Unlocking IP-backed Financing Series

Country Perspectives
Türkiye's Journey

WIPO

Unlocking
IP-backed
Financing
Series

Country Perspectives
Türkiye's Journey

TÜRK PATENT

WIPO
WORLD
INTELLECTUAL PROPERTY
ORGANIZATION

Table of contents

Disclaimer

The views expressed in this publication are those of the authors and do not necessarily represent those of WIPO.

Acronyms

CAP	CYBERPARK Accelerator Program
CISOP	Competitiveness and Innovation Sector Operational Programme
EBİLTEM	Ege University Science and Technology Application and Research Center
ECMI	European Capital Markets Institute
EU	European Union
GDP	Gross domestic product
GII	Global Innovation Index
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
IP	Intellectual property
IPR	Intellectual property right
KGF	Credit Guarantee Fund
KOSGEB	Small and Medium Enterprises Development Organization
OECD	Organisation for Economic Co-operation and Development
PCT	Patent Cooperation Treaty
POA	Public Oversight Accounting and Auditing Standards Authority
R&D	Research and development
SME	Small and medium-sized enterprise
TAS	Turkish Accounting Standards
TEB	Türk Ekonomi Bankası [Turkish Economy Bank]
TFRS	Turkish Financial Reporting Standards
TIM	Turkish Exporters Assembly
TTO	Technology transfer office
TÜRKPATENT	Turkish Patent and Trademark Office
TÜRKSMD	Turkish IP Valuation Engineering and Consultancy Services Inc.
TÜBİTAK	Scientific and Technological Research Council of Türkiye
WIPO	World Intellectual Property Organization
YTU	Yıldız Technical University

Executive summary

Today, we are entering a promising stage in harnessing the advantages of innovation. The growing recognition of the financial benefits of intellectual property has led to national governments, as well as international organizations, to develop policies and take action to build an enabling environment for IP-backed financing. Türkiye, with its well-functioning intellectual property (IP) system and its position as one of the top countries with an increasing number of IP applications, is focusing on establishing a robust IP-backed financing mechanism.

The need to access financial capital stands as a major challenge for the innovation ecosystem, as well as the business world. Moreover, maintaining and developing research and development (R&D) activities while simultaneously investing in the commercialization of their existing intangible assets are not easy accomplishments for relatively small businesses.

Besides the immense amount of government-backed funds and subsidies directed to R&D activities and the protection of intellectual property rights (IPRs), Türkiye's commitment to facilitate the commercialization of IP assets is rooted in the highest level of the country's policies. It is embedded in Türkiye's National Strategy to implement various methods which capitalize on IPRs that both meet the requirements of the banking sector and address funding problems of businesses, particularly those of small and medium-sized enterprises (SMEs).

Enabling the use of IPRs as collateral is one of the novelties brought by the new Turkish IP legislation in 2017. This has been an important foundation in Türkiye's journey of putting IP-backed financing into practice. Furthermore, another pivotal milestone was the establishment of Turkish IP Valuation Engineering and Consultancy Services Inc. (TÜRKSMD) that provides services on IP valuation, venture capital partnership and industrial property portfolio consultancy. It is affiliated with the Turkish Patent and Trademark Office (TÜRKPATENT).

The inability to standardize and unify IP valuation through a method that would enable the banking sector to accept IPRs as collateral has led Türkiye to search for other ways to endorse IP-backed financing, including a model that operates through intermediators (personal guarantees). If successful, this initiative can pave a new way of bridging the financing gap among enterprises, position IPRs to be a strong tool in securing capital in Türkiye and contribute significantly to the innovation ecosystem as a whole.

Türkiye's journey

Introduction

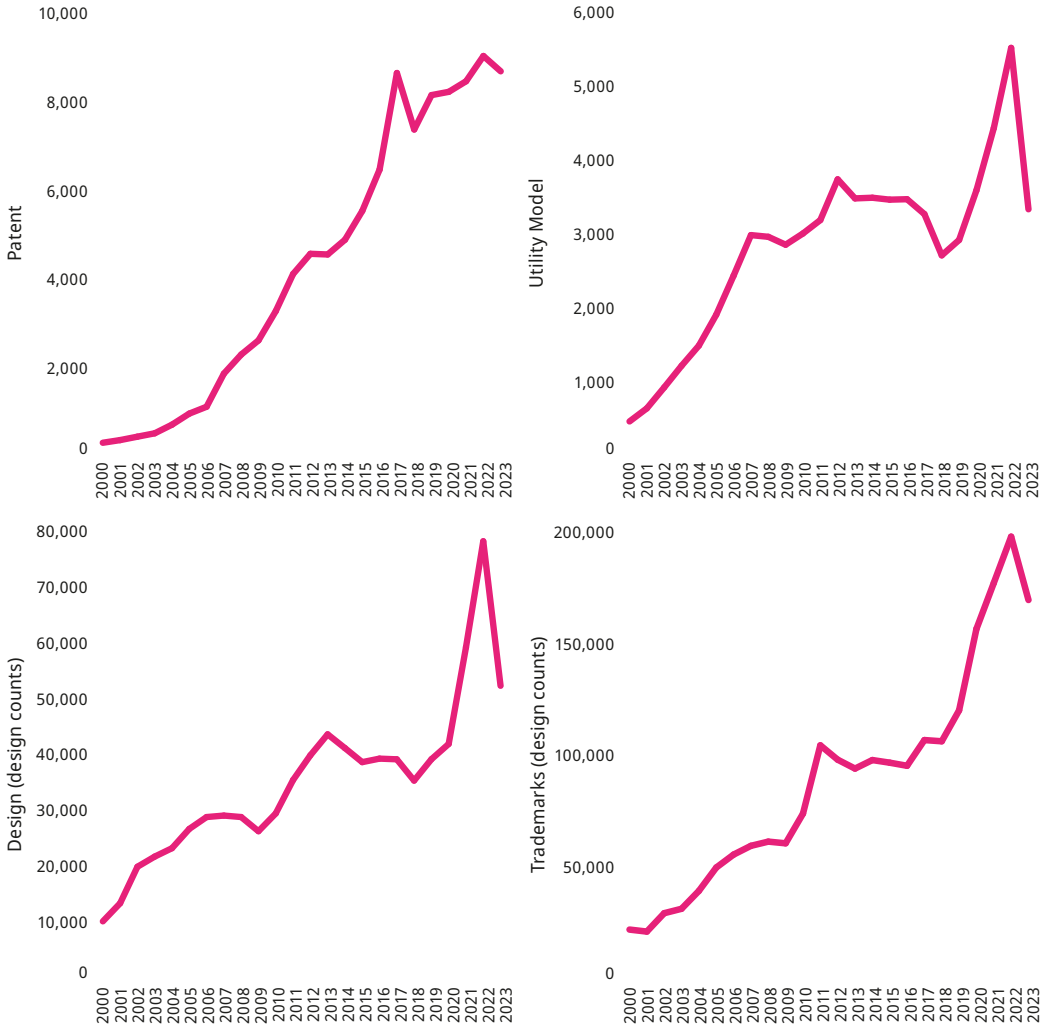
Türkiye has undertaken various steps to enable an effective and vibrant IP ecosystem and has continued to improve its efforts towards further developing its achievements. Acting with the "National Technology Move" vision, strengthening the industrial property portfolio has been one of its core fundamental concerns.

Türkiye has a well-functioning IP system with its modern legislation, administrative structure, specialized IP courts, enforcement agencies and institutionalized attorney system. With this, Türkiye has the potential to position itself as an even more active contributor to the improvement of the IP system in its region. On this note, positive developments have been achieved over recent years. The country has established specialized IP courts and specialized police departments for IP infringements and has adopted a new IP Code which, among others, updates the administrative structure and capacity of TÜRKPATENT.

The main intellectual property rights in Türkiye cover patents, utility models, trademarks, designs, geographical indications and traditional product names, integrated circuit topographies, as well as copyright and related rights, new plant varieties, domain names, trade secrets, know-how and trade names. The main unregistered intellectual property rights involve copyrights and unregistered design rights. Registered intellectual property rights can be protected by *lex specialis*, and through other laws such as those governing unfair competition.

The main results of the continuous endeavors on raising IP awareness have translated into favorable outcomes. Türkiye has been experiencing growth in the number of applications in past decades (see Figure 1). This has positively affected other areas of the IP and innovation ecosystem where remarkable results were likewise observed.

