

The Impact of Intellectual Property on Performance of Enterprises in Vietnam

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Abstract:

The objective of this paper is to assess the impact of intellectual property on the performance, in particular, the financial efficiency of Vietnamese businesses. The results show that intellectual property has a positive impact with a very strong coefficient on financial efficiency. From that, the author recommends that businesses should invest in building intellectual property development to improve business efficiency and sustainable development of the country.

Keywords: *Intellectual property, performance, Vietnam*

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1. Introduction

Intellectual property is playing an increasingly important role in socio-economic development, especially in the context of deeper and deeper integration. After more than 10 years of joining the World Trade Organization (WTO), Vietnam has built a relatively adequate intellectual property system, in accordance with international standards of the WTO, including policies, laws on the protection of intellectual property rights and the organization of law enforcement policies. However, due to the intrinsic requirements of development in Vietnam, a long-term development strategy for the intellectual property system is needed, making it a real tool to promote economic development. - society of the country. The strategy for scientific and technological development in Vietnam up to 2020 has also set the need for a programmed development (program) for the intellectual property system. The Government has also assigned the Ministry of Science and Technology to urgently develop a national IP strategy for submission to the Prime Minister (Notice No. 321 / TB-VPCP of October 12, 2016). The Drafting Board of the Strategy-making project also set out requirements for three key contents of the Strategy: Establishing intellectual property rights; Protection of intellectual property rights; Develop intellectual property. In this context, this project was directly assigned by the Ministry of Science and Technology to the Institute of Intellectual Property Science to provide theoretical and practical basis for the development of strategic content on "development". intellectual property development.

In recent years, the positive impact of intellectual property such as patents, designs, trademarks ... on economic growth has been measured and verified by a number of researches and measurement studies in the United States and the region. In the European region (USPTO, 2012; EPO and OHIM, 2013), reaffirmed the hypothesis of the role of intellectual property protection system as a tool for macroeconomic development. However, at the micro level, apart from the recent OHIM (2015) study, there seems to be quite a few studies that measure "development", namely the creation, monopoly establishment and exploitation of intellectual property of an enterprise, as well as the impact of its intellectual property on the business results of the enterprise itself. In Vietnam, there has been almost no research on these issues so far. This situation shows that although enterprises are the main actors creating intellectual property and exploiting those assets that bring benefits to the economy, they are not paid much attention to researching and proposing environmental policy solutions. field maximum advantage for the operation of this object. Therefore, the study of the current situation of intellectual property development of Vietnamese enterprises aims to provide theoretical and practical basis to support the formulation of macro strategies to promote the creation and exploitation of intellectual property. Contributing to economic growth is really necessary. At the same time, the strategy for developing intellectual property by 2030 should be set in the context of compatibility with other national strategies in this period, such as the Science and Technology Strategy up to 2020, the Strategy Vietnam's industrial development has a vision to 2035, the Government's small and medium-sized enterprise development plan ..., therefore the feasibility and suitability

of the intellectual property development strategy should also be considered. review and review systematically and comprehensively with macro and sectoral strategies

2. Literature review

For more than a decade, the issue of enterprise intellectual property development has really attracted the attention of many scholars and organizations. That's because in the intellectual property cycle (IP Circle), businesses play a central role in all activities: creation - monopoly establishment - exclusive exploitation of intellectual property.

2.1. Intellectual property

The research works of Bosworth and Westaway (1984), Scott (1990), UN (2011) suggested that economic factors play a decisive role in the creation of intellectual property, in which the profits from monopoly, competitive advantage, cost savings ... are motivating factors, market saturation, barriers to market entry, low monopoly protection effect are factors that hinder the create intellectual property of the business. According to IPRIA (2005), Lorenz (2009), Theresa (2011), EUIPO (2016). The main reason urging businesses to use the intellectual property protection system is to combat illegal copying, enhance legal stability, increase the value and image of businesses, improve efficiency. monopoly protection force, empowering the licensing negotiations, attracting investors. Factors belonging to enterprises such as lack of knowledge, intellectual property are not creative enough, costly and registration procedures cause delays in bringing products to market, risks in monopoly enforcement. .. is the reason hindering businesses from accessing intellectual property protection system and establishing intellectual property monopoly. Rassenfosse (2011), Daral et al. (2012), Ziegler et al. (2013) argue that enterprise-related factors such as organizational structure and management level, the size of intellectual property blocks , the motivation for intellectual property exploitation, market acceptance, licensing and business partners ... have an important influence on the exploitation of intellectual property in the form of investment and use. directly or delivered. In general, although the aforementioned studies were conducted in different contexts, yielding different results, those results were not contradictory but complementary, reflecting the overall picture of Factors that positively and negatively affect the intellectual property development activities of enterprises, including large and medium-sized enterprises.

