Primary Research Related to the Design of China's Patent Pledge System

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Abstract--China is improving its patent protection methods and understanding of those methods. The value of patents in China is not widely recognized by the country as a whole .Nevertheless. Patent pledges act as a primary market behavior .for example, the United States has no such pledges for major high-tech companies(such as pharmaceutical companies) and in the investing banking industry .The Chinese government has issued a series of patent protection system and related patent application pledge subsidy systems that are designed to promote an increase in the number of patent pledges made by companies and to help patented products transform new technology.

The article analyses the number of patent pledges issued in more than 20 Chinese cities including Beijing, Shanghai, Wuhan and Chongqing. It analyzes the distribution of the pledges made to investors such as national banks, policy banks ,local banks ,investment guarantees corporations liability companies. The study analyzes the reasons for existence of such pledges that are made mainly private high-tech enterprises.

We concluded that the role of the government in the transformation of the national patent pledge system and the ongoing reform of the design of China's financial system are the key factors driving the changes being made to the patent system.

I. INTRODUCTION

The concept of patent pledge is a major financial innovation .A patent pledge is closely related to the ideas of patent transfer, patent auction and patent infringement. China has transformed into a perfect market economy country and needs to develop its patent pledge system in local cities to improve the numbers of patent pledges used. From January 2006 to June 2011, 3361 patent pledges were registered worth 31.85 billion Yuan (including foreign currency) in addition 3399 patent pledge numbers were registered worth 14.1 billion Yuan, an increase of 74% in numbers worth 25.4billion Yuan ,an increase of 80% ,patent pledges simplify the financial problems of small and middle sized enterprises.

When banks value innovation, Innovation with companies can alleviate the information in relationship leading , evidence future suggests that the information benefits of patenting activities on loan spread is more pronounced for small or less research and development –intensive firm. assessing the value of patent before is commercialized in the market has proved to be difficult. [1] Hybrid method of assessing patent value and determining the strategy to be applied in the early stage of commercialization. Then article is more accurate than additional technology portfolio planning models in that they rely on similar scales .The method can highlight change in the meaning and strategic group of a patent .Furthermore, It can be used for long-term strategic planning such as for providing strategic and corporate foresight. [2]

If pharmaceutical companies want to enhance their market value. They should increase their leading positions in their most important technological capabilities ,and increase the value of their innovative . [3]

The identification of the institutional origin of knowledge allows for an improved understanding of the value determinants and here is a need emphasized to stimulate the best scientists to codify their tacit knowledge into valuable patents. [4]

The valuation of R&D varies substantially across these sectors. Another important result is that, on average, firms that receive only UK patents tend to have no significant market premium. In direct contrast, patenting through the European Patent Office does raise market value, as does the registration of trade marks in the UK for most sectors. [5]

The role of patenting and alternative instruments to protect intellectual property, based on a sample of German companies active in patenting. In a second step, we investigate the motives to patent, considering sector and company size effects. We find that company size matters, both for the importance of instruments and the motives to patent. Especially important are the new strategic motives to patent, like using patents to improve a company's own position in negotiations with partners, licensees and the financial sector, or to use patents as incentives for R&D personnel or performance indicators—these correlate positively with company size. We derive some possible challenges for future patent policies from these insights.[6]

Patent policy should be applied to complementary innovations that are aggregated into broader technologies. complementary innovations must be bundled prior to patenting, with a second setting in which they can be patented separately. The first setting can improve static efficiency by avoiding the costs resulting from the scattering of complementary patents. But it also limits the disclosure of small innovations, which may lead to inefficient R&D cost duplications. A model capturing these effects shows that patenting. complementary innovations separately is not efficient when innovations can be developed rapidly.[7]

The major changes in patent policy and practice that have occured in the last two decades in the U.S., and reviews the existing analyses by the economists that attempt to measure the impacts these changes have had on the processes of technological change. It also reviews the broader theoretical and empirical literature that bears on the expected effects of changes in patent policy. Despite the significance of the policy changes and the wide availability of detailed data relating to patenting, robust conclusions regarding the empirical consequences for technological innovation of changes in patent policy are few. Possible reasons for these limited results are discussed, and possible avenues for future research.[8]

Intellectual Property Rights discussed using the first comparative study of UK and Japanese IP management. IP's role in both licensing and continuous learning, whether through licensing or patent information management is illustrated. Japanese companies actively search for technology to license in to a greater extent than in the UK where attitudes to IP are more static even though active marketing of technology to license out is similar. It is shown that IP strategy occurs in a space defined by time, techno-legal scope and technological advantage and that licensing decisions need consideration from licensee. [9]

The survey focuses on the empirical literature regarding the use and management of intellectual property rights (IPRs). It overviews policy changes regarding intellectual property (IP) protection in the US that led, according to some commentators, to patent friendly era in the US. Then it looks at the IPRs use and strategies in the US, Canada, EU, Japan and Australia and at the protection of IP in specific industry groups. Also reviewed is the relationship between the use of IPRs and the size of firm and its ownership (national vs. Multinational. [10]

The patent system provided by the government of the country has patent pledge registration procedures from the greater intellectual Property office[11].

