

A Research on the Innovative Capabilities of Chinese Car Manufacturers by Analysing the Patent Information

Raja Irfan Sabir, Luo Liguo

Chinese-German Institute of Intellectual Property, School of Management, Huazhong University of Science & Technology, Wuhan, P.R. China, 430074
(E-mail: g.buree@yahoo.com, llg1728@163.com)

Abstract Intellectual property rights (patents, trademark, copyrights, etc) accelerate the activities of innovative businesses by facilitating the transformation of the ingenuity, creativity, and the innovative ability into economic assets. Patent information is considered as a valuable indicator of innovation activities and hence it has been used in this paper to assess the innovative capabilities of the top five Chinese domestic car manufacturers. On the basis of patent information analyses, it can be implied that, although BYD Auto is the second most profitable company after Cherry automobile on the basis of annual sales, but it is the most innovative Chinese domestic company with the highest number of registered patents.

Key words Chinese car manufacturers; Innovation; Intellectual property rights; Patent information analyses

1 Introduction

1.1 Chinese automobile industry and the need for intellectual property rights

The Chinese automobile industry, world's largest customer market, where the global auto giants have held the major market share since its open policy (1980s), poses great opportunities and threats for the domestic car manufacturers. As the market competition becomes fiercer, the Chinese domestic car manufacturers which have long been criticised for low quality and imitating their foreign rivals, need to form long-term strategies, focus on R&D and increase their technological (innovative) capabilities in order to enhance their competitiveness and improve market position.

The Chinese government has taken many persistent measures for the development of its Automobile Industry and has announced it as one of the pillar industries for economic revival. One important step has been the development of the "Automobile Development Policy", first issued in 1994 and revised in 2004. The imperative aspect of this policy is not only that the government has shown great concern for the Automobile manufacturers but also the importance given to "Independent Development" (Independent Innovation) with China's own IPR (Intellectual Property Rights).

1.2 Methodology

Patents, one form of intellectual property, are seen as valuable indicators / measures of an organization's innovation activities, that encourage investment in innovation, create a monopoly for the holder, and, act as a source of information on technological change. Researchers consider patents as the most widely available indicator of output of technological activities and representative of inventions which are expected to have a commercial impact.

This paper uses Patent Information Analyses to assess the innovativeness of the top five Chinese domestic car manufacturers, i.e. Cherry Automobile, Build Your Dreams (BYD), Brilliance Auto, Geely Auto Co. and Great Wall Motors. Other information used for the analyses include company annual car sales and number of infringement cases.

2 Patent Information Analyses and Discussion

2.1 Sales and patents

The top five Chinese domestic car manufacturers were selected on the basis of their annual sales (Table 1) for the year 2009, i.e. Cherry Automobile, Build Your Dreams (BYD), Brilliance Auto, Geely Auto Co. and Great Wall Motors. As per table 1, the highest number of patents registered in 2009 was by BYD Auto, i.e. 491. Second highest was Cherry Automobile which registered 154 patents in 2009, followed by Brilliance Auto, Great Wall Auto and Geely Auto with 151, 35 and 26 patents for the year 2009 respectively. From the sales point of view, it can be ascertained that Cherry Automobile is the most profitable Chinese domestic car manufacturer but based upon the number of patents, BYD Auto can be assumed to be the most innovative Chinese domestic company for the year 2009.

**Table 1 Number of Sales vs Patents Registered
by Top Five Chinese Car Manufacturers for the Year 2009**

Company	Year 2009	
	Sales	Patents
Cherry Automobile	500300	154
BYD Auto	448400	491
Brilliance Auto	348300	151
Geely Auto	329100	26
Great Wall Motors	120446	35

Source: China Association of Automobile Manufactures;
<http://www.soopat.com/Home/Index> (Retrieved on 2010-5-14).

2.2 Total registered patents

According to table 2, the number of patents held by BYD auto before the year 2000 was 637 and during the year 2000 till 2009 were 4553, making it the most innovative Chinese domestic car manufacturer with a total of 5190 registered patents. Cherry automobile did not hold any patents before the year 2000, but, registered 3553 patents from the year 2000 till 2009 making it the second most innovative domestic car manufacturer. Geely auto held 6 patents before the year 2000 while registered 800 patents between the period 2000 to 2009. Brilliance had registered 1 patent whereas registered 296 patents in the following ten years, whereas Great Wall Motors has only registered 286 patents during the period 2000-2009.