2.2. Relationship between Intellectual Property and enterprise performance

The contribution of intellectual property to the business results of enterprises is also mentioned in many recent studies. Munari (2012), Philipp and Christine (2013), OHIM (2015) have shown that enterprises with intellectual property (inventions, designs, brands) have 29% higher revenue / labor than enterprises. Enterprises have no intellectual property, especially for small and medium enterprises, the above difference is 31.7% compared to 4% of large enterprises. The type of intellectual property and the way it is used have a positive impact on business results, such as using a combination of trademarks and designs that increase the business results of a business 39%, compared to using it only. patent, the increase is only 15%. These studies confirm a positive relationship between intellectual property ownership, ownership size and business performance of the enterprise.

The important role of intellectual property is recognized not only for macroeconomic growth and social welfare but also for the formation and development of internal resources of enterprises (Menell & Scotchmer, 2007; Rockett , 2010). The reward theory is that the reward for a creative result is the exclusive commercialization of that creative result. The most important reason for policies to promote innovation is how to produce a lot of intellectual property (Munari, 2014). According to the classic theories of Arrow (1962) and Nordhaus (1969), information about the nature of the invention has typical properties of public goods, which are "non-competitive" and "non-type". minus". Once information about the nature of the invention is disclosed, anyone can access, use it at zero cost, and can eliminate the invention of the inventor. The exclusive right to the invention is a tool to overcome the aforementioned market failures and encourage creative activities. Contract

theory holds that a patent for a patent is a contract between the inventor and society, whereby the exclusive right to the invention is a trade-off in full disclosure of information. patent for the whole society (Rockett, 2010). The inventor himself also benefits from the dissemination of patent information to further intellectual property for his invention. According to Boldrin & Levine (2002), in a competitive market, patent monopoly brings an advantage to market access and an advantage in the competition to bring products to market, bringing future revenue streams from the invention. and the opportunity to reinvest in creative activities is also a great encouragement for creators.

In Vietnam, studies on the situation and the need to develop intellectual property quantitatively seem to be quite small. Some recent studies of Nguyen Minh Ngoc (2016) and Nguyen Huu Xuyen (2016) mainly mentioned a number of factors affecting the exploitation of invention, technology and business results of enterprises belonging to a number of industries such as manufacturing, processing, un-classified enterprises and research on other types of intellectual property. Research by Nguyen Thi Phuong (2013) has only generalized a few points about the current situation and solutions on patent exploitation and industrial transfer activities in Vietnam.

3. Research method

The sample is for businesses that include both large and small businesses. The author sent a survey to 200 enterprises across the country with intellectual property registered at the Intellectual Property Department of the Ministry of Science and Technology of Vietnam. During the 3-month data collection period, the author collected 196 surveys after filtering and classifying the remaining 189 questionnaires eligible for analysis.

Statistical analysis tools: SPSS software; Smart PLS software for searching database of SHCN (VIPRI_INV, VIPRI_NH, VIPRI_KD); software to search database of business activities (Stox, KLS, CafeF ...).

From an enterprise perspective, the author will focus on studying three core activities of intellectual property development: creation, establishment of monopoly rights, and exploitation of intellectual property. Factors with positive and opposite effects on these three activities will be identified in order to analyze and assess the direct effect on intellectual property development. The relationship between the development of intellectual property and the business results of an enterprise is also verified to analyze and assess the role of intellectual property development in the enterprise. On that basis, strategic solutions will focus on factors that promote / hinder the creation, establishment of monopoly and exploitation of intellectual property of enterprises in order to continue developing intellectual property. Intelligence of Vietnamese businesses until 2030.

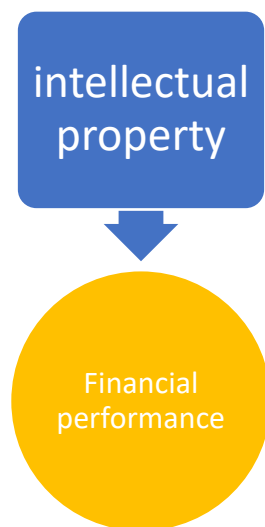


Figure 1: Research model

To assess the impact of intellectual property on business performance, we use the research model of EUIPO (2015), whereby the relationship between the amount of intellectual property of the business and the Business results are reflected in the following equation:

$$\text{Regression equation: } FP = \beta_0 + \beta_1.IA + U$$

in which: FP (dependent variable) is the business result of the enterprise, measured by the turnover / labor ratio; financial performance measurement indicators of the survey year compared to the previous 3 years (period: 2016 - 2018); IA (independent variable) is the amount of intellectual property owned by the enterprise, measured by the number of inventions and protections under its ownership; β_0 is the blocking factor; β .