Figure 1 Resident IP applications to TÜRKPATENT (2000–2023)



Source: Statistical Database.[1]

According to the *World Intellectual Property Indicators Report 2023*, Türkiye ranked second in designs (design counts, residents), third in trademarks (class counts, residents) and 12th in patents.[2]

Türkiye has also recorded a high number of utility model applications. While the count of utility model applications worldwide has declined, TÜRKPATENT was one of the offices to record double-digit growth, a 23.8 percent increase in 2022.[3] Türkiye has taken the 12th place with regards to resident patent applications to offices, and has experienced a 64.2 percent growth in the total number of patents during the same period.[4]

Türkiye is among the four countries with the highest trademark filing activity in 2022, taking the ninth place in the biggest users of the Madrid System, and among the three countries with the highest number of design filings (design counts) to IP offices with a 27.6 percent growth compared to the previous year.[5] The country has also made great progress in the 2023 Global Innovation Index (GII), taking the 39th place, and ranking fifth worldwide on the overall intangible assets indicator, covering intangible asset (IA) intensity, trademarks by origin, global brand value and industrial designs by origin segments, under creative outputs.[6]

However, information available on the commercialization of intellectual property assets is insufficient to accurately depict the complete picture. This is because it is difficult to distinguish IP-related international transaction statistics from the activities they are associated with, resulting in distorted statistics that affect the measurement of a country's intellectual property commercialization. For example, licensing transactions of IPRs involve statistical challenges

because the terms are rarely recorded. Recording of IPR-related transactions rely on the method of conveying the rights, to use or reproduce entirely or by a license.[7] These distortions are grouped under incomplete reporting, non-valuation measurement issues, valuation and other tax issues.[8] Thus, the available data on intellectual property-based flows, i.e., charges for the use of intellectual property (CUIP), are very limited and subject to misinterpretation.

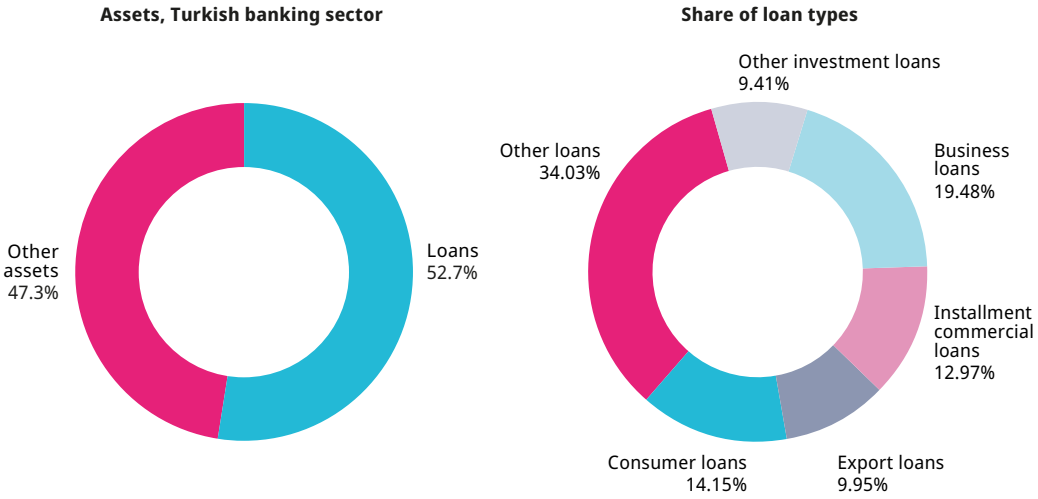
Essentials of "IP-backed financing"

Businesses need access to capital in order to grow. However, many are incapable of securing enough funds and obtaining financial support, thus leading to a financing gap. Moreover, finding sufficient funding, even to maintain and develop further R&D activities, is not an easy accomplishment for relatively small businesses. Intangible assets, in this concern, can play a vital role. This has brought IPRs to the fore in recent years, and their commercialization has become a common tool as a means of financing. Taking this one step further, Türkiye has been working on possible mechanisms to enable their usage as collateral for bank loans.

Financing of Turkish businesses

Banks play an important role as a source of external financing for Turkish businesses.[9] Loans take the biggest share in the assets of the Turkish banking sector. Business loans constitute the greater portion within that share, with 19.5 percent compared to installment commercial loans with 13.0 percent and other investment loans with 9.4 percent of the whole loans (see Figure 2).[10]

Figure 2 Share of loans in the financial statements of Turkish banks, and share of loan types (November 2022)

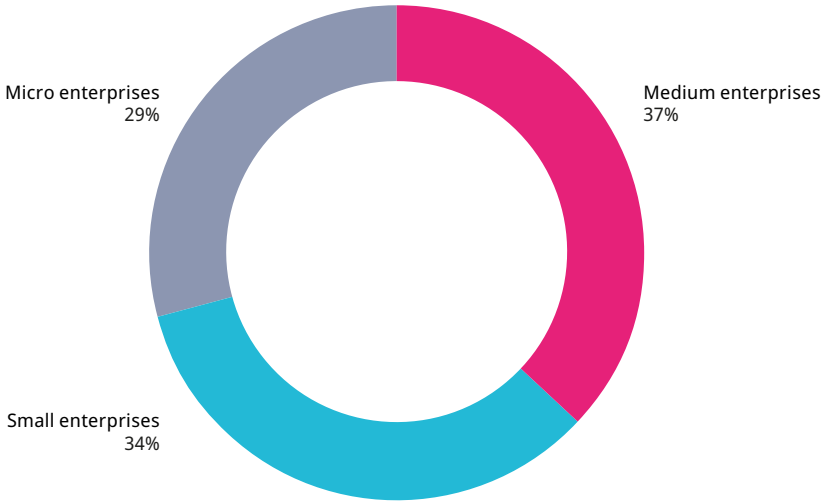


Source: Banking Regulation and Supervision Agency – Banking Sector Database – Monthly.[11]

These financial institutions are bound to classify the loans they lend into five groups according to the specified principles indicated in the Regulation on Procedures and Principles for Classification of Loans and Provisions to be Set Aside.[12] The distinction of the groups is specified according to the collectability of the loans and creditworthiness of the debtors.[13]

Businesses that face financial constraints, particularly the small and medium-sized enterprises (SMEs), use loans in financing their capacity-building investments.[14] With the lowest ability in acccess to finance,[15] micro-sized firms obtained 29 percent of the total amount of SME loans, whereas 34 percent were directed to small enterprises and 37 percent to medium enterprises in 2022 (see Figure 3).[16]

Figure 3 Distribution of Turkish SME loans in 2022



Source: Banks Association of Türkiye (May 2022).

According to a recent study, the need for "Increasing Stock and Working Capital" was the leading factor driving up the loan demand of Turkish firms, followed by financing of "Fixed Investment" and "Mergers/Acquisitions and Restructuring" in the first quarter of 2022. According to the same report, this is coupled with a significant decrease in "Debt Restructuring," .[17]

On the credit supply side, risk perception is an important determinant of the willingness to lend of Turkish banks.[18] This has been even further reaffirmed by the experience during the 2008 financial crisis. That is to say, the main focus is on the debtors' ability to fulfill their repayment obligations on time.[19] The collectability of loans by the banks is of vital importance for the banking system as a whole. According to the Banks Association of Türkiye, as of September 2022, 97 percent of the loans granted by the Turkish banking system consist of performing loans,[20] which implies a comparably lower risk and includes "Loans of a Standard Nature" and "Loans Under Close Monitoring".[21] This emphasis on recollectability of loans makes determining the exact value of an IP asset critical, putting constraints on the availability of IPRs to be recognized and widely used as collateral in the current environment.

The approach banks took to determine losses on bad loans, which is thought to be one of the major reasons for the global financial crisis of 2008,[22] has been reformed with the introduction of International Financial Reporting Standards (IFRS) 9 by the International Accounting Standards Board (IASB).[23] The treatment on risk and loss is then of importance. The IFRS 9[24] has brought a new impairment model of "expected credit loss", thus replacing the "incurred loss" model.[25] This new model also involves setting new requirements for hedge accounting, and maintaining reserves for the losses that have occurred and/or are likely to occur in the loans.[26] These are, therefore, liabilities arising from transactions that have not yet arisen, but which actualize within the reported period.[27] In other words, precautionary measures against possible losses.[28]

In addition to setting aside provisions to take account of the potential losses, banks require collaterals to secure the funds they lend. Collateral, in the broad sense in Türkiye, refers to all kinds of assets, guarantees, sureties and contractual rights that ensure the bank's receivables are fully or partially secured against the risk of non-collection of loans and other receivables.[29] The collateral mechanism is dealt with under two categories in Türkiye: as personal guarantees where the guarantor promises to pay the debt in case of debtor's default, and secured collateral (collateral in short) where the loan is secured by a specific asset or an economic value. The most common collateral types in the Turkish banking practice are movable assets and real estate pledges.[30]

Within this framework, the consideration of IPRs as collateral can provide new opportunities to fulfill the financial needs of businesses. However, the uncertainty of their exact and potential values makes the process challenging. Therefore, IPRs face difficulties meeting the

requirements that banks seek for recognizing sureties. Bank loans are SMEs' most common external source to meet their financing needs. Thus, the recognition of IP assets as collateral may be a breakthrough in the funding opportunities of SMEs.