Typical practices and problems of domestic scholars are discussed and summarized by coming throughout the china IPR pledge financing system.[12,13]The goal was to determine whether such a system can reduce the risks to the patent service innovation –oriented country and bank's pledge system. The patterns and characteristics of intellectual property used to secure loans with government support was analyzed. [14]

Domestic scholars also analyzed the intellectual property risk control for domestic and foreign government innovation management trends and studied pledge financing by companies. Encouraging our earlier patent application patent system had caused an explosion of junk patents internationally for our one question. [15]

Domestic scholars have suggested that government departments reform the existing subsidy system by studying the application of the patent process, which has caused the development of a more rational system patent pledges into a hot issue. [16]

Described property to reflect the level of cooperate credit risk, its patent to guide banks to extend patent pledge loan financing to enterprises will allow the banks to better reduce the risk of acquiring additional sources of profit, but also will enable enterprises to increase investment in research as well as research by the government to improve the patent system and funding strength of patent pledge guarantees. [17]

II. HYPOTHESIS

Hypothesis 1: If china has no patent pledge system, then many small-and –medium-sized enterprises would be unable to obtain loans from banks to help the enterprises obtain the funding needed to transfer their patent ideas to products.

Hypothesis 2: While the current system is fairly efficient, improving the design of both the central patent pledge and local patent pledge would improve their efficiency.

Hypothesis 3: The patent pledge has improved the level of innovation seen in Chinese enterprises.

China's patent pledge system is a mixed system design composed of a financial system, a legal system and a system designed to drive innovation.

III. METHODOLOGY

From 2008 to 2013 the intellectual Property Office of China has gathered the results and analyzed the number of patent pledge registration and a summary in the following table is drawn on the basis of major cities patent pledge pieces and the trend comparison chart .so readers can better observe and understand Chinese patent rights and how to pledge and the development trend to those pledge pieces.

We will mainly compare urban patent pledge numbers from cities such as Beijing Shanghai, Tianjing and Chongqing, Hefei, Wuhan, Guangzhou, Chengdu and Other major cities .We can draw conclusions form the numbers of patent pledges issued in these cities and find that the total patent pledge numbers in large cities is more than small cities while the growth rate of patent number in small cities is much higher than big cities.

TABLE 1: PATENT PLEDGES DEVELOPMENT TENDENCY IN CHINA MAIN CITIES
(Data source: Patent pledge registration data from state intellectual property office of P.R China (2008-2013)

	Cities	2008	2009	2010	2011	2012	2013
Municipal Cities	Beijing	11	132	185	366	361	155
	ShangHai	8	13	61	135	111	67
	Tianjing	5	10	68	106	235	81
	ChongQing	0	0	7	17	118	0
Provincial capital city	WuHan	1	15	26	67	72	36
	Guangzhou	1	13	27	62	126	7
	HeFei	2	1	3	25	23	2
	ChengDu	3	15	10	38	67	8
Special zone city	XiaMen	0	38	25	10	57	1
	ShenZhen	7	3	13	51	131	69
	ZhuHai	2	4	4	80	1	23
Prefecture-level city	SuZhou	0	1	13	83	72	26
	BangBu	0	0	0	23	26	25
	WuXi	0	0	14	25	63	19
	WenZhou	0	0	17	24	39	7