4. Research results

Results of regression testing of the impact of intellectual property on the business results of enterprises:

The variables in the model are measured and tested for reliability and satisfaction of conditions

Table 1

Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
intellectual property	0.981	0.982	0.980	0.664
Financial performance	0.920	0.925	0.920	0.698

Table 2

Discriminant Validity

Fornell-Larcker Criterion

	intellectual property	Financial performance
intellectual property	0.815	
Financial performance	0.460	0.836

Table 3

Model_Fit

Fit Summary

	Saturated Model	Estimated Model
SRMR	0.064	0.064
d_ULS	2.543	2.613
d_G	2.360	2.366
Chi-Square	9583.928	9583.932
NFI	0.246	0.252

The F-test result shows that the adjusted coefficient of determination $R^2 = 0.625$; sig. = 0.000 bias of the dependent variable (FP). Based on the above evaluation and testing results, it can be said that in the period of 2016-2018, there is a basis to confirm the existence of the relationship between the amount of intellectual property owned by the enterprise and the results. business of business:

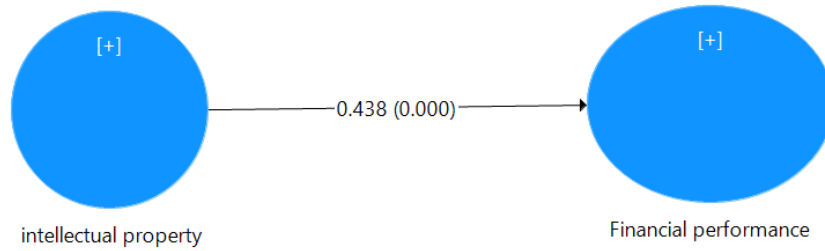


Figure 1: Results of hypothesis testing

The results show that intellectual property has a very strong impact on financial efficiency in Vietnamese enterprises. Since then encourage Vietnamese businesses to develop and build intellectual property. Intellectual property has a very strong impact on financial efficiency at the impact level of 0.438 at the 1% significance level (P_value = 0.000).

5. Conclusion

Intellectual property is increasingly recognized as having an important role in the formation and development of internal resources of the business and has a positive contribution to the business results of the business. Many empirical evidence in the world has confirmed the necessity of the enterprise's intellectual property development activities and identified the incentives / reasons for creating, establishing monopoly, exploiting / commercializing assets. intellectual property of the business. At the micro level, there are also many studies measuring the "development" of intellectual property of enterprises, namely the creation, establishment of monopoly and commercialization of intellectual property, as well as the impact. of intellectual property to the business results, the establishment and internal development of the enterprise. The positive relationship between intellectual property and business results has been confirmed in the aforementioned studies. To analyze and assess the status of creation, monopoly establishment and commercialization of intellectual property of Vietnamese enterprises, we learn about the feelings and experiences of 201 enterprises through in-depth interviews and surveys. by questionnaires, especially those that promote or hinder intellectual property development. The analysis results show that in terms of policies, in order to encourage enterprises to establish monopolies on intellectual property, the State should pay attention to facilitating the process of protection registration by shortening the time limit. application processing time, reducing the application requirements and detailed instructions for applicants; improve the efficiency of monopoly enforcement, significantly limit the situation of infringement and build trust for businesses; enhance the service of the industrial property information assurance system to help enterprises fully and promptly access existing patent, business and banking data, avoid duplicate creation and improve their creation of intellectual property. For businesses, the commercialization of intellectual property depends heavily on the effectiveness of exclusive protection. The monopoly regime on intellectual property is effectively implemented, the infringement situation is limited and repelled will contribute to promoting the commercialization of intellectual property. At the same time, the abuse of monopoly rights on intellectual property may also lead to the risk that intellectual property is used at low levels in industries and negatively affect the promotion of technology transfer. . It seems that the exploitation of information on intellectual property is still inadequate, many intellectual property created have not kept up with the level and trend of technology development, the link between intellectual property and demand. The industrial sector is still lax, leading to the fact that many intellectual properties are created but outdated compared to current technology, have little economic value and potential for commercialization, making it difficult to attract investors. The analysis results also show that the limitations of resources, especially capital,

are difficulties that businesses can overcome through cooperation in investment, development and commercialization of intellectual property, transfer. (including cross-licensing) technology.

To confirm the benefits of intellectual property development for Vietnamese businesses, we conduct a survey and analyze the impact of intellectual property on business results with the above survey sample. . The analysis results show that there seems to be an imbalance in the development of intellectual property according to the structure of industry: industries in which Vietnam has a competitive advantage (labor, resources) are held. holds not much intellectual property, while highly competitive industries and capital that are not Vietnam's technological strengths have relatively many intellectual property (mainly NH). This situation shows that the economic growth model at the enterprise level is relying heavily on low-level competitive advantage and the shift of investment resources for technology development from the State to enterprises is quite slow. In terms of business results, the analysis of the survey sample shows that it appears that intellectual property has a certain contribution to the business. Firms holding more intellectual property have higher returns per employee than those holding less intellectual property. It can be seen that in the extracted sample, when the number of intellectual properties of the business increases, the business results also increase. The estimation of the regression coefficient also indicates that if the number of intellectual properties increased by 1 unit, it is likely to increase the business results of enterprises by more than 10.97 times. Thus, the analysis results show that it is consistent with the reality and previous studies on the positive relationship between intellectual property and business results of enterprises, in the context of Vietnam, intellectual property Intelligence plays an important role in the business activities of the enterprise. The correlation between the amount of intellectual property and the turnover / employee of the business indicates that the more intellectual property enterprises have, the better their chances of improving their competitive position in the market.

