshop, 2022).

In order to implement IP finance in Mexico, it is necessary to find a method to monetize IPR in cooperation with financial institutions such as banks to offer IP finance products backed by IP. In addition, it is fundamental to promote specialization in an IP valuation by providing standardized criteria and guidelines (APEC IP Finance Workshop, 2022). Currently, the Intellectual Property Office of Mexico (IMPI) is conducting research on the introduction of IP finance, including research on IP finance in Mexico, in cooperation with the World Intellectual Property Organization (WIPO) from 2021 (APEC IP Finance Workshop, 2022).

#### 2.2.8. Peru

In 2018, Peru published Legislative Decree 1400 approving the regulations for collateral security and information system for collateral security to promote more productive business development of MSMEs. The new law stipulates the creation of an online registry (Sistema Informativo de Garantías Mobiliarias) and includes IP as financial collaterals (Article 4, Movable Collateral Law). The new law facilitates access to credit for MSMEs by allowing movable assets, including IPRs, to be the subject of security interests. It also eased the previous restrictions on establishing a security right, which allowed a pledge to be set only for specific commercial assets, by stipulating that anything with economic value, including movable property, could be used as the object of a security right (APEC IP Finance Workshop, 2022).

Despite the legal framework, currently, Peru is experiencing a lack of infrastructure to support IP financing, including IP valuation or IP financing models. There is no legal framework for qualified IP valuers, institutes, or companies. In practice, it is not common for companies to utilize IP assets when negotiating with financial institutions when raising funds. Most venture capital or MSMEs do not include intangible assets such as IP assets in their business strategies. In order to implement IP finance, it is necessary to strengthen the IP system by establishing governmental policies, adopting Market Mechanisms and risk-return methodologies for IP assets,

and strengthening the link between IP and economic activities (APEC IP Finance Workshop, 2022).

To this end, the Peruvian government is working with the World Intellectual Property Organization (WIPO) along with the National Institute for the Defense of Competition and the Protection of Intellectual Property (INDECOPI) to develop the Intellectual Property National Policy (PNPI). The PNPI aims to increase the creation and utilization of IP for a higher level of innovation, creation, and sustainable entrepreneurship, including IP finance (APEC IP Finance Workshop, 2022).

#### 2.2.9. The Republic of the Philippines

The Philippines enacted the Personal Property Security Act (Republic Act No. 11057) in 2018 to establish a legal basis for tangible and intangible assets, including IPRs, to be used as securities for loans and other credit accommodations (Section 4). The PPSA aims to strengthen the legal framework which provides the creation and perfection of secured transactions, determination of priority, establishment of a centralized notice registry, and enforcement of security interests in personal property including IP (Intellectual Property Financing Unveiled, AsiaIP (2019) Vol.11, Issue 9). However, in practice, it is not common for IPRs to be used as collateral for loans. Financial institutions tend to recognize securities in tangible assets such as real estate as collateral, and few financial institutions recognize IPRs standalone as the subject matter of bonds. IP assets tend to be included merely as part of a suite of securities typically covering project assets in a project finance arrangement.

Since 2015, the Intellectual Property Office of the Philippines (IPOP HL) has been promoting various initiatives to monetize IP assets, with IP financing and IP valuation being the core content. The IPOP HL held the 1<sup>st</sup> High-Level Forum on IP Financing in May 2015 and discussed the possibility of establishing a framework for IP financing and IP valuation. The Forum addressed the importance of IP finance for IP-rich companies with low tangible assets to open a new avenue to access capital as well as to grow and expand their business. Issues of the disclosure of IP assets for tax purposes were also discussed to reflect IP in financial statements and report to the Securities and Exchange Commission (SEC). In November 2015, the 2<sup>nd</sup> High-Level Forum on IP Financing was held, and in-depth and extensive discussions continued on establishing a legal infrastructure or deriving policies for developing more detailed

IP valuation guidelines.

In 2017, IPOPHL cooperated with APEC to publish the “Intellectual Property Valuation Manual: A Preliminary Guide” and introduced the fundamentals and methods of IP valuation. Furthermore, “Best Practices on Intellectual Property (IP) Valuation and Financing in APEC” was published, introducing the best practices of IP valuation for some APEC member economies which are also members of ASEAN. Currently, IP valuation practices in the Philippines are already taking place at universities and some institutions, but there is a need to nurture professional IP valuers.

To promote IP commercialization, the Board of Investments of the Philippine Department of Trade and Industry issued MC 2021-001 to implement the 2020 Investment Priorities Plan. Accordingly, tax incentives are granted to institutions that commercialize patents, and in particular, Innovations Centers or the Innovation and Technology Support Office (ITSO) that are recognized as either a Gold or Platinum rating from IPOPHL are encouraged to commercialize their patents (APEC IP Finance Workshop, Chiang Mai, Thailand).

#### 2.2.10. Singapore

A 10-year IP Hub Masterplan was prepared by Singapore and unveiled in 2013. The goal of this business masterplan is to take advantage of the opportunities and challenges brought about by an increase in IP activity on a global scale and further to enhance Singapore’s business and economic growth.

This Masterplan highlighted three strategies, one of which is to facilitate IP transactions by expanding the IP funding availability and improving the IP transaction transparency and certainty. As part of this strategy, a number of activities are implemented to achieve the intended goals including introducing a plan for financing intellectual property where the government partially contributes to the value of IP used as collateral; assisting Singapore’s IP securitization efforts; bringing in IP fund management activities to Singapore to expand IP financing options and creating spin-off demand in other industries; facilitating IP transactions by establishing a Center of Excellence for IP Valuation; and cooperating with business to promote beneficial behaviors that would increase the transparency of IP transactions.

Currently, Singapore is supporting its Masterplan by undertaking the following:

- 1) IP Valuation Practice- In Singapore, there is no single organization that conducts IP valuation. The valuation is performed by a group of valuers that have been approved by the IP Office of Singapore (IPOS). IPOS has seven companies or individuals that are qualified to conduct an IP valuation under its IP Financing Scheme. IPOS does not perform an IP valuation because it's primary focus is policy-making.
- 2) Taxation of IP Assets – Singapore offers tax allowances or discounts for IP-based transactions for a period of five to ten years in order to promote the creation and commercialization of intellectual property. Even more benefits are provided for Singapore's prioritized industries.
- 3) IP Financing– A SGD100 million program, the IP Financing Scheme of Singapore, intends to assist businesses in exploiting their intellectual property for future growth and development.

Singapore does not have any funds specifically set aside for financing intellectual property, but instead offers guarantees to conventional banks equal to up to 80% of the IP value of the borrowers (subject to a cap). The guarantees, covering patents, trademarks, and copyright materials, are given through an SGD100 million guarantee facility managed by IP ValueLab, a division of the Singapore Intellectual Property Office. An approved member of the valuation panel must undertake the IP valuations for IP financing.

Due to the banks' lack of knowledge with IP assets, the program's relatively informal application procedure, and high potential transaction costs, the initiative started in April 2013 but only gradually gathered pace. The applicant for the program is encouraged to perform a low-cost valuation exercise to determine the lenders' interest in the guarantee scheme in order to resolve these bottlenecks. Since then, two local banks, DBS and UOB, have provided many loans to companies having patents until 2018.<sup>7</sup> In 2017, the IP Hub Master Plan was revised to reflect the value of IP within a larger members' economic plan as well as the growing significance of IP commercialization and finance.

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<sup>7</sup> Martin Brassell and Kris Boschmans, 2019

Companies in Singapore with rich IP assets can enjoy the three main avenues via which they can obtain funding: (i) equity financing, (ii) debt financing, and (iii) government grants. Singapore pioneered the IP Financing Scheme (IPFS) concept in the domain of debt financing. The IPFS, which was introduced in April 2014, allowed businesses to obtain funding by offering the lending bank their IP as security. Along with the IPFS, Enterprise Singapore also introduced the Enterprise Financing Scheme-Venture Debt Program (EFS-VDP).

The IPFS pilot program brought together a number of financial institutions with IPOS to expand the access to IP-backed financing for businesses with a high IP potential but little physical assets. As part of this program, the Singapore Government implemented a program that co-shared the loan loss risk of the IP-backed loan in order to encourage participating financial institutions' (PFIs) acceptance for IP assets. The PFIs comprised Oversea-Chinese Banking Corporation (OCBC) Ltd, DBS Bank Ltd, Evia Capital Partners Pte Ltd, Resona Merchant Bank Asia Limited, and United Overseas Bank (UOB) Ltd.

Under the IPFS pilot initiative, IPOS collaborated closely with a group of appointed valuers. Professional valuers from Baker McKenzie, Wong & Leow, Consor Intellectual Asset Management, Deloitte & Touche Financial Advisory Services, Duff & Phelps Singapore, Ernst & Young Solutions, KPMG Services, and Pricewaterhouse Coopers Advisory Services were among those that participated in this panel.<sup>8</sup>

The IPFS has contributed to IP financing by providing invaluable insights, but there are issues identified for IP financing to become more prevalent. First, there is only a limited acceptance of Intellectual Asset (IA)/ Intellectual Property (IP) as collateral: IP in the form of collateral is a relatively new concept for many lenders, and the absence of internal IP valuation capabilities makes it more challenging to provide IP financing. The second issue is the asymmetry of the Information. There is a tendency that the Information on an internally produced IP is not revealed when the company reports its financial results. The appropriate evaluation of IP's contribution is hampered by their underreporting, which prevents the market from allocating capital efficiently. Third, a lack of secondary markets for IA/IP liquidation is also a hurdle. In the case of a borrower's default, there must be defined procedures and channels for

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<sup>8</sup> WIPO, 2021



the disposal of an IP. Fourth, there is also a deficit in the IP management practice: Businesses will be able to get the maximum financial value out of their IP assets by developing effective IP management processes, including an inventory or portfolio listing of an IP.

The Singapore Government unveiled plans for Singapore to advance as a global centre for IP operations and transactions in April 2021 with the introduction of the Singapore IP Strategy 2030 (SIPS 2030). This IP Strategy expands on the solid foundation prepared by projects outlined in the 2013 IP Hub Master Plan and its 2017 update.

SIPS 2030 places a strong emphasis on empowering businesses to use IP more effectively for growth. Equipping businesses for effective IP commercialization is one important means to achieve this along with IP financing. Singapore has sought to create a reliable and trusted IP valuation system to assist IP transactions and to ease IP funding. Singapore intends to support this policy through two major initiatives: (i) creating a reliable IA/IP valuation criteria and practices; and (ii) the provision of an IP disclosure framework to support better IP disclosures.

In an effort to develop Singapore as a hub for IP transactions, the government recognizes that financing and valuation are crucial for the success of this initiative. Further, these efforts focus on enhancing collaboration between Government agencies relating to IP in the area of finance and accountancy. They include: IPOS; the Ministry of Finance (MOF); the Accounting and Corporate Regulatory Authority (ACRA); the Monetary Authority of Singapore (MAS); and the Singapore Accountancy Commission (SAC). The government will expand collaborations with the significant international parties including the International Valuation Standards Council (IVSC) and the World Intellectual Property Organization (WIPO).<sup>9</sup>

#### 2.2.11. Thailand

Under Thailand's Civil and Commercial Code, an IP was not recognized as a financial asset. Accordingly, IP could not be used as the object of mortgages, pledges, liens or security deposits. With the enactment of the Thailand Business Collateral Act B.E. 2558 in 2015, IP owners can use IP assets to secure their loans without delivering these assets (Section 8). An individual or legal entity would grant security interests on

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<sup>9</sup> WIPO, 2021

its IP assets to a financial institution or a person specified under the Ministerial Regulations. The IP owner, a debtor, must make a written security agreement with a secured party, a creditor, and must register with the Department of Business Development (DBD). DBD cooperates with the Department of Intellectual Property to register and publicize related information (Section 14). The secured party, a creditor, is obliged to carry out the registration procedure with written consent from IP owners (Section 17). Upon completion of the registration process, the secured party is recognized as a secured creditor under the Thai Bankruptcy Act and entitled to claim the collateral with priority over the other unsecured creditors (Ploynapa Julagasigorn, Business Collateral Act: Financing Intellectual Property Assets, [www.tilleke.com](http://www.tilleke.com)). The IP owner, the security provider, still has the right to possess, utilize, exchange, and dispose of IP assets as well as create another security interest over the secured property without delivering IP assets even after security interests have been granted (Section 22).

Thailand is trying to nurture small and medium-sized enterprises based on IP by establishing a legal basis for IP financing. Still, it remains a challenge due to valuation and a lack of a secondary market to trade IP (Ploynapa Julagasigorn, Business Collateral Act: Financing Intellectual Property Assets, <https://tilleke.com>).

The Asset Capitalization Project served as the basis for the Thai government's early IP Capitalization Project. This initiative, which was implemented between 2004 and 2010, enabled intellectual property assets to be accepted as collateral, thereby increasing small and medium-sized enterprises' (SMEs) access to financing. Various parties are involved in this Project including the Department of Intellectual Property (DIP), Government banks (SME bank and government savings bank), and private bank (Bangkok Bank).

Parties engaged in the following activities to carry out the Project.

- 1) They established the process for IP-backed loans and managed the Project in accordance with government regulations;
- 2) They organized workshops teaching SMEs how to draft a business plan that analyzes their intellectual property for a loan application. IP was not recognized as a sole form of security by banks, but it has to be taken into account together with the business plan's projections to generate future

income;

- 3) The amount of loan was decided by the banks after reviewing the business plan while banks did not have IP valuation experts;
- 4) Banks functioned as SME mentors in managing the business to avoid default;
- 5) DIP coordinated business networking occasions;
- 6) DIP recorded each transaction involving an IP-backed loan; and
- 7) DIP released a guide on IP valuation for banks and SMEs;

Despite being concluded after 2010, this project raised a total of THB98.4 million (equivalent to USD290,000) in funding for 119 intellectual properties over the course of 7 years. Only IP valuers in a private sector are available to evaluate the business plan including IP assets. As Thailand has already created the Thai IP Mart, an online marketplace for buying and selling IPRs, it can expedite the sale of defaulted or non-performing loans and help banks suffer less loss.

#### 2.2.12. United States

Article 9 of the Uniform Commercial Code (UCC) governs security interests in general intangibles, including patents, trademarks, copyrights, and other intellectual properties. The security interest is enforceable against third parties who claim a competing interest in the collateral and perfection is very important to validate security rights. Taking proper methods to disclose changes in rights via IP finance is critical as it allows the secured party to maintain the priority of payment or priority above the other creditors. Perfection is the process of issuing a notice that the secured party claims a security interest in the debtor's collateral which allows the secured party to maintain the priority of payment or priority above other creditors in the event the collateral must be repossessed and sold to pay outstanding debts.

Secured financing involving the perfection of a security interest in intellectual property is generally governed by each state's version of Article 9 of the UCC. Article 9 of the UCC requires parties to file a UCC-1 financing statement in the appropriate state office where the debtor is located. However, federal laws for certain intellectual

property include recordation provisions that require parties to record those interests in the federal office designated by the federal statute. Under the Supremacy Clause of the U.S. Constitution, if a federal law controls the registration of an asset, a UCC filing is unnecessary and ineffective to perfect the security interest. Therefore, lenders often make dual filings to protect their security interests with both the federal office designated by the applicable federal statute and with the state office designated by the UCC in practices.

In the US, IP finance has been driven by the private sector and patents are the frequent tools used as collateral for loans. However, it was reported that IP-backed loans are disproportionately concentrated among a small number of lenders and patent holders. It was found that two-thirds of all security interests are held by the top six lenders and twenty percent of loans are held by the top seven patent holders.

#### 2.2.13. Viet Nam

In Viet Nam, small and medium-sized enterprises (SMEs) account for over 97% of all businesses, but only 30% of them are eligible for bank loans, while the rest must utilize their own capital or other financial sources to obtain funds. In response, the Vietnamese government is revising relevant laws and regulations, and making efforts to promote IP financing through policy formulation and related symposiums.

The legal basis for IP financing in Viet Nam include the Civil Law, Intellectual Property Law, Technology Transfer Law, Corporate Law, and related regulations. The Civil Code and its Decree stipulate that intellectual property rights can be used as collateral for loans (Decree 163/2006). The revised Intellectual Property Law of Viet Nam in 2022 regulates the promotion and encouragement of innovation and the use of intellectual property rights through finance, taxation, and credit support. It also stipulates that financial support will be provided for the creation, transaction, and use of intellectual property (Article 8). The Technology Transfer Law of Viet Nam recognizes intellectual property rights as property rights that can be transferred by specifying that ownership, use rights, and other rights related to intellectual property that results from scientific research and technological development or has economic value are recognized as property rights (Article 35). The Technology Transfer Law Decree (Decree 76/2018/ND-CP) stipulates that intellectual property rights can be used as collateral for loans (Article 11). The Civil Law Decree (Decree 21/2021/ND-

CP) also specifies that intellectual property rights can be used as collateral to secure the performance of an obligation by providing that intellectual property owners can use the monetary value generated by intellectual property rights as collateral (Article 17). Furthermore, Joint Circular No. 39/2014/TT-BKHCN-BTC stipulates that the valuation of scientific research and development technology should be carried out.

Although there is a legal basis for IP-backed finance as collateral, it is challenging for companies to obtain IP collateral loans. This is because there are no reputable agencies with the capacity to value intellectual property rights, the object of IP financing, and the value of intellectual property rights is only guaranteed in the chain of operations of a company's business, which makes it difficult to dispose of the assets. Companies have been unable to convincingly present business plans demonstrating the economic value of intellectual property rights. In fact, there were not many superior intellectual properties with sufficient technical and commercial value to generate value. In addition, financial institutions are reluctant to take intellectual property as collateral because of the risk of default and other situations.

Despite the fact that the Civil Code and its guiding documents provide several provisions supporting IP securitization, IP securitization remains relatively small due to the limited number of buyers and sellers in the market. Most companies do not include IP on their balance sheets, making it difficult for stakeholders to assess the value of their intangible assets fully. Although venture capitalists have been quicker to adopt IP-secured loans than banks, the overall adoption of this financing option remains limited and there is room for expansion. The underdeveloped state of the IP market can create challenges for creditors when they need to sell collateralized IP. High transaction costs associated with IP collateral can be a significant barrier for market participants, reducing the efficiency of the market and limiting the potential for growth. Despite the potential benefits of incorporating IP into lending decisions, many banks may not fully understand how to assess and value these assets, which could slow the development of more streamlined methods for IP assessment.

### **2.3. Common features and variations of policy interventions**

To sum up, it can be said that all economy-backed IP financing programs share some common features particularly in confidence-inspiring practices among SMEs. The scope and form of the guarantee coverage offered to SMEs constitute important

comparable criteria. From 50% in Malaysia to 80% in Singapore, 95% in Korea, and up to 100% in China, this percentage varies economy by economy.

A number of economies have taken steps to increase the number of skilled evaluation professionals. The level of involvement by a public sector has been different depending on the policy of the economy. That is, the economy's influence over this process seems to be strongest in Korea, present but only partially in China. The support measures by the government were given in the form of direction or the performance of a control or administrative guidance in Malaysia and Japan, respectively. Meanwhile, Singapore left its influence over to market forces, which is more in line with global norms.

From one economy to the next, there are significant differences in how these policy initiatives are controlled. In contrast to Korea, where decisions regarding IP financing initiatives are made at the economies' level of government, Japan places more of an emphasis on assisting locally based lenders than on attempting to quickly expand by partnering with the biggest lending institutions. By allowing regions and localities to create their own programs and actively experimenting with decentralization in several areas, such as pledge registration, China adopts a middle ground posture.<sup>10</sup>

Considering that an intellectual asset is essential to a company's success, some economies and private organizations have created strategies to promote and finance the SMEs' IP portfolio development.<sup>11</sup> This section's conclusion draws on government initiatives in many economies and discusses some of the policy implications and lessons that may be taken from the economies' best practices on IP financing.

