

## Intellectual Property Rights and Performance of Start-ups

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### Abstract

Patents have a significant impact on firm's performance and facilitate firm's growth. Innovation has been viewed as means of firm's growth. Patents as innovation outputs could be market value signal. From an empirical viewpoint, the patent is an important managerial strategy especially in the case where the firm is new and small.

**Keywords:** Intellectual property right; Patent and innovation; Performance; Start-ups

### Introduction

What is the basic tenet of intellectual property rights (IPR) including patent system in each country? Patents combine incentives for the production of technological knowledge with incentives for diffusion of that knowledge [1]. This review paper deals with intellectual property rights and growth of start-ups. There is no exaggeration that intellectual capital is more important than physical capital in globalized and knowledge based societies. Most countries have been interested in facilitating start-ups and growth of them as a way of job creations. Those who claim that the patent is inevitable for creation new venture have been likely to see a patent at an insurmountable hurdle.

For firms, in particular high tech driven start-ups, IPR plays critical role to achieve the firm growth. Up until 2000s, IPRs have been acknowledged as a relevant, but not critical important, venture capital investment. Recently Venture Capital (VC) has attention to existence of patents start-ups have when it come to financial investment. Baum and Silverman [2] showed that start-ups of biotechnology which are possession of patent applications or patent grants have been likely to receive more venture capital financing than venture firms which have not patent protections. Hsu and Ziedonis [3] also showed that start-ups of semiconductor industry yields similar results in those start-ups which have the number of patent application and grants have been attracted financial evaluation by VCs, especially in early funding round. A study by Conti et al. [4] in the information technology start-ups from an incubator yielded that the number of patents applied by a start-up is positive related to the likelihood of venture capital investment. Empirical findings by Audretsch et al. [5] show that nascent start-ups possessing patents have high probability of obtaining financial funding from VCs, but only they possess a prototype at the same time.

As we the mentioned above, patents have positive correlation with nascent start-ups' growth. Of course, nascent start-ups have homework to growth constantly. To achieve it, they should do innovate the products or services ceaseless. Innovation is about busting through the hurdle or going around the brick wall. It is interesting in review the concept of disruptive innovation because disruptive innovation has been regarded as the best way to firm's growth for early stage start-ups. According to the basic concept of disruptive innovation theory, it focused on infer page rather than incumbent's mainstream demanding.

In the process of disruptive innovation, nascent firms utilize various patents they don't have. In this circumstance of innovation process, they may fringe to intellectual property rights unintentional. In order to limit the effect of barriers to innovation, policy for enforcement of IP rights should be flexible because government pursues to strengthen the domestic market power though the firm's grow, and create the job markets. However, government has homework to follow the

international criterion intellectual property rights. This paper deals with the intellectual property rights and firm growth by reviewing some related articles.

### Importance of Nascent Firm's Performance

Where will the jobs come from? One of the most important issues facing every country, then, is how to create new jobs. It is accepted that productivity has been related to the long term economic growth. Over the last decade the majority of productivity growth and job creation has come from innovation, mainly by small and nascent firms. According to the report released by Kauffman foundation [6], America, in 2007, 6 million firms, about half a million of these were brand new; another two million, or over one-third were five years old or younger. Some companies were expanding, some contracting, some standing still. By and large, job creation (about two-thirds) came from young firms.

As can be seen in Figure 1, the large majority of these enterprises end up with somewhere between twenty and two hundred forty nine employees. The average firm as a whole adds new jobs per year. Another point to notice in Figure 1 is that several thousand of these fast-growing enterprises grow to substantial size, employing 2000, 5000, or more than 10,000 people.

Firms during 3 years between from 7 to 5 have shown rapidly growth rate as can be seen (Figure 2). New company creation by itself, of course, is important for the economy because the net increase in employment that results from startup firms is absolutely essential if the economy is to achieve positive net job creation in any given year. Thus, simply increasing firm formation could increase job creation and increase the number of high-growth firms. However, it's not very clear how successful we can be in actually creating more new companies. Gibrat [7] devised a model of the dynamics of individual firms that predicts that all firms grow at the same proportional rate, irrespective of their initial size (Gibrat's law) implying that large, medium and small firms have the same average proportionate rates of growth. Jovanovic [8] showed that young firms grow faster than old ones as a result of accumulation of market knowledge overtime. Since young firms are usually smaller than older businesses, Jovanovic concluded that small firms grow faster than large ones.