The above-mentioned national and international contexts posing a general challenge for Vietnam's intellectual property system but also creating new development opportunities. Based on the analysis of the research overview, the situation and the needs of intellectual property development of Vietnamese enterprises in recent years, from the perspective of macro management, the State should pay attention to a number of views. develop the following: attach importance to the role of intellectual property protection in Vietnam's socio-economic development career; Intensive intellectual property system development is a thorough requirement, improving quality is the top priority; improving human capacity is a breakthrough measure; raising technology level is an important measure; and active and proactive international cooperation, especially in ASEAN, on intellectual property. The overall development goal is to have a significantly improved quality of intellectual property system; Vietnam strives to reach the level of leading ASEAN countries by 2030 on the basis of a reasonable, transparent and effectively enforced legal basis, meeting practical requirements. , protecting the legal interests of intellectual property rights holders as well as consumers and society, intellectual property has contributed significantly to the country's economic growth.

Reference

- i. Almeida Don, et al. 2010. *Government's Many Roles in Fostering Innovation*,
- ii. *PricewaterhouseCoopers' Center for Technology and Innovation*.
- iii. Amara, N., Landry, R., Traore, N. 2008. *Managing the protection of innovations in knowledge-intensive business services. Research Policy*, 37 (9): 1530-1547.
- iv. Anton, J., D. Yao. 2004. *Little Patents and Big Secrets: Managing Intellectual Property. RAND Journal of Economics*, 35(1): 1-22.
- v. Anton, J.J. and D.A. Ya. 1994. *Expropriation and Inventions: Appropriable Rents in the Absence of Property Rights, American Economic Review*, 84 (1), pp.190-209.
- vi. Arora, A., 1997. *Patents, licensing, and market structure in the chemical industry. Research Policy* 26 (4-5), 391–403.
- vii. Arora, A., Fosfuri, A. and Gambardella, A. 2001. *Markets for Technology: The Economics of Innovation and Corporate Strategy*, The MIT Press, Cambridge MA.

- viii. Arrow, Kenneth J. 1962. *Economic Welfare and the Allocation of Resources for Invention*, in Richard R.Nelson (ed.), *The Rate and Direction of Inventive Activity: Economic and Social Factors*, National Bureau of Economic Research, Conference Series, Princeton: Princeton University Press, pp. 609-625.
- ix. Arundel, A., 2001. *The Relative Effectiveness of Patents and Secrecy for Appropriation*. *Research Policy*, 611–624.
- x. Baker, S., Mezzetti, C., 2005. *Disclosure as a Strategy in the Patent Race*. *The Journal of Law and Economics* 48 (1), 173–194.
- xi. Bascavusoglu-Moreau, E., Tether, B., 2011. *Design Economics Chapter Two: Registered Designs & Business Performance – Exploring the Links*. Intellectual Property Office, Report 2011/6: 1-36.
- xii. Bennett, S., Bowers, D., 1976. *An introduction to multivariate techniques for social and behavioural sciences*. Macmillan, New York.
- xiii. Bessen, J. 2009. Estimates of firms' patent rents from firm market value, *Research Policy*, 38(10), 1604-1616.
- xiv. Bessen, J. E., Meurer, M. J. 2008. *Patent Failure: How Judges, Bureaucrats and Lawyers Put Innovators at Risk*. Princeton University Press: Princeton, N.J.
- xv. Blind, K., Cremers, K., Mueller, E., 2009. The influence of strategic patenting on companies' patent portfolios. *Research Policy* 38 (2), 428–436.
- xvi. Blind, K., Edler, J., Frietsch, R., Schmoch, U., 2006. Motives to patent: Empirical evidence from Germany. *Research Policy* 35 (5), 655–672.
- xvii. Block Jorn H., Fisch Christian, Hahn Alexander & Sandner Philipp G. 2015. Why Do SMEs File Trademarks? Insights from Firms in Innovative Industries, *Research Policy*, 44, 1915– 1930 (June 10, 2015).
- xviii. Block, J., De Vries, G., Schumann, J.H., Sandner, P., 2014a. Trademarks and venture capital valuation. *Journal of Business Venturing* 29 (4), 525–542.
- xix. Block, J., Fisch, C., Sandner, P. 2014b. Trademark families: characteristics and market values. *Journal of Brand Management* 21 (2), 150–170.
- xx. Block, J., Sandner, P., 2009. What is the effect of the financial crisis on venture capital financing? Empirical evidence from US internet start-ups. *Venture Capital* 11 (4), 295– 309.
- xxi. Bloom, N., Van Reenen, J., 2002. Patents, Real Options and Firm Performance. *The Economic Journal*, 112:97-114.
- xxii. Boldrin, M., Levine, D. K. 2008. *Against Intellectual Monopoly*. Cambridge University Press, Cambridge, UK.
- xxiii. Bound, J., Cummins, C., Griliches, Z., Hall, B.H., Jaffe, A., 1984. Who does R&D and who patents. In: Z.Griliches (Ed.): *R&D, patents, and productivity*, Chicago: University of Chicago Press, 21–54.
- xxiv. Brouwer, E., Kleinknecht, A. 1999. Innovative Output, and a Firm's Propensity to
- xxv. Patent. An Exploration of CIS Micro Data, *Research Policy*, 28: 915-624.
- xxvi. Candi, M., Saemundsson, R. J. 2011. Exploring the relationship between aesthetic design as an element of new service development and performance. *Journal of Product Innovation Management*.
- xxvii. Cheng, Y. et.al., 2010. Profitability decided by patent quality? An empirical study of the U.S. semiconductor industry, *Scientometrics* 82: 175-183.
- xxviii. Chiva, R., Alegre, J. 2009. Investment in design and firm performance: The mediating role of design management. *Journal of Product Innovation Management*, 26(4): 424-440.
- xxix. Christensen, J.L., 2008. The IPR System, Venture Capital and Capital Markets - Contributions and Distortions of Small Firm Innovation?, DRUID Working Paper No. 08-03.
- xxx. Cincera, M. 1997. Patents, R&D and Technological Spillovers at the Firm Level: Some Evidence from Econometric Count Models for Panel Data, *Journal of Applied Econometrics*, 12(3).
- xxxi. Cockburn, I., Griliches, Z. 1988. Industry effects and appropriability measures in the stock market valuation of R&D and patents, *American Economic Review*, 88, 418–423.
- xxxii. Cohen, W. M., A. Goto, A. Nagata, R. Nelson, J. P. Walsh. 2002. R&D spillovers, patents and the

