Evolution of the Corporate Venture Capital Operations of Japanese Electronics Companies

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Abstract

We analyzed corporate venture capital (CVC) activities of Japanese corporations through case studies of six major electronics companies over the past 15 years. All six companies started their CVC operations in the mid-1990s, mostly in Silicon Valley, with subsequent expansion to other regions. All CVCs we studied emphasize strategic return rather than financial return as the CVC mission. A corporation's strategic motive of having a CVC function is either the exploration or exploitation of external technologies. The orientation between exploration and exploitation varies among companies, but a common pattern exists in the structure of CVC operations. When the strategic emphasis of CVC is to explore new technologies outside of the corporation, a CVC tends to invest through external venture capital funds and when the CVC goal is to exploit external technologies for the businesses of the parent corporation, CVC operations are preferred to have internal direct investment functions. The CVC operations often show changes in goals and structures because of factors such as management change and the parent company's performance, but some common evolution patterns can be identified. An explorative CVC often evolves into an exploitive CVC, but not vice versa. A CVC with internal direct investment functions typically seeks to make operations more independent from the parent corporation as they accumulate CVC knowledge, but the corporation often avoids losing control of the CVC by restricting its autonomy. Strategic return and financial return are not mutually exclusive goals of a CVC. A CVC should be positioned to pursue various kinds of strategic goals under the condition that an investment will be recovered financially. Financial success is important to secure continuation of CVC operations even if the CVC is purely strategically driven.

1. Introduction

Corporate venture capital (CVC) [1] is an activity of operational companies to make minority equity investments into independent startup companies either directly or through external venture capital funds. In fact, CVC has been a popular scheme for enterprises, especially in rapidly changing high-technology fields [1]-[2], to enable early access and utilization of innovative new technologies developed at startup companies. As the source of innovation for large enterprises has shifted from internal technologies developed at their own R&D organization to external technologies acquired through various means of open innovation [3]-[4], the role of CVCs has become increasingly important.

In the United States, CVCs first become popular in the 1960s and several peaks are apparent in the 1980s and 1990s [5]. However, most of the Japanese corporations, especially manufacturing companies, did not start CVC activities until the mid-1990s. The primary reason that the Japanese corporations were slow in adopting CVCs is that the Japanese companies had been able to rely continually on their internal R&D for their innovation longer than the US companies because there had not been much pressure from capital markets until the 1990s. The lack of technology startup companies in Japan was another reason that CVCs had not been popular in Japan.

Despite constant attention from researchers in the fields of innovation and entrepreneurship regarding CVCs beginning in the 1970s [6]-[9], studies of the CVCs of Japanese corporations have been few [10]. Herein, we analyze the characteristics of the Japanese corporations' CVCs [2] and compare them with those described in earlier reports of the literature. The remainder of the paper is structured as follows. After a review of previous studies in Chapter 2, the CVC activities of six Japanese electronics manufacturers are described in Chapter 3, which includes explanations of their historical transitions. We discuss our findings and compare them with prior studies in Chapter 4 before concluding the paper.

2. Prior Research

The primary goal of the CVC operation for an enterprise usually comprises two sub-goals: Financial return from the investment and strategic contributions to its businesses. The balance between these two factors has been a controversial issue not only in academic research, but also in the practical business environment. Some studies indicate that a CVC operation cannot succeed unless the operation sets strategic goals above financial returns [11]-[15], although others claim that financially driven CVCs have a higher probability of success not only financially but even strategically [16]-[18] and also survive longer than strategically driven CVCs [19]. Recent reports [20]-[21] present comparisons of such explorative and exploitative aspects of CVC operations.

[1] There are various definitions of CVC. For this paper, we specifically examine minority investments to startup companies and exclude M&A activities. "Corporate Venturing" is a similar term that usually includes in-house venture projects and/or spin-off ventures. Although spin-off ventures can be an investment target for a CVC as defined in this paper, we exclude Corporate Venturing programs that handle only spin-off companies without having the capability to invest in external startup companies.