2.3 Types of patents

Table 3 depicts three types of patents held by each of the five domestic Chinese car manufacturers, i.e. Invention, Utility model and Design patents. Accordingly, the highest number of invention patents was held by BYD auto, i.e. 2006, followed by Cherry automobile with 1103 invention patents. The highest number of Utility Model patents was also held by BYD auto, i.e. 2668, followed by Cherry with a total of 935 Utility Model patents. Cherry held the most Design Patents amongst the five Chinese domestic car manufacturers, i.e. 1515, whereas, BYD auto was placed second in this category with a total of 516 Design patents. These figures imply that BYD auto has high capabilities in the field of inventions and utility models as compared to design.

**Table 2 Number of Patents Registered by Top Five Chinese Car Manufacturers
by the end of Year 2009**

Company	Before 2000	2000-2009	Total
BYD Auto	637	4553	5190
Cherry Automobile	0	3553	3553
Geely Auto	6	800	806
Brilliance Auto	1	296	297
Great Wall Motors	0	286	286

Source. <http://www.soopat.com/Home/Index> (Retrieved on 2010-5-14)

**Table 3 Types of Patents Registered by Top Five Chinese Car Manufacturers
by the End of Year 2009**

Company	Total	Invention	Utility Model	Design
BYD Auto	5190	2006	2668	516
Cherry Automobile	3553	1103	935	1515
Geely Auto	806	68	528	200
Brilliance Auto	297	7	61	229
Great Wall Motors	286	9	21	256

Source. <http://www.soopat.com/Home/Index> (Retrieved on 2010-5-14)

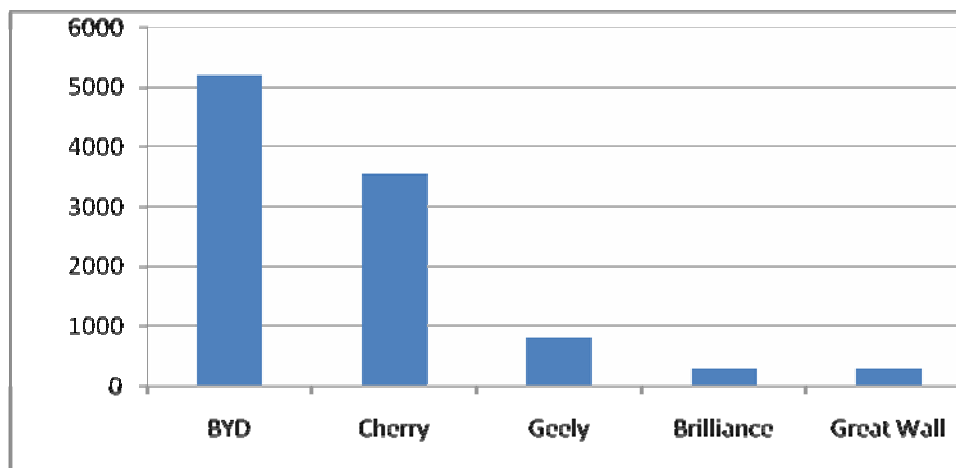


Figure 1 Total Patents Registered by Top Five Chinese Car Manufacturers by the End of Year 2009

2.4 Registered patents in china and abroad

Table 4 presents the total number of registered patents by each of the domestic Chinese car manufacturer in China and abroad till the year 2009. BYD auto is seen as having the most registered patents abroad, i.e. 388, followed by Cherry with 43, Great Wall with 13, Geely with 4 and Brilliance with only 1 registered patent outside China. The data implies that BYD auto is more likely to create goodwill and gain competitive edge in the international market. And whereas, Geely auto has only 4 registered patents (0.5%) abroad out of 806 total registered patents; Great Wall Motors has successfully registered 13 patents (4.5%) abroad out of a total of 286 patents.

Table 4 Number of Patents Registered by Top Five Chinese Car Manufacturers in China and Abroad by the End of Year 2009

Company	Total	Abroad
BYD Auto	5190	388
Cherry Automobile	3553	43
Geely Auto	806	4
Brilliance Auto	297	1
Great Wall Motors	286	13

Source. <http://www.ipexl.com/index.html> (Retrieved on 2010-5-14)

2.5 Infringement and IP cases

Table 5 represents the number of total infringement cases including IP related filed against as well as the total number of patents for each of the top five Chinese domestic car manufacturers by the end of year 2009. A total of eight infringement cases including three IP cases were filed against Brilliance auto, making it the most accused Chinese car manufacturer. Seven cases including three IP related were filed against BYD auto which has the most number of registered patents, while, five out of six cases related to IP were filed against Geely auto. Five cases including one related to IP were filed against Cherry automobile, and, two IP related cases out of a total of 4 cases were filed against great Wall Motors.