- incentives to innovate in Japan and the United States. *Research Policy*, 31: 1349– 1367.
- xxxiii. Cohen, W.M., Nelson, R.R., Walsh, J., 2000. Protecting their intellectual assets: appropriability conditions and why US manufacturing firms patent (or not). SSRN Working Paper No. 214952.
- xxxiv. Coombs, J., Bierly, P., 2006. Measuring technological capability and performance. *R&D Management*, 36 (4): 421-438.
- xxxv. Cornell University, INSEAD, and WIPO. 2015. *The Global Innovation Index 2015: Effective Innovation Policies for Development*, Fontainebleau, Ithaca, and Geneva.
- xxxvi. Daral et al. 2012. Assessing Exploitation Strategy: The Peripheral Determining Factors, *International Journal of Innovation, Management and Technology*, Vol. 3, No. 1, 2/2012.
- xxxvii. De Jong, J.P., Marsili, O., 2006. The fruit flies of innovations: a taxonomy of innovative small firms. *Research Policy* 35 (2), 213–229.
- xxxviii. *De Rassenfosse, G. 2011. How SMEs exploit their intellectual property assets: evidence from survey data. Small Business Economics, forthcoming.*
- xxxix. *De Rassenfosse, G., 2012. How SMEs exploit their intellectual property assets: evidence from survey data. Small Business Economics 39 (2), 437–452.*
- xl. *Duguet, E., Kabla, I. 1998. Appropriation Strategy and the Motivations to Use the Patent System: An Econometric Analysis at the Firm Level in French Manufacturing, Annales d'Économie et Statistique, N. 49/50.*
- xli. *Durand, R., Bruyaka, O., Mangematin, V., 2008. Do Science and Money go together? The Case of the French Biotech Industry. Strategic Management Journal, 29: 1281-1299.*
- xlii. *Eaton, J., Kortum, S., 1999. International technology diffusion: Theory and measurement. International Economic Review 40 (3), 537–570.*
- xliii. *Economics and Statistics Administration & United States Patent and Trademark Office (2012), Intellectual Property and the U.S. Economy: Industries in Focus, U.S. Department of Commerce, 3/2012.*
- xliv. *Economides, N.S. 1988. The economics of trademarks. Trademark Rep (78): 523-533.*
- xlv. *Edwards, R., Gut, A.M., Mavondo, F., 2007. Buyer animosity in business to business markets: evidence from the French nuclear tests. Industrial Marketing Management 36 (4), 483– 492.*
- xlvi. *Encaoua, D., Guellec, D., Martínez, C., 2006. Patent systems for encouraging innovation: Lessons from economic analysis. Research Policy 35: 1423-1440.*
- xlvii. *EPO & OHIM. 2013. Intellectual Property Rights Intensive Industries: Contribution to Economic Performance and Employment in the European Union, European Patent Office and Office for Harmonization in the Internal Market, 9/2013, Munich.*
- xlviii. *Ernst, H., 1995. Patenting strategies in the German mechanical engineering industry and their relationship to company performance. Technovation 15 (4): 225-240.*
- xlix. *Ernst, H., 2001. Patent applications and subsequent changes of performance: evidence from time-series cross-section analyses on the firm level. Research Policy 30: 143-157.*
- l. *Ernst, H., Conley, J., Omland, N., 2012. How to create commercial value from patents: The role of patent management. Research Policy: forthcoming.*
- li. *ESA & USPTO. 2012. Intellectual Property and the U.S. Economy: Industries in Focus, Economics and Statistic Administration & United States Patent and Trademark Office, 03/2012, Virginia.*
- lii. *EU IPO. 2016. Intellectual Property (IP) SME Scoreboard 2016, European Union Intellectual Property Office, 6/2016.*
- liii. *European Commission. 2003. Recommendation 2003/361/EC: Definition of SME. http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/smedefinition/index_en.htm. Accessed 8 August 2011.*
- liv. *European Patent Office & Office for Harmonization in the Internal Market. 2013. Intellectual Property Rights Intensive Industries: Contribution to Economic Performance and Employment in the European Union, Munich, 9/2013.*