It was found that there exists a difficulty of securing funding based on an IP depending on the economies' registration status. The following is an example of this. Lenders are not likely to encounter problems registering security interests against the majority of IP types if an IPR holder has IP assets that are limited to their domestic markets. On the other hand, if an SME's IP portfolios are distributed abroad, security enforcement may be more difficult. This occurs particularly if IP assets are located in an economy without a common law system or a well-established security regime. Therefore, the standardization and harmonization of procedures and information

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<sup>10</sup> Martin Brassell and Kris Boschmans, 2019

<sup>11</sup> Amy Tindell, IP Funding Programs for SMEs, 2022

exchange across lenders with different regional requirements for security documentation can aid in reducing the expenses of underwriting.

In an effort to make it simpler for SMEs with a high intangible asset value to acquire capital, many economies have provided assistance programs for IP financing. Several economies have implemented credit guarantee frameworks that are specialized for creative SMEs that frequently base their business models on intangibles as opposed to tangible assets. Other ways to achieve this goal include “Innovation Boxes” or “Patent Boxes,” which lower the tax paid on the sales of goods or services that are related to qualified IPRs. More than 30 members, including many in Europe, also implement a system that offers tax incentives on R&D expenses to encourage innovation.<sup>12</sup>

It is often tended that private lenders inevitably favor bigger deals in that they can more easily pay high transaction costs and produce more profits. In contrast, this will likely not be advantageous for smaller or younger businesses which are most in need of additional funding. Ultimately, this selective and restricted practice favoring bigger transactions would prevent financial services from being scaled out more broadly. As a result, SMEs suffer from this discrimination and would be exposed to limited access to a source of external funding.

In order to overcome the problematic situation above, it is necessary to deal with the current issues such as high transaction costs, especially in the early phases. This is particularly true when parties do not have much information on the IPRs to be evaluated, transaction volumes are modest, whereas the needs for due diligence are high. Financial institutions may be encouraged to use less cautious lending strategies in the early phases of development through subsidies that cover important underwriting expenses like valuation costs. The role of such policy interventions has been extremely effective in Singapore and Japan. Future research will need to focus on developing new strategies that address sustainability and the longer-term costs of IP financing.

Even though effective IP financing schemes may indicate that some short-term measures benefit SMEs in terms of financing availability, it will be necessary to

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<sup>12</sup> Martin Brassell and Kris Boschmans, 2019

evaluate their performance in fostering lender confidence with regard to intangible assets from the perspective of longer time periods.

With the goal of improving guarantees for lending institutions by encouraging risk mitigation strategies, all member economies that have implemented IP-backed financing programs included guarantees offered by the economy or by organizations supported by the economy. Economy-backed IP guarantee schemes include the functions of reassuring lenders of the values ultimately assigned to IP assets and assisting confidence reinforcement in the use of intangibles for IP financing.

By encouraging the private sector to invest in risk capital, economy-backed IP guarantee schemes can close the gap in risk management while also filling any gaps in intangible value that might arise when a recovery is implemented. As a result, they serve as a crucial safety harbor to meet the rising demand while reducing the possibility of medium-term losses for lenders. The development of proper risk-sharing policies to avoid unexpected events will help financial institutions have more confidence in giving additional weight to intellectual property and intangibles in making lending decisions.

In order to avoid being completely dependent on government backing, policy initiatives should also successfully engage in the private sector. It cannot be denied that assurances and other support mechanisms are crucial for launching policy initiatives and addressing immediate short-term risk-related concerns. At the same time, however, considerations should be given in a way to generate interest from the business sector independent of government involvement.

It is a quite common practice that IP-based financing schemes have traditionally been developed through a combination of economy-backed initiatives and private sector participation. However, it is interesting to note that using dedicated fund yields quick effects but is less effective in generating interest from the private sector.

China and Malaysia are the examples for this. In those economies, it appears that intangibles-related loans mostly began with banks or lenders which were the direct beneficiaries of aid or incentives including guarantee funds, interest rate concessions, administrative streamlining. This is mostly attributed to the time it takes to change banking behavior.



In an effort to share the best practices and show the value of intangibles, policy interventions can encourage the production of evidence and risk-sharing experience among lenders. For this, digitalization can be a great tool to collect data and assess the status of progress, as well as to disseminate information to the wider market. Making sure that the data is adequately baselined and relevant is the first requirement in introducing data-based policies. With this in mind, a set of qualifying standards and presumptions needs to be developed and used for all funding opportunities.

In terms of eligibility requirements, it is suggested to make sure that data is acquired on all applicant types and their property characteristics including intangibles. This will surely be enlightening for providing implications as to which categories of enterprises and assets lead to the best results. Participating financial organizations would also be able to gain meaningful lessons if such data can be shared among stakeholders.

Valuation criteria need to be both realistic and theoretically sound in order to be effective. The income strategy, which is based on past and future financial data, has so far proven to be the most useful for this purpose. Given their importance to financing organizations, methods or strategies need to be taken into consideration in a way that can better and more accurately evaluate the practical value of intellectual property while taking into account the possibility of a successful asset disposition and prospective recovery opportunities.

One possible way to provide lenders with more accurate and conservative estimates of the value of intangibles that would be available for disposal in the event of a default or collection is introducing a kind of criteria that could be applied to intangibles. These criteria can help specify how much the asset's market value should be discounted in the establishment of collateral levels.

Further, it is crucial to develop a wide range of intangibles suited for collateralization when policy measures for IP financing are to be introduced. Among many types of IPRs, patents have attracted the most attention. This is partly because they are data-rich, go through a lot of examination in terms of novelty and inventive steps, thereby may be registered in a very simple way.

It is needless to say that patents continue to be a useful signaling tool for IP

financing to estimate the technology potential of an applicant company. Nonetheless, they should not be a prerequisite for securing funding based on the IP of the applicant. Patents should not be a requirement for qualifying for IP financing, and other forms of intellectual property should also be taken into account for collateralization.

That is, software and other forms of intangibles covered by copyrights may offer a significant possibility for IP funding.<sup>13</sup> As a matter of fact, only a tiny percentage of SMEs have taken advantage of patents because of the technical requirements to obtain and implement them. Besides, patents frequently share a value with other intangibles including contractual agreements, organizational capital and knowhow, as well as brand recognition.

IP provides great business value for many companies. Although business information can reflect revenue, size, balance, market share, and the profit of a company IP, which is a significant asset of the company, is often not easily shown.

There are several stages involved in valuing intangibles, especially intellectual property assets. The variety of IPRs and the difficulty in preparing a precise and consistent value for IP assets make it difficult to establish a generally accepted standard procedure for IP valuation. This is why IP valuation is not only important but also difficult in implementing IP financing.

An adequate IP valuation is essential for using IPRs as a tool to obtain credit or financing, as well as to draw the interest of potential partners. In order to achieve this, more experts in intellectual property valuation need to be cultivated. Further, evaluation criteria should be clear and transparent. A joint evaluation by an IP evaluation agency and a financing institute can be one of the good solutions.

In order to diversify and revitalize IP finance, among many, it is important to address information asymmetry and uncertainty between the holding company and the counterparty of the IP to be financed. This will be achieved by enhancing the transparency of IP information, promoting accurate and qualified IP valuation, and facilitating the proper management of intellectual assets. Besides, it will be necessary to find solutions to issues like accounting treatment and the creation of IP-related

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<sup>13</sup> Martin Brassell and Kris Boschmans, 2019

disclosure mechanisms.

As to the future direction of IP financing, direct investment on IP needs to be further explored together with government-led indirect investment. Ideally speaking, IP financing should evolve from policy-driven approaches to market-driven practices with a focus on risk assessment, IP valuation and high quality IPRs.

Last but not the least, it is important to remember that there exists a number of important factors in promoting IP-backed financing. More than anything else, close public and private partnerships are needed to increase public awareness and create the essential enablers for IP-backed financing. Moreover, the focus of these efforts cannot only be on IP-backed financing. This implies that a more comprehensive ecosystem and strategies should be provided so that they consider the needs of various stakeholders and the different stages of IP financing.<sup>14</sup>

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<sup>14</sup> WIPO, 2021

## CHAPTER III IP FINANCE MODELS

### 3.1. Introduction

A company's financing methods vary greatly depending on the nature and size of the funds, management of funds, and the aspects of investors. IP finance, which uses IP for the purpose of finance, is also implemented in various models and types. The methods of financing a business are classified mainly into debt financing and equity financing. Debt financing is borrowing money from others, paying regular interests pursuant to the contract, and repaying the borrowed amount at maturity. Debt financing can be conducted by borrowing money from banks and financial institutions, and by issuing bonds to raise funds from an unspecified number of people or by selling to investors in the stock market after a company issues securities.

Financing through borrowing money from banks is divided into secured loans and non-secured loans, depending on whether the loan is secured by other properties, and guaranteed loans and non-guaranteed loans depending on whether the loan is a secured loan refers to when collateral is set up in the borrowed funds, and assets, movable assets, real estate, and intellectual property that are sufficiently valuable to cover the amount of debt are set as collateral. Loans have the advantage that capital raising does not affect the management rights of the company as it does not dilute capital and creditors are not involved in business decision-making. Bonds are securities issued by a corporation in the form of a debt certificate for the purpose of procuring a large amount of long-term funds from the general public at once. Corporate bonds are classified into guaranteed bonds, non-guaranteed bonds, and collateralized bonds and unsecured bonds according to the presence or absence of guarantees. Bonds have the advantage of being able to temporarily raise long-term funds without dividend pressure and infringing on management rights, and because the repayment date and interest rate are fixed, it is easy to use funds and establish a supply and demand plan. However, in the credit evaluation for corporate bond issuance, the company's financial status is not checked to consider intellectual property assets, but is evaluated based on tangible assets such as real estate or equipment, even if small and medium-sized enterprises or startups possess a lot of intellectual property in the high-tech field. If you do not have tangible assets suitable for capital adequacy in the table, it is difficult to obtain favorable credit ratings.

Equity financing is a method of raising funds by issuing stocks and selling them to investors in the stock market, and it can be financed with profits (retained earnings) retained inside the company with the net profit generated as a result of business activities. A company raises funds from investors in the stock market by issuing stocks, and investors can enjoy capital gains such as dividends and capital gains in return.

### 3.2. IP Finance

IP finance raises the funds necessary for the growth and commercialization of a company based on the intellectual property rights held by the company, and is similar to the classification according to the general method of financing. IP finance can be distinguished into a loan guaranteed by an IP, loan collateralized by IP and IP-based investments, depending on the funds supply method.

Type	Support Target (after IP Valuation)	Details of financial support	Cooperative Organizations
A loan guaranteed by IP	Initial enterprise of IP commercialization	KRW1 billion limit guarantee (Issuance of a guarantee : KRW200~300 million per case)	KODIT, KIBO, SCGF etc
A loan collateralized by IP	IP commercialization and sales generation enterprises	Loan execution : KRW300~2,000 million won(KRW) per case	Commercial bank
IP-based investments	IP-based investment attraction companies	Determining investment through IP valuation : KRW1~5 billion per case	Venture Capital (VC)

#### 3.2.1. Loan Guaranteed by IP

A loan guaranteed by an IP is a method of financing in which a guarantee institution issues a guarantee for a corporate loan to a financial institution using an IP as collateral based on the valuation of the IP owned by the debtor. The company can raise funds by borrowing money from financial institutions based on the guarantee issued by guarantee institutions. When a company defaults on its debt, the guarantee institution repays the loan to the financial institution and collects the funds by disposing of the collateralized intellectual property rights.

Korea's loan guaranteed by an IP allows the companies to obtain loans by using the letter of guarantee issued by the guarantee institutions, such as the Korea Technology Finance Corporation (KIBO) and Korea Credit Guarantee Fund, etc., with IP rights, such as patents, etc., as collateral. Meaning, a company applies for a loan and a guarantee from the bank and the guarantee institution, respectively, and once

the letter of guarantee is issued, the bank executes the loan based on such a letter of guarantee. Diverse guarantee products are available, such as an 'R&D guarantee' that supports the guarantee through the research evaluation of a company in the technology development stage, and an 'IP guarantee' that directly assesses the IP rights or provides a guarantee for the acquisition and commercialization of an IP. The guarantee ratio for new guarantees is 85%, and the guarantee ratio of 90~95% is applied when collateralized by an IP. The size of the loans guaranteed by an IP (new) grew from KRW282.6 billion in 2015 to KRW490 billion in 2016, and maintained the same size of KRW490 billion until 2018; but in 2019 it increased drastically to KRW724 billion in 2019.

### 3.2.2. Loan Collateralized by an IP

A loan collateralized by an IP is a method of financing by borrowing money from financial institutions with an IP as collateral based on a valuation of the IP which is held by a debtor. The financial institutions may dispose of the secured IP to recover loans when a debtor fails to fulfill its obligation. Due to the burden of risks caused by the characteristics of intellectual property itself, a loan collateralized by an IP has been driven by the government instead of private financial companies.

In Korea, several attempts were made to vitalize loans collateralized by an IP since the mid to late '90s, but all failed due to a lack of a market to sell the collateralized patents, high loan default ratio, and lack of a valuation model, etc.

From the standpoint of a bank, the value of patents, unlike other assets, decrease rapidly, and therefore, the risk of collecting the loan is higher. Moreover, an IP market and non-practicing entity (NPE) are not vitalized in Korea, so collection through an IP is not easy.

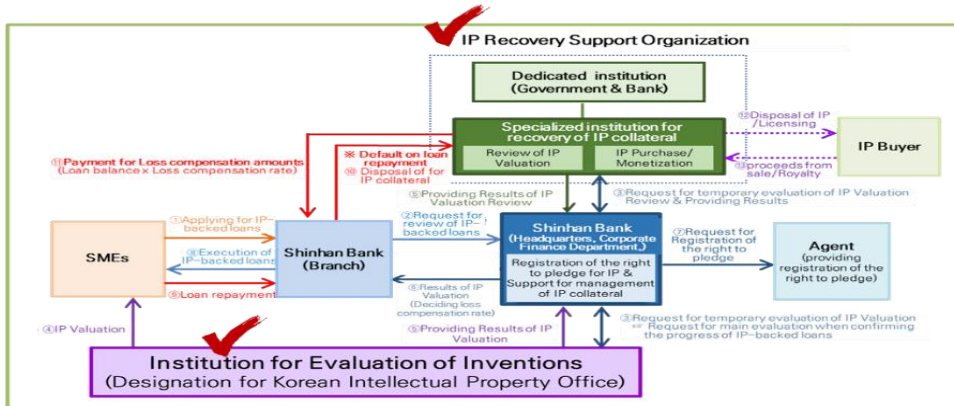
Therefore, the government established a collection support organization that could make up for the default of loans collateralized by IP in 2020, and this led to the vitalization of loans collateralized by an IP by commercial banks. Meaning, the loan collateralized by an IP allows the companies to obtain loans by establishing a pledge on the IP owned by the company, and the amount of the loan is determined within the valuation of the IPRs. In 2019, it was implemented by the primary financial institutions, such as KDB, IBK, Shinhan Bank, Woori Bank, KB Kookmin Bank, Hana Bank, NH Nonghyup, etc., and by 2020, regional banks, such as BNK Busan Bank, DG Daegu Bank, etc., began implementing the loan.

The size of the loans collateralized by an IP was KRW80 billion from 2015 to 2018, but by 2019, it increased to KRW433.1 billion, which is 4.9 times the previous year, because the risk of collecting the loan collateralized by an IP was alleviated through reflecting the loan collateralized by an IP performance on the government's index on evaluating the performance of financial institutions and the collection support organization since 2019.

The Korean government encouraged the financial institutions to implement the loans collateralized by an IP in order to revitalize the loan collateralized by an IP, and in 2020 the government established the collection support organization for the loan collateralized by an IP in order to make up for any loss from the collateralized IP. Intellectual Discovery was selected as the organization and is conducting the related tasks.

The collection support organization began in 2020 with KRW3.75 billion investments by the government and the financial institutions, each, and when the collateralized IP is collected due to bad debt, the collection support organization purchases the IPRs to make up for the loss of the financial institutions. For this, the collection support organization conducts a preliminary evaluation on the appropriateness of the collateral, etc. before the collateralized loan execution, reviews the valuation report and determines the loss preservation. From April 2019, when the work of the collection organization began, until September of the same year, 1,859 cases of a preliminary evaluation, and 1,035 cases of a valuation review were requested to the collection organization.

Provide working capitals based on IP valuation to innovative companies that lack material security but have superior technology



**1** Resolving risk over the recovery of IP as collateral  
Eliminates inherent risks of intangible assets by Improving the support process for the recovery of IP collateral

**2** Improving reliability of IP valuation  
Strengthening Capabilities of IP Valuation Improvement for Value Evaluation Model and Quality

Meaning, the loans collateralized by an IP allowed the companies, with high technical potential but lacking tangible collateral, to raise the funds based on the IPRs, which are intangible assets, that they possess. The above diagram is a detailed structure of Korea's process of handling the loan collateralized by an IP. It describes the entire process from the SMEs applying for loans collateralized by an IP to review the handling of loans collateralized by an IP by the banks, as well as collecting from the sale of the collateralized IP upon default. Major issues in implementing the loans based on collateralized IP are whether the IP has a value as a collateral and the efficacy of the valuation on the collateralized IP.

Therefore, in order to resolve this issue in Korea, the IP collection support organization was established through joint investment by the Korean government and the financial institutions, and KIPO improved the reliability of an IP valuation through an IP valuation model and quality improvements on the institution evaluating the inventions. This was the key factors for the rapid growth of loans collateralized by an IP. Currently, there are more than 10 banks having loans collateralized by an IP in Korea.

However, the major disadvantages of the loans collateralized by an IP from the perspective of the company is that it is more expensive and takes relatively a long time, as compared to technology financing. Technology credit evaluation costs approximately KRW1 million per case, but an IP valuation costs approximately KRW10 million per case. Moreover, it takes longer, approximately 1 month, than the technology financing, which takes approximately 2 weeks.

### 3.2.3. IP-based Investments

In general, investment refers to allocating funds in anticipation of future profits and taking capital gains, including dividends on stocks and interest on bonds, as a return. Private equity is a fund investment method in which shares are acquired through private negotiations with corporate management rather than in an open market, such as the stock market. It is a form of profit-taking by reselling the shares after the company's value increases.

Venture capital refers to an investor or company that invests in startups at an early stage that have high-level technology and potential for growth, but face difficulty



raising funds from general financial institutions due to a lack of revenue or collateral, and acquires shares (stock) in return. As the name suggests, it is a venture capital in the sense that the risk is high, but if successful, a high rate of return can be obtained.

In general, venture capitalists acquire stocks (common or preferred stocks) or the stock-linked bonds (telephone bonds or bond with warrants) of startups as a counter benefit to fund investment, and investors sell stocks and recover their investments when the value of stocks is maximized by an IPO or M&A after the investment target company grows. Venture capital is a form of private equity, and there is a difference in that private equity targets large and established companies compared to venture capital investing in startups, which has a very high growth potential in the early stages of startup.

IP securitization is a financial technique in which an entity issues and funds securities based on cash flows generated from an asset or set of assets, and issues securities based on future cash flows from IPRs to special purpose vehicles (SPV). Securities issued in this process are called asset-backed securities.