From a legal perspective, the Turkish IP Code (No. 6769) and the Law on Chattel Mortgage in Commercial Transactions (No. 6750) enable IPRs and related intangibles to be put in commercial pledge.[31] However, in the current situation these important backbones are found to be insufficient in enabling banks to recognize these valuable assets with monetary value as eligible for collateral. In this regard, various methods have been tried to empower such a model, both meeting the requirements of the banking sector, and solving funding problems of businesses, particularly SMEs.

Loan risks related to IPRs can evolve from a range of circumstances including the inaccurate valuation, miscalculated future cash flows or unrealistic expectations on its market success. This uncertainty with regards to its exact monetary value increases its riskiness and makes it harder for financial institutions to recognize them as direct assets, guarantees and sureties to secure the funds they lend.

With the absence of standardized models to determine the value of IPRs, another tool is being discussed in Türkiye to enable IP-financing: the use of state-backed guarantees. With this mechanism, a guarantor foundation undertakes the risk and promises to pay the debt in the case of debtor's default. This would make IPRs a very strong tool to use for finding financial support for innovative businesses especially if collaborating with reputable guarantor institutions such as the Credit Guarantee Fund (KGF). This fund is considered a highly recognized contractor within the Turkish Banking Regulation.[32] While the process of building a suitable mechanism under KGF is in progress, as will be explained under the section "Preparatory work for establishing an IP-backed financing system," determining the accurate value of intangible assets still plays an essential role in this respect.

The role of IP valuation in accessing finance

Today, IP assets have a great place in the country's economy. But to fully benefit from these assets, it is important to sustain an effective environment for enabling and even fostering their commercialization. Valuation, at this point, is one of the important aspects of the issue.

As IPRs in Türkiye can be the subject of legal actions such as transfer, license and assignment,[33] IP valuation is one of the important steps in determining the necessary fees, such as the licensing fee. Furthermore, constituting an important part of the company values, the management of IP portfolios has become another field that has increased the importance of valuation reports. Valuation also has an essential role in the management of high-volume IP portfolios owned by the universities, technopolis and technology transfer offices (TTOs). Moreover, in accordance with the IP Code, in cases where an invention is developed within the context of the work, valuation reports are being requested by higher education institutions, public institutions and organizations, and businesses to determine the income from the service invention and the price to be paid to the employee.

Accounting of IP assets

Companies that are accountable to the public, including stock companies in Türkiye, are required to implement Turkish Accounting Standards (TAS)/Turkish Financial Reporting Standards (TFRS).[34] It is optional for companies other than public interest entities to comply with TFRS. Another standard in practice is the Financial Reporting Standard for Large and Medium Sized Enterprises[35] (FRS for LMEs). These standards are required for large and medium-sized independent audited companies that do not apply TFRS.

Intellectual property rights are considered as intangible assets in the accounting system within the framework of the applied standards. Accounting for intangible assets takes place differently depending on their acquisition, merger, exchange and in-house created situations.

In accordance with TAS 38 Intangible Assets, intangible assets in enterprises that meet certain conditions are capitalized as development expenses, whereas in-house created brands, commercial titles, publishing rights, customer lists and similar items are not allowed to be capitalized as intangible assets[36] because it is not possible to separate the expenditures made for these items from the expenditures made for the whole enterprise.

Intangible assets have a significant impact on business value. However, the fact that the valuated IPRs cannot be shown in the financial statements is still a matter of debate. The reasons for this situation include the fact that valuation methods are subjective; the methods contain some estimations; and the valuations vary depending on the different methods or the different people conducting the valuation. As a result of this situation, the difference between the market values of the companies and their book values widens.

IP assets can also be invested in companies as capital. According to the Turkish Commercial Code the value of the IP assets intended to be brought in as capital in-kind has to be determined by the experts.[37] Further specifications on the appraisal have been determined for certain company types, for example, the joint stock companies, which involves the valuation report to be exclusively prepared by experts appointed by the competent court and the assessed value to be written verbatim in the articles of the incorporation.

The Turkish Commercial Code specifies certain legal criteria determined for the valuation report of the appraisal. The report must:

- explain that the valuation method applied is both the fairest and most appropriate method for the concrete case
- make detailed and comparative explanations
- comply with the provisions regarding "official" documents, since the report has an official nature
- disclose the amount of shares to be allocated in return for each asset invested in kind and its Turkish Lira equivalent, with satisfactory justifications and in accordance with the requirements of the accountability principle.

Source: Article 343 of the Turkish Commercial Code – No. 6102.[38]

While objections to the appraisal reports have been made available, the valuation approved by the court is deemed as final decision.

Since there can be varying parameters for determining the values of each IPR with different circumstances, no unique method was determined by law.

Türkiye's process in establishing an IP finance system

Government policies are one of the factors that affect the direction of innovation and shape the ecosystem.[39] The investment towards innovation is directed by the demand side of funds, whereas the collectibility of loans and the accurate calculation of loan provisions, is of vital importance for banks.[40] Thus, a fine balance has to be achieved in order to serve the best interests of individual firm borrowers and the economy as a whole. This can be promoted by determining policies that promote adequate allocation of resources and foster investment in the priority areas. In this respect, Türkiye has determined its policies be geared to give high importance to innovation and R&D.

Under the Competititive Sectors Programme (CSP), which has been executed by the Ministry of Industry and Technology and co-financed by the European Union (EU) and the Republic of Türkiye, operational programs are being designed and implemented in seven-year periods for SMEs and entrepreneurs, where three main action areas were determined as the "Science, Technology and Innovation", "Private Sector Development" and "Capacity Building" headings[41] (see Table 1).

Table 1 **Actions and main activity areas of Competitiveness and Innovation Sector Operational Programme (CISOP)[42]**

Actions	Main activity areas
Private sector development	Manufacturing industry
	Services and creative industries
Science, technology and innovation	R&D
	Technology transfer and commercialization
Capacity building	Technical assistance for system managers and management of CISOP
	Institutional capacity building about EU Acquis and Sectoral Approach

Source: Ministry of Industry and Technology, Competitive Sectors Programme

The main relevant specific objectives determined under the "Science, Technology and Innovation" listed in Table 1 have been determined as: providing support on the research infrastructure; increasing the collaboration of university and industry; acceleration of the commercialization of innovative products; supporting the establishment of innovative start-ups; and expansion of the equity financing mechanisms. In this regard, certain targets have been determined for the number of national, international and regional patents obtained; number of successful commercializations; number of innovative SMEs to have benefited from the equity financing mechanisms; and actions concerning the early stages of the innovation cycle that possess commercialization potential as well as actions in the later stages close to market phase that mainly focus on supporting commercialization activities.[43] Differing aid modalities covering grants (including to SMEs), venture capital investments, providing financial instruments, procurement and direct financing of expenditures were matched with the projects accepted under the program, through direct negotiation with national public bodies and calls for proposals.[44]

The commercialization of IPRs is also embedded in the National Strategy.[45] Efforts towards this priority area are being carried out by relevant institutions, especially by TÜRKPATENT. In the 11th Development Plan of Türkiye (2019–2023), [46] it is highlighted that the main objective of the country on intellectual property rights has been "to strengthen the legal infrastructure and enforcement in the intellectual property system, to develop an ecosystem that supports the creation of intellectual property rights and to accelerate the commercialization of these rights."

Building on the essential policies outlined in the 11th Development Plan, promoting the use of intellectual assets to support access to financing will continue to be one of the major policies for IPRs during the implementation period of the 12th Development Plan of Türkiye (2024–2028) (see Table 2).[47]

Table 2 **Some of the major IPRs policies/measures under the 12th Development Plan of Türkiye[48]**

Policy	Measure
Commercialization of IP	
567. The transformation of our country's intellectual property assets into economic value will be accelerated, and their economic value will be measured on a sectoral basis.	• Activities at national and international levels will be carried out to promote patents with high commercialization potential. • Market research tools will be developed to be used in the commercialization process of patents. • Processes related to legal transactions such as transfer, license, collateral and pledge regarding intellectual property assets will be simplified and these transactions will be expanded. • Service capacity regarding the valuation of intellectual property assets will be increased. • Studies will be carried out to measure the income obtained from industrial property rights.

Source: 12th Development Plan of Türkiye

The policies, measures and activities determined at the highest level within decision-making bodies have been prepared using an inclusive approach (under the immense efforts of the Specialized Commission on Intellectual Property Rights – Working Group, comprised of

ministries, public institutions and organizations, as well as private sector units representing various areas of the society), and covers different aspects and various perpectives on the issues.