[2] Part of this study has been reported in the following paper written in Japanese: "Corporate Venture Capital ni kansuru ichi-kousatsu", *Japan Ventures Review*, vol.11 (2008), pp.51-60.

The optimum organizational structure of a CVC depends on its purpose. For companies emphasizing capital gain, CVC operations can be most successful when structured closer to a typical venture capital firm [17]. However, for companies regarding strategic aspects of CVC operation as more important than capital gain, the distance between the CVC and its parent organization is a delicate issue when establishing a CVC organization [22]-[23]. Although the CVC organization must have a close relation with the parent corporation to achieve its strategic goals, it also must have some level of autonomy as long as the CVC is presumed to create new businesses that do not exist in the parent corporation. For a CVC to be successful, the CVC must commit not only capital but other sufficient resources to add value to the invested company [24]-[26] just as a traditional VC adds value to its portfolio company not merely by investing money but by spending time and effort on portfolio management.

Minority equity investments can be made either directly to the startup companies or indirectly through the venture capital firms as a limited partner (LP). Some studies [17], [27] compared these two schemes and discussed the superiority of indirect investment. In contrast, others [24], [28] argue that although indirect investment is effective in deal sourcing and relation-building with VCs, direct investment is more suitable for promoting business collaboration. Intellectual property of the parent corporation is also an important factor in structuring CVC operations [29]-[31]. The impact of various factors such as investment diversity, strategic linkage, and syndication to the CVC performance are also examined [32]-[34]. Lerner [35]-[36] classified the structural causes of CVC failures into three factors: lack of a clear goal, lack of corporate commitment, and lack of an appropriate compensation structure of the CVC staff.

Although several case studies of US corporations have been made (Lucent [3], [37], Xerox [38]-[39], Intel [39]-[41], Microsoft [39], Exxon [42]), no studies have examined Japanese corporations to date, except for a Harvard case study of Panasonic [43]. This paper presents an investigation of CVCs of Japanese corporations, particularly addressing the evolution of the goal and structure of their CVC operations.

3. Analysis of Japanese Electronics Manufacturers' CVCs

3.1 Research Methodology

As described herein, we have analyzed the CVC activities of six Japanese electronics manufacturers [3] in the past 15 years. These corporations are the six largest electronics manufacturers in Japan, each with more than 50 billion US dollars in annual revenues. Each corporation has many business units internally. Sometimes the business units have their own investment functions. However, we specifically examine the CVC operations executed at the corporate level and exclude investment activities by the business units because these investments are usually tied closely to specific businesses and should therefore be regarded as part of their business operations. Although these six companies certainly do not encompass all Japanese corporations, we believe that the six cases described in this paper represent general CVC patterns of Japanese corporations: these six companies are flagship companies in Japan; many other Japanese companies, even in other industry segments, study and follow these companies when starting CVC operations.

As discussed in Chapter 4, CVC operations involve many factors. They also evolve over time, sometimes drastically. Therefore, questionnaires at a certain time point are ineffective in analyzing CVC activities. The following case studies are based on interviews conducted of current and former members of the CVC organizations of each company during the past decade.

3.2 Summary of Case Studies

Following is a brief summary of CVC operations of the six companies.

(1) Company A

Company A established its CVC organization in Silicon Valley in 1998 under its corporate R&D division. The CVC was positioned as an outsourced R&D department and targeted to acquire external technologies through direct investments to startup companies. The Company hired a professional venture capitalist because they thought having a person with an extensive human network in Silicon Valley was crucial to gain access to good companies. The Company prepared a VC-like compensation structure to attract a suitable venture capitalist. The CVC organization was staffed with a mixture of the above-described venture capitalist, other locally hired junior investment professionals, and people dispatched from the R&D division of the parent corporation in Japan. Every investment deal was evaluated based on two viewpoints. One was an investor's evaluation by the hired venture capitalist. The other was a strategic evaluation by dispatched engineers. Although the potentiality of future business contribution was an important evaluation criterion, the CVC team was not obligated to receive any commitment or endorsement from business units when making investments.