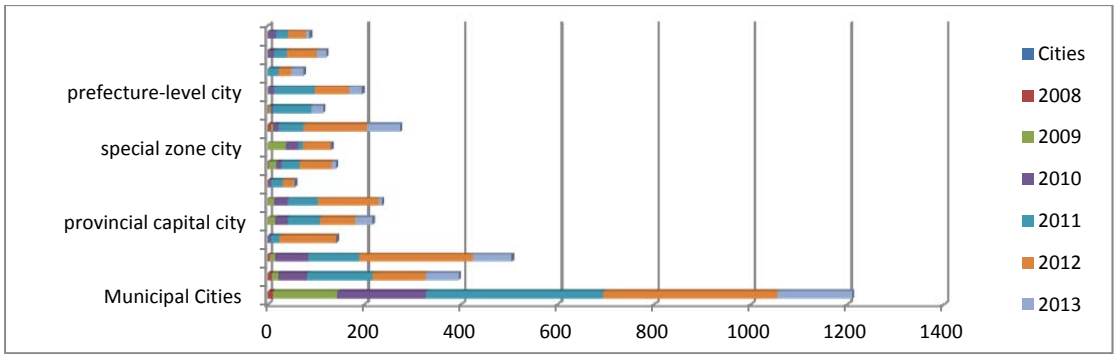
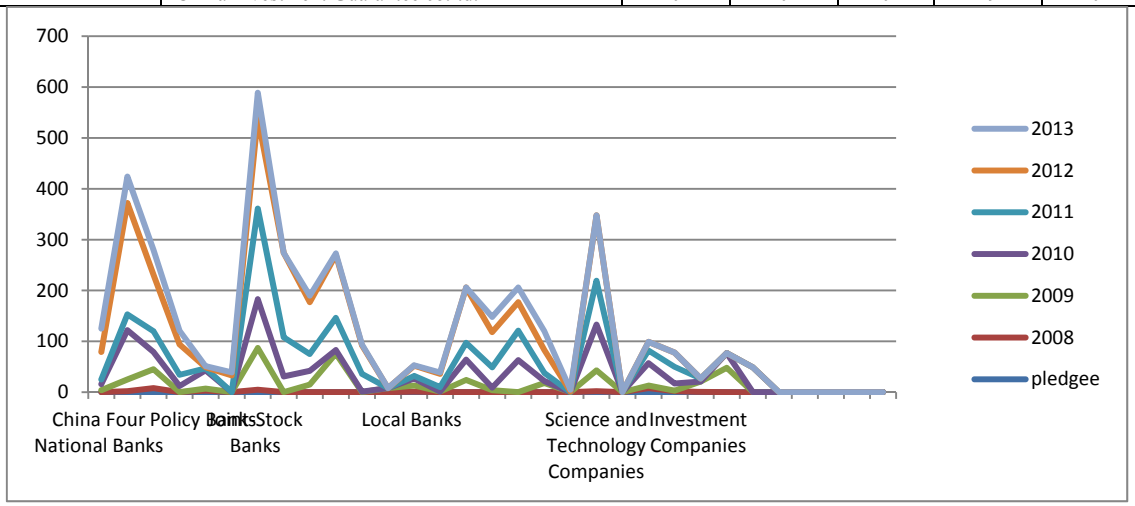


TABLE 2: PATENT PLEDGORS (DEVELOPMENT TENDENCIES IN CHINA'S MAIN CITIES)
(Four National Banks , ,Policy Banks Local Banks ,and Local guarantee companies)
(Data sources: Patent pledge registration data from the State Intellectual Property Office of P.R China (2008-2013)

Finance Instituions	The pledgee	2008	2009	2010	2011	2012	2013
China four national banks	Industrial and commercial Bank of China limited	0	4	12	9	54	46
	Bank of China limited	2	23	97	31	219	52
	Argiculture Bank of China	8	37	34	41	111	49
	China Construction Bank	0	0	12	22	60	27
Policy Banks	ChinaDevelopment Bank	3	4	36	4	2	2
	Export-Import Bank	0	0	0	0	33	6
	Bank of communication company ltd	5	82	96	178	179	49
	Shanghai Pudong Development Bank	0	0	31	77	166	92
	China Merchant Bank co.ltd	0	15	27	33	102	13
	Industrial Bank	0	76	7	63	124	3
	China MInShen Banking corp.	0	0	1	35	56	2
	Shenzhen Development Bank Company	0	8	0	0	0	0
Local companies	Bank of Beijing	1	12	14	5	20	1
	Bank of Shanghai	0	1	0	9	26	3
	Bank of Wenzhou	0	24	40	33	109	0
	Bank of Dalian	0	4	5	40	69	30
	Bank of Hankou	0	0	63	58	56	29
	Bank of HangZhou	0	18	4	16	45	37
	Bank of JInghua	0	0	0	0	1	4
Science and technology guarantee	Beijing ZhongGuanCun Science and technology guarentee	2	41	90	86	129	0
	ShangHai PuDong Productivity Promotion Company	8	5	44	25	17	0
	Wuhan Science and Technology guarantee	2	1	14	33	28	0
Investment Companies	HeBei province science and Tecnology Industry Investment Company	0	21	0	6	0	0
	Jiangshu high–tech investment Group company	0	48	29	0	0	0
	China Investment Guarantee co.ltd.	0	0	0	49	0	0