TÜRKPATENT

TÜRKPATENT, which is responsible mainly for the registration of patents, utility models, trademarks, geographical indications, traditional product names, designs and integrated circuit topographies in accordance with the provisions of the relevant legislation and the protection of these rights, has determined further duties and activities for supporting the IP infrastruture of Türkiye.

In order to contribute to the effective protection and reaping financial benefits from industrial property rights, Türkiye gives high importance to training and awareness-raising activities and events. Ongoing training is also provided to increase intellectual property management capacities of various stakeholders.[49]

In addition to raising IP awareness and supporting innovative culture among SMEs, TÜRKPATENT also engages in activities directly focused on contributing to the transformation of IP into economic benefits and commercial value. It is put forward as one of the main objectives determined in the TÜRKPATENT Strategic Plan, contributing to the transformation of IP into economic benefits and as transformation of Türkiye's industrial property portfolio into commercial value.

While the process of building a system that facilitates and enhances the commercialization of IPRs was interrupted by the global pandemic, TÜRKPATENT has undertaken various activities and continues the preparatory work for a functioning mechanism.

Turkish IP Valuation Engineering and Consultancy Services Inc. (TÜRKSMD)

An affiliate of TÜRKPATENT, TÜRKSMD[50] provides services in the fields of IP valuation, venture capital partnership and IP portfolio consultancy in order to contribute to Türkiye's efforts in IP commercialization. TÜRKSMD's main services include:

- Preliminary search reports on patents and utility models,
- Preliminary trademark search reports,
- Preliminary design search reports,
- Patent and utility model valuation reports (see Table 3),
- Brand valuation reports (see Table 3),
- Freedom to operate reports,
- Invalidity analysis reports,
- Patent/utility model infringement analysis reports, and
- Providing consultation services in technology transfer transactions.

Table 3 Demand for IP valuation reports[51]

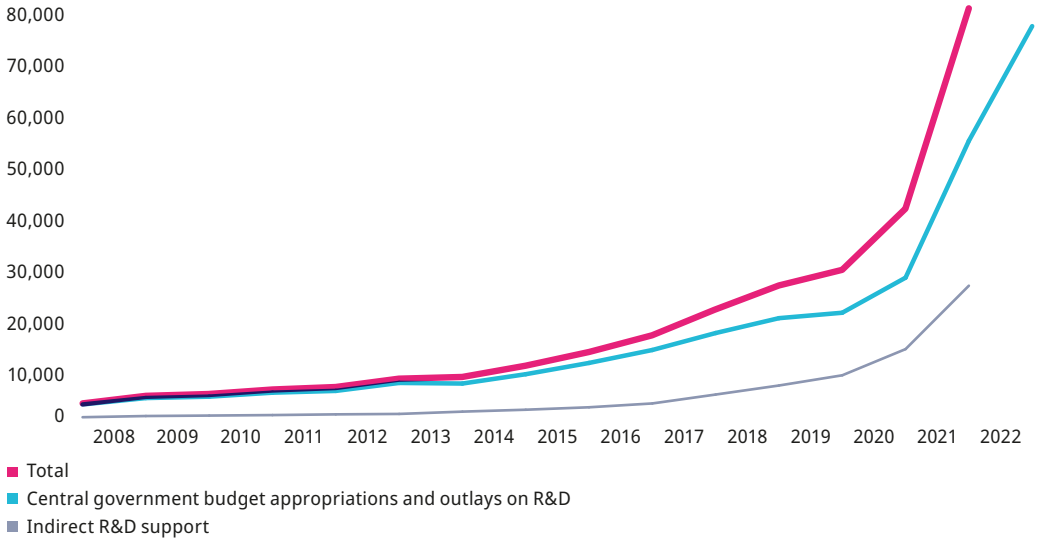
Reasons behind the demand for IP valuation reports:	
Customers	**Basis**
Businesses	Merger and acquisition transactions to benefit from the Corporate Tax Law
Universities, technoparks (startups, spinoffs), TTOs, R&D and design centers	Determining license fee and to utilize government-backed funds
Parties of a settlement/dispute, lawsuit	Execution and other litigations to settle a royalty on IP

TÜRKSMD also collaborates with establishments such as Bilişim Vadisi (Silicon Valley of Türkiye) and various TTOs. Collaborative activities cover a wide range of fields and are aimed to guide start-ups in their IP-related issues such as investments, acquisitions, mergers, transfers and licensings.

Government-Backed Funds

R&D continues to be a priority for the economy. Excluding the period of economic downturn caused by the COVID-19 pandemic, budget outlays on R&D have been drastically increasing throughout the last decade, reaching 53,844 million Turkish lira in 2022, constituting 0.36 percent of the gross domestic product (GDP). Furthermore, the total amount of indirect support for R&D consisting of tax relief has been TRY 13.4 million for the same year (see Figure 4).

Figure 4 **Central government budget outlays on R&D and indirect R&D support (per million TRY), (2008-2022)**



Source: TURKSTAT Data Portal for Statistics – Science, Technology and Information Society.[52]

The continued increases in this framework have resulted in Türkiye being among the top R&D spending economies. Türkiye continues to change its innovation landscape by developing its technological capability and innovation performance, which is in line with its public policy priority of advancing innovation and IP commercialization.

Support for commercialization and competitiveness are extended in a multitude of ways, including aiding licensing or transfer agreements, production of inventions or marketing of products internationally. SMEs aiming to expand their presence abroad and increase their value remain one of the target groups.

In this context, various support programs under the Small and Medium Enterprises Development Organization (KOSGEB), the Scientific and Technological Research Council of Türkiye (TÜBİTAK) and the Ministry of Industry and Technology are being implemented. Futhermore, the support provided by the Ministry of Trade to foster exportation also involves an IP dimension, particularly supporting IP commercialization in Türkiye. Incentives and support programs are categorized under five different fields: R&D and innovation, entrepreneurship, commercialization and competitiveness, investment and general support.

Thus, the myriad of support programs begins with R&D (basic research, applied research, experimental advancement); continues with the commercialization of the technology (pre-commercialization, commercialization); and ends with the investment processes. However, some supports also cover the entrepreneural operational phase.[53]

On the other hand, the Turkish tax regime has been reformulated to provide tax incentives for income generated through the commercialization of IP-based assets, in order to promote and motivate the economic actors (ranging from research institutions to large-scale corporations) to focus on and create new approaches and strategies to build value through IP.[54]

Moreover, in accordance with corporate tax law, it is possible to benefit from the IPR-related tax exception.[55] The following incomes from “inventions” resulting from research, development and innovation activities and software activities carried out in Türkiye are excluded from tax:

- income and revenues obtained as a result of leasing;
- income obtained as a result of transferring or selling;
- income obtained in case of mass production and marketing (in Türkiye) of the inventions resulting from research, development and innovation activities and software activities carried out in Türkiye.[56]

The income from the sale of products attributed to the patented (or utility model certificated) inventions produced using the production process in Türkiye is exempt from corporate tax at the rate of 50 percent.

There is also an overall government policy aimed at accelerating and stimulating innovation. Tax incentives that reduce corporate tax rate on IP income are provided in order to reduce payables for sustaining increase in total funds. These incentives include deductions for R&D expenses and reduced corporate income tax rates applied to the income resulting from the utilization of IP, in order to promote the usage and commercialization of IP assets.

Preparatory work for establishing an IP-backed financing system

TÜRKPATENT has made significant efforts to establish an effective and functioning IP-financing mechanism, including building the necessary financial infrastructure. However, leveraging IP assets as collateral within the Turkish banking sector is expected to take time. This is mainly due to the lack of a more standardized IP valuation methodology, specifically a system that is trusted sufficiently to enable the recognition of IPRs as collateral. In the meantime, alternative approaches are being explored to use IPRs as a means of financing innovative businesses.

Negotiations with the Credit Guarantee Fund (KGF)

Credit guarantee schemes are one of the widely used government policy support tools for enabling SMEs' access to credit. Following structural developments, Türkiye has expanded its KGF program in 2017.[57]

The KGF is a corporate surety institution that provides access to loans by being a "joint guarantor" for SMEs. These SMEs often struggle to benefit from loan and support opportunities due to their lack of collateral. The KGF was established to facilitate financing opportunities for SMEs, farmers, tradesmen and craftsmen and self-employed individuals who face difficulties proving their creditworthiness.

KGF therefore plays a crucial role in facilitating access to credit for SMEs by being a guarantor. It provides the suretyship for a wide range of loans and investment financing options for businesses, excluding personal loans, consumer loans, checkbook loans and company credit cards. Additionally, as KGF partners with public institutions, the support it offers can also be seen as a form of public funding.