The CVC investments were active during the first few years of operation, but the number of investments declined sharply after 2001, partly because of the bursting of the *internet bubble* in 2000, but the change of CTO of the parent corporation was a more important factor. The CTO who started the CVC operation had positioned the CVC as a corporate-wide organization. However, the new CTO position was that the primary focus of the CVC should be the contribution to the corporate R&D as long as the CVC operation was aligned under the corporate R&D organization. Because of the policy shift, investment professionals at the CVC organization were gradually replaced by staff having more business development background rather than investor background. When the corporate CTO changed again in 2003, CVC investments

[3] The six companies are Fujitsu Ltd., Hitachi Ltd., NEC Corp., Panasonic Inc. (Matsushita Electric Industrial Co. Ltd.), Sony Corp., and Toshiba Corp., labeled as Companies A–F in no particular order.

began to increase again and expanded to other regions in the world including Japan. However, the new CTO insisted on securing support from business units when making investment decisions. To date, their investment portfolio includes more than 30 startup companies. They also started a corporate program focused on spin-off ventures in 2001.

(2) Company B

Company B established its CVC office in 2000 under its R&D division with a 10-billion-yen ($100M) fund. Although the CVC head office was in Japan, they also set up a Silicon Valley office and offices in Washington DC and in Boston, MA. The fund was intended to build a collaborative relationship with external startup companies, but the fund was intended also for spin-offs from the corporation itself. Through such investment activities, the Company also expected to acquire knowledge of, and access to, new technologies and market trends on a timely basis, which was expected to prove useful in guiding the company's comprehensive business strategies. They invested in any geographical area around the world, but the share of investments in US startup companies was high. Because the business area of the Company was very broad, the investment area of CVC was also broad, covering all business areas including biotechnology. Similarly to Company A, they positioned its CVC office as the interface between the venture community and the huge corporate entity. The CVC office included experts from business planning, finance departments, and R&D divisions. The CVC office in Silicon Valley was headed by a senior engineering manager of the parent company. Local offices hired local people, but no special compensation scheme existed for locally hired employees. Investment evaluation was conducted mainly by the CVC members, but business units often participated in evaluation.

In 2005, they expanded their CVC activities by establishing a new $40M fund focused on startups in Japan. This fund was co-founded with a government agency, but managed by the CVC group. They have invested in more than 20 companies to date.

(3) Company C

In 1997, Company C established a CVC operation in the corporate headquarters in Japan and then expanded to Silicon Valley and to Europe. It invested directly in startup companies throughout the world. Although the CVC organization reported to the corporate CFO, the CVC goal was strategically driven rather than financially driven, partly because of the CFO's background. He was originally from the business unit and was also in charge of corporate planning division. The CVC mission was to find advanced network technologies through venture investments and contribute to their electronics businesses. Although the CFO had decision-making authority related to each investment, technical evaluation and some form of business commitment from a business unit were required to approve the investments. Most CVC staff were Japanese employees from the corporate entity. Some locally hired members had no special compensation structure designed for them.

The CVC investments were active in the late 1990s, but in 2002, the Company transformed the CVC to a strategic business development organization without investment capability. According to the CVC personnel, the discontinuation of investment was beyond the control of the CVC organization. The corporate performance of 2001 and 2002 was so poor that any activity not directly related to generating revenue was reviewed and halted; the CVC was no exception. A management change also occurred during this period. Because the new CFO placed greater emphasis on short term financial performance, the priority of CVC was lowered.