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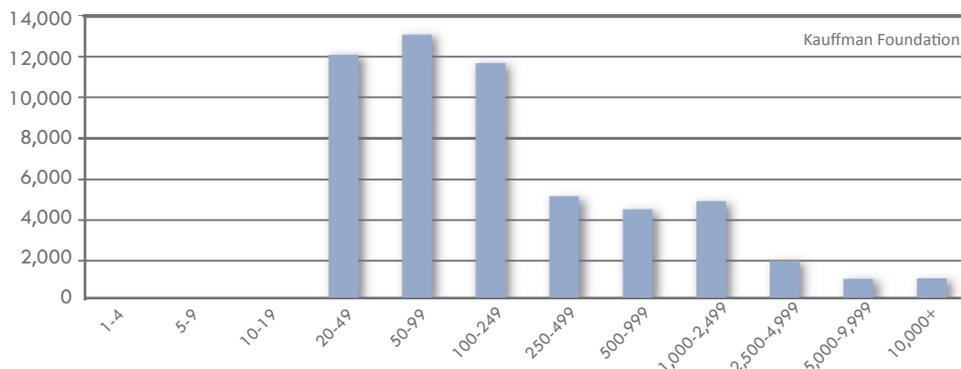


Figure 1: Firm size by number of employee (source by Kaffuman Foundation, 2011).

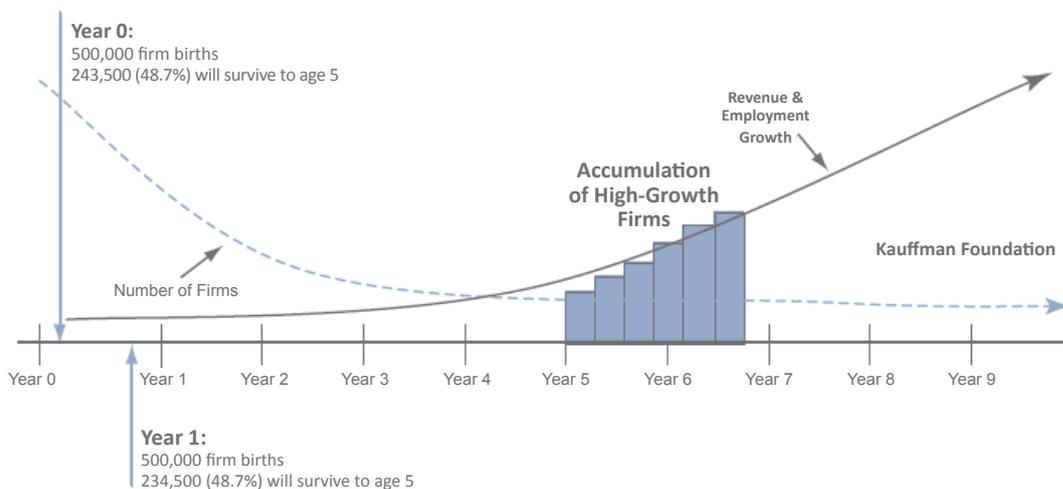


Figure 2: Accumulation of high growth firms (source: Kaffuman Foundation, 2011).