Table 5 Number of Infringement Cases filed against Top Five Chinese Car Manufacturers by the End of Year 2009

Company	Up to Year 2009		
	Total Infringement Cases	IP Cases	No. of Patents
Brilliance Auto	8	3	297
BYD Auto	7	3	5190
Geely Auto	6	5	806
Cherry Automobile	5	1	3553
Great Wall Motors	4	2	286

Source. <http://www.lawyee.net/> (Retrieved on 2010-5-15)

From the data manipulation it can be implied that there is no direct relation between the number of patents held and the number of infringement cases filed against each company. For instance, Brilliance auto has the highest number of infringement cases filed against it, but, has the second lowest number of registered patents. Similarly, Cherry automobile has the second lowest number of infringement cases filed against it, but, has the second highest number of registered patents.

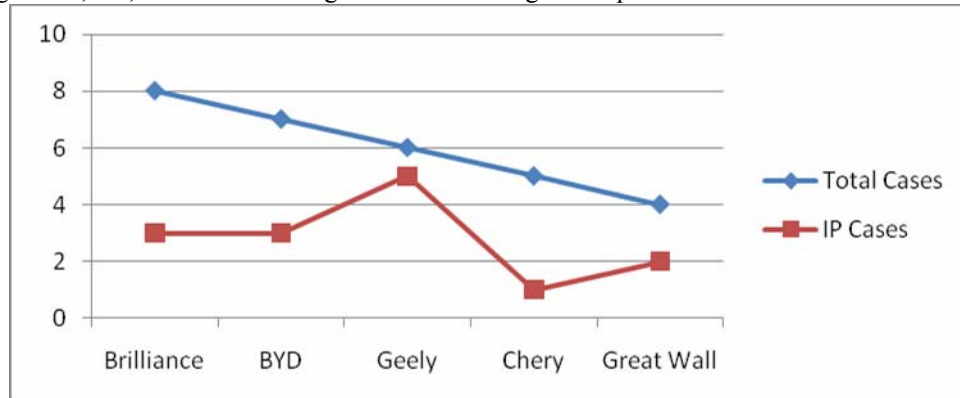


Figure 2 Infringement and IP Related Cases Filed against Top Five Chinese Car Manufacturers

3 Conclusion

Patents provide the opportunity to gain maximum market share by monopolizing inventions / innovations and hinging imitation. Patents also provide basis for assessing an organization's innovative capabilities and competitive edge in the domestic as well as international markets. The Chinese domestic car manufacturers, which have long been criticised for imitating their foreign rivals, are now seen in the forefront to increase the number of their registered patents and enhance competitive edge within China as well as abroad.

This paper has tried to assess the innovativeness of the top five Chinese car manufacturers, i.e. Cherry Automobile, Build Your Dreams (BYD), Brilliance Auto, Geely Auto Co. and Great Wall Motors. Based upon the analyses it has been found that, BYD auto can be nominated as the most innovative Chinese domestic car manufacturer with a total of 5190 registered patents till the end of year 2009. Future research in this area can be carried out by assessing and comparing the innovative capabilities of Chinese domestic and foreign car manufacturers operating in the Chinese as well as international markets on the basis of patent information analyses.

References

- [1] International Chamber of Commerce. Intellectual Property: Source of Innovation, Creativity, Growth and Progress, 2005
- [2] Rita Hayes. Promoting Intellectual Property for Economic Growth[J]. Vanderbilt Journal of Transnational Law, 2003,36(3)
- [3] Larry D. Qiu. China's Automotive Industry[D]. Hong Kong: Hong Kong University of Science and Technology, 2005
- [4] Raja Irfan Sabir. An Evaluation of the Innovative Capabilities of Chinese Car Manufacturers[D]. Wuhan University of Technology, 2009
- [5] Wuhan: Scherer, F.M. Research on Patents and the Economy: The State of the Art[M]. Cambridge: Harvard University, 1992
- [6] Jen'o Kurtosy. Innovation Indicators Derived from Patent Data[J]. Periodica Polytechnica Ser. Soc. Man. Sci, 2004,12(1):91-101