The securitization of IPRs transfers IPRs to SPVs, issues asset-backed securities based on cash flows from those underlying assets, and pays dividends to investors. It is a structure in which the repayment of the principal and interest of the issued securities is completely separated from the credit of the asset holder and is made by the cash flow of the liquidated asset. The underlying assets include works that have data on past cash flows or can predict future income, trademarks that generate various forms of license income as prominent trademarks, and patents for drugs that can be evaluated for current or future cash flows.

IP investment in Korea is a form of investing private funds in companies with an IP owned by the company as an intermediary, and venture capitals, angel investors and private equity funds, etc. make IP investments. A direct investment in SMEs, universities and public research institutions with an excellent IP, having gone through the valuation on the IP, are made in the form of stocks or bonds. Venture capitals invest in patent technology commercialization, etc. by establishing an IP investment fund through managing patent accounts in the fund of funds. There is a model that obtains profits by investing in the equity of a company, or making profits through the patent management company or SPVs to purchase or sell Ips and royalty payments

with license agreements. Another profit model<sup>15</sup> is where the ownership of an IP owned by a company needing financing is temporarily sold to the funds, etc. to raise funds for commercialization, and receive a license from the buyer of the IPRs in order to make a profit.

The securitization of an IP must precede IP investment. IP securitization financing is used similar to direct financing and financial investments, and they include royalty financing and trust finance using the nature of an IP, as well as diverse other methods, such as funds, insurance, license lawsuits, etc. IP royalty financing is a financing based on the cashflow from IP (royalties), and they include issuing IP backed securities<sup>16</sup> or IP SLB, etc. IP funds invest in companies directly, and the investment and commercialization methods are becoming diverse, such as an IP securitization finance, IP related lawsuits, etc. Recently, IP cloud funding is starting, using small online brokerage platforms.

IP investment grew steadily, from KRW44.8 billion in 2015 to KRW193.3 billion in 2019. The KIPO continues to invest in patent account funds through the fund of funds, etc., and is implementing diverse policies for developing the IP investments, such as creating diverse private IP investment products and encouraging capitals to investment products, etc.

### **3.3. Korea's Journey in IP Finance**

#### **3.3.1. Governmental Policies to Support IP Finance**

Korea's IP finance policy began with the IP Great Leap Forward Policy established in 1998. This is one of the policies to overcome the financial crisis, and they include methods to expand the IP creation and establish a commercialization book, such as establishing the patent technology market and encouraging patent angel cooperation, etc. In 1999, a campaign for SMEs to secure IPRs were implemented to support technology development and commercialization by the SMEs. In 2000, the

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<sup>15</sup> Also called a sale & license back model. It is considered an IP investment, but can be seen as a form of loan collateralized by an IP.

<sup>16</sup> IP backed securities is a debit security based on the license profits from IP, and patents, trademarks and copyrights are typically used. IP securitization is based on the cashflow from the IP itself (royalty, etc.), and can be distinguished from the securitization of a debit loan collateralized by an IP (principal repaid is the underlying asset).

Technology Transfer and Commercialization Promotion Act<sup>17</sup> was established, and the government support for patent technology commercialization and transfer transactions were increased.

In 2005, an IP finance policy was established when the KIPO released a mid-to-longer-term master plan on becoming a strong IP. For the first time, the KIPO and KDB executed patent valuation loans, jointly. In 2006, the KIPO and the Korea Technology Finance Corporation implemented a patent valuation connected guarantee program, jointly. The total amount for the patent commercialization support in 2006 was KRW308.9 billion, with KRW149.7 billion in loans, KRW58.5 billion in contributions, KRW54.5 billion in investments and KRW10.9 billion in subsidies. In 2010, the Act on Security Over Movable Property and Claims<sup>18</sup> was established for the IP to qualify as collateral, and as the result, loan collateralized by IP became possible by private financial institutions. Loan collateralized IP products began to be released from 2013.

With the enactment of the Framework Act on Intellectual Property in 2011, the Master Plan on Intellectual Property is required to be established every 5 years, and a financing plan for increasing the IP value and commercialization is also being prepared. In 2013, establishing an IP ecosystem was implemented for the major government project of Creating, Protecting, Using and Advancing Intellectual Property. The Financial Services Commission (FSC) began to establish IP finance policies, and also began to provide support to strengthen the IP finance infrastructure, such as establishing the IP finance commission, IP evaluation training, IP evaluation systems establishment, etc. The KIPO expanded financial support through implementing a loan collateralized by an IP through an MOU with KDB and IBK, and expanding the private evaluation institutions was also implemented from 2014 through an MOU with private banks on loan collateralized by an IP.

On the other hand, as the intangible property right was included in the assets that could be trusted under the Trust Act in 2005, an IP trust became possible. In 2008, a patent trust management system was introduced, and non-profit non-financial institutions could manage the patent trusts, as well as IP securitization and commercialization by non-financial institutions. However, IP securitization through

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<sup>17</sup> A standard act on the use and commercialization of IPRs, and to support the promotion of technology transfers and the commercialization of private sectors and to support the IP-based SMEs.

<sup>18</sup> Implemented in 2012, and the Korea Federation of Banks established and implemented standard rules on movable assets collateral from 2012.

trust is almost never implemented in practice.

There are a few cases of IP finance implemented by the private sector, but in Korea, IP finance has been implemented and grew under the government-led policy. Specifically, a basis for IP collateralization was established with the implementation of the Act on Security Over Movable Property and Claims in June 2012, and the KIPO, along with the FSC, began IP finance in 2013. Afterwards, IP funds began to be established through loan collateralized by an IP and fund of funds, etc. by KDB and IBK, etc., and the government released a strategy to vitalize the movable finance in May 2018 to support the financing of startups and SMEs with an insufficient credit rating. Here, movable properties include machinery and equipment, inventory, agricultural, livestock and fisheries products, trade accounts, and IP rights, etc., and incentives, such as alleviating the bank's burden on an IP valuation and collection risk, etc., were provided to vitalize intangible properties, such as IP rights, etc. Afterwards, in December 2018, the FSC and the KIPO released a comprehensive plan to vitalize the IP finance, and in March 2019, the government announced a vision on innovative finance, etc. As a result, in 2019, the IP finance surpassed KRW1 trillion for the first time. Additionally, establishing a related infrastructure, such as exchanges and collection agencies, etc., was also implemented. Moreover, in 2018, a patent credit system was also implemented, and the number of private IP evaluation institutions increased from 2 in 2015 to 9 by 2019, with the government support. In 2020, an IP finance investment vitalization policy was released to expand the IP investment. The goal of the policy is to increase the IP finance investment to KRW1.3 trillion by 2024, which was relatively low as compared to loans collateralized or guaranteed by an IP, etc. The detailed strategies include identifying and generating an IP with investment promises, the diversification of IP investment products, encouraging capital investment to an IP finance market, establishing a market-friendly infrastructure, and preparing the bases, etc. In order to increase the private sector's IP investment, investment products are being diversified, such as a cloud funding-type IP investment product, contents IP funds, etc.

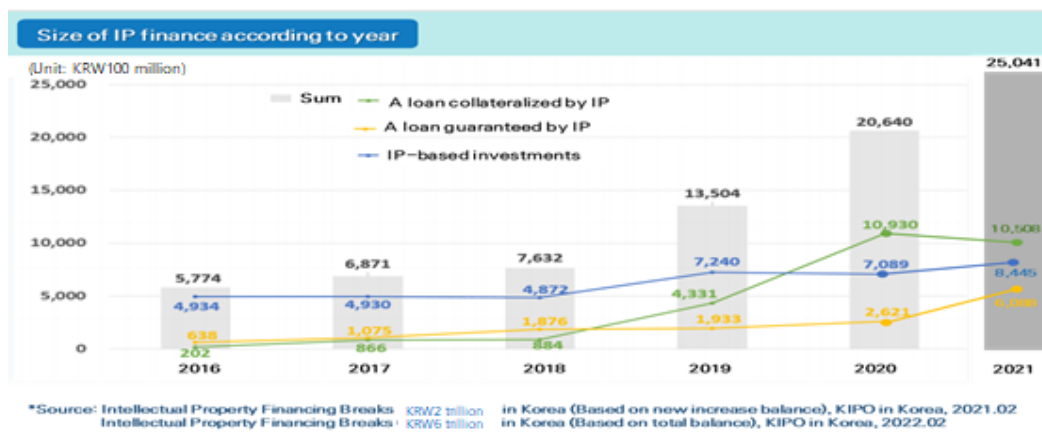
**[Table 4] Korea's IP Finance Policies**

- 2006 — Korea Technology Finance Corporation IP Valuation Guarantee Connection Support
- 2013 — Increase Korea Credit Guarantee Fund IP Valuation Guarantee
- KDB/ IBK Implementation of Loan Collateralized by IP
- Development of Valuation Model for Loan Collateralized by IP
- 2014 — Expand IP Finance to Commercial Banks
- Financial Sector's IP Finance Infrastructure Support (Connection to SMART3, Personnel Training, Etc.)
- Strengthen Investment Based on IP Valuation Results
- 2018 — Increase the IP Investment Amount (KRW2 Trillion by 2022)
- Establish Finance-Friendly IP Valuation System
- IP Finance Infrastructure Innovation
- 2020 — Identify and Create IP with Investment Promises
- Diversification of IP Investment Products
- Encourage Capital Investment to IP Finance Market
- Establish Market-Friendly Infrastructure and Prepare the Bases

Source: Reorganization of KIPO (2015, 2020) and FSC (2018) materials

### 3.3.2. The Current Status of IP Finance in Korea

Korea's IP finance began in full-scale in 2013 when it separated from the technology finance, and several measures to vitalize the IP finance have been established to materialize its growth trend. Especially since the FSC and the KIPO's release of 'Measures to Vitalize the IP Finance' in December 2018, the commercial banks began to execute loans collateralized by an IP from 2019, and the total size of the IP finance has been growing.



The size of Korea's IP finance has surpassed KRW2 trillion in 2020 for the first

time, and is growing rapidly. Meaning, in 2019, the size of the IP finance reached KRW1 trillion, and is increasing continuously, to grow 52.8% in 2020 to KRW2.064 trillion, and 21.3% in 2021 to reach KRW2.5 trillion.

The IP finance in Korea has grown centered on a loan collateralized by an IP (green line), as shown in the diagram above. This was a result of an overall increase in corporate loans due to COVID-19 and the alleviation of the collection risk with the beginning of the collection support institution, etc. Meaning, the commercial banks' active handling of loans collateralized by an IP in 2019 led to an approximately 5-fold growth of loans collateralized by an IP as compared to the previous year, and it increased by 2.5 times as compared to the previous year, to reach KRW1 trillion through an IP becoming a regular collateral from the establishment of the IP collection support institution in 2020.

Moreover, the survey of companies receiving loans collateralized by an IP showed that it provided practical assistance to the companies, in terms of the credit rating and interests. In 2020, among 1,608 companies with loans collateralized by an IP, 74.4% (1,197 companies) had a credit rating of lower than BB. It shows that more than half of the companies were able to obtain loans using their IP assets.

The interest rate was 2%, which is lower than the interest rate for unsecured loans by SMEs, which is 3~4% on average.

[Table 5] Interest Range and Average Interest by a Corporate Credit Rating

Bank	Classification	Credit Rating				
		Grades 1-3	Grade 4	Grade 5	Grade 6	Grades 7-10
Woori Bank	Average Interest		3.35	3.67		
	Interest Range		3.35	Max. 3.82 Min. 3.65		
Sinhan Bank	Average Interest	3.41	3.51	4.86		
	Interest Range	3.41	Max. 4.54 Min. 2.95	Max. 5.88 Min. 4.18		
Hana Bank	Average Interest	2.53	3.19	4.4	5.2	
	Interest Range	Max. 4.04 Min. 0.97	Max. 3.97 Min. 2.13	Max. 5.91 Min. 2.62	Max. 6.76 Min. 2.32	
Kookmin Bank	Average Interest	2.82	2.80	4.2		

	Interest Range	2.82	2.80	Max. 4.98 Min. 3.50		
KDB	Average Interest	3.11	3.23	4.24	5.25	
	Interest Range	Max. 3.56 Min. 2.82	Max. 3.78 Min. 2.16	Max. 6.86 Min. 3.30	Max. 9.40 Min. 3.55	
IBK	Average Interest	3.10	3.46			
	Interest Range	Max. 4.01 Min. 2.06	Max. 4.15 Min. 2.51			

\* Source: Office of Congressman Kim Byeongwook, IBK granting loans collateralized by an IP to companies with a high credit rating, Press Release, October 2019.

The loans collateralized by an IP, contributing greatly to the growth of the IP finance, increased 2.5 times, as compared to the previous year, to reach KRW1 trillion, and this was made possible with an active participation of the private banks. The loans by private banks account for 68.5% (KRW748.3 billion) of the entire loans collateralized by an IP (KRW1,093 billion) in 2020.

Especially in 2020, IBK, Woori and Shinhan Bank greatly increased new loans collateralized by an IP. For example, Company G, an SME, needed funds for a clinical trial related to COVID-19 vaccine-related material, but was having difficulty raising funds due to maxing out on the loan limit, etc., but was able to obtain loan collateralized by an IP for KRW2 billion, with 7 patents.

The amount of a loan guaranteed by an IP decreased slightly by 2.1%, from KRW724 billion in 2019 to KRW708.9 billion in 2020, but it is believed to return to the previous year's level by 2021, as the issuance of the IP letter of guarantee is expected to continue through the policy funds of the guarantee institutions.

As an example of financing through the IP letter of guarantee, Company G, an online advertising platform development startup, did not have any revenue to obtain funds from the financial sector, but was able to obtain a bank loan with the IP letter of guarantee issued by the KIBO through the online evaluation. As can be seen from this example, loans collateralized and guaranteed by an IP function as IP finance and play the role of supplying funds to technology companies.

On the other hand, IP investment remains at KRW262.1 billion, which is much less than financing based on an IP. As such, the government released a policy to

vitalize the IP financial investment (July 2020), and through this policy, the private investment institutions' awareness on IP investment has improved. The IP investment in 2020 increased 35.6% (KRW68.8 billion) as compared to 2019.

Direct IP investment, which invests directly in the promising patent technology, increased 4 times to KRW46.2 billion, as compared to KRW11.3 billion in 2019. For example, Company L, SME manufacturing LED and semiconductor materials, received an investment of KRW1.6 billion in 2013 from the patent account association based on the related patent for the successful commercialization of the material, and became the world leader in TMA, material for solar cell, in 2020.

The public sector provides approx. KRW20 trillion in guarantees based on technology evaluation per year, led by the KIBO, and the Korea SMEs and Startups Agency (KOSME) also provides loans in the amount of KRW4 trillion per year.

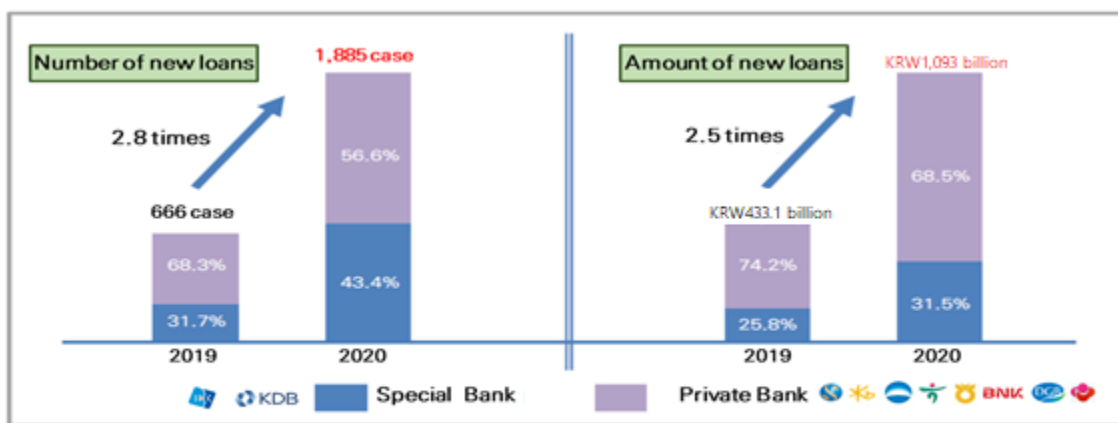
A guarantee subjected to investment by the KIBO, having the similar affect as loan conditional on investment, is expected to increase. The size of the guarantee subjected to investment increased from KRW52.8 billion in 2018 to KRW57.8 billion in 2019 and KRW39.2 billion in 2020, and has increased to KRW200 billion per year since 2021.

On the other hand, the interest in IP finance has increased due to the rapid growth of loans collateralized by an IP during the 2 years, and the interest in investing in IP-based commercialization has also increased. The IP investment is expected to grow substantially in 2021. However, the IP investment still accounts for the smallest portion among the IP finance types, and needs to grow continuously in the future.

### 3.3.2.1 Loan Collateralized by an IP in Korea

After the government's IP finance vitalization measures in 2019 (FSC and KIPO), loans collateralized by an IP began to be implemented in full force. A total of 662 cases were implemented in 2019, and by 2020, it increased 2.8 times to 1,885 cases. The amount of loans increased 2.5 times from KRW433.1 billion in 2019 to KRW1,093 billion in 2020.





**Amount and number of IP-backed loans in South Korea**  
 \*Source: Intellectual Property Financing Breaks KRW2 trillion in Korea, KIPO in Korea, 2021.02

In order to take a closer look at the status of IP finance in Korea, we analyzed the IP finance status by technology area, IP finance connection and establishment duration of the companies based on the IP finance materials during the past 3 years in Korea. However, it may be slightly different from the IP finance size shown above, as the following materials are based on the performance of IP finance (secured loans/ guarantee/ investment) from the IP valuations.