- lv. Fink Carsten, et al. 2015. *World Intellectual Property Report 2015: Breakthrough Innovation and Economic Growth*, World Intellectual Property Organization, Economics and Statistics Division.
- lvi. Fischer, T., Henkel, J. 2011. *Patent Trolls on Markets for Technology - An Empirical Analysis of Trolls' Patent Acquisitions*, SSRN Working Paper No. 1523102.
- lvii. Flikkema, M., De Man, A., Castaldi, C., 2014. *Are trademark counts a valid indicator of innovation? Results of an in-depth study of new benelux trademarks filed by SMEs*. *Industry and Innovation* 21 (4), 310–331.
- lviii. Fosfuri, A., Giarratana, M., Luzzi, A., 2008. *The Penguin Has Entered the Building: The Commercialization of Open Source Software Products*. *Organization Science*, 19 (2): 292- 305.
- lix. Gaetan de Rassenfosse. 2011. *How SMEs Exploit Their Intellectual Property Assets: Evidence from Survey Data*, *Small Business Economics* (2012) 39:437-452.
- lx. Gallié, E., Legros, D., 2012. *French firms' strategies for protecting their intellectual property*. *Research Policy*, 41: 780-794.
- lxi. Gambardella Alfonso, et al. 2005. *The Value of European Patents Evidence From a Survey of European Inventors: Final Report of the PatVal EU Project*, DG Science and Technology, European Commission, HPV2-CT-2001-00013.
- lxiii. Gambardella Alfonso, et al. 2012. *Final Report of PatVal-EU II Survey Methods and Results*, DG Science and Technology, European Commission, 217299 (Deliverable 2.5).
- lxiv. Gambardella, A., Giuri, P., Luzzi, A. 2007. *The market for patents in Europe*. *Research Policy* 36(8): 1163-1183.
- lxv. Gambardella, A., Harhoff, D. and Verspagen, B. 2008. *The value of European patents*, *European Management Review*, 5, 69–84.
- lxvi. Gans, J.S., Hsu, D.H., Stern, S., 2002. *When does start-up innovation spur the gale of creative destruction?* *RAND Journal of Economics* 33 (4), 571–586.
- lxvii. Gemser, G., Leenders, M. A. 2001. *How integrating design in the product development process impacts on company performance*. *The Journal of Product Innovation Management*, 18(1): 28-38.
- lxviii. Gick, W., 2008. *Little Firms and Big Patents: A Model of Small-Firm Patent Signaling*. *Journal of Economics and Management Strategy* 17 (4), 913–935.
- lxix. González-Álvarez, N., Nieto-Antolín, M., 2007. *Appropriability of innovation results: An empirical study in Spanish manufacturing firms*. *Technovation* 27 (5), 280–295.
- lxx. Graham, S.J., Sichelman, T.M., Hall, B., 2008. *Why Do Start-Ups Patent?* *Berkeley Technology Law Journal* 23 (3), 1063–1097.
- lxxi. Granstrand, O., 2000. *The economics and management of intellectual property: Towards intellectual capitalism*. Edward Elgar, Cheltenham.
- lxxii. Greenhalgh, C., Rogers, M. 2011. *Trade Marks and Performance in Services and Manufacturing Firms: Evidence of Schumpeterian Competition through Innovation*. *The Australian Economic Review*, 45 (1): 50-76.
- lxxiii. Greenhalgh, C., Rogers, M., 2006. *The value of innovation: The interaction of competition, R&D and IP*, *Research Policy*, 35 (4): 562-580
- lxxiv. Greenhalgh, C., Rogers, M., 2008. *Intellectual property activity by service sector and manufacturing firms in the UK, 1996–2000*, in H. Scarbrough (Ed.), *The Evolution of Business Knowledge*, Oxford University Press, pp. 295–318.
- lxxv. Greenhalgh, C., Rogers, M., 2012. *Trademarks and performance in services and manufacturing firms: evidence of schumpeterian competition through innovation*. *The Australian Economic Review* 45 (1), 50–76.
- lxxvi. Griliches, Z. 1981. *Market Value, R&D and patents*, *Economics Letters*, 7: 183-187. Griliches, Z., 1990. *Patent Statistics as Economic Indicators: A Survey*. *Journal of Economic Literature*, 28:1661-1707.
- lxxvii. Hagedoorn, J., Cloudt, M., 2003. *Measuring innovative performance: is there an advantage in using*