KGF does not carry out a separate financial investigation process from banks for the funding provided under the Ministry of Treasury and Finance. It makes an evaluation of guarantee requests that have already been vetted by banks in terms of creditworthiness. Since KGF operates on the basis of risk sharing with banks, it provides a partial surety for loans.[58]

Currently, KGF provides similar insurance systems with regards to areas of technology involved in R&D; innovation activities that arise from new product development; commercialization; and for SMEs to conduct R&D. Some of the main insurance systems served by the KGF, relating to innovation and technology, are the Technological Products Investment Support Programme and the TÜBİTAK transfer payments (see Table 4).

Table 4 Insurance systems, relating to innovation and technology, served by the KGF

KGF equities[59]
SMEs, craftsmen, artisans, self-employed people, cooperatives, farmers and any other real and/or legal entity enterprises bearing the qualifications set out in the Association of KGF.
Resource for guarantee: KGF own equity

KGF – The Ministry of Industry and Technology[60]

This program supports priority areas of technology, R&D and innovation to create added value and support investments.

Resource for guarantee: KGF own equity
Guarantee limit: Total guarantee limit per enterprise: TRY 1 million or equivalent in foreign currency
Maximum guarantee rate: 100 percent

KGF – TÜBİTAK transfer payments[61]

This program provides collateral for the transfer payments conducted under a 100 percent guarantee from KGF by TÜBİTAK to SMEs, for technologically innovative, industrially applicable and economically valued projects based on R&D.

Resource for guarantee: KGF own equity; related financial institutions/corporations; TÜBİTAK
Guarantee limit: Total guarantee limit per enterprise: TRY 1.25 million or equivalent in foreign currency
Maximum guarantee rate: 100 percent

According to a study conducted in 2021 on the firm-level impact of credit guarantees, it was found that the Turkish KGF had a positive effect on the performance of the supported firms, with substantial positive effects also being seen in the post-program years.[62] The results showed a 17 percent increase in employment, a 70 percent increase in sales and a 0.6 percent point reduction in credit default probability compared to their matched-control groups. Additionally, while the study revealed the program's impact to be heterogeneous across firm size and sector groups, the program's positive impact on SMEs has been found to be more substantial than the firms of other sizes.[63] Given the favorable effects of the credit guarantee system on businesses, especially SMEs, it is expected that a similar mechanism for IP assets would benefit Turkish businesses significantly. Furthermore, the high recognition given to KGF sureties by the Turkish banking sector adds to the importance of these efforts.

Conclusion

Recent decades have shown the importance of intellectual property and its positive impact on economic growth. Structuring an effective IP system has emerged as a priority for nations. Türkiye has always attached great importance to IPRs, appreciating their significance to the development of nations, and how they should be effectively protected. Reforms and restructuring efforts have been made throughout the years to enable convergence in the legislation and practices in line with international norms. Having reached a substantial level of awareness and satisfying results in application numbers, Türkiye has currently directed its efforts to the new era of IP, namely IP-backed financing.

Financing has always been a crucial element for businesses. However, a considerable number of businesses, particularly SMEs, face constraints in securing adequate capital. Reviewing the financing behaviors of businesses, banks play a major role as a source of external financing. In addition to their sensitivity to risk, banks are bound to operate in accordance with international standards and legal obligations.

Being one of the most invaluable assets of businesses, IPRs are promising in today's world to serve as a means of financing. Turkish IP law allows IPRs to be used as collateral, however, it is not regularly used in the Turkish financing sector. Encouraging financial institutions to consider IPRs could unlock new opportunities for IP owners. On the other hand, the lack of certainty in measuring the value of IPRs remains to be a significant obstacle, because the accurate determination of the value of collateral is critical to its acceptance.

Despite the existence of various methods for IP valuation, there still are no unified, settled or approved worldwide standards. Considering the approach of Turkish banks towards assessing risk associated with different assets and the challenges in determining the monetary value of IPRs, additional incentives are being developed to make progress.

Türkiye has long been developing strategies and institutions to create a mechanism that allows the use of intellectual assets to support access to financing. Several councils, administrative bodies, strategy documents and programs have focused on facilitating the usage of these assets and on building an IP-backed financing system.

As the main institution responsible for registering IPRs, TÜRKPATENT has placed special emphasis on contributing to the commercialization of IPRs and the use of intellectual assets to support access to financing. Extensive cooperation activities between IP-related institutions, universities, chambers of industry and trade, governmental and non-governmental organizations are being sustained and various training and awareness-raising activities are being carried out.

In line with Türkiye's national policy, TÜRKPATENT has taken an active role in promoting the commercial value and usage of IP assets as a common means of accessing finance. One of the major initiatives was the the establishment of TÜRKSMD. As an affiliation of TÜRKPATENT, the said valuation corporation provides services mainly in the field of IP valuation, venture capital partnership and IP portfolio consultancies. Furthermore, the establishment of TÜRKSMD has encouraged efforts while opening new opportunities and potential alternative means of enabling the usage of IPRs as a financing tool.

Although not yet achieving the expected results, ongoing efforts to encourage the consideration of IPRs as collateral for acquiring an additional way of funding for businesses have been building the essentials of a system. While the current legal basis (particularly for the banking sector) along with procedural aspects still demonstrates a gray area for the time

being, Türkiye is considered promising in adapting to this new era of IP. In the pursuit of finding a solution, continuous attempts are ongoing with different alternatives explored. However, the negotiations carried out with KGF as a corporate surety institution to provide access to loans by being a “joint guarantor” for entrepreneurs with innovative outputs can be seen as the main current solution.

Taking everything into account, establishing markets that facilitate the commercialization of IPRs and allow the usage of IPRs as financial instruments has emerged as one of the main challenges in this new stage in the development of a global IP infrastructure. Having regard to the importance of experience, in order to adapt to meet the changes and needs of humanity, being the market leader in such a new practice is undoubtedly of inestimable value for nations. Türkiye’s preceding attempts and strategies, not only to catch up with developments but indeed to bring new solutions to the issue, is expected to favor the IP ecosystem worldwide. Just as importantly, collaboration between countries has due prominence in this respect.

Türkiye case studies

While being a genuinely invaluable capital for companies, IPRs are also tools to elevate inventors and renumerate their intensive efforts. Following improvements in the Turkish IP portfolio, an increase in the number of IP commercializations and IP-supported financing opportunities are being observed. Many university-owned patents have reached successful results with the support of TÜBİTAK programs and effective IP management particularly provided by TTOs.

As another way to obtain revenue from IPRs, commercialization transactions of IPRs in Türkiye are being carried out mainly by utilizing the support mechanisms by universities and research agencies such as TTOs and technoparks. TTOs play a crucial role in pairing potential commercialization partners and investors with inventors and patent holders within the same country through their project activities and established websites. These efforts have commenced comparably recently, with efforts focusing on building the necessary labor infrastructure and experience pool.

The following case studies, which are considered only the first steps of the new IP infrastructure in Türkiye, are included to encourage inventors and guide them in their innovation pathways. The subject matters of these case studies portray the collaborative efforts involved in transforming innovative activities into means for funding, thus creating a sustainable innovation cycle. Not only do they demonstrate the immense and ongoing endeavors directed to enable the process, they also incorporate crucial takeaways for inventors and innovative businesses of all scales on how to manage their IPs during different stages of business development, and how their business can benefit from IP, as well as pointing out the importance of IP management.

Case study 1:
Dermis Pharma Sağlık ve Kozmetik Ürünleri A.Ş.

Company sector
Pharmaceutical industry

Company location
Türkiye

Type of IP right used
Patent

Institutions or entities that enabled the transaction
Science and Technology Application and Research Center (EBİLTEM), TÜBİTAK

Established in 2016 by four inventors from Ege University Faculty of Pharmacy for the commercialization of Dermalix TM: a bioactive wound dressing that provides fast and effective treatment of diabetic wounds and bedsores.[64] Dermis Pharma Sağlık ve Kozmetik Ürünleri A.Ş. represents a concrete example of the success of IP-backed financing.

Following the successful outcomes of the R&D studies conducted by Prof. Dr. Özgen Özer, Prof. Dr. Evren Homan Gökçe, Prof. Dr. İpek Eroğlu and Assoc. Dr. Sakine Tuncay Tanrıverdi in 2012, the research team of four decided to develop a product.[65] They used the support of Ege University TTO in applying for a patent[66] and transferred their rights to the university (considering the funding burden) which gave them the opportunity to obtain the full support of EBİLTEM and university funds.

Taking the rights, the TTO team built a strategy for the invention's protection and commercialization and started by constructing a strong claim set and a broad geographical scope covering all the necessary markets for the product. Two options were evaluated for the invention's commercialization roadmap in the early phase, which were licensing and finding partnerships for funding and know-how purposes. Having analyzed the opportunities and outcomes, the team focused on licensing as the best suitable option for the invention and sought licensees through medical clusters and associations.