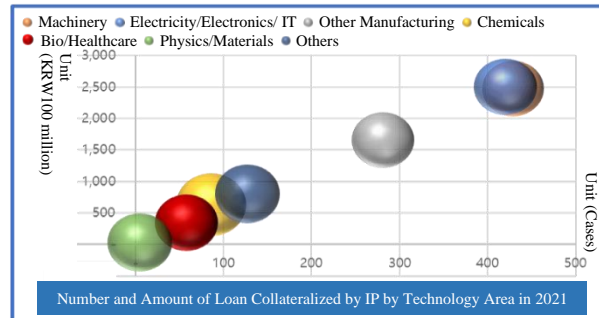
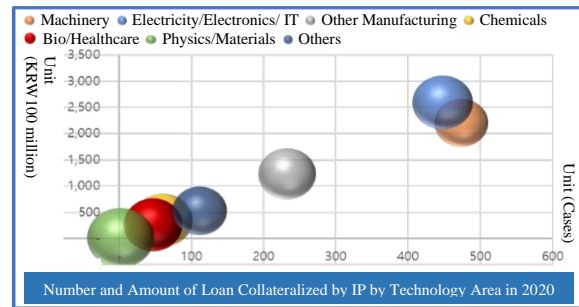
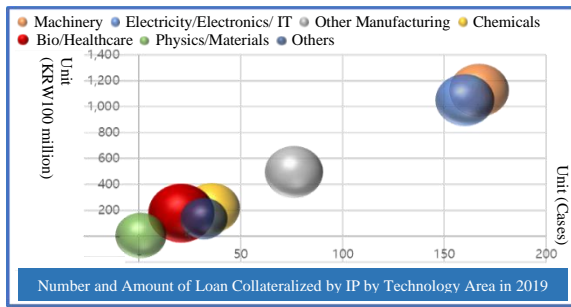
A. Status on the Implementation of IP Finance (Secured Loans/ Guarantees/ Investments) by Technology Area

Details on the number of cases and the amount of IP finance (secured loans, guarantees, investments) by technology area are shown in the following table. Status on the implementation of the loans collateralized by IP by technology area is as follows:

**[Table 6] Result of Loan Collateralized by IP by Technology Area**

(Unit: Case, KRW Million)

Classification	2009		2020		2021	
	Number of Loans	Amount of Loans	Number of Loans	Amount of Loans	Number of Loans	Amount of Loans
Machinery	167	112,603	474	220,167	429	247,508
Others	32	13,610	112	52,264	127	80,298
Other Manufacturing	76	49,492	233	123,008	281	165,173
Physics/ Materials	1	500	2	1,400	5	3,100
Bio/ Healthcare	21	17,642	47	25,876	58	34,770
Electricity/ Electronics/ IT	160	104,966	448	259,339	420	249,825
Chemicals	36	21,748	61	34,230	86	63,216
<b>Total</b>	<b>493</b>	<b>320,561</b>	<b>1,377</b>	<b>716,284</b>	<b>1,406</b>	<b>843,890</b>



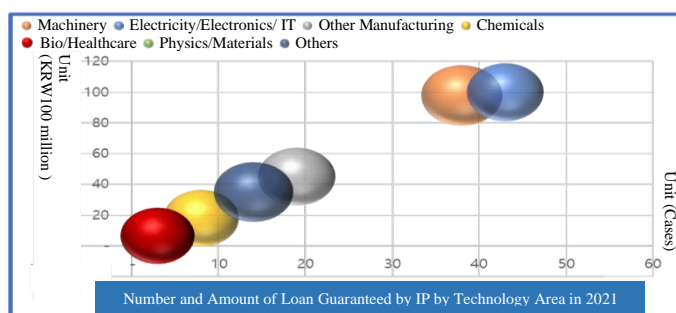
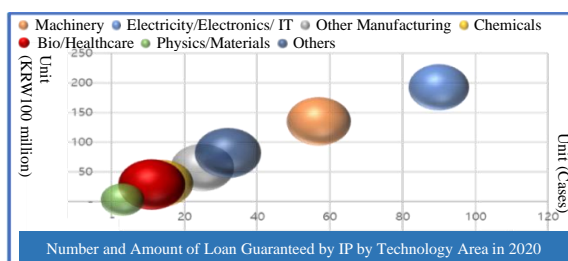
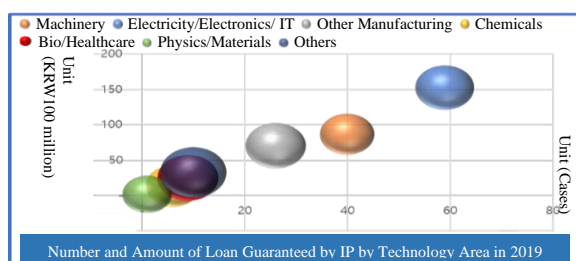
The size of the loans collateralized by an IP for the past 3 years has grown continuously, and the detailed status by technology area are shown in the table above. In 2019, the implementation size was in the order of machinery, electricity/electronics/IT, and other manufacturing (number and amount of loans). In 2020, the implementation amount was in the order of electricity/electronics/IT, machinery and other manufacturing, and in 2021, the number of implementation was in the order of machinery, electricity/electronics/IT and other manufacturing, but the implementation amount was in the order of electricity/electronics/IT, machinery and other manufacturing. This result shows the limitations of indirect finance with the loans collateralized by an IP that grew significantly over the past 3 years. The purpose of the loans collateralized by an IP is to provide funds collateralized by an IP to innovative companies, with insufficient tangible collaterals but having high technology, but the result of this data is almost identical to the ratio of the companies in the technology areas securing loans from the banks.

B. Detailed Status on IP Guarantees by Technical Areas

[Table 7] Result of an IP Guarantee by Technology Area

(Unit: Case, KRW Million)

Classification	2009		2020		2021	
	Number of Loans	Amount of Loans	Number of Loans	Amount of Loans	Number of Loans	Amount of Loans
Machinery	40	8,660	57	13,527	38	9,778
Others	10	3,255	32	8,216	14	3,498
Other Manufacturing	26	7,005	25	5,731	19	4,505
Physics/ Materials	1	180	3	320	-	-
Bio/ Healthcare	9	2,463	11	2,850	3	655
Electricity/ Electronics/ IT	59	15,264	90	19,265	43	10,003
Chemicals	6	1,315	14	3,128	8	1,793
<b>Total</b>	<b>151</b>	<b>38,140</b>	<b>232</b>	<b>53,035</b>	<b>125</b>	<b>30,232</b>



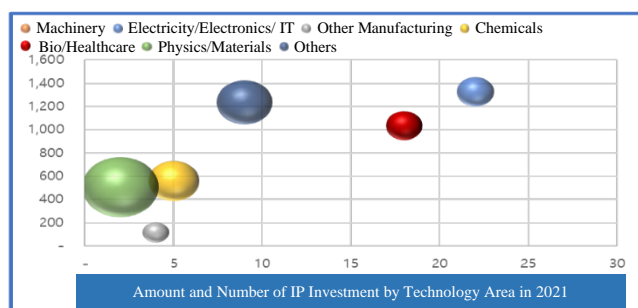
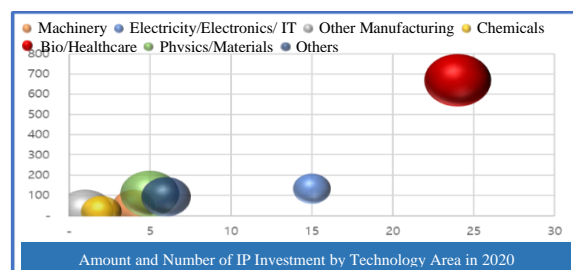
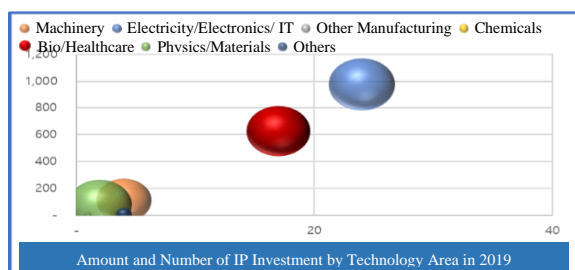
In case loans guaranteed by an IP, in 2019, the implementation size was in the order of electricity/electronics/IT, machinery and other manufacturing (number and amount of loans). However, in 2020, the implementation size was in the order of electricity/electronics/IT, machinery and others, but in 2021, it was same as 2019, in the order of electricity/electronics/IT, machinery and other manufacturing. This result shows the limitations of the indirect finance of IP guarantees, similar to the loans collateralized by an IP. An IP guarantee is a form of loan provided to companies, with the letter of guarantee issued by the guarantee institutions with the IP as a collateral, and the final decision is made by the banks. Therefore, the potential technology areas of the companies are similar to that of loans collateralized by an IP.

C. Detailed Status on IP Investment by Technology Area

[Table 8] Result of IP Investment by Technology Area

(Unit: Case, KRW Million)

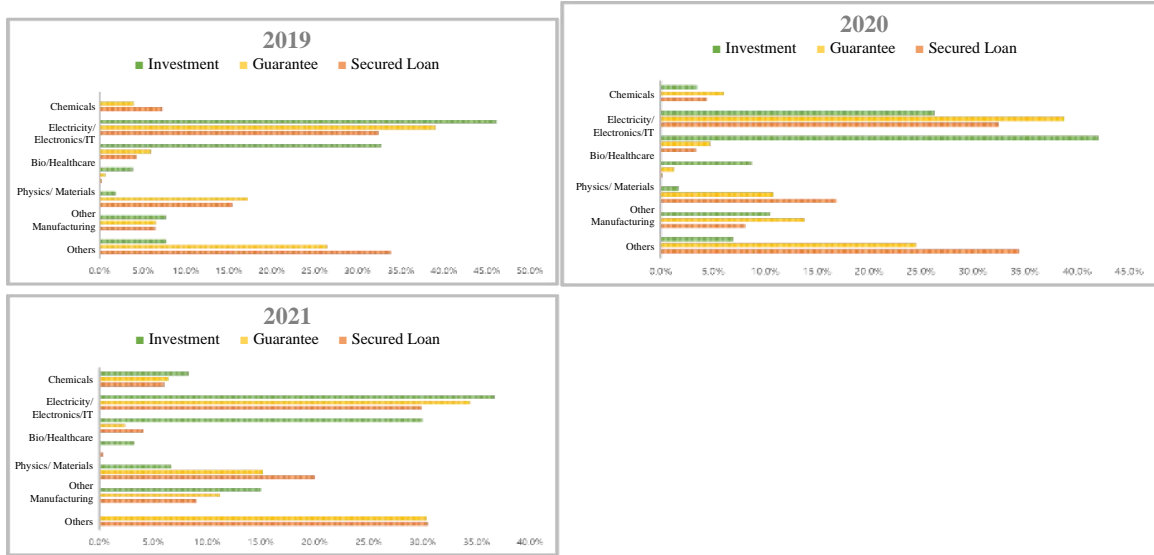
Classification	2009		2020		2021	
	Number of Loans	Amount of Loans	Number of Loans	Amount of Loans	Number of Loans	Amount of Loans
Machinery	4	11,040	4	4,500	-	-
Others	4	860	6	9,300	9	123,560
Other Manufacturing	1	50	1	2,000	4	11,720
Physics/ Materials	2	7,500	5	10,800	2	50,577
Bio/ Healthcare	17	62,695	24	67,000	18	103,611
Electricity/ Electronics/ IT	24	97,450	15	13,300	22	132,695
Chemicals	-	-	2	2,000	5	56,050
<b>Total</b>	<b>52</b>	<b>179,595</b>	<b>57</b>	<b>108,900</b>	<b>60</b>	<b>478,213</b>



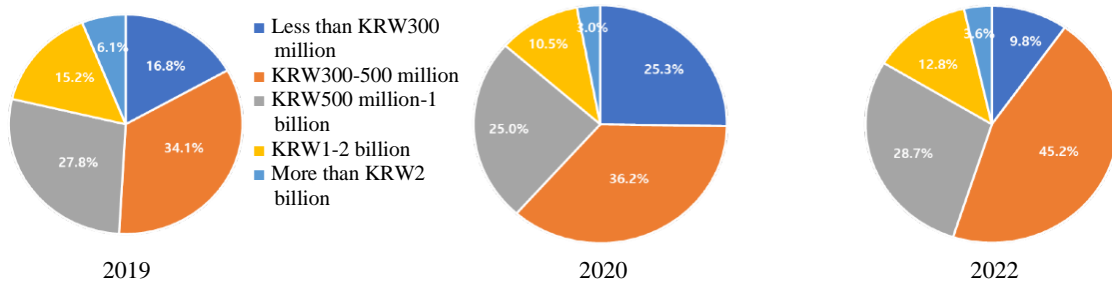
IP investment shows different tendencies as compared to the loans collateralized by an IP and guaranteed by an IP. In 2019, the implementation size was in the order of electricity/electronics/IT, bio/healthcare, machinery, but in 2020, the implementation size was in the order of bio/healthcare, electricity/electronics/IT, and others. IP investment grew significantly in 2021, in terms of the size, and it was in the order of electricity/electronics/IT, bio/healthcare and machinery. Meaning, the bio/healthcare area, which was not greatly implemented within the indirect finance, was quite active in IP investment. On the other hand, IP investment is also implemented through IP valuation, and the investment is made in the technology area where companies can obtain patents easily on the technologies that they possess.

#### D. Implementation Status by Technology Area According to the IP Finance Type

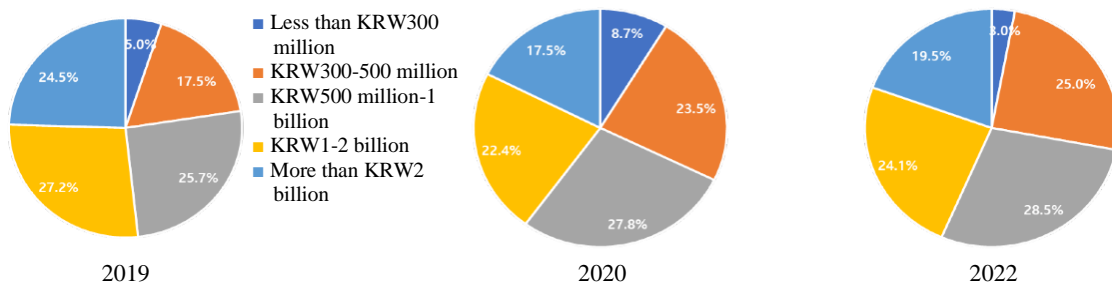
The implementation status by technology area above is organized by the IP finance type below.



Detailed implementation status by the size of the loan collateralized by an IP is as follows:



Ratio of Loan Collateralized by IP According to Number of Loans



Ratio of Loan Collateralized by IP According to Loan Amounts

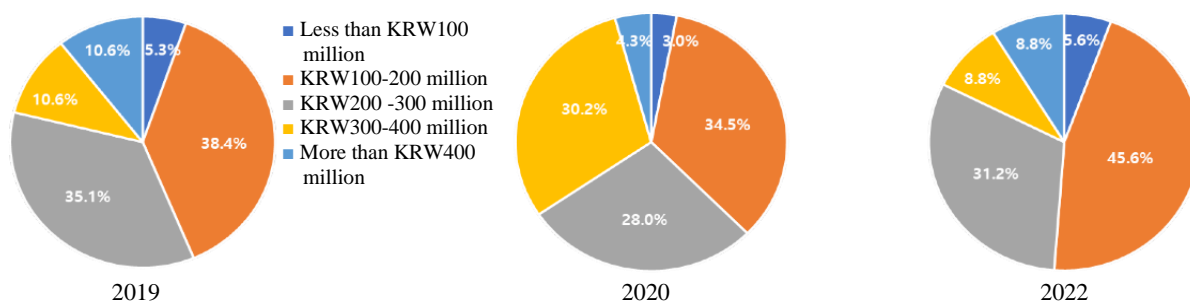
The above diagram compares the ratio of status on implementing loans

collateralized by an IP according to the loan size (number and amount) during the past 3 years.

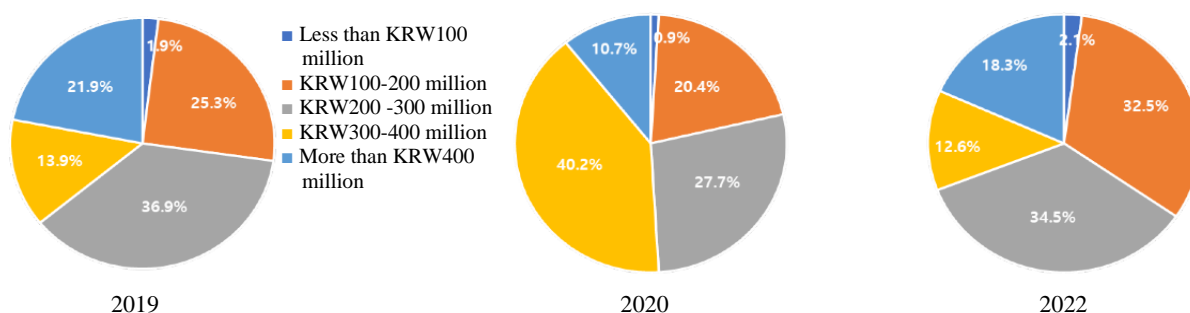
For the ratio according to the number of loans, loan amounts of less than KRW500 million accounts for 50.9% in 2019, 61.5% in 2020, and 55.0% in 2021, and loans of less than KRW1 billion accounts for 78.7% in 2019, 86.5% in 2020, and 83.7% in 2021.

The ratio of companies with more than KRW1 billion is approx. 20%, but it accounts for 40~50% of the loan amount.

Detailed implementation status by the size of the loans guaranteed by an IP is as follows:



Ratio of Loan Guaranteed by IP According to the Number of Loans



Ratio of Loan Guaranteed by IP According to the Loan Amount

The above diagram compares the ratio of status on implementing loans guaranteed by an IP according to the loan size (number and amount) during the past 3 years.

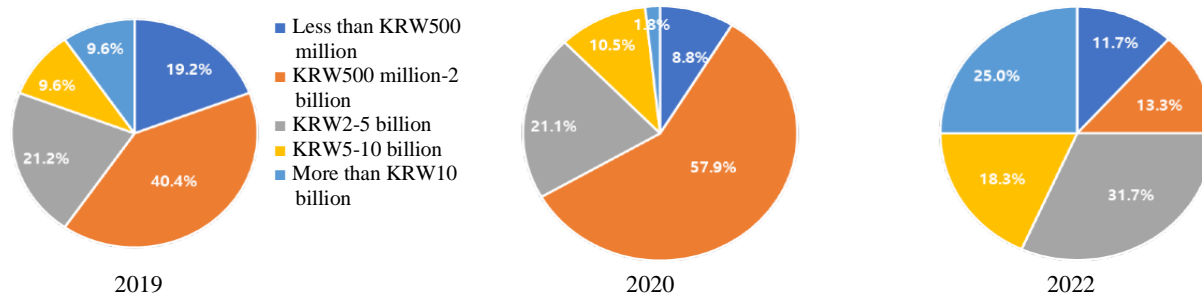
For the ratio according to the number of guarantees, the guaranteed amounts of less than KRW200 million account for 43.7% in 2019, 62.5% in 2020, and 76.8% in 2021, and guarantees of less than KRW300 million account for 78.8% in 2019, 92.7%

in 2020, and 85.6% in 2021.

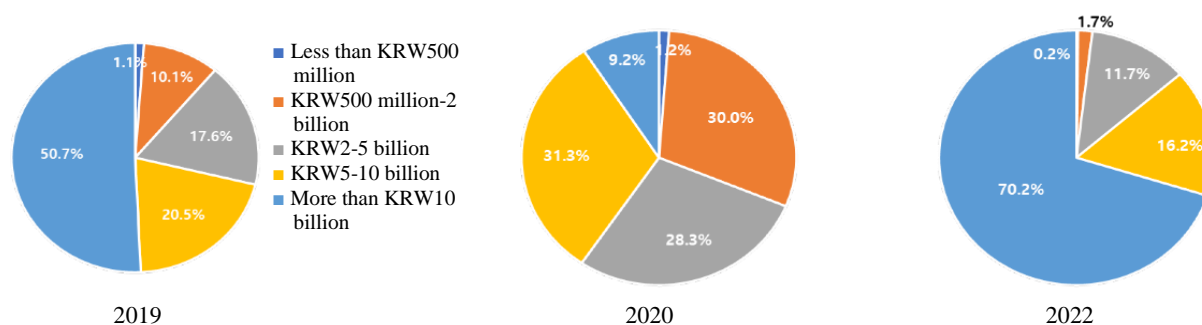
The ratio of companies with more than KRW300 million in the amount is approx.. 20%, but it accounts for 30~50% of the IP guarantee amount.

As shown in the detailed status above, the loans collateralized by IP are implemented mostly with KRW300 million ~ 1 billion loans, and the loans guaranteed by an IP are implemented mostly by the companies for less than KRW300 million loans as a way to raise funds.

Detailed implementation status by the size of the IP investment is as follows.