(4) Company D

Company D started its CVC operations in 1997. Unlike Companies A, B, and C, Company D's CVC did not have a direct investment function, and was instead structured as an independent venture capital firm in Silicon Valley managed by venture capitalists. The Company provided $45M to a new $60M fund. The Company set the technology focus area and provided general guidance as an LP, but it had no control over individual investment decisions or fund management. The Company separated the CVC from the corporate entity because they thought that early stage companies would be able to approach the CVC without worrying about being absorbed by the larger enterprise. Although it took the form of a partnership, the objective of the Company was not financial return, but a strategic return in terms of gathering information about new technologies and new business trends. To supplement the weak connection with the parent corporation, a new corporate liaison office was established in Silicon Valley and several people from business units were dispatched from Japan to absorb local information and connect portfolio companies to their business units.

Because the first fund was financially successful, the Company continued and expanded to invest into VC funds similarly. They retained small quantities of large scale investments ($25–40M) as well as a few million dollar investments in more than 10 VC funds.

(5) Company E

Company D started its CVC activities in 1995 by investing into independent VC funds. Under the management of corporate planning division, the Company invested in more than 10 funds. The corporate planning division is also responsible for bridging the business units and invested VC funds. The overall objective of the CVC is to access new technologies and early stage businesses through VCs and to find business collaboration opportunities. Capital gain is also part of the goal of the CVC.

In 2005, the Company established a 10-billion-yen ($100M) own fund. Because the new fund was 100% owned by the Company and run by Company employees, it organizationally resembles the direct investment function of Companies A, B, and C. Because the investment from this fund fundamentally requires a commitment from the business

unit to collaborate with a startup company, it can be inferred that the investment functions of business units are centralized to the corporate level. Because the close relation with VCs is important when working with venture-backed companies, it is convenient to centralize the VC relation at a corporate level so that the information and experiences across various business units can be shared. The investment targets of this fund are distributed world-wide, including spin-offs from the Company.

(6) Company F

Although venture investments are active at a business unit level, the only notable corporate level CVC activity of Company F has been collaboration with a VC firm based in Boston. This VC had a unique structure of accepting strategic CVC investments from operating companies by providing the LPs with alliance opportunities and deal information. If an LP invests more than a certain amount, then the LP can send its employee to the VC firm or can set up a single-LP fund in some case. The Company invested several tens of million dollars to the fund in 1996 under the initiative of corporate planning section and dispatched two employees to Boston. One employee was from the corporate planning office; his goal was to understand and learn the structure and mechanism of the VC firm and the startup companies. Another employee was from the engineering division. His goal was to cultivate new technologies and connect them to the business units. The CVC activity was later transferred to the corporate R&D division and then to a business unit. The number of stationed employees decreased to one in 1999 and then to zero in 2002. In terms of learning the VC structure and mechanism, the original goal was achieved to a certain degree, but in terms of utilizing them inside the Company for the creation of new businesses and realizing business collaboration with invested startup companies, there was no appreciable outcome.

4. Discussion

Table 1 presents the key characteristics of six CVCs in this study such as investment goals, investment style, CVC organizational structure, decision-making process, CVC staff characteristics, and compensation structure. All six companies started their CVC operations in the mid-1990s, mostly with a specific emphasis on Silicon Valley startup companies, with subsequent expansion to other regions. That is a reasonable movement because Silicon Valley had been creating new technologies and new businesses constantly since the 1970s. Although the general motivation of starting a CVC is similar, details of their operations differ. In this chapter, we will analyze the six cases particularly addressing the evolution of CVC goals and structures.