One of the cornerstones of the process was the team's selection to take part in a start-up acceleration programme – CYBERPARK Accelerator Program (CAP), and being awarded the grand prize in Bootcamp 2015 (both conducted by Bilkent CYBERPARK).[67] With CAP, their commercialization strategy was shaped towards a university spin-out. In that same year, the team got involved in the Turkish Exporters Assembly (TIM) and Türk Ekonomi Bankası (TEB) StartUp House[68] portfolio.

Being elected to benefit from the TÜBİTAK Support Program, the team was granted government funding for the establishment of a start-up called Dermis Pharma. Following Ege University's intention to become a shareholder of the spin-off company, the patented technology was then transferred to the spin-off company, accompanied by an agreement between the parties to become partners. Having the full support of EBİLTEM TTO, the team evaluated, through their global IP and licensing network, their IP strategy and management, as well as market segmentation, and decided on the scope of protection (on national phases) to be sought through the Patent Cooperation Treaty (PCT) system.

The team organized start-up pitching sessions with venture capital professionals and companies. The assessments and extensive due diligence analysis resulted in a consensus between one of the companies to sign an agreement.

Proceeding with the stages brought new things that would require more funding and expertise, such as setting up production and sales pipelines and obtaining regulatory approvals in targeted countries. The Turkish pharmaceutical company Abdi İbrahim İlaç Sanayii ve Tic. A.Ş. (Abdi İbrahim)[69] was determined to be a strong partner, as it is known for assessing acquisition and partnership opportunities and was already acquainted with Ege University's research teams through their prior collaborative research experiences. They agreed to assign all the patent

rights of Dermis Pharma to Abdi İbrahim, leaving Dermis Pharma responsible for R&D activities and enabling the inventor team to remain as researchers under Ege University. This has significantly facilitated the production and marketing phases of the invention and accelerated the commercialization process. The product has obtained CE marking – indicating that EU safety, health and environmental protection requirements have been met – and has been on sale in Turkish markets since 2021.[70]

Case study 2:
Pelemir (Cephalaria syriaca L.) Plant

Company sector
Food manufacturing

Company location
Türkiye

Type of IP right used
Patent

Institutions or entities that enabled the transaction
YTU Yıldız Technopark, TÜBİTAK

Adding to Ziya Organik A.Ş.'s studies on the pelemir plant, the scientific research and projects developed by the academics at Yıldız Technical University (YTU) Department of Food Engineering yielded two separate patent applications. These efforts were then followed by a technology transfer agreement on trading YTU's patent rights to Ziya Organik Tarım A.Ş. which opened a way to financially benefit from the scientific work.

The pelemir plant has long been used as a natural bread additive across Anatolia. It has been traditionally used as a natural dough enhancer, due to its rich nutrients and phenolic substance that makes bread harden and increases its quality. Pelemir seeds have a high fat content (22–28 percent), protein (14–21 percent), dietary fiber (9–30 percent), phenolic compounds and vitamins, making it an extremely nutrient-dense food.

The curiosity and exploratory work of Ziya Organik Tarım A.Ş., coupled with the support of İstanbul Halk Ekmek (a municipality subsidiary established to produce bread) and the Food Engineering Department at YTU led to the TÜBİTAK 1505 R&D project. The project – "Fortification of bread flours with pelemir (*Cephalaria syriaca L.*): characterization of pelemir seed, evaluation in terms of removing bitterness and improving bakery quality" – was aimed at the pelemir flour utilized in the current industrial bread production sector.

The inventor and YTU faculty member, as well as being the current TÜRKPATENT President, Prof. Dr. M. Zeki Durak's continued research following the project revealed that the pelemir plant offers numerous health benefits, as well as increasing the technological qualities of bread flour and lowering the glycemic index of white bread. After demonstrating impressive results, the pelemir flour is currently being used in the market.

In addition to the pelemir flour compound, scientific studies have shown that its oil also offers very special qualities. It is found to have very successful oil primer compositions and valuable acids that can be used in cosmetics and personal care products. Furthermore, it has been discovered to increase cell renewal rate and have a significant effect on certain cancer cells. Following these studies, a patent on pelemir oil's special formula (WO2021/201797/Turkish Patent 2020/04976) has also been granted.

Following immense efforts, the university's patent rights in pelemir oil were transferred to Ziya Organik Tarım A.Ş. in 2022, to enable its commercialization. With this important step completed, pelemir oil is set to be among the important oils used within the cosmetics industry.

This has allowed YTU to successfully expand its industrial collaborations and convert intellectual outputs (obtained as a result of scientific studies) into industrial products, with a technology transfer.

Endnotes

1 Statistical Database. TÜRKPATENT. Available at: www.turkpatent.gov.tr/en/stats [accessed Feb. 20, 2024].

2 World Intellectual Property Organization (WIPO). *World Intellectual Property Indicators 2023*. Geneva: WIPO. DOI: 10.34667/tind.48541, 84,113. Available at: www.wipo.int/edocs/pubdocs/en/wipo-pub-941-2023-en-world-intellectual-property-indicators-2023.pdf [accessed Feb. 20, 2024].

3 World Intellectual Property Organization (WIPO). *World Intellectual Property Indicators 2022*, p. 19. Available at: www.wipo.int/publications/en/details.jsp?id=4632 [accessed March 25, 2024] and World *Intellectual Property Indicators 2023*.

4 World Intellectual Property Organization (WIPO). *World Intellectual Property Indicators 2022*, p. 27. Available at: www.wipo.int/publications/en/details.jsp?id=4632 [accessed March 25, 2024] and the Patents data tables. Available at: www.wipo.int/publications/en/details.jsp?id=4678 [accessed March 25, 2024].

5 *WIPO Statistical Database*. Available at: www.wipo.int/ipstats/en [accessed Feb. 9, 2024]; *WIPO IP Facts and Figures*, based on the WIPO Statistics Database of November 2023. Available at: www.wipo.int/en/ipfactsandfigures/trademarks and www.wipo.int/en/ipfactsandfigures/designs [accessed Feb. 13, 2024].

6 *Global Innovation Index 2023*. Türkiye profile. Available at: www.wipo.int/edocs/pubdocs/en/wipo-pub-2000-2023/tr.pdf [accessed Feb. 8, 2024].

7 BPM6 Compilation Guide Companion Document to the BPM6 Manual, International Monetary Fund (2014), pg: 211-214 https://www.imf.org/external/pubs/ft/bop/2014/pdf/GuideFinal.pdf

8 Neubig, T.S. & Wunsch-Vincent, S. (2017). *Economic Research Working Paper No. 37*. Available at: www.wipo.int/edocs/pubdocs/en/wipo_pub_econstat_wp_37.pdf [accessed Feb. 9, 2024].

9 Topaloğlu Bozkurt, A. & Özyıldırım, S. (2021). *Bank Loan Network in Turkey*. Working Paper No. 21/33, Central Bank of the Republic of Turkey, p. 2. Available at: www.tcmb.gov.tr/wps/wcm/connect/8b7c66e6-7ff0-43b8-ab49-53a2793d07a6/wp_2133.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-8b7c66e6-7ff0-43b8-ab49-53a2793d07a6-nT8OxBH [accessed Feb. 9, 2024].

10 Banking Sector Database – Monthly. Available at: www.bddk.org.tr/BultenAylik [accessed Jan. 10, 2023].

11 Banking Regulation and Supervision Agency – Banking Sector Database – Monthly. Available at: www.bddk.org.tr/BultenAylik [accessed Oct. 1, 2023] (Turkish only).

12 According to Article 4 of the Regulation on Procedures and Principles for Classification of Loans and Provisions to be Set Aside (Published in *Official Gazette* dated June 22, 2016 No. 29750): a) First Group – Loans of a Standard Nature, b) Second Group – Loans Under Close Monitoring, c) Group Three – Loans with Limited Collectability, d) Group Four – Doubtful Loans, and e) Group Five – Loans classified as Loss. Loans classified in Groups 3, 4 and 5 within the scope of Article 4 are deemed as non-performing loans. Available at: www.bddk.org.tr//Mevzuat/DokumanGetir/973 [accessed Feb. 9, 2024].

13 Demirbaş Özbekler, M. (2019). *Kredi Portföyünde Çeşitlendirme: Türk Bankacılık Sektörü Üzerine Bir Analiz*. (Uzmanlık Yeterlik Tezi, Türkiye Cumhuriyet Merkez Bankası Bankacılık ve Finansal Kuruluşlar Genel Müdürlüğü Ankara) p. 6. Available at: www.tcmb.gov.tr/wps/wcm/connect/1d7ee08b-3e57-43b4-8be5-8cb588f672f5/UzmanlikYeterlikTezi_Merve_D_Ozbekler.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-1d7ee08b-3e57-43b4-8be5-8cb588f672f5-mTPzeyj [accessed Feb. 9, 2024] (Turkish only).