### Patent and Innovation

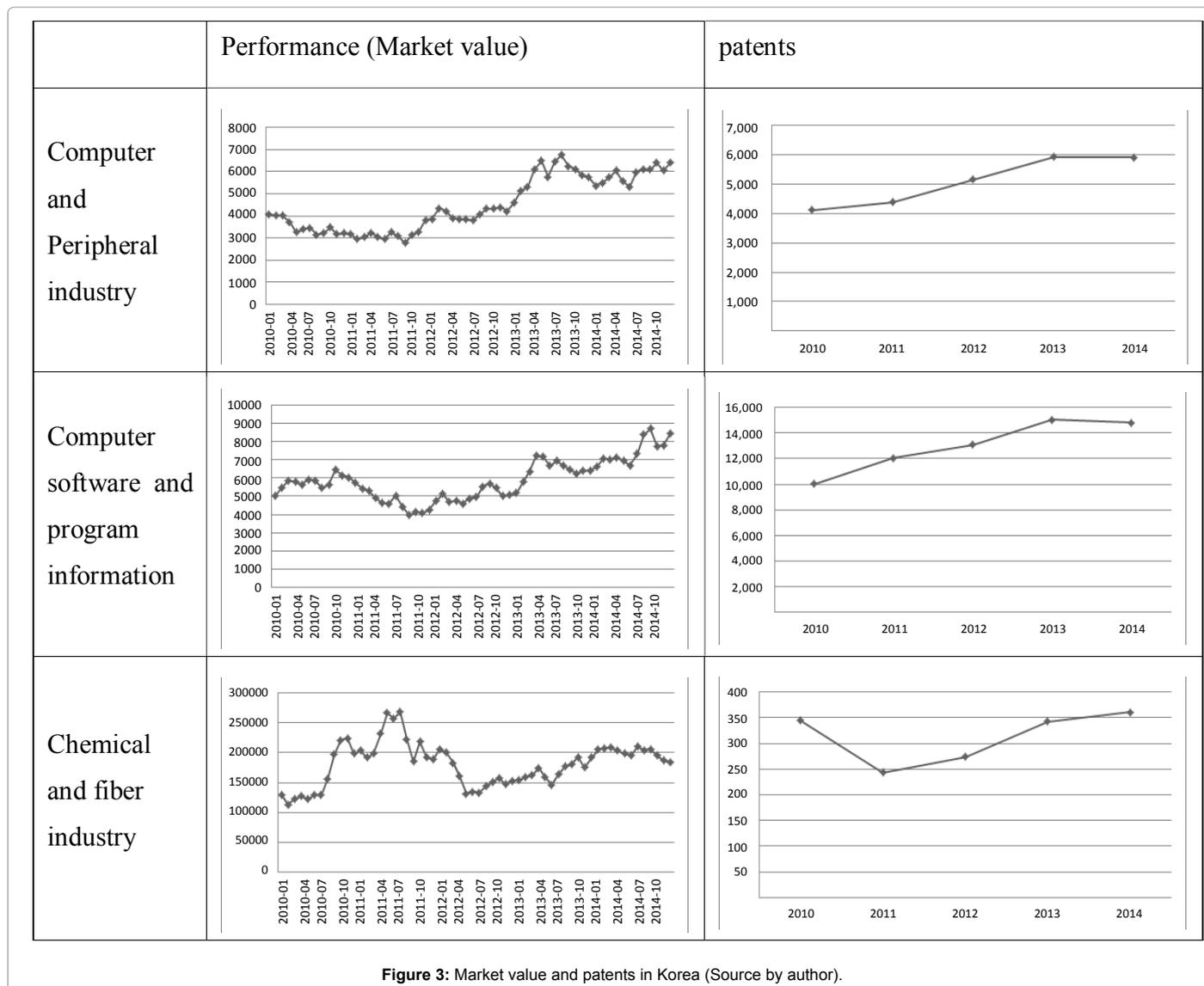
As mentioned above, in order to grow the firms, firm ceaselessly pursues the innovation. If patents facilitate firm’s growth, firms may seek to motivate way for innovators and ultimately see the competitive advantage given by patenting firm. Recently this issue that whether the patent harms or promotes innovation is questionable. In technology driven industry, many start-ups utilize not only their IPR but IPR they don’t have currently. The purpose to innovation for firms has various facets. Different measure of innovation activity may capture patent (i.e., publicly disclosed innovations) and non-patented activities (i.e., not-appropriated innovation output or trade secrets). Thus, patented and non-patented innovation activities (e.g., R&D) are to be value of firms. Boldrin and Levine [9] noted that “we should protect not Baum only the property rights of innovators but also the rights of those who have legitimately obtained a copy of the idea, from the original innovator. The former encourages innovation; the latter encourages the diffusion, adoption and improvement of innovation”. Recently a study regarding patent and innovation by Helmers and Rogers [10] gives important implications. From their research question: “Do patents improve performance measured as growth of start-up firms compared to start-ups that do not patent?” they give interesting results; firms benefit in two related ways form patenting: applying for a patent

is associated with a lower likelihood of failure and higher asset growth within a firm’s first five years of existence [11].

In the case of Korea, firm’s performance in three industries (computer and peripheral, computer software and program information and chemical and fiber industry) is positive correlated with patents for five years (Figure 3). Depicts that variation of market value measured per monthly highly correlated with patents of their industries. This diagram shows that firm’s performance have been affected by patents which is proxy of innovation outputs. Firms investigated are young firms that are all less than five years. Of course, firms investigated belong to all innovation driven industry. Despite of that, in fact, these new firms may rely on patent protection to establish themselves in the market and obtain some private rewards for their innovativeness. Innovations protected by patents have played a key role in business strategies regardless of firm size.

### Final Remarks

Clearly, patenting is positive relation with new firm’s performance. Evidence considered by both the reviewing the prior studies and empirical finings from Korea’s case shows that patents help small and nascent firm’s performance. As economics becomes more knowledge intensive, in order to keep firm’s strength and core values is crucial for nascent firms. And in order to survival in innovation ecosystem,



small and young firms should take into account of IPR strategies. The nature of innovation enable firms to answer the technical problems and to emerge the ideas from a wide range of organizations, some of whom may consider managing IPR to be an unacceptable obstacle in a high value business. This paper may contribute to promoting IPR strategy of nascent firms.

In the further study, author deals the extent to which between IPRs and firm’s growth in terms of job creation by utilizing econometric methodological approach.

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