- multiple indicators? *Research Policy* 32: 1365-1379.
- lxxviii. Hall, B., C. Helmers, M. Rogers, and V. Sena. 2012. *The Choice between Formal and Informal Intellectual Property: A Literatur Review*. NBER Working Paper 17983: 1-41.
- lxxix. Hall, B., Ziedonis, A. 2001. *The Determinants of Patenting in the U. S. Semiconductor Industry, 1980–1994*. *Rand Journal of Economics* 32: 101-118.
- lxxx. Haskell, J., Pesole, A. 2011. *Design services, design rights and design life lengths in the UK*. Report commissioned by the Intellectual Property Office United Kingdom, London.
- lxxxi. Helmers, C., Rogers, M. 2011. *Does patenting help high-tech start-ups?* *Research Policy*, 40: 1016-1027.
- lxxxii. Helmers, C., Rogers, M., 2010. *Innovation and the survival of new firms in the UK*. *Review of Industrial Organization* 36 (3), 227–248.
- lxxxiii. Henkel, J., Jell, F., 2009. *Alternative Motives to File for Patents: Profiting from Pendency and Publication*. SSRN Working Paper No. 1271242.
- lxxxiv. Henkel, J., Pangerl, S.M., 2008. *Defensive Publishing - An Empirical Study*. SSRN Working Paper No. 981444.
- lxxxv. Hertenstein, J. H., Platt, M. B., Veryzer, R. W. 2005. *The impact of industrial design effectiveness oncorporate financial performance*. *Journal of Product Innovation Management*, 22(1): 3-21.
- lxxxvi. Hipp, C., Grupp, H., 2005. *Innovation in the service sector: the demand for service- specific innovation measurement concepts and typologies*. *Research Policy* 34 (4), 517–535.
- lxxxvii. Holgersson, M., 2013. *Patent management in entrepreneurial SMEs: a literature review and an empirical study of innovation appropriation, patent propensity, and motives*. *R&D Management* 43 (1), 21–36.
- lxxxviii. Hsu, D., Ziedonis, R., 2008. *Patents as quality signals for entrepreneurial ventures: Academy of Management Best Paper Proceedings*. *Academy of Management Annual Meeting Proceedings* 8 (1), 1–6.
- lxxxix. Hussinger, K. 2006 . *Is Silence golden? Patents versus Secrecy at the Firm Level*. *Economics of Innovation and New Technology*, 15 (8): 735-752.
- xc. INDSTAT. 2016. *Vietnam Employments Statistics in Industries*, United Nations Industrial Development Organization (UNIDO), http://data.un.org/Data.aspx?d=UNIDO&f=tableCode%3a04#f_1.
- xci. IPRIA. 2005. *Factors Affecting the Use of Intellectual Property (IP) Protection by Small Medium Enterprises (SMEs) in Australia*, the University of Melbourne, 4/2005.
- xcii. Jell, F., Henkel, J., 2010. *Patent Portfolio Races in Concentrated Markets for Technology*. DRUID Working Paper No. 10-23.
- xciii. Jensen, P., Webster, E. 2004. *SMEs and Their Use of Intellectual Property Rights in Australia*, Melbourne Institute Working Paper No. 17/04.
- xciv. Jensen, P., Webster, E. 2006. *Firm Size and the Use of Intellectual Property Rights*. *The Economic Record*, 82 (256): 44-55.
- xcv. Keupp, M.M., Lhuillery, S., Garcia-Torres, M.A., Raffo, J., 2009. *Economic focus study on SMEs and intellectual property in Switzerland*. 2nd Report of the IPI SME-IP Project, Swiss Federal Institute of Intellectual Property.
- xcvi. Khan B. Zorina. 2015. *Inventing Prizes: A Historical Perspective on Innovation Awards and Technology Policy*, *Business History Review*, 89(4), pp.631-660.
- xcvii. Kim, Y. et.al. 2010. *Appropriate intellectual property protection and economic growth in countries at different levels of development*. *Research Policy*, 41: 358-375.
- xcviii. Kransnikov, A., Mishra, S. Orozco, D. 2009. *Evaluating the Financial Impact. Of Branding Using Trademarks: A Framework and Empirical Evidence*. *Journal of Marketing* 73: 154-166.
- xcix. Kransnikov, A., Mishra, S., Orozco, D., 2009. *Evaluating the financial impact of branding using trademarks: a framework and empirical evidence*. *Journal of Marketing* 73 (6), 154–166.