4.1 Objective of the CVC Activities

As described in Chapter 2, prior investigations show

Table 1. Characteristics of respective CVCs

	A	B	C	D	E	F
CVC Type	Type 1	Type 1 + Type 2	Type 1	Type 2 + Type 3	Type 3 + Type 1	Type 3 (Type 2)
Summary	- Started in 1998 - Based in Silicon Valley	- Started in 2000 - Based in Japan - Offices in Silicon Valley, Boston and Washington DC	- Started in 1997 (Stopped active inv. in 2002) - Based in Tokyo - Offices in Silicon Valley and Europe	- Established a fund in Silicon Valley in 1997 - Active LP investment - Managed from Japan	- Started LP investment in 1995 - Managed from Japan	- Major investment to a fund in 1996
Fund Size	- $50M budget (every 3 years)	- $100M budget - $40M fund in 2005 focused on Japan	- $100M budget	- Up to $45M to funds - More than 10 LP investments	- More than 10 LP investments (up to $20M) - $100M fund in 2005	- Several tens of millions of dollars to a fund
Organization	- Internal organization under corporate R&D - Managed by CTO	- Internal organization under corporate R&D - Managed by CTO	- Internal organization under corporate HQ - Managed by CFO	- Managed by corporate planning division	- Managed by corporate planning division	- Managed by corporate planning, then by R&D (at one point, by a business unit)
CVC Members	- Venture capitalist + corp. R&D engineer - VC-like compensation to external hire	- Employees from parent company (engineering and finance) - Local hire in US (No special compensation)	- Employees from parent company - Local hire abroad (No special compensation)	- Corporate planning staff - Dispatch employees to external VC	- Corporate planning staff - $100M fund managed by Corporate Planning	- Dispatch one or two employees to the VC for 6 years
Objectives	- R&D outsourcing	- Search for new business - Capital gain - Promote employee entrepreneurship	- Search for new core technology	- Access to deals - Information gathering - Capital gain	- Search for new business opportunities - Capital gain	- Learn VC's business creation skills - Search new technologies
Decision Making Process	- Driven by CVC org. - Approval by CTO - Checked by corp. HQ	- Driven by CVC org. - Business units involved in evaluation	- Driven by CVC org. - Need consent from business unit	- No control over VC's decision - Dispatched employees participate in VC mgmt.	- No control over VC - Business commitment needed for investment from $100M fund	- No control over VC - Dispatched employee monitors the fund
Business Development Function	- CVC staff - Co-locate with bus. unit - Counterpart office in Japan	- CVC staff	- CVC staff	- Liaison office in Silicon Valley - Corporate planning staff	- Corporate planning staff	- Dispatched employee and counterpart office in Japan

divided conclusions with respect to whether the CVC should specifically emphasize financial return or strategic return. All six CVCs examined in this study emphasize strategic return over financial return, although some state financial return as part of their goals on top of a strategic return. Strategic goals can be divided further into two types: exploration and exploitation [20]-[21]. The main objective of an exploration-oriented CVC is to gather information about the latest technologies and new business trends, but it can also include acquisition of venture investment skills, knowledge about startup management, and networks with VCs. In contrast, the goal of the exploitation-oriented CVC is to use external technologies more directly in the parent company's businesses. The six CVCs that we studied are split between exploration-oriented CVC and exploitation-oriented CVC. Companies A, B, and C are more focused on exploitation and Companies D, E, and F are more focused on exploration, but all six companies described both factors to some degree. This is because companies do not always recognize or make a clear distinction between the two aspects of CVC, especially when they start a CVC without much prior experience. Usually, companies adjust their CVC goals and structure as they accumulate knowledge and know-how to work with startup companies.

4.2 Investment Types

The CVC investments are usually classified into two types: direct investments to startup companies, and indirect investments through providing funds to VC firms as a limited partner. However, the six cases in this study are not so simple as to be classified neatly into two types. Herein, we propose to classify CVC investments into three types. Fig. 1 portrays a schematic diagram of the CVCs of the three types we use in the remainder of this paper.