14 Carbo-Valverde, S., Rodriguez-Fernandez F. and Udell G. F. (2016). *Trade Credit, the Financial Crisis, and SME access to Finance, Journal of Money, Credit and Banking*, 48; 1. from the "OECD Economic Surveys: Turkey 2021" - *2. Unleashing the full potential of the business sector*, Jan. 14, 2021. Available at: www.oecd-ilibrary.org/sites/d8d9750f-en/index.html?itemId=/content/component/d8d9750f-en#section-d1e8739 [accessed April 8, 2024].

15 OECD Economic Surveys: Turkey 2021, *2. Unleashing the full potential of the business sector* (op. cit.).

16 Banks Association of Türkiye (May 2022). *Our Banks 2021*. Publication No. 346, p. 36. Available at: www.tbb.org.tr/Content/Upload/istatistikiraporlar/ekler/3817/Bankalarimiz_2021.pdf [accessed Feb. 9, 2024] (Turkish only).

17 The Central Bank of the Republic of Türkiye – *Financial Stability Report – May 2022*, 34; 36. Available at: www.tcmb.gov.tr/wps/wcm/connect/9ee6b07f-da12-436b-9054-9c150589003b/Tam+Metin.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-9ee6b07f-da12-436b-9054-9c150589003b-oldDSlB [accessed Feb. 14, 2024] (Turkish only).

18 The Central Bank of the Republic of Türkiye (2021) "Financial Stability Report," 32, p. 40. Available at: www.tcmb.gov.tr/wps/wcm/connect/82b86baf-01ad-4eb1-a01d-2210c21fa37d/F%C4%B0R32_TAM+MET%C4%B0N.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-82b86baf-01ad-4eb1-a01d-2210c21fa37d-nGacPVD [accessed Feb. 14, 2024] (Turkish only).

19 Demirkan, T. (2022) *TFRS 9 Çerçevesinde Beklenen Kredi Zararlarının Ölçülmesi: Türk Bankacılık Sektörü Üzerine Bir Uygulama*, p. 20. Available at: www.tbb.org.tr/Content/Upload/Dokuman/8825/Kitap-TFRS_9.pdf [accessed Feb. 9, 2024] (Turkish only).

20 Banks Association of Türkiye: *Classification Of Loans September 2022*. Available at: www.tbb.org.tr/en/Content/Upload/Dokuman/1209/Classification_Of_Loans_September_2022.pdf [accessed Feb. 9, 2024].

21 "The performing loans consist of Group I (Loans of a Standard Nature: where there is no expection of repayment problems and, considered as totally collectable without realization of collateral) and Group II (Loans Under Close Monitoring: loans extended to financially creditable debtors but negative developments are expected to occur in their solvency or cashflows due to unfavorable developments in macroeconomic conditions, or the sectors in which they operate) loans in the Regulation On Procedures And Principles For Classification Of Loans And Provisions To Be Set Aside." *Banks Association of Türkiye: Classification Of Loans – September 2022* (December 2022), pp. 6, 10. Available at: www.tbb.org.tr/en/Content/Upload/Dokuman/1209/Classification_Of_Loans_September_2022.pdf [accessed Feb. 14, 2024].

22 Nelito Systems Pvt. Ltd. *International Financial Reports Standards (IFRS 9) for the Financial Industry* (Updated: Sept. 2019), Terms & Privacy. Available at: www.nelito.com/blog/international-financial-reports-standards-ifrs-9-for-the-financial-industry.html [accessed Feb. 14, 2024].

23 European Systemic Risk Board, *Financial stability implications of IFRS 9*, July 2017, pp. 3, 18. Available at: www.esrb.europa.eu/pub/pdf/reports/20170717_fin_stab_imp_IFRS_9.en.pdf [accessed Feb. 14, 2024] and European Capital Markets Institute (ECMI) *Event report – Accounting Standards for Financial Instruments* (2018), p. 2. Available at: www.ecmi.eu/sites/default/files/post-event_report_final.pdf [accessed Feb. 14, 2024].

24 Where IFRS 9 "Financial Instruments" specifies the way entities should classify and measure their financial assets, financial liabilities to buy or sell non-financial items: see *IFRS 9 Financial Instruments – Standard 2023* Available at: www.ifrs.org/issued-standards/list-of-standards/ifrs-9-financial-instruments [accessed Feb. 9, 2024].

25 *IFRS 9 Financial Instruments* (July 2014), p. 2. Available at: www.ifrs.org/content/dam/ifrs/project/fi-impairment/ifrs-standard/published-documents/project-summary-july-2014.pdf [accessed Feb. 9, 2024] and Fidan, M. M. (2018). *IFRS 9 Finansal Araçlar Standardına Göre Satın Alındığında veya Oluşturulduğunda Kredi-Değer Düşüklüğüne Uğramış Finansal Varlık Yaklaşımına İlişkin Derleme Çalışması*, pp. 233–234. Available at: www.dergipark.org.tr/tr/download/article-file/462871 [accessed Feb. 9, 2024] (Turkish only).

26 Loans constitute 53 percent of the total assets of Turkish banks in June 2022 as indicated in the database of Banking Regulation and Supervision Agency – Turkish Banking Sector Key Indicators, p. 6. Available at: www.bddk.org.tr/BultenAylik [accessed Feb. 9, 2024] and Sayım, F. and Ardıç, M. (2012). "Banka Bilançolarındaki Kredi Karşılık Kalemlerinin Dışa Yansıma Biçimleri," *Atatürk Üniversitesi İİBF Dergisi*, 26; 3–4, pp. 301. Available at: https://dergipark.org.tr/tr/download/article-file/30465 [accessed Feb. 9, 2024].

27 Gençoğlu, Ü.G. et al. (2013). *Türkiye Finansal Raporlama Standartları*, Sakarya, Sakarya Üniversitesi Sürekli Eğitim Uygulama ve Araştırma Merkezi Yayınları, p. 459. Available at: https://docplayer.biz.tr/1610884-Turkiye-finansal-raporlama-standartlari.html#show_full_text [accessed Feb. 9, 2024].

28 Kaban, İ. (2017). "Accounting process of special provisions to be allocated for cash loans in banks as part of the widely used collateral," *Marmara University Journal of Economic and Administrative Sciences*, 39; 1, pp. 195–211. DOI: 10.14780/muiibd.329925, p. 200. Available at: www.dergipark.org.tr/tr/download/article-file/328035 [accessed Feb. 9, 2024].

29 Kaban, İ. (2017). (op. cit., p. 201).

30 Kaban, İ. (2017). (op. cit., pp. 201–202).

31 Article 148 of the IP Code 6769 and Article 5 of the Law on Chattel Mortgage In Commercial Transactions No. 6750.

32 Banking Regulation and Supervision Agency, "Regulation on procedures and principles for classification of loans and provisions to be set aside," *Official Gazette*, June 22, 2016, No. 29750, Articles 13 and 15. Available at: www.bddk.org.tr//Mevzuat/DokumanGetir/973 [accessed Feb. 15, 2024].

33 IP Code No. 6769. Available at: https://www.turkpatent.gov.tr/en/laws-and-regulations [accessed Feb. 16, 2024].

34 The TAS and TFRS published by the Public Oversight Accounting and Auditing Standards Authority (POA) are the literal Turkish translations of International Accounting Standards (IAS) and IFRS that are published by IASB. *Public Oversight, Accounting and Auditing Standards Authority, Turkish Financial Reporting Standards*. Available at: www.kgk.gov.tr [accessed Feb, 9, 2024] (Turkish only).

35 *Public Oversight, Accounting and Auditing Standards Authority, Financial Reporting Standard for Large and Medium Sized Enterprises*. Available at: www.kgk.gov.tr [accessed Feb. 9, 2024] (Turkish only).

36 TAS 38. Available at: www.kgk.gov.tr [accessed Feb. 9, 2024] (Turkish only).

37 Article 128 of the Turkish Commercial Code – No. 6102. Available at: www.mevzuat.gov.tr/mevzuatmetin/1.5.6102.pdf [accessed Feb. 9, 2024] (Turkish only).

38 Article 343 of the Turkish Commercial Code – No. 6102. Available at: www.mevzuat.gov.tr/mevzuatmetin/1.5.6102.pdf [accessed Feb. 9, 2024] (Turkish only).

39 WIPO. (2022). *World Intellectual Property Report 2022: The Direction of Innovation*, p. 27 https://www.wipo.int/edocs/pubdocs/en/wipo-pub-944-2022-en-world-intellectual-property-report-2022.pdf

40 Gençoğlu, Ü.G. et al (2013) (op. cit., p. 459).

41 Ministry of Industry and Technology, *Competititive Sectors Programme* (CSP). Available at: https://rekabetcisektorler.sanayi.gov.tr/en/cati/?bref=HAKKIMIZDA&kref=RSP&sref=AraSayfa#:~:text=Competitive%20Sectors%20Programme%20(CSP)%2C,implemented%20in%207%2Dyear%20periods [accessed Feb. 15, 2024].