Comparison of Local Patent pledge system and Finance Institutions

We compare the tendency chart of the patent pledge number and find that in the most province–level cities such as big cities as Tian Jing and Chong Qing require 2-year corporate operating results but in a relatively small cities such as Wu Xi, He Fei have always 2-3 years to recover this loan from the bank. Many cities such as Tian Jing use patent pledge as a single patent ,the patent system has been in place and substantially implemented for at least two years (or more).borrow can apply for loan while the patent is still in use and profitable, patent pledges for the number of patents. The patent evaluation market is not regulated, so many cities restrict the quality of the patent and in general cities such Tian Jin and He Fei, the value generally does not exceed 50% of appraised value of the patent. General guidance and methods used for patent pledges in the provinces in terms of the patent pledge period is generally not more than one year and it still in the legal validity of the patent .Many cities regulations require patent pledges to have terms no more than one year long or often not more than two year. Thus, more business can benefit from the business opportunity while the value and the length of time of the patent varies, so for more than year. Come to the second half of the 10 million per year to the total assets of 200 million RMB of the following companies and annual sales of 100 million Yuan in the following patent pledge loan to pay one time.

IV. ANALYSIS

By the end of 2005, an analysis by the World Bank's Country Wealth Report classified 120 countries worldwide base on local and national wealth, although they have fewer natural resources and a greater proportion of intangible assets. In China, 50% of the wealth is made up of intangible capital in 85% of the country. The World Bank reported on the design of many country's legal systems. The level of protection available for property rights and analyzed government operations and judicial system. The rule of Law can determine 75 percent of intangible assets in one country. If the judicial system is more effective, with a carefully designed system for protection of property rights. The overall wealth of the country will increase and government will operate more smoothly will increase and the government will operate more smoothly.

In a sense, a financial system is a series of saving into arrangement. In other word, it means having the financial ability and financial system in place to support the service sector. The real economy promotes the improvement of financial structure by adjusting the direction of financial

Resource allocation； that is: "intangible assets" and financial assets are closely related, both are invisible, but the two are one of the core products of national development.

The economics of developing countries are financially inhibited by a lack of financial resources .High interest rates often control the economics of developing countries. Such countries often have few financial assets. The financial system has a dual structure. China's financial systems are dominated by national banks while household financial assets are underdeveloped as a proportion of the national financial assets are underdeveloped as a proportion of the national financial structure. The financial system is not conductive to having optimized interest rates and financial asset. establishing an effective financial system is a combination of financial assets and appropriate economic policy development in the financial sector.

China's central government has always attached great importance to progressive reform of the banking system ,so china has gradually established many joint-stock banks ,as well as and medium-sized bank, local small and medium-sized banks also have excellent information resources as well as cost and organization advantages.

Banks must be located reasonably in the market based on their financial conditions to avoid competition with state-owned to help the small medium-sized banks to get a good development.

In order to lower the risks related to general patent pledges .Banks usually ask for loans related to patent pledges with an interest from 12% to 14%, Even if a corresponding patent banking insurance system is still required to reduce the risk, banks also need to establish an effective cooperate credit databases to asses value of patents, The establishment of a databases is of great importance. It not only helps the business itself but also emphasis the industries and enterprises credit system where the patent pledge helps the banks to analyze the national political and regulatory environment as it affects the pledge of patent system and allows the corresponding, tracking and evaluation.

In order to prevent the risk of the general patent pledge ,Bank ask loan patent pledge from 12% to 14% interest rate, even if it still requires a corresponding patent banking insurance system to reduce the risk, while banks also need to establish an effective corporate credit database to assess the value of patents, the establishment of a database of great importance not only to help the business itself but also emphasis on industries and enterprises credit system where the patent pledge to analyze and national political and regulatory environment affect the pledge of patent and corresponding with its track evaluation.

V. DISCUSSION AND CONCLUSION

1)The patent pledge system lets more joint – stock banks to realize the patent value ,select the growth enterprises which are fond of using patent .Patent pledge is very important scientific and technological innovation enterprise assets ,Patent pledge is a high and new technology enterprise an important way to solve the funding gap. The patent pledge loan amount and patent evaluation value gap is very big, through a patent pledge system such as social risk subsidy system of SMES and guild the bank guarantees support system can help SMES to attach more attention to patent

value.

2)Local patent pledge work depends on local development and reform and commission to coordinate science and technology, intellectual property and banks and finance departments to jointly promote the patent pledge loan work, focus on the implementation of the patent in the local fiscal fund discount loans for capital and asses the insurance subsidies.

3) Science and technology department .Intellectual property department. Bank financial sector assessment department and various business subjects must strengthen cooperation and information sharing, implement and accelerate the fast procedure of patent pledge.

Reduce the cost of Patent evaluation and strengthen the patent pledge insurance.

ACKNOWLEDEMENTS

This research draws on support from the program ”Some Key problem Research on self–in Depend Innovation and Open wider to the outside World.” Funded by the Ministry of Science and Technology (2012) and “National and International Government Innovation Management Development Tendency” funded by the Shanghai Science and Technology Development fund. (2013)

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