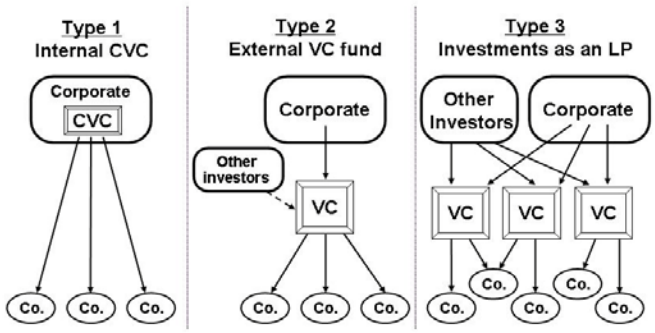

Fig. 1. CVC Investment of three types

Type 1 is a CVC organization within the corporate entity, which invests directly into startup companies. In Type 2, a separate VC is formed as independent from the corporate entity. Although, in some cases, other investors might participate in the fund, the parent corporate entity is the majority investor in the fund. Because the fund is an independent VC, the parent corporate entity has no direct control over individual investments. Nevertheless, the corporation strongly influences the policy and direction of the fund because the parent corporation provides the greater portion of the funding. Type 3 is a CVC operation that invests in traditional VC firms as an LP.

When we apply this classification to the six cases presented in this study, we can categorize them as shown in Table 1.[4] As the table shows, many companies have CVCs of several types. The choice depends on the CVC goal. When the primary objective of the CVC is information gathering to explore new external technologies, Type 3 is a typical choice (Companies D, E, F). Type 1 is commonly selected when the objective is more pointed to finding deals to exploit external technologies to the corporation's businesses (Companies A, B, C). These selections are well aligned to the analysis of the prior studies [24], [28], [35]. Type 2 (Companies B, D, F) can be considered as intermediate of Type 1 and Type 3 in terms of independence from the parent corporation. It can be either exploration-oriented or exploitation-oriented. If the goal of CVC is exploration, as it is for Companies D and F, then the motivation of having a Type 2 CVC rather than Type 3 is that the corporation can influence the technical field and business area within which the VC searches for new businesses. However, if the goal of the CVC is exploitation, as it is for Company B, the motivation of having a Type 2 CVC is to make the CVC more stable and autonomous than Type 1. Another merit of Type 2 CVC is that the fund will have a choice of attracting external funds from financial investors.

4.3 Evolution patterns of CVC Activities

The CVC operations often show changes in their goals and structures for various reasons such as management change and parent company's performance, but some common patterns of evolution exist.

Company E shows one common pattern: an explorative CVC evolves into an exploitive CVC. It had started a Type 1 fund after making several Type 3 investments over 10 years. Because investing into a fund as a LP requires no skill set to address startups, a CVC often starts with Type 3 to explore external technologies if a corporation has little knowledge about startup companies and venture capital. When the company accumulates certain experience and know-how related to venture investment through being a LP, they would realize that Type 3 is not necessarily effective for exploitation of external technologies and would be expected to seek more tangible contributions to the business and thus evolve into Type 1 or 2.

However, when the CVC operation starts with Type 1 with an emphasis on exploiting new technologies, it rarely evolves to Type 3 because information and know-how available through Type 3 can also be obtained if the corporation has a Type 1 operation. Such is the case with

[4] Some variation invariably arises in the structure of each type. For example, the Type 1 CVC of Company A was originally more closely resemblant to Type 2 because the locally hired venture capitalist has broader authority when the operation started. $100M funds of Company E were formally classifiable as Type 2 because a separate legal entity was formed, but it might alternatively be classified as Type 1 because it was fully integrated into the existing CVC internal organization.

Companies A, B, and C, which do not make Type 3 investments except for an investment based on personal connections of top management. In other words, exploration-oriented Type 3 cannot replace Type 1, but exploitation-oriented Type 1 can include outcomes of Type 3.

It is noteworthy that these arguments might be limited to large enterprises such as the six companies in this study and might not be generalized to every CVC. The CVCs of highly visible global enterprises can attract a certain amount of startup companies without aggressive marketing because the possibility of having a brand of a well-known enterprise either as an investor or as a business partner is sufficiently attractive for a startup company to spend some time to approach CVC. A CVC of well-known enterprise also has an advantage of creating networks within the venture capital community. Because venture capitalists always look for relationships with a large enterprise either as a customer, partner, investor or potential suitor, they have a strong incentive to network with CVCs.[5] As long as the parent corporation has good name recognition, Type 1 CVC can easily achieve the goal of information gathering functionality of Type 3 CVC, but if the parent corporate is not well known, such might not be the case.