42 CSP – Competitiveness and Innovation Sector Operational Programme (CISOP). Available at: https://rekabetcisektorler.sanayi.gov.tr/en/cati/?bref=HAKKIMIZDA&kref=RSP&sref=AraSayfa#:~:text=Competitive%20Sectors%20Programme%20(CSP)%2C,implemented%20in%207%2Dyear%20periods [accessed Feb. 15, 2024].

43 Ministry of Industry and Technology, *Competititive Sectors Programme*, pp. 30–38.

44 Competitiveness and Innovation Sectoral Operational Programme (CISOP) (2022) *Interim Evaluation, Draft Evaluatıon Report*, Nov. 2022, p. 16. Available at: https://rekabetcisektorler.sanayi.gov.tr/media/dokumanlar/CISOP_Interim_Evaluation_Report_2022.pdf [accessed Feb. 15, 2024].

45 11th Development Plan of Türkiye (2019–2023). Available at: www.sbb.gov.tr/wp-content/uploads/2022/07/Eleventh_Development_Plan_2019-2023.pdf [accessed Apr. 15, 2024] and 12th Development Plan of Türkiye (2024–2028). Available at: www.sbb.gov.tr/wp-content/uploads/2023/12/On-Ikinci-Kalkinma-Plani_2024-2028_11122023.pdf [accessed Apr. 15, 2024] (Turkish only).

46 11th Development Plan of Türkiye (2019–2023). Available at: www.sbb.gov.tr/wp-content/uploads/2022/07/Eleventh_Development_Plan_2019-2023.pdf [accessed Apr. 18, 2024]

47 12th Development Plan of Türkiye (2024–2028). Available at: www.sbb.gov.tr/wp-content/uploads/2023/12/On-Ikinci-Kalkinma-Plani_2024-2028_11122023.pdf [accessed Mar. 26, 2024] (Turkish only).

48 12th Development Plan of Türkiye (2024–2028), pg: 126. Available at: https://www.sbb.gov.tr/wp-content/uploads/2023/12/On-Ikinci-Kalkinma-Plani_2024-2028_11122023.pdf [accessed April 15, 2024] (Turkish only).

49 *TÜRKPATENT Annual Report 2021*. Available at: www.turkpatent.gov.tr/faaliyet-raporlari-yillik [accessed Feb. 10, 2024] (Turkish only).

50 Available at: www.turksmd.com.tr [accessed Feb. 10, 2024] (Turkish only).

51 TÜRKSMD Database.

52 TURKSTAT Data Portal for Statistics – Science, Technology and Information Society, *Central Government Budget Appropriations and Outlays on R&D*. Available at: https://data.tuik.gov.tr/Bulten/Index?p=Central-Government-Budget-Appropriations-and-Outlays-on-RvD-2023-49573 [accessed Feb. 10, 2024] (Turkish only).

53 Yavan, Nuri. *Ar-ge, Yenilik, Girişimcilik, Ticarileştirme Ve Yatırım Destekleri El Kitabı.:* Kalkınma Bakanlığı, Konya Ovası Projesi Bölge Kalkınma İdaresi Başkanlığı. pg: 8–10 http://www.kop.gov.tr/upload/dokumanlar/172.pdf

54 Yurtseven, A.E. and Tandoğan, S. (2017). *Performance Evaluation Analysis of TTOs Supported by TÜBİTAK TEYDEB 1513 Program*. Technology Transfer Book of Knowledge with Turkish TTO Good practices, The Technology Transfer Accelerator - TTA Turkey Advisory Services, pg: 19 https://rekabetcisektorler.sanayi.gov.tr/media/dokumanlar/Technology_Transfer_Book_of_Knowledge_with_Turkish_TTO_Good_Practices.pdf

55 Corporate Tax Law No. 5520 of Türkiye, "Kurumlar Vergisi Kanunu". Available at: www.mevzuat.gov.tr/mevzuatmetin/1.5.5520.pdf [accessed Feb. 10, 2024] (Turkish only).

56 Corporate Tax Law No. 5520 of Türkiye, Article 5/B.

57 Akçiğit, U., Seven, Ü., Yarba, İ. and Yılmaz, F. (2021) *Firm-Level Impact of Credit Guarantees: Evidence from Turkish Credit Guarantee Fund*, Working Paper No. 21/10, April 2021. Available at: www.tcmb.gov.tr/wps/wcm/connect/419199ff-c300-4dfe-9bf9-5b09c017cdc6/wp2110.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-419199ff-c300-4dfe-9bf9-5b09c017cdc6-nAyWG8b [accessed Feb. 10, 2024].

58 Tuna, K., *Kredi Garanti Fonu (KGF)*. Available at: www.halkbankkobi.com.tr/tr/uzmanina-danisin/makaleler/finansal-yonetim/kredi-garanti-fonu-kgf.html [accessed Feb. 10, 2024] (Turkish only).

59 KGF Equities. Available at: www.kgf.com.tr/index.php/en/our-products/kgf-equity-backed-guarantees/bank-loans/kgf-own-resources [accessed Feb. 10, 2024].

60 KGF – The Ministry of Science, Industry and Technology. Available at: www.kgf.com.tr/index.php/en/our-products/kgf-equity-backed-guarantees/direct-loans/the-ministry-of-science-industry-and-technology [accessed Feb. 10, 2024].

61 KGF – TÜBITAK transfer payments. Available at: www.kgf.com.tr/index.php/en/our-products/kgf-equity-backed-guarantees/direct-loans/tuebitak-transfer-payments [accessed Feb. 10, 2024].

62 Akçiğit, U., Seven, Ü., Yarba, İ. and Yılmaz, F. (2021) *Firm-Level Impact of Credit Guarantees: Evidence from Turkish Credit Guarantee Fund*, Working Paper No. 21/10, April 2021, p. 2. Available at: www.tcmb.gov.tr/wps/wcm/connect/419199ff-c300-4dfe-9bf9-5b09c017cdc6/wp2110.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-419199ff-c300-4dfe-9bf9-5b09c017cdc6-nAyWG8b [accessed Feb. 10, 2024].

63 Akçiğit, U., Seven, Ü., Yarba, İ. and Yılmaz, F. (2021) *Firm-Level Impact of Credit Guarantees: Evidence from Turkish Credit Guarantee Fund*, Working Paper No. 21/10, April 2021, pp. 2, 50. Available at: www.tcmb.gov.tr/wps/wcm/connect/419199ff-c300-4dfe-9bf9-5b09c017cdc6/wp2110.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-419199ff-c300-4dfe-9bf9-5b09c017cdc6-nAyWG8b [accessed Feb. 10, 2024].

64 Dermis Pharma Health and Cosmetic Products Inc. Available at: www.dermispharma.com/en/about-us [accessed Feb. 10, 2024].

65 Since at that time, there was a different practice than the provisions brought by the IP Code 6769 of 2017, in which inventions made by academic staff were to be filed by the academics to obtain a patent protection.

66 Vardar Sukan, F. and Çakir, M., Dermis Pharma, *EPO Technology Transfer Case Studies* (2021). Available at: link.epo.org/elearning/technology_transfer_case_study_dermalix_en.pdf [accessed Apr. 15, 2024] and Ege University Science and Technology Application and Research Center (EBİLTEM) established as the first University–Industry Cooperation Center of Türkiye in 1994. Ege University was one of the leading universities to benefit from the TÜBİTAK 1513 Technology Transfer Offices Support Program in 2013. Available at: www.ebiltem.ege.edu.tr/eng-7913/.html [accessed Feb. 10, 2024].

67 The first private university technopark of Türkiye, established by Bilkent University in 2002. The CAP provides one-to-one counseling and mentoring sessions; strategy and business plan training for the commercialization of technology; and business opportunities with potential customers, foreign investors and mentors specially designated for accepted companies, i.e., participants.

68 TİM–TEB StartUp House. Available at: tim.org.tr/en/tim-teb-startup-houses [accessed on Feb. 19, 2024].

69 Available at: www.abdiibrahim.com.tr/en [accessed Feb. 10, 2024].

70 Prof. Dr. Fazilet Vardar Sukan, Mustafa Çakir, "EPO technology transfer case studies" (2021). Available at: intellectual-property-helpdesk.ec.europa.eu/document/download/ec8d5cd3-6115-4cec-b766-72442a929266_en?filename=technology_transfer_case_study_dermalix_en.pdf [accessed Apr. 16, 2024].

Cover: Getty Images, Aleh Varanishcha / WIPO Reference RN2024–26EN; DOI: 10.34667/tind.49455

wipo.int

WIPO
WORLD
INTELLECTUAL PROPERTY
ORGANIZATION