Ratio of IP Investment by Number of Loans



Ratio of IP Investment by Loan Amount

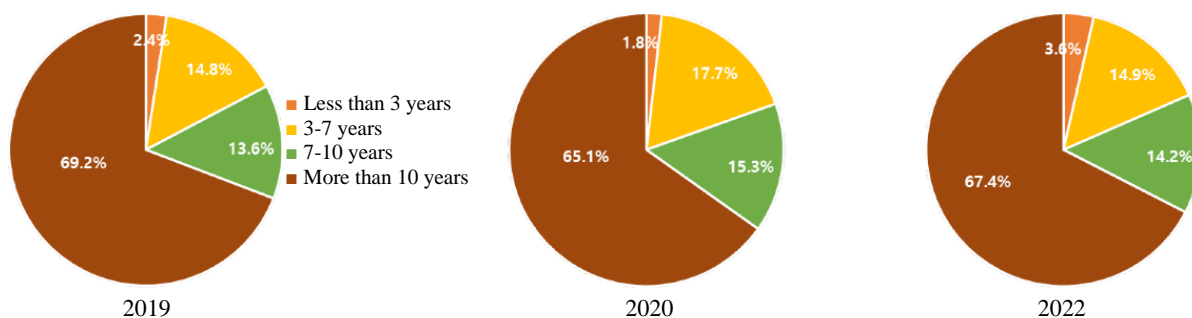
The above diagram compares the ratio of status on implementing IP investment according to the loan size (number and amount) during the past 3 years.

For the ratio according to the number of investments, the investment amount of less than KRW2 billion accounts for 59.6% in 2019, 66.7% in 2020, and 25.0% in 2021, and the investment amount of less than KRW5 billion accounts more than half of the IP investments, with 80.8% in 2019, 87.8% in 2020, and 56.7% in 2021.

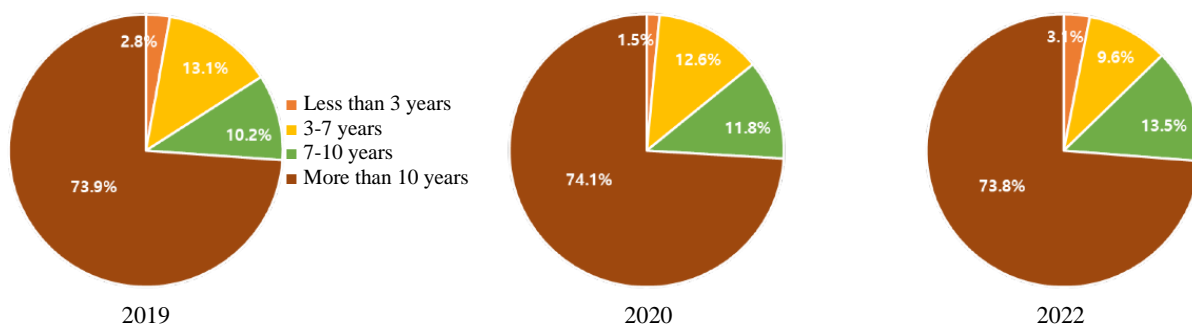
The ratio of the companies with more than KRW10 billion of investment was 9.6% in 2019 and 1.8% in 2020, but increased significantly in 2021 to 25.0%, and the ratio of the amount of IP investment also accounted for 70.2% in 2021.

However, the number of IP investment based on IP valuation was less than other IP finance (secured loan/ guarantee), so it may not be considered valid. However, it increased by more than 4 times in 2021 and is expected to grow continuously, and therefore, the data for 2021 is meaningful.

Detailed implementation status by the establishment year of the company with loans collateralized by an IP is as follows:



Ratio of the Establishment Period of the Company According to the Number of Loans Collateralized by IP



Ratio of the Establishment Period of the Company According to the Amount of Loans Collateralized by IP

The above diagram compares the ratio according to the company's establishment year (implementation number and amount) on the implementation status of loans collateralized by an IP during the past 3 years.

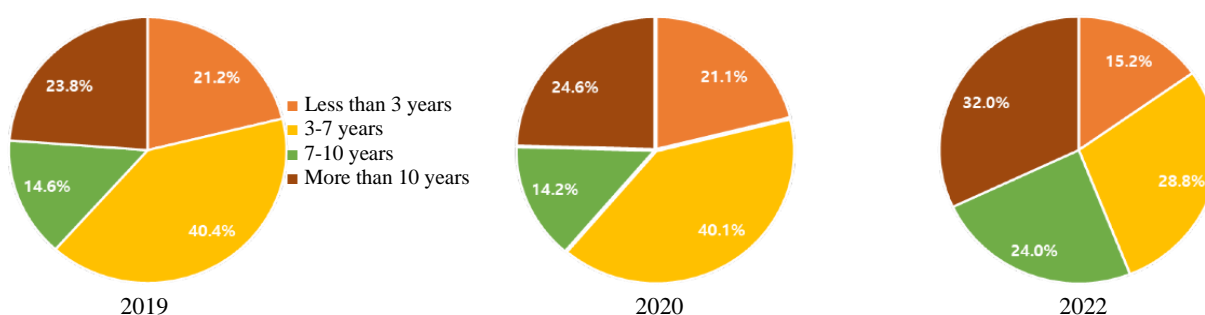
For the ratio on the number of loans implemented, the companies with more than 10 years account for 69.2% in 2019, 65.1% in 2020, and 67.4% in 2021, and the



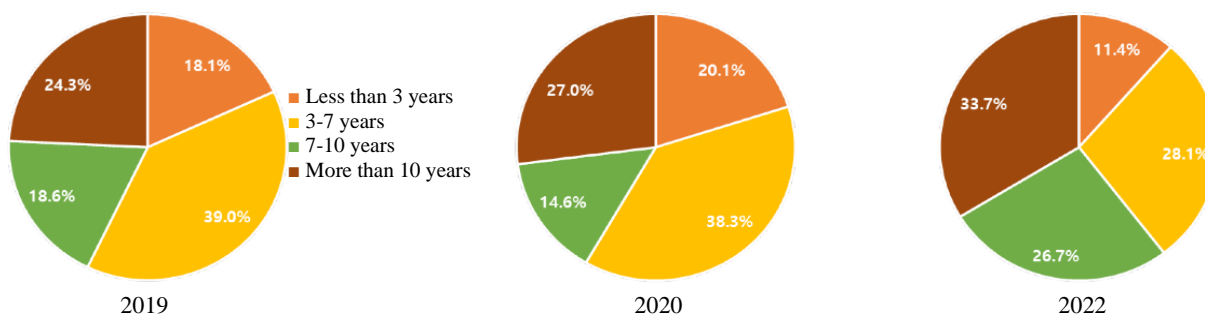
companies with more than 7 years account for 82.8% in 2019, 80.4% in 2020, and 81.6% in 2021. This indicates that the companies that have been established for some time, rather than startups, implement loans collateralized by an IP.

The ratio of companies in the early stages of business, with less than 3 years, is less than 4%, and the amount of loans also account for less than 4%. Meaning, loans collateralized by an IP are relatively difficult for the startup companies to obtain.

Detailed implementation status by the establishment year of the company with loans guaranteed by an IP is as follows:



Ratio of the Establishment Period of the Company According to the Number of Loans Guaranteed by IP



Ratio of the Establishment Period of the Company According to the Amount of Loan Guaranteed by IP

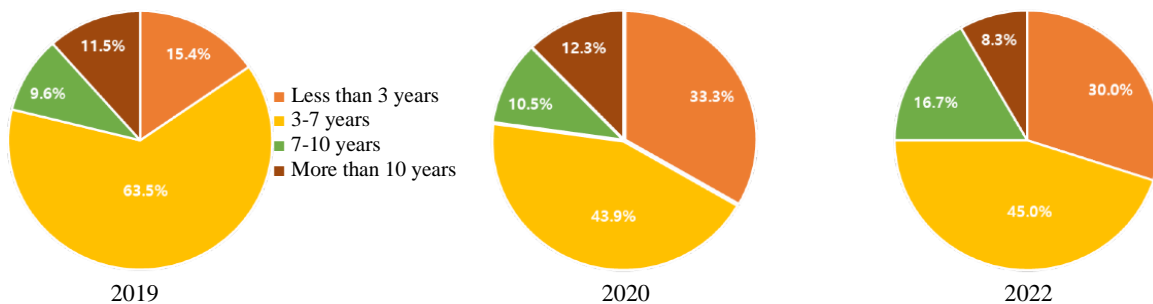
The above diagram compares the ratio according to the company's establishment year (implementation number and amount) on the implementation status of loans guaranteed by an IP during the past 3 years.

For the ratio on the number of loans guaranteed by an IP implemented, the companies with less than 3 years account for 21.2% in 2019, 21.1% in 2020, and 15.2% in 2021, and the companies with less than 7 years account for 61.6% in 2019,

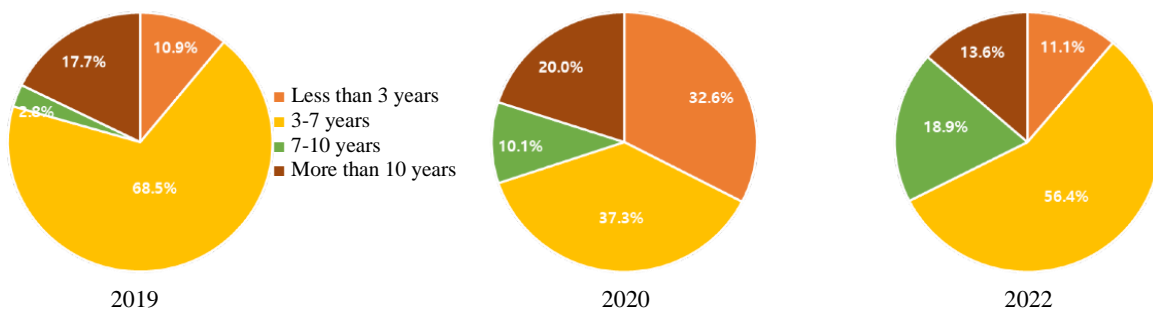
61.2% in 2020, and 54.0% in 2021, showing a slight decrease. However, financing through an IP guarantee is used more for the startups with technologies, as compared to loans collateralized by an IP.

The amount of loans guaranteed by an IP for companies with more than 10 years is slightly higher than the number of loans, and this indicates that the amount for the letter of guarantee for the companies that have been established for some time is higher than the startups.

Detailed implementation status by the establishment year of the company with IP investments is as follows:



Ratio of the Establishment Period of the Company According to the Number of IP Investments



Ratio of the Establishment Period of the Company According to the Amount of IP Investments

The above diagram compares the ratio of the company's establishment year (implementation number and amount) on the implementation status of IP investments during the past 3 years.

For the ratio on the number of IP investments, the companies with less than 3 years account for 15.4% in 2019, 33.3% in 2020, and 30.0% in 2021, and the companies with less than 7 years account for 78.9% in 2019, 77.2% in 2020, and

75.0% in 2021. Financing through IP investment is used more for the startups with technologies, as compared to loans collateralized by an IP.

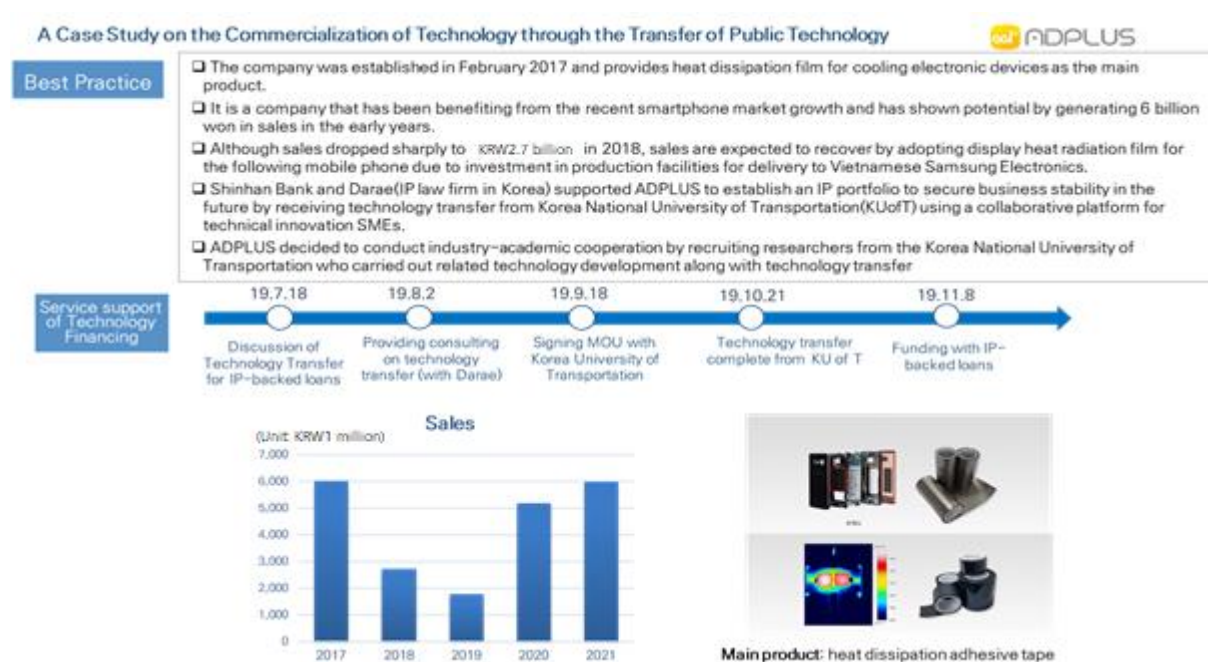
On the other hand, the ratio of companies with more than 7 years accounts for 20.5% in 2019, 30.1% in 2020, and 32.5% in 2021. IP investment is being used as a way to raise funds for each stage of the company, as compared to loans collateralized or guaranteed by an IP.

### 3.4. Best Practices of IP Finance

#### 3.4.1. Loan Collateralized by an IP

##### 3.4.1.1. A case study on the Commercialization of Technology through the Transfer of Public Technology

Loan collateralized by an IP in Korea is being utilized by SMEs, and the following is one of the best examples of loans collateralized by an IP.




The first is an example of technology commercialization through the transfer of public technology. The company manufactures cooling and radiating film for mobile phones for Samsung Electronics. The company's sales during the first year of its establishment amounted to KRW6 billion. However, the revenue decreased drastically as it rushed to establish a factory in Viet Nam, at the request of Samsung Electronics in 2018, and thereafter, began to experience financial difficulties. They had excellent technical know-how on commercialization, but was unable to execute loans

collateralized by an IP, as they did not have any patents. However, Shinhan Bank was implementing a program to identify technology innovative SMEs, in order to support SMEs with technologies, and through this program the company was able to receive a technology transfer from the Korea economy's University of Transportation. The company was able to obtain operating funds with loans collateralized by an IP transferred from the university. The company overcame its difficulties and was able to grow its revenue.

### 3.4.1.2. A case study of the Technology Commercialization of a company with an excellent IP

#### A Case Study of Technology Commercialization of a Company with Excellent IP




Best Practice

- ❑ It was established in October 2014 to commercialize genetic scissors technology. Based on CRISPER+ genetic scissors technology, the company has three major principal intellectual rights: plant-based biopharmaceuticals, production platform, CRISPER+ genetic scissors technology, CRISPER anticancer drug technology.
- ❑ Although there are no sales yet, funds have been raised for technology development and commercialization, such as attracting ₩27 billion in investment.
- ❑ The company is developing anticancer drugs and immunotherapy drugs based on genetic scissors technology, and recently, it has become an issue by conducting animal experiments to develop coronavirus treatments.
- ❑ The company is well-known as an excellent example of a teacher start-up at Seoul National University. Choi Seong-hwa, a professor of biotechnology, is recognized as a professor of genetics and biology who majored in botany and biology.

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**Establishment of an intellectual property transaction and financial ecosystem in which excellent patent technology of universities is linked to the commercialization and innovative companies raise funds based on intellectual property**

- ❑ Regarding the spread of the new coronavirus infection in 2020, Korean Intellectual Property Office(KIPO) asked for rapid funding (IP-backed loan) support for the affected companies, and Shinhan Bank found Gflas Life Sciences as a COVID-19 response company and handled ₩2 billion in IP-backed loan in cooperation with branches, Innovation Finance Department and New Technology Growth Lab(credit analyst department)

The second example is the technology commercialization of a company having excellent IPs.

Gflas Life Sciences is a bio company established by a well-known professor of biotechnology. Based on its excellent technology, it was able to raise KRW27 billion in investment in 2020. However, it lacked revenue and was unable to obtain loans from commercial banks without collateral. However, Shinhan Bank implemented a loan collateralized by an IP, with the patent owned by the company. A fast implementation of the loan was possible because Shinhan Bank had a department dedicated to reviewing the loans collateralized by an IP.

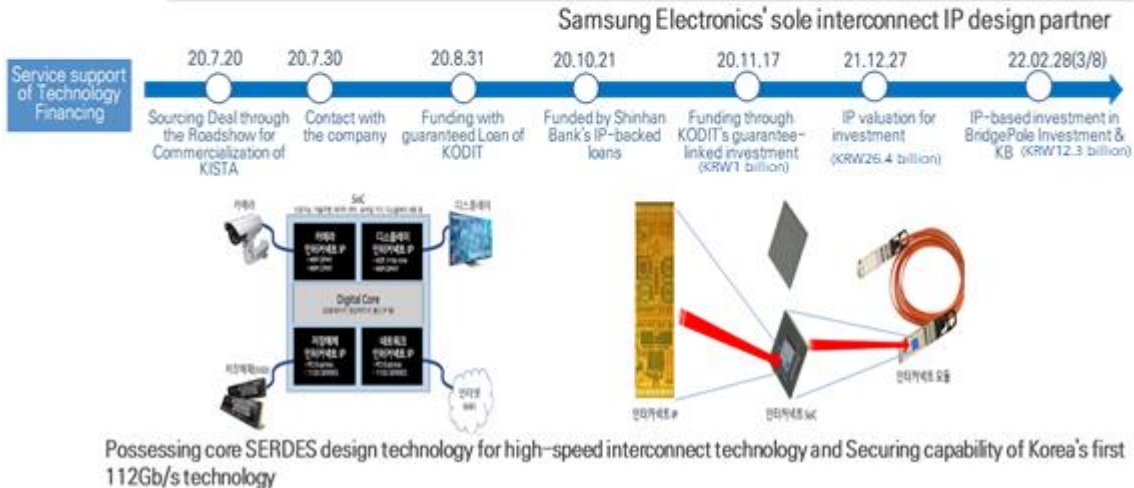
### 3.4.1.3. A case study of innovative start-up with IP portfolios

#### A Case Study of Innovative start-ups with multiple IP portfolios



#### Best Practice

- ❑ It is a Fabless startup established in February 2017 and provides semiconductor circuit design and optical communication SoC manufacturing as its main products.
- ❑ Recently, it has been benefiting from the growth of the market for applications that handle large amounts of data, such as ultra-high resolution displays, big data, autonomous driving, and artificial intelligence.
- ❑ It is continuously expanding its optical interconnect SoC and high-speed interface IP business and is developing SoC for next-generation display interconnects with Samsung Electronics orders.
- ❑ Shinhan Bank recommended and discovered the company through the 2020 Public Technology Transfer Roadshow by the Korea Patent and Strategic Development Institute to provide operating funds through IP collateral loans and facility loans through movable property collateral loans and recommended to the Korea Credit Guarantee Fund to provide guarantee-linked investment support.
- ❑ Quality Semiconductor is an example of establishing an IP portfolio to secure business stability by receiving technology transfer from Yonsei University's Industry-Academic Cooperation Group in 2019 for core technologies related to Optical Interconnect SoC design.



The last example is a technology innovative startup with an excellent IP portfolio.

This startup provides semiconductor circuit design and has been benefiting from growth in the market for applications that handle large amounts of data, such as ultra-high resolution displays, big data, autonomous driving and artificial intelligence, etc. It was the only company in Korea to provide the semiconductor design assets and execute license agreements. In 2020, Shinhan Bank executed loans collateralized by the IP owned by the company, and in 2022, the company obtained an IP investment of KRW12.3 billion for its IP portfolio.