- c. Landes, W., Posner, R. 2003. *The Economic Structure of Intellectual Property Law*. Harvard University Press, Cambridge, MA.
- ci. Lerner, J. 2009. *The Empirical Impact of Intellectual Property Rights on Innovation: Puzzles and Clues*. American Economic Review Papers and Proceedings.
- cii. Lerner, J., Zhu, F., 2007. *What is the impact of software patent shifts? Evidence from Lotus v. Borland*. *International Journal of Industrial Organization*, 25: 511-529.
- ciii. Licht, G., Zoz, K. 1998. *Patents and R&D. An Econometric Investigation using Applications for German, European and US Patents by German Companies*, *Annales d'Économie et Statistique* 49.50.
- civ. Lichtenthaler, U. 2009. *The role of corporate technology strategy and patent portfolios in low-, medium and high-technology firms*, *Research Policy* 38(3): 559-569.
- cv. Long, C., 2002. *Patent Signals*. *The University of Chicago Law Review* 69 (2), 625–679.
- cvi. Lorenz Zehetbauer. 2009. *Strategic Patent Management - A Survey Among Inventors*, GPTO.
- cviii. Mann, R.J., 2005. *Do Patents Facilitate Financing in the Software Industry?* *Texas Law Review* 83 (4), 961–1030. Mansfield, E., Schwartz, M., Wagner, S., 1981. Imitation costs and patents: an empirical study. *The Economic Journal* 91 (364), 907–918.
- cx. Markman, G., Espina, M., Phan, P., 2004. *Patents as Surrogates for Inimitable and Non-Substitutable Resources*. *Journal of Management* 30 (4): 529-544.
- cxii. Mendonça, S., Pereira, T. S., & Godinho, M. M. 2004. *Trademarks as an indicator of innovation and industrial change*. *Research Policy*, 33(9): 1385-1404.
- cxiii. Mendonça, S., Pereira, T.S., Godinho, M.M., 2004. *Trademarks as an indicator of innovation and industrial change*. *Research Policy* 33 (9), 1385–1404.
- cxiiii. Menell, P., Scotchmer, S. 2007. *Intellectual Property Law*, in Polinsky, M.A., Shavell, S. (eds.) *Handbook of Law and Economics*, Elsevier.
- cxv. Merges, R.P., Nelson, R.R. 1990. *On the complex economics of patent scope*. *Columbia Law Review*. 839.
- cxvi. Rockett, K. 2010. *Property rights and invention*, in Hall, B.H., Rosenberg, N. (Eds.) *Handbook of The Economics of Innovation*, Vol. 1, Elsevier.
- cxvii. Rogers, M., Greenhalgh C., Helmers, C., 2007. *An analysis of the association between the use of intellectual property by UK SMEs and subsequent performance*. Report for UK Intellectual Property Office.
- cxviii. Sandner, P., Block, J., 2011. *The market value of R&D , patents, and trademarks*. *Research Policy*, 40: 969-985.
- cxix. Schlicher, J.W., 2003. *Patent law: Legal and economic principles*, 2nd ed. ed., St. Paul Minn. Schneider, C., 2008. *Fences and competition in patent races*. *International Journal of Industrial Organization* 26 (6), 1348–1364.
- cxx. Schoenecker, T., Swansons, L. 2002. *Indicators of Firm Technological Capability: Validity and Performance Implications*. *Transactions on Engineering Management*, 49 (1): 36-44.
- cxxi. Scott A. Shane. 1990. *Why do Some Societies Invent More than Others*, the Wharton School of the University of Pennsylvania, 9/1990.
- cxxii. Seabrook, J. 1994. *The Flash of Genius*. *The New Yorker*, Jan 11, pp. 38-52.
- cxxiii. Shane, S., 2001. *Technology regimes and new firm formation*. *Management Science* 47 (9), 1173–1190.
- cxxiv. Sichelman, T., Graham, S.J., in press. *Patenting by Entrepreneurs: an Empirical Study*. *Michigan Telecommunications and Technology Law Review*. Spearman, C., 1904. *General Intelligence, Objectively Determined and Measured*. *The American Journal of Psychology* 15 (2), 201–292.
- cxxv. Spulber Daniel F. 2014. *Prices Versus Prizes: Patents, Public Policy, and the Market for Inventions, Public Policy, and the Market for Inventions (September 1, 2014)*. *Northwestern Law & Econ Research Paper*, pp.14-15.

- cxxvi. *Srinivasan, R., Lilien, G.L., Rangaswamy, A., 2008. Survival of high tech firms: the effects of diversity of product–market portfolios, patents, and trademarks. International Journal of Research in Marketing 25 (2), 119–128.*
- cxxvii. *Verganti, R. 2008. , Design, Meanings, and Radical Innovation: a meta-model and a research agenda, Journal of Product Innovation Management, 25, 436-456, 2008.*
- cxxviii. *Von Graevenitz, G., Greenhalgh, G., Helmers, C., Schautschick, P. 2012. Trademark cluttering: an explorative report, Report commissioned by the UK Intellectual Property, United Kingdom.*