Although the transition from Type 1 to Type 3 is rare, transition from Type 1 to Type 2 is much more common, as in the case of Company B. Once a Type 1 organization is established and experiences are accumulated, a CVC staff member often prefers the more autonomous Type 2 CVC because it is more stable without various restrictions of being part of a large corporation. Merits also exist for the corporate entity to transform a Type 1 CVC into a Type 2 CVC. If the fund is established as an independent fund, the fund will be able to attract external funding from financial investors as Companies B and D did. However, although the CVC staff prefers to make the Type 1 CVC into a more independent Type 2 CVC, the corporate entity might not welcome the CVC staff's movement, as in the case of Companies A and C. Corporations often worry that they might lose control of the CVC if it becomes Type 2. The biggest concern of the corporation is that the CVC staff might neglect the strategic motivation and might shift their investment emphasis to financial gain.

4.4 Continuity and Survival of the CVC

As the history of CVC investment in the US indicates ($803M in 1996, $15,276M in 2000, $1,293M in 2003) [44], the fluctuation of CVC investment is even greater than that of the VC investment, which is unstable in itself. Although venture investments must be evaluated over a time span on the order of 10 years, CVC investments often face much shorter-term pressure. Because CVC activity will never be a core business for an operating company, CVC operations can easily fail because of various factors such as personnel changes, inconsistent views of the CVC among the management team, the Not Invented Here (NIH) attitudes of engineering departments, or external impacts such as corporate performance and economic trends [35]-[36]. Personnel changes are a major cause of CVC instability because the expected outcomes and evaluation criteria of CVC differ among individuals. Some cases in this study also share this continuation problem.[6] The mission of CVC and its operational policy had been affected to a significant degree by factors such as corporate performance (Company C), CTO change (Company A), and frequent organizational changes (Company F).[7]

An important reason that the CVCs do not survive is that it is difficult to evaluate whether a particular CVC is successful or not. Although all six companies we studied claim certain and various strategic achievements, it is not easy to evaluate these strategic returns quantitatively. Even if business collaboration is achieved between the portfolio company and the business unit, it is difficult to measure the contribution of a CVC separate from many other factors. The criticism persists that the business relation might have been formed anyway whether the CVC investment had been made or not. It is the CVC members' frustration that they cannot rebut such a criticism with evidence. The situation is similar for the exploration type CVC. If the experience of VC operation and know-how of running a startup company were accumulated in the corporation and used later when starting up a new business internally, then it is difficult to measure the contribution of a CVC as separate from many other factors.

For example, in the case of CVC investment of Company C to a semiconductor company X, which developed and sold low-power microprocessors, products of X were used not only by the PC product division, which was the original business unit that endorsed the investment, but the collaboration expanded to a joint development with the game machine division. Microprocessor technology and low-power LSI design technology of Company X had a salient impact on the development of VLSI, which became the core engine for the next-generation game machine. Nevertheless, it remains difficult to prove that the LSI design service for game machines would not have started if no CVC investment had occurred. Ideally, the contribution of CVC investment should be measured by the increase of company value associated with the successful business with its parent company. In reality, however, it is not easy to distinguish the contribution of CVC investment from other factors that add value to the company.

[5] It is under the condition that CVC follows the rule of the investor community and support portfolio company as an investor. Type 1 has its own weaknesses. Sometimes, VCs hesitate to introduce a startup company to a Type 1 CVC if the company is in a very early stage. The early stage startup company might not want to be "colored" by a particular large enterprise.

[6] Although the continuation issues are found in some cases, it should be noted that four out of six CVCs we studied are in