### 3.4.2. Examples of IP Finance by KDB

Korea Development Bank (KDB) is an example of a public financial institution with the most active IP finance. Currently, KDB provides loans collateralized by an IP, loans to purchase an IP, investment/loans for technology and IP commercialization, loans guaranteed by an IP, and loans guaranteed by IP-Plus, etc.

## Types of IP Finance by KDB

- Loans Collateralized by IP: Loan implemented for products generating sales or IP related to improving or supplementing the concerned product and having a TCB technology rating of higher than a certain grade, and the IP subjected to collateral is obtained through establishing a pledge with the patent registration ledger.
- Loans to Purchase an IP: The purpose is to purchase the IP, and the funds are used for sales (transfer) of the registered IP or license. Provide up to 80% of the purchase price.
- Investment/Loan for Technology and IP Commercialization: Provides funds for the commercialization of technology transaction companies, technology commercialization consulting companies, and companies conducting business using IP, etc. Implemented with security investment, IP-backed securities, security related bonds (CB, BW, etc.), loans, IP funds, etc.
- Loans Guaranteed by IP: Provides within the guarantee limit (KRW1 billion) by SMEs having an IP valuation guarantee by the Korea Credit Guarantee Fund.
- Loans Guaranteed by IP-Plus: For SMEs using the KDB's loans collateralized by an IP and with an IP-Plus guarantee of the Korea Credit Guarantee Fund.
- KDB's Data and Application Secured Loans
  - Through 'Data Based Innovative Company Special Funds,' KDB supported 2 companies in December 2020, and will implement financial support to 2 startups in June 2021.
  - A method of providing loan collateralized by data and application to innovative companies without tangible assets, and it is similar to loans collateralized by an IP, but is specialized for the companies based on data.
  - The company receiving support is a platform service company that matches the parents needing childcare and the teachers having qualifications
  - It received KRW2 billion in loans collateralized with the parent/teacher



application and the database, and KRW2 billion in investment in convertible, redeemable preferred stock.

- Another company is a startup having on and offline stores for K-fashion and beauty in Japan, and the company obtained KRW3 billion in loans collateralized with the company app.
- The loan guaranteed by the data and application is similar to the loans guaranteed by an IP, even though the concerned data and application do not have patents, etc., but are recognized as intangible asset collateral, similar to IPRs.
- Other activities include 'Start-up Investment' (stock investment, securities related bonds (CB, BW, etc.)/ up to KRW3 billion in investment per company), and 'Venture Investment' (stock investment, securities related bonds (CB, BW, etc.)/ no maximum limit), etc. are being actively implemented
- Moreover, 'KDB Technology Transaction Mart' supports the brokerage of technology transactions between companies, and between companies and research institutions/universities, and also supports the M&A of transactions for companies having excellent technologies.

On the other hand, in companies with advanced IP finance, such as the USA, the collection strategy is implemented through lawsuits, etc. based on an active IP business market. However, public financial institutions have limitations on the profit-making business through IP assets in the form of lawsuits, etc.

KDB has the related personnel and the organization, but is not implementing profit-making businesses, such as lawsuits and licensing, based on the IP it possesses. However, it established the 'KDB Infrastructure IP Capital Fund,' along with IBK in 2015 by investing KRW50 billion, each. The fund is managed by KDB's affiliate, KDB Infrastructure Asset Management, and the trust period was 10 years. It was designed as a blind fund, with a multi-closing structure, where institutional investors could make additional investments.

Through the fund, excellent IPs owned by research institutions, universities and

companies in Korea and outside were identified and investments were made. The companies were provided with the funds to commercialize the technology, and profit-making activities were implemented through licensing in Korea and overseas, using the IPs acquired. Moreover, it is implementing the activities to purchase patents and provide consulting to Korean companies involved in patent infringement lawsuits overseas. This can be distinguished from the exiting IP funds that invested in companies trying to commercialize the IPs they owned.

For this, KDB and KDB Infrastructure Asset Management established an IP asset management team, and hired 4 patent experts, including patent attorneys and US attorneys, etc., and established a network with NPEs in Korea and overseas. This fund supports companies having IP assets and companies with patent infringement lawsuits, and it served as a momentum to expand the IP finance into focused investment. Moreover, it serves as a catalyst in creating the IP market price in the technology transaction market and promoted the efforts of the companies to develop useful IPs.

An example of investment by the fund is the investment of KRW12.3 billion, from the fund established in June 2016, in the technology and patent in the area of video compression technology developed by Korean companies and universities, including KT, etc. The technology plays a key role in materializing high-efficiency video and is considered a next generation promising technology. The investment was executed with the goal of the international standard patent of the IP asset. Through this investment, 100 international standard patents were obtained, and is planning on participating in the international patent pool hosted by MPEG-LA, a global patent licensing agency. Royalties from 100 companies worldwide can be generated with this.

### 3.4.3 IP Investment: Examples of an IP Securitization and Trust

IP assets do not generate cash flow and do not have market value. Therefore, the financial institutions attempt to securitize IP assets through trust, etc. The following is an example of an IP asset securitization process through trusts.

IP-backed securitization refers to royalty financing and trust financing using the nature of IP assets. Royalty financing is financing based on the cashflow generated by an IP (royalty income), such as issuing IP-backed securities or IP sales and license back, etc.



IP trust is entrusting the IP assets to SPCs or trust companies, etc., and the institutions trusted with the IP implement securitization based on the IP. According to Lee, Jioen (2019), an IP trust is administered by a trust business entity (one of the financial investment services under the Financial Investment Services and Capital Markets Act) and trust management business (Technology Transfer and Commercialization Promotion Act and Copyright Act). In 2005, intangible property rights were added to assets that can be trusted to the trust business entity, and the trust business entity can manage and operate IP assets.

To conduct trust business, the capital must be KRW12 billion and must obtain authorization from the FSC. Large financial institutions, such as banks, security firms and insurance companies, etc., can engage in IP trust, in Korea.

The trust business entities can raise and manage funds based on an IP, such as issuing IP backed securities based on the IP entrusted by innovative companies, etc., but in reality, there are no incentives for the trust business entities to deal with an IP. Companies in need of funding are small companies in the beginning stages of commercialization, but obtaining evaluations on the IP from different technology areas require experts from each area, which is not affordable.

On the other hand, technology trust management businesses can perform IP trust and securitization related work, but most are non-financial institutions and have difficulty issuing IP-backed securities in practice. However, the Korea Technology Finance Corporation is possible to securitize under Article 2 of the Enforcement Decree of the Asset-Backed Securitization Act. Therefore, improvements must be made with introducing small-scale IP trust business entities and the vitalization of collaboration with trust management businesses and financial institutions.

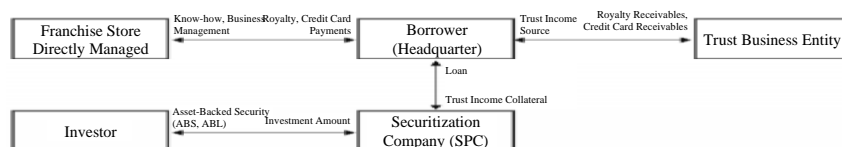
Examples of IP finance in Korea show securitization based on trademarks and copyrights. In 2013, CJ E&M procured KRW150 billion based on copyrights on movies, and Into Franchise Systems, Inc., having the WABA brand, procured KRW5.5 billion from KDB in 2014 through an asset-backed loan. Moreover, Codes Combine procured KRW10 billion from KDB in 2014 through SLB.

**[Table 9] Examples of IP Finance in Korea**

Loan Collateralized by IP	2005	KRW500 million loan for commercialization fund by KDB's patent guarantee department
	2013	KDB and IBK's loan collateralized by IP
	2019	Loan collateralized by IP by commercial banks
Loan Guaranteed by IP	2006-	Korea Technology Finance Corporation patent technology valuation connected guarantee
	2013-	Korea Credit Guarantee Fund IP guarantee
	2020-	Seoul Credit Guarantee Foundation IP Guarantee

IP Investment (Securitization, Fund)	2009	Eland-Hana Bank Trademark Securitization
	2013	IBK Companies with New-Growth Patents Security-Type Public Offering Fund
	2013	Idea Bridge IP Private Special Asset Investment Trust KRW150 billion
	2014	WABA-KDB Trademark ABL KRW5.5 billion
	2014	Codes Combine-Idea Bridge Trademark Securitization
	2015	Establishment of KB Investment KB IP Investment Association KRW50 billion
	2015	KDB Infrastructure IP Capital Fund KRW100 billion
	2019	KIPO IP Investment Fund KRW220 billion
	2019	Idea Bridge-Heungguk IP Investment Private Fund KRW11.3 billion
	2019	Idea Bridge IP 1 Private Investment Joint Company KRW14.7 billion
	2020	Korea Fund of Funds IP Investment Exclusive Fund KRW66 billion

**[Figure 12] Structure of Trademark-Backed Securitization**



There is a business model (NPE; Non-Practicing Entity) which is a type of IP commercialization model. The representative companies are Intellectual Discover<sup>19</sup>, and IP Cube Partners, etc., and they engage in various business models, such as IP evaluation and investment, transaction, licensing-based securitization, fund management, etc.

Recently, patent-based cloud funding, copyright investment and transaction platforms, etc. have appeared as P2P investment models. Security-type cloud funding was conducted, based on the royalty on patents, and a platform to investment and conduct transactions in copyrights by general investors have appeared as well. Musicow is an example of a platform in investing in the copyright of popular music. Musicow sells the shares of copyright to investors through auction, and the profits from the copyright is distributed to the investors accordingly. It also provides a service that

<sup>19</sup> Company established jointly by the Korea Institute for Advancement of Technology, under the Ministry of Trade, Industry and Energy and private corporations in 2010, and has Idea Bridge Asset Management and Idea Ventures.

allows transactions between the investor of copyrights that have been completed with an investor allocation.

## CHAPTER IV CHALLENGES AND KEY SUCCESS FACTORS IN IP FINANCING

### 4.1. Challenges in Implementing IP Finance

#### 4.1.1. Problems with Financing Centered on Real Estate Collaterals

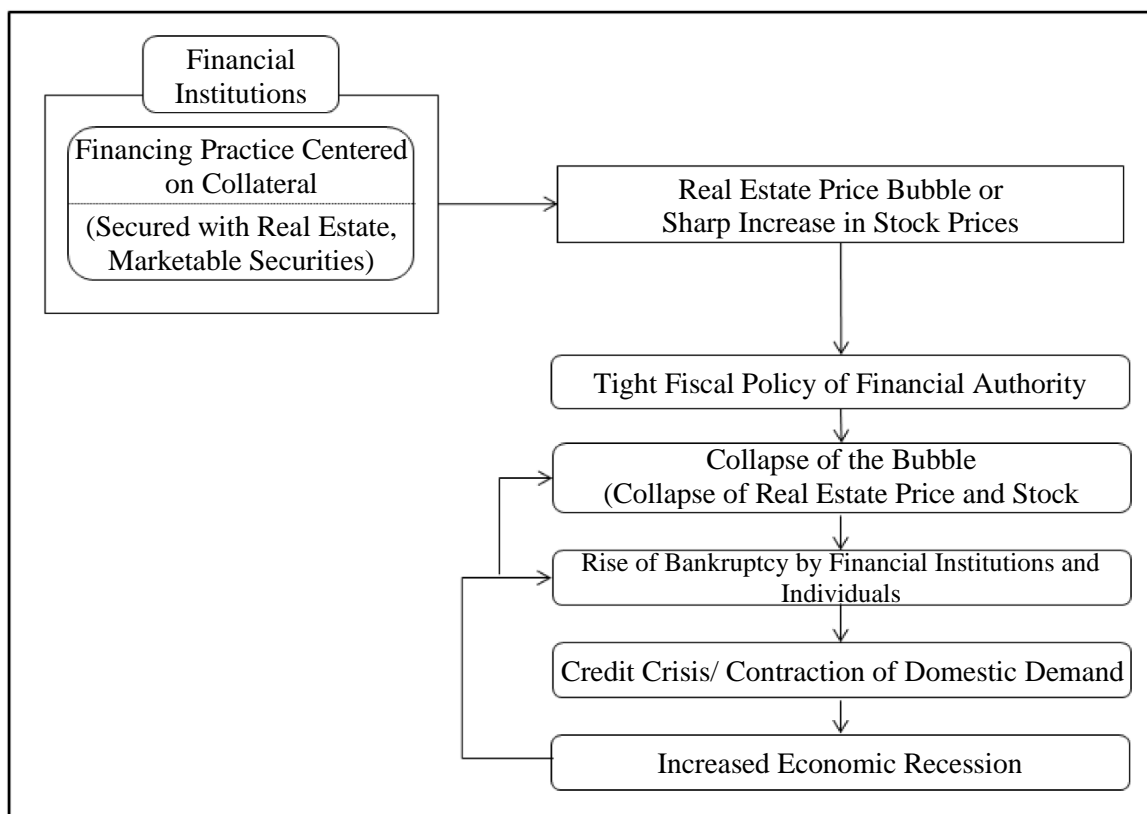
Traditionally, lending activities were largely based on securities derived from tangible assets. Specifically, real estate-backed loans or loans with a letter of guarantee are representative of loans that could be utilized by SMEs with a low credit rating and information transparency. They allow the SMEs to secure financing from financial institutions by supplementing the credit risks from information disparity, and at the same time, it improves the integrity of the financial institutions. However, the problem lies with the fact that the financial institutions not only use the collateral to supplement the credit risks, but they completely rely on such collateral. Moreover, many financial institutions approve the loan, without a sufficient review of the feasibility of the project during the loan deliberation process, when the borrower provides collateral fulfilling certain standards, and the follow-up management tends to focus on maintaining the collateral.

Also, financing centered on real estate collateral is problematic in that the value of the collateral fluctuates with the economic conditions. It is especially problematic for financing centered on real estate collaterals because it could cause serious problems for both the borrower and the financial institution if the real estate price drops from economic downturn.

This could be seen historically, as the financial crisis followed a drop in the real estate price from economic downturns. A financial crisis generally occurs when the asset value bubble bursts when the economy shrinks. The financial institutions' practice of financing centered on real estate collateral can be a direct cause of financial insolvency due to the bubble and burst phenomena from the changing economic conditions and macroeconomic policies (Financial Supervisory Service (2001), 'Problems with the Collateral-Centered Financing and Need to Expand Unsecured Loans'). The practice of loans centered on real estate collateral, which is closely related to the bubble and burst of the asset value, is a generally accepted financing custom for both Korean banks and for major developed economies, as a way to actively accommodate the companies' need for more funds. The practice of financing

centered on real estate collateral not only weakens the financial institutions' ability to evaluate the overall credit risk of borrowers, but also weakens the financial institutions' ability to react to rapidly changing financial environments, both domestically and globally. Therefore, it is necessary to improve the lending system of financial institutions into financing based on IP rights and technologies by comprehensively considering the debt repayment abilities, business value and prospects based on the future cash flow analysis of the technology innovative companies.

**[Figure 13] Problems of Financing Practice Centered on Real Estate Collaterals**



Source: Financial Supervisory Service (2001), 'Problems with the Collateral-Centered Financing and Need to Expand Unsecured Loans,' Korea Development Institute (KDI)

The financial environment centered on real estate or tangible asset collaterals is restrictive to SMEs and startups with excellent IP rights and growth potential. Specifically, even when the knowledge-based economy is accelerating, the paradigm of technology innovation is rapidly changing, the force behind a state's growth is moving from land, capital and labor to knowledge and technology, and when the market has abundant liquid funds, the companies in the technology development or newly commercializing technology stage generally suffer from a lack of funding, and the number of startups in these early stages is increasing. In this age of technology

competition, the companies must improve competitiveness through continuous technology innovation, and establishing a financial system based on IP rights or technology is essential for these companies to survive.

#### 4.1.2. Risks with IP Based Financial Products

The difficulties expressed by the financial institutions with IP based financing are: IPs are used very limitedly as a collateral for loans, IP rights have property value but are very difficult to monetize as collateral, IP rights are difficult to evaluate, issues on the reliability of the valuation results by financial institutions and the cost and time needed to conduct a valuation, etc.

From the standpoint of the financial institutions, loans secured by IP rights, such as patents and trademarks, etc. have high risks. IP rights have property value, but the value is not as high as collateral. The financial institutions operate conservatively, and they try to avoid these high-risk financial products. The risk of financial products are determined by the probability of collecting the loan, and the risk is higher as the probability of collecting the loan decreases.

The value of the collateral must be monetized through disposition when the loan is not repaid. IP rights are not transacted much, and are difficult to dispose of to repay the loan. Moreover, even when the IP right is sold, it is difficult to estimate the amount recoverable from the sales. Additionally, IP rights take longer and are more expensive in valuation, as compared to real estates.

#### 4.1.3. Lack of Awareness on IP Rights by Financial Institutions

Financial institutions' unfamiliarity with securing IP rights is also one of the reasons, along with their tendency to rely on traditional types of collateral, that financial institutions are not active in IP finance. The processes in creating security interests on IP rights (IPRs) are unfamiliar and/or complicated, and creating security interests over IPRs is expensive. Evaluating the value of the security interests over IPRs is also thought to be challenging. There are concerns about whether security interests over IPRs would have sufficient value if they were to be disposed.

#### 4.1.4. Difficulty Due to IPRs' Territorial Nature

IPRs are typically territorial in nature, which means that they are only enforceable within the jurisdiction where they are granted. This can create challenges for IP finance, particularly in cross-border transactions where the ownership and value of IP assets may be uncertain or disputed. For example, if a company has a patent registered in one economy, but it wants to use that patent to secure financing in another economy, there may be issues around whether that patent is enforceable in the new jurisdiction.

Further, another challenge to IP financing results from the characteristics of IPRs registered across multiple jurisdictions. For example, a company that frequently conducts business internationally owns IPRs that are registered respectively in several jurisdictions. The procedures for establishing security interests, their requirements and the time required for the procedures vary from jurisdiction to jurisdiction. This will also make it difficult to proceed with collateralization in each jurisdiction because the processes are often quite unique to the particular jurisdictions.

Unlike physical assets, IP assets cannot be possessed by a lender in the event of default. This means that if a borrower defaults on a loan, the lender cannot simply seize and sell the IP assets to recover its losses. Instead, the lender may need to rely on the legal system to enforce its security rights, which can be time-consuming and expensive.

#### 4.1.5. Limits of the Financial Institution's Credit Rating System

Each financial institution operate its own credit rating system for the purpose of lending. The credit rating system of financial institutions is used in making a determination on granting loans to companies. The credit rating system of financial institutions determines the credit rating of a company by using financial and non-financial elements of the company's historical financial results. The credit rating of a typical financial institution is composed of 10 ratings, from AAA to D, and the financial institutions determine whether to offer loans and the amount of loan to a company based on its credit rating.

The credit rating is composed of financial criteria (changes to revenue, change

in operating income, operating income ratio to sales, interest coverage ratio, current ratio, dependency on debt, receivables turnover ratio, etc.) and non-financial criteria (management risk, industry risk, business risk, reliability, etc.). In practice, the credit rating of a company is determined by the past financial records and management evaluation (including a manager evaluation). Meaning, the credit rating is focused mostly (approx. 90% or more) on financial records and manager evaluation.

A credit evaluation based on the credit rating system of financial institutions is based on the past financial results, and it is not proper for evaluating the growth potential and cash creating ability of technology based SMEs and startups. Technology is the most basic element for the future growth potential, but the credit rating system does not provide information to evaluate the technology ability and the need to supplement the system has been raised continuously.

The credit rating system of a financial institution is losing its usefulness in the knowledge-based economies. The credit rating system for corporate financing has become one of the elements that causes hardship in funding technology-based companies with future growth potential (not allowing the companies to move away from the death valley of technology commercialization).

It is necessary to transform or supplement the financial system based on technology in order to assist the technology innovative SMEs and startups with high future growth potentials. Moreover, as the portion of technology intangible assets is increasing in the knowledge-based economy, based on technology and IP rights, etc., the credit rating system of companies focusing on past financial records must be supplemented.

#### 4.1.6. Difficulty in Valuating Intellectual Property

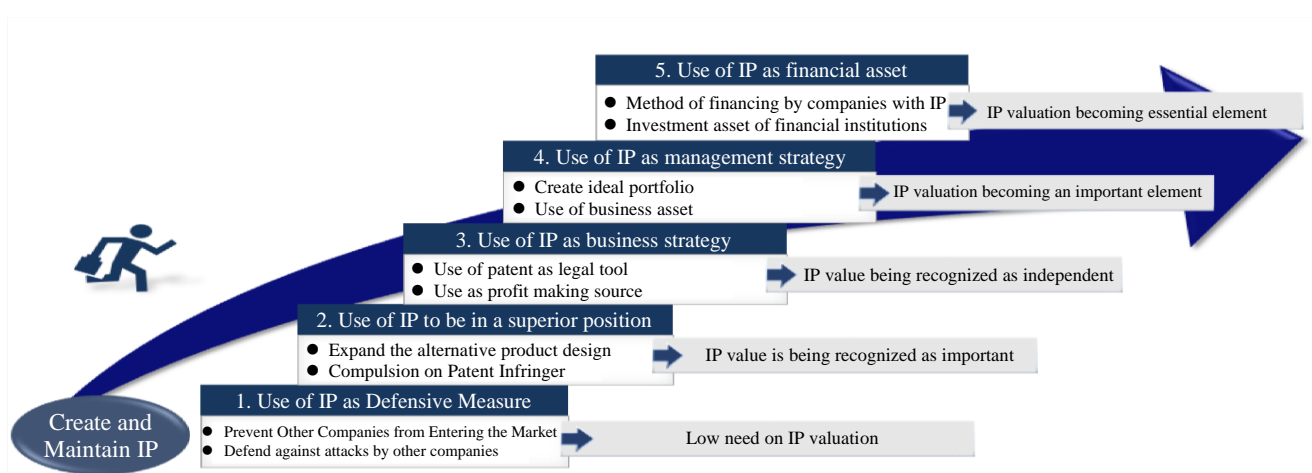
The valuation of IP rights is determining the economic value of IP rights as a business or corporate assets and expressing such value in a specific amount. The IP right subjected to valuation is assumed to create value by combining with other tangible and intangible assets, and not creating value on its own.

The intellectual property is used for different purposes by each economy, depending on the development stage of an IP infrastructure, and the need for and



importance of the IP valuation develops in accordance with each stage. The use of IP rights as developed during each stage, from the defensive application stage (prevent competitors from entering the market) to use the stage as part of the business or management strategy (licensing, patent portfolio) and financial assets (external financing). The IP valuation has a different purpose and goal depending on these development stages.

[Figure 14] Use of IP Rights and the Development Direction of the Valuation



Source: OECD STI Working Paper 2006/5, Valuation and Exploitation of Intellectual Property, p. 8. Otsuyama, 2003)

In order for the IP financing to be firmly established, an accurate and reliable valuation on the IP rights must be performed first, and for this end, it is necessary to establish an institution dedicated to an IP valuation and training professional evaluators.

Further, an IP is characterized as context specific which has led to a challenge in creating and developing IP funding. Further, not every patent/IP licensing is the same, and an IP differs from tangible property in many aspects. What is more, the value of the same IP may differ depending upon the specific needs and circumstances of the licensees. For one company in a certain technology or market position, a particular IP portfolio may be lucrative; nevertheless, for another business, the same IP portfolio may be completely useless. One individual piece of IP might not be valuable on its own, but it may turn into something quite valuable when combined or bundled with another portfolio of IPRs. An additional major difficulty comes from that fact that there is no agreed standard approach for valuing intellectual property.<sup>20</sup>

<sup>20</sup> Alfred Radauer, 2020

## CHAPTER V POLICY IMPLICATIONS AND SUGGESTIONS

### 5.1. Introduction

The biggest hurdle for the financial institutions to provide IP financing is the fact that intellectual property is an intangible asset. The financial institutions must perform valuation on the IP rights, subject of the financing, to confirm the value of such an IP right, and the valuation requires a rational evaluation method to estimate the value of the IP right and a reliable evaluating institution. Moreover, the IP valuation involved substantial costs, and the financial institutions may be burdened by the cost in implementing the IP finance.

The IP finance products are based on the SMEs and startups' future growth potential, rather than the present financial records, and therefore, has a higher risk as compared to the existing financial products. From the perspective of the financial institutions, it is difficult to be enthusiastic about IP finance, with its higher risk from the insolvency of IP financial products, as the IP rights need to be liquidated to have a value as a collateral.

The financial institutions must recover the funds by liquidating the IP rights provided as collateral, when the company fails to repay the loans, but liquidating the IP rights can be difficult unless the IP market is vitalized. Therefore, the government needs to provide proactive support and disposition upon the insolvency of the IP rights financial products, such as indemnification, for recovery in order to vitalize the IP finance.

To summarize the main factors to firmly establish the IP finance based on Korea's experience and efforts, the government, based on the full understanding of the difficulty in IP finance, established a collaboration system through a sufficient discussion with the financial institutions, and designed and operated the implementation structure of the sustainable IP finance.

Specifically, it is necessary for the financial institutions and evaluation institutions to find a way to identify IP rights that can be applied to products, create profit and cashflow among the patents owned by the companies and have value as collateral. Patents that can create cashflow refers to patents that can be transacted,

and can be monetized by liquidating the patents provided as collateral when a company fails to repay the loan.

The financial institutions must obtain reliability on the valuation by IP evaluation institutions. Securing the reliability of the evaluation is very important because the value of the IP rights provided by the evaluation institutions to the financial institutions is the basis for establishing the loan amount. The reliability of the evaluation is based on the evaluation method proper for the purpose of evaluating the collateral, logic on estimating the value, expertise of the evaluator, using an objective and current information, reasonable assumptions, etc.

The government supported the cost of IP rights valuation to reduce the burden on financial institutions. Unlike the real estate valuations, experts from diverse areas (technology experts, patent experts, market experts and accounting experts, etc.), time and costs are needed to provide the monetary value of the technology-based IP rights, and the government support is effective in reducing the burden of the financial institutions.

A collection support fund and a management company for the fund was established to help forecast the collectability of the loans, reduce the burden on liquidating the IP rights and support the collection by the financial institutions in case when a company fails to repay the loan. The fund management company liquidates the IP rights and collects any unpaid loans, on behalf of the financial institutions, and the collected funds are paid to the financial institutions.

The financial institutions are releasing IP rights based financial products or technology based financial products, as the principal of technology finance, and the government is systematically and continuously supporting these financial institutions.

The government is supporting the establishment of the patent analysis evaluation system for the IP finance. For example, the Korea Credit Guarantee Fund has released a product that gave priority to IP collateral in 2013 for SMEs and startups having technology innovative-type excellent patents, in connection with the patent analysis system developed with the support of KIPO (SMART5.0), which was successful.

## **5.2. Implementation Methods for the Firm Establishment of IP Finance**

### **5.2.1. Intangible Assets and Intellectual Property**

The importance of an intangible IP value, among corporate value, is increasing in the knowledge-based society, and the paradigm of technology innovation is shifting quickly; however, finance is still relying on real estate collateral or financial records. Meaning, finance is not catching up with the changes in the knowledge economy. Therefore, it is necessary to transform the current finance method to technology innovation or excellent IP rights based financing.

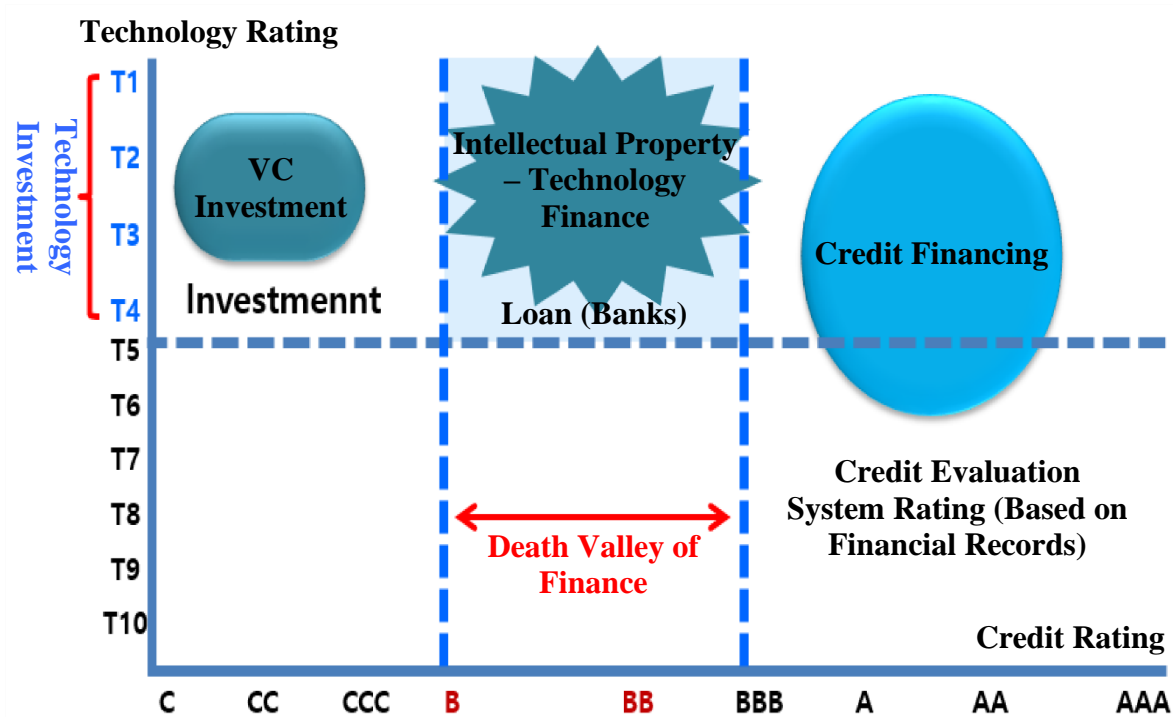
It is transforming the paradigm of finance from tangible assets collateral, the letter of guarantee and financial records, etc. to IP based finance to allow the innovative SMEs and startups, having excellent IP rights and in the process of commercialization, to overcome the “death valley.” Generally, financial institutions implement financing through a credit rating by establishing a financial record based credit evaluation system, and the loans are provided to companies having BBB or a higher credit rating. Typically, large companies that conducted the business for a long time, with stable financial records have credit ratings of BBB or higher. On the other hand, there are many technology innovation-type SMEs and startups with credit ratings of BB or lower. The financial institutions require real estate or a letter of guarantee as collateral for companies with ratings below BBB, and the technology innovation-type SMEs and startups, with high future potentials but with low current profits, have difficulty in raising funds.

The shift of paradigm for the IP based finance, especially the IP guaranteed loans, is to establish the target market for IP and technology finances for the SMEs and startups, with high future growth potential and a moderate credit rating of BB or so, to survive the death valley, by securing the necessary funds.

The technology finance is a way to increase the unsecured loans or loan limits for the SMEs and startups, with excellent technology, experiencing financing from financial institutions due to moderate financial records and a low credit rating, and the technology rating is classified and indicated as T1, T2, T3, ~ T8, T9 and T10.

The SMEs and startups with a low credit rating, for example B or below, with excellent technology but without financial records, are subjected to venture capital.

[Figure 15] Target Company and Target Market of IP Finance



### 5.2.2. Establishing a Legal Basis for IP Finance

Implementing IP finance requires a collaborative system between the government and the financial institutions to recognize the need and to satisfy their roles.

The government needs to establish a legal basis for the IP finance. Korea has an Act on Security Over Movable Property and Claims and a special rule on the collateral of IP rights. This law serves as a basis for establishing a mortgage on IP rights, and the holder of the IP right can register the collateral on such IP rights in the original patent register, copyright register, or other official registers relevant to such IP rights.

### 5.2.3. Government's IP Finance Support Policy and Implementation Tool Identification

The government must establish a policy to identify the current financial situation of the financial institutions and to vitalize IP finance based on the economic development stage and the direction of the innovative economy realization and the need to establish a collaborative system to implement this.

[Figure 16] Direction of Korea's IP Finance and Shift of Paradigm

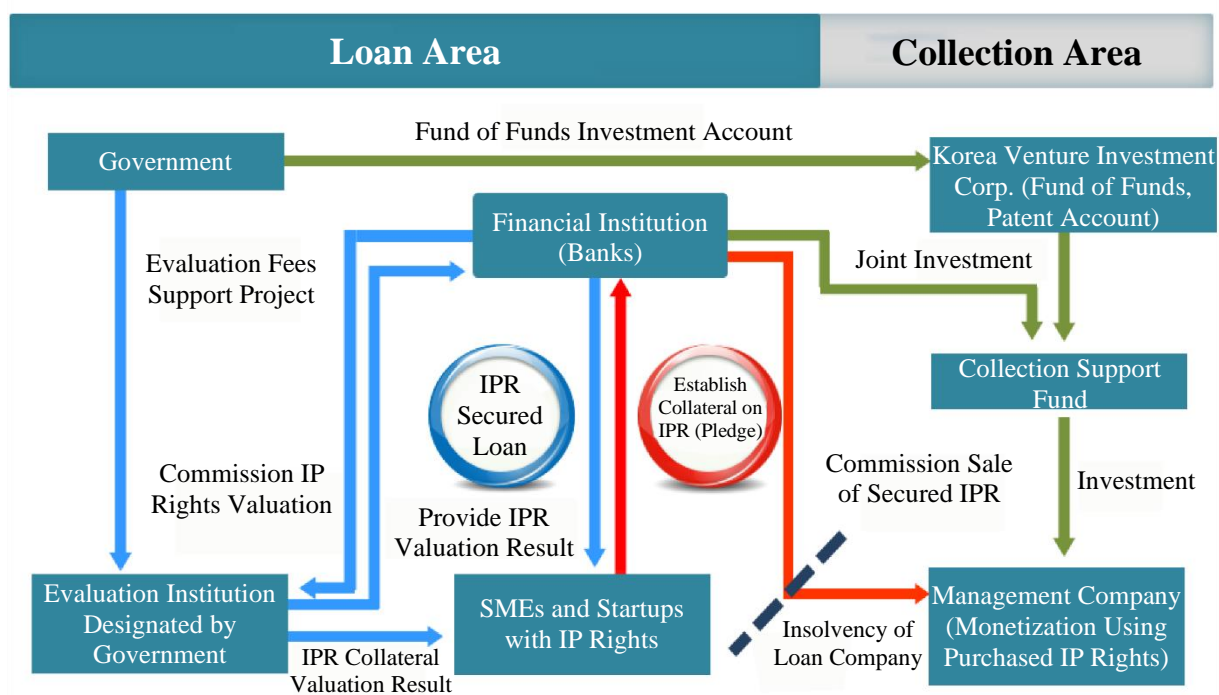


In order to vitalize the IP-based finance proposed by the government, the government and the financial institutions must continue to discuss and cooperate to find the solutions. The reasons for the conservative financial institutions to carry IP rights as financial products are: the value of the IP rights are difficult to verify; difficulty in identifying IP rights that can be monetized; an evaluation period of 4 weeks or longer, high evaluation (valuation) fees; difficulty in liquidating collateral upon default; and a high uncertainty in the amount recoverable, etc.

In Korea, even with the risk and concern over IP rights secured loans by the financial institutions, the patent secured loan product was released in the second half of 2013 by KDB, with continued efforts and discussion by the government and the financial institutions, and currently many banks are handling such products. Patent secured loans product is an innovative financial product that transforms into technology-based finance, as compared to tangible asset secured finance, such as real estate, etc.

Moreover, in order to solve the difficulty of IP secured loans, as mentioned earlier, the government and the financial institutions established the following execution structure, through collaboration. The government and the financial institutions operate a collection support fund for the IP rights and establish the fund management company to support the collection and transaction of IP rights. This provides a systematic support for a firm establishment of the IP finance.

[Figure 17] Execution Structure of IP Finance



#### 5.2.4. Classification of IP Rights with Mortgage Value

Patent must be an IP with value as a collateral, and must be able to be liquidated and monetized when the loan cannot be repaid. Therefore, it is necessary to identify the patents that are applied to a product being sold, the patents that are applied to a product but not being sold yet (applied to samples or being produced), and the patents that are not being used yet. The patents that are applied to a product being sold can be monetized and can be provided as collateral to financial institutions.

#### 5.2.5. Securing the Reliability of the Valuation and Supporting the Evaluation Fees

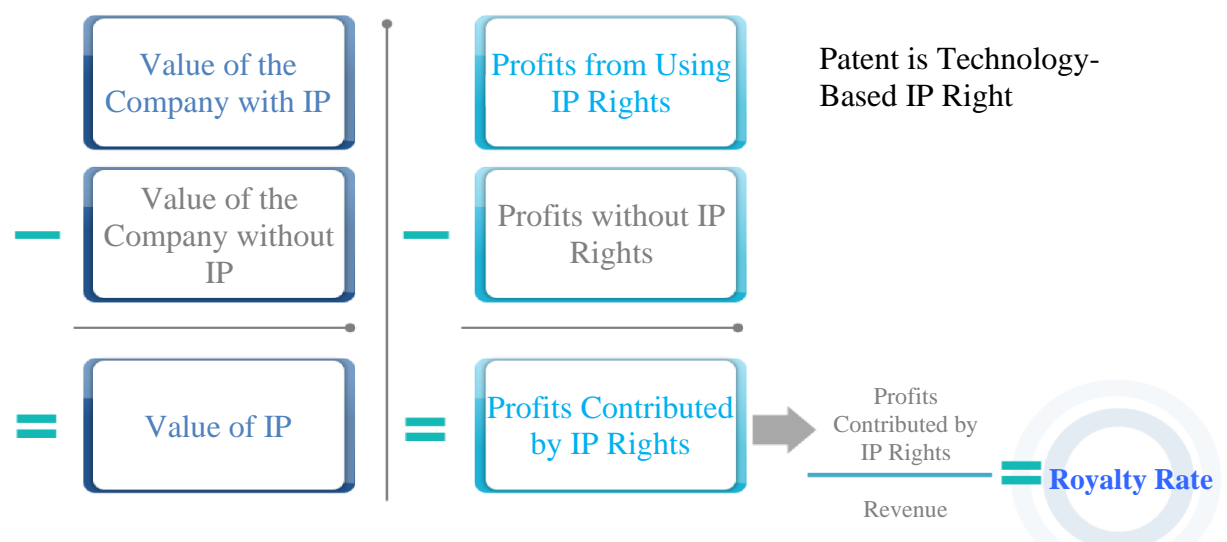
Valuation of the IP rights is essential for the financial institutions to manage IP-based financial products. From the perspective of the financial institutions, the reliability on the patent valuation must be secured in order to determine the loan amount based on such value. For patent secured loans, the valuation of such a patent serves as the basis for such a loan product and the valuation is performed by expert evaluation institutions, with experience in patent technology valuation and designated by the government (KIPO), as commissioned by the financial institutions.

The fees for the patent valuation is very high, as compared to the real estate valuation, and in Korea, the government provides 90% of the cost of the evaluation

fees (average evaluation fees of KRW15 million in 2013) since the implementation of the valuation on patents in 2013, and the banks pay 10%. As of 2022, KIPO provides 50% of the evaluation fees needed for the valuation of patents in order to support the funding of SMEs and startups having excellent patents.

Evaluation fees, evaluation time, the reliability of evaluation, etc. of IP rights are determined by the valuation method. The Korea Invention Promotion Association (KIPA) provided relief from the royalty method as a proper valuation method among diverse patent valuation methods (income approach, market approach, cost approach and relief from royalty method), and the financial institutions accepted such a proposal. The evaluation logic pursuant to relief from the royalty method is as follows:

[Figure 18] Evaluation Logic of the IP Rights Valuation Methods Applied to IP Finance



### 5.2.6. Operating Collection Support Fund

The biggest hurdle for the financial institutions to implement patent secured loans is collecting the funds by liquidating the patents when the company defaults. The financial institutions do not want collateral when the uncertainty in collecting the collateral is high, and in order to reduce such a risk, the financial authorities established a collection support fund, through joint investment with financial institutions, to be managed by an IP expert company. The expert company can collect through the purchase and sale of the insolvent patent secured loans of the financial institutions. The value of the insolvent patent secured loan is reassessed when the expert company purchases the loan, and the reassessed value is paid to the financial

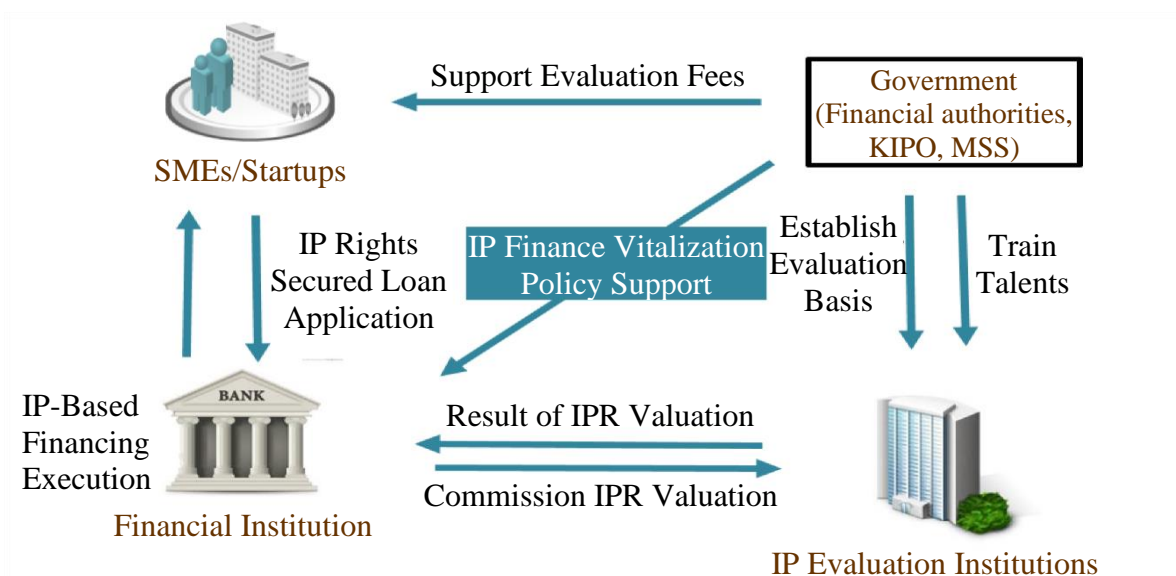


institution first or the collected amount through the sale of the loan is given to the financial institution.

### 5.2.7. Establishing a Collaborative System Between the Government, Financial Institution and Evaluation Institution and Role Allocation

It is necessary for the government, financial institutions and evaluation institutions to establish a collaborative system and implement IP finance. The Korean government established the IP evaluation infrastructure and supported expert training and evaluation fees, etc. The financial institutions developed and released financial products proper for IP finance, identified SMEs and startups and provided financial support, etc. The IP evaluation institutions performed IP valuation, as commissioned by the financial institutions, and provided reliable evaluation results. The collaborative system and the roles of the government, financial institutions and IP evaluation institutions to support the IP finance of SMEs and startups are as follows:

[Figure 19] Collaborative System and the Roles for the IP Finance



[Table 10] IP Finance (Patent Secured Loans) Record Through Korean Financial Institution’s Patent Collateral

Classification	2017	2018	2019	2020	2021
No. of Participating Banks	3	3	7	8	10
Support Amount (KRW100 million)	866	884	4,331	10,930	10,508

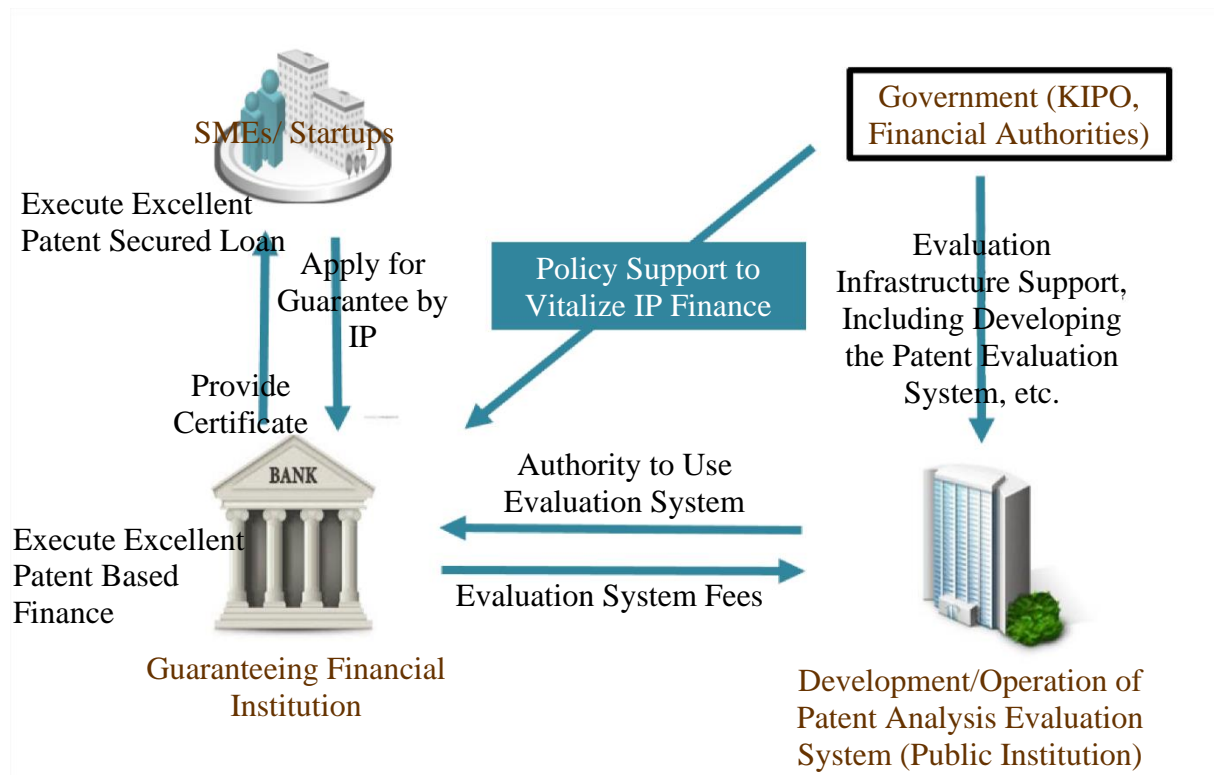
Source: KIPO&KIPA

### 5.2.8. IP Finance Through the Patent Analysis Evaluation System

IP finance through the patent analysis evaluation system is executing IP finance based on the patent rating of SMEs and startups having excellent patents. The rating uses a verified patent analysis evaluation system, and the patent analysis evaluation system present the evaluation result in a rating by performing the quality evaluation of the patent with diverse evaluation elements. The financial institutions issues a certificate to the company based on the score and rating results of the patent owned by SMEs and startups, and the company with the certificate obtains a guaranteed loan from banks.

The Execution structure and collaborative system of IP financing using the patent analysis evaluation system are as follows:

[Figure 20] Collaborative System and Roles of IP Finance Through the Patent Analysis Evaluation System



The patent analysis evaluation system was first developed to support the economic decision making of patent management, such as patent possession or disposition, etc. by companies possessing many patents, and to identify patents that can be transacted. Currently, the patent analysis evaluation system is used in

connection with developing IP financial products and finance.

The patent analysis systems being used by many emerging economies are IPQ by Patent Ratings and PFI by IP.COM from the USA, Patent Score by the Patent Result of Japan, SMART 5.0, developed and managed by KIPO, etc.

IP finance through the use of an automated patent analysis evaluation system starts with developing a patent analysis evaluation system that can process massive patent information, and they include patent specification, application, review and registration information, judgment, lawsuit information, license information, changes in the holder information, citation information, family information, etc. Establishing the patent analysis evaluation system is implemented through collecting big data → data refinement and processing (data preprocessing) → analysis → expression → substantiation → evaluation service (able to generate patent rating and evaluation report).

Next is developing the evaluation index and the evaluation model (multiple regression analysis, structural equation model, etc.) to perform the patent's quality evaluation. The indices verified through academic research are first used for the patent evaluation indices, and proper evaluation indices are to be identified. Moreover, sufficient verifications on the ratings of patents calculated by the patent analysis evaluation system is needed because securing reliability on the evaluation through sufficient verification is important for financial institutions to use such a rating. The financial institutions must develop and release IP finance products based on patents by using the patent analysis evaluation system. Also, the patent information used by the evaluation system must be provided consistently and continuously, and the evaluation system must be updated with the most recent patent information. The patent information is provided by the government, and it is necessary to develop and operate the evaluation system by a public institution for reliability.

**[Table 11] Classification of IP Rights Based Valuation Amount and the IP Finance Using Patent Rating**

Classification	Valuation Amount	Patent Rating
Finance Target	- SMEs and starts with excellent IP rights	- SMEs and startups with an excellent patent

Evaluated On	- IP rights, such as patents, trademarks, etc., owned by a company that can be transacted	- Patent rights owned by a company that can be transacted
Description and Examples	- Estimated in a monetary value on the ability to create the value of products or services applied with IP rights	- Ratings through the quality evaluation of individual patents by an automated patent analysis evaluation system
Evaluation Method	- Present the value of IP rights in a monetary amount (used in deciding the value of collateral)	- By the processing of big data on massive patent information - Use 30 or so evaluation indices for the quality evaluation of individual patents
Financial Institutions	- By financial institutions providing loans (banks) and guaranteeing institutions	- By guaranteeing financial institutions that can issue certificates
Evaluation	- Evaluation not performed by the financial institutions. Valuation performed by professional institutions	- The guaranteeing financial institutions evaluate directly using the evaluation system
Collaborating Institutions	- Government (KIPO & financial authorities), financial institutions, IP evaluation institutions, etc.	- Government (financial authorities), financial institutions, patent analysis evaluation system operating institution (public institutions), etc.

The pros and cons of IP finance that provides a loan secured by IP rights based on valuation and IP finance through the rating of patents are as follows:

First, patent secured loans carry much time and expenses, as they are based on the valuation amount of the patents. On the other hand, when based on the ratings of patents, the time and cost is advantageous, because the rating can be verified immediately through the evaluation system.

Second, the valuation amount for patent secure loans can vary, as the experts calculate the value, and may cause problems on the reliability of the valuation. On the other hand, the ratings are performed by the evaluation system, and the reliability is higher because the issue of discrepancy between the experts does not occur.

Third, because the patent secured loan is based on the valuation amount, if the value of the patent is high, then more funding can be secured through the IP right. On

the other hand, the ratings do not have the valuation amount, and only a pre-fixed amount can be provided. For example, if the guaranteeing financial institution issues a certificate for KRW100 million for BB or a higher rating, the company can obtain financing of KRW100 million. If the valuation amount is KRW1 billion, then more than KRW400 million can be financed. Korean banks provide a loan for 40% or more of the collateral.

To share the experience of operating Korea’s patent analysis system, in 2013, the Korea Credit Guarantee Fund developed the patent analysis evaluation system, in connection with the guarantee finance and developed a guaranteed product for IP. IP finance is being implemented for SMEs and startups possessing patents. A guarantee of KRW100 million per 1 patent with a B rating or higher. Up to 5 patents and KRW500 million is provided to one company.

SMEs and Startups with patents that were supported by the Korea Credit Guarantee Fund through the patent rating using the patent analysis evaluation system (SMART 5.0) during the past 5 years are as follows:

**[Table 12] Finance Performance Through the Use of Korea’s Patent Analysis Evaluation System (SMART5.0)**

Classification	2017	2018	2019	2020	2021
No. of Companies Supporting	614	654	689	819	696
Support Amount (KRW100 million)	1,055	1,163	1,286	1,500	1,401

Source: Korea Credit Guarantee Fund

#### 5.2.9. IP Finance Through Sales & License Back

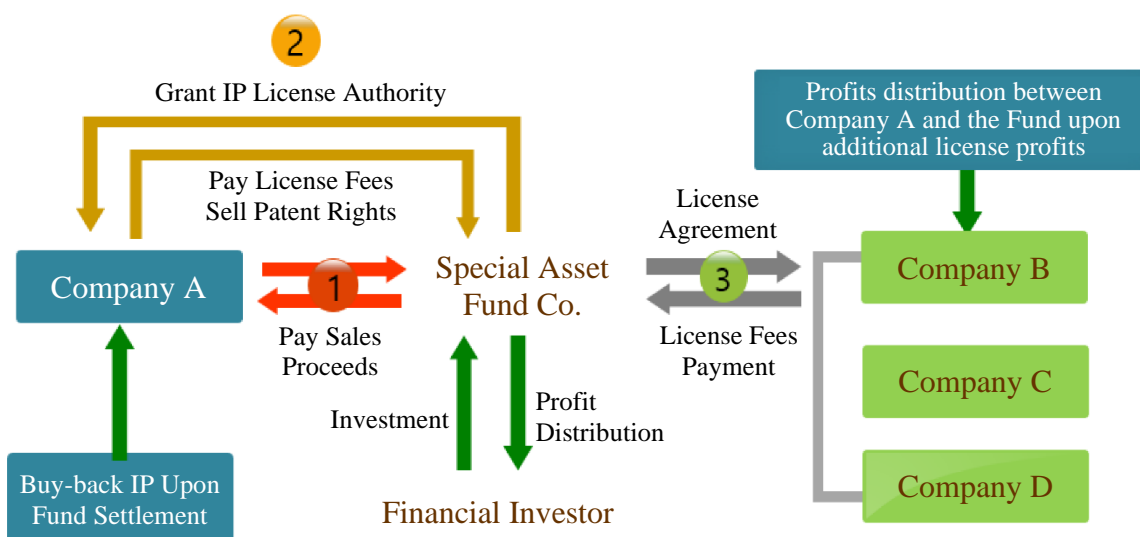
Sales & license back is proposed as a way to raise funds based on IP rights, such as patents, etc. The sales and license back is a means of financing by combining the sale and license of IP rights.

The sales and license back is applying the sale & lease back, used in the real estate market, to the IP financing. This allows the company to sell the assets of the company to a financial lease company and utilize them such as an asset through lease agreements.

Specifically, this method allows the company to sell the machines, equipment, land or building, etc. to a finance lease companies and using such assets through a lease agreement. Upon the end of the lease term, the company has the right to buy back the assets. This allows the company to raise funds and secure liquidity.

The sales and license back allows companies with excellent IP rights to raise funds through IP finance. The principal manager of this system are the asset management companies (referring to the special asset funds in the figure) that secured investment from the financial investors. The execution structure of IP finance using the sales and license back are as follows:

[Figure 21] Execution Structure of IP Finance Using Sales & License Back



Source: KDB

The asset management company secures funds from the financial investors to operate the program under sales and license back. The asset management company is clearly stipulated as a special-purpose fund and cannot use the funds for any other purpose. The financial investors are financial institutions managing public funds or government or public institutions managing special funds. The asset management company and the financial investors execute profit distribution contract for the management of the investment and allocate the profits accordingly.

The procured investments are managed according to the purpose, target and methods, etc. stipulated by the asset management company. The asset management

company informs the program to the interested companies and select companies proper for the purpose. The asset management company obtains the valuation of the IP rights of the company through commissioning an IP valuation institution, and the company and the asset management company determines the sales price of the IP rights based on the valuation amount.

The asset management company and the company execute contracts on the sale of the patent and licensing of the patent, and the main terms of the contract are the sales price, license period between the asset management company and the company (fund management duration) and fees, price of the buy-back of patents, etc., license to other companies, etc. The company pays the fees for licensing after the sale of the IP rights to the asset management company. The license fee is a fixed ratio of the sales price of the IP rights. The license period is determined through discussion between the company and the asset management company, and typically is 3 years. The license fee is considered an interest payment from the company's perspective, and an annual return from the asset management company's perspective.

If the asset management company obtains the license fees from companies other than the company that sold the IP rights, such profits are shared between the asset management company and the company that sold the IP rights, pursuant to a contract.

Upon the termination of the license period between the asset management company and the company, the company buys back the IP rights at the price equal to the sale price (corresponding to the principle of the secured loan). The license agreement is terminated upon the purchase of the IP rights by the company, and the fund management also terminates.

Korea implemented the sales and license back for the first time in 2013 for innovative SMEs and startups having excellent IP rights (patents and trademarks). At the time, KDB invested KRW100 billion to the Idea Bridge Special Asset Fund, as a financial investor, and we managed the KRW100 billion special fund. The Idea Bridge Special Asset Fund purchased patents from 6 companies, at KRW21 billion, and trademarks from 6 companies, at KRW10 billion, in the form of sales and license back. For several years after 2013, the sales and license back method was implemented, but is not being implemented currently.

#### 5.2.10. The Government's Active Support for the Firm Establishment of IP Finance

For the financial institutions to implement IP finance voluntarily, a proactive collaboration between the government and the financial institutions and a support from the government is needed. In order to realize this, it is necessary to operate a channel at all times. IP finance carries high risk, from the perspective of the financial institutions, and therefore, it is necessary for the government to establish a policy to share the risks.

IP finance carries more risk for the financial institutions, as compared to the existing products, and the SMEs and startups see the IP finance as policy financing and demand lower interests. To solve these conflicting interests in implementing the IP finance, it is necessary for the government to share the risks of the financial institutions from the policy level.

For example, allowing the financial institutions to maintain interest rates similar to loans secured by tangible assets when innovative SMEs and startups obtain loans secured by IP rights from the financial institutions, and the government can make up the difference in the interest rate to the banks. In such a case, some of the risks borne by the financial institutions are shared by the government to induce the vitalization of the IP finance. This is similar to the government supporting some interest payments for people with income less than a certain amount when procuring loans from banks for housing.

Moreover, the government needs to continuously exert efforts for the financial institutions to develop and release financial products based on IP rights and technology. The IP finance is implemented through the releasing of IP related financial products by the financial institutions. The government should provide certain incentives, such as being selected as policy funds management institution, institutions trusted with economies' or local government budgets, etc., to the financial institutions that released IP related financial products helping the SMEs and startups to raise funds, etc., in order to induce vitalization of IP finance.

Furthermore, the government could promote the vitalization of IP finance through financial institutions or guaranteeing institutions managing public funds. The financial institutions managing public funds refer to public financial institutions where



the government has substantial equity. The government operates the public financial institutions for public purposes. The government can substantially relieve conflicts in the private sectors through public financial institutions, through the active implementation of IP finance and through differentiating with the private financial institutions. Moreover, the government can identify opportunities for innovative finance through transforming the public financial institution's financing methods, which are similar to that of private financial institutions, into IP rights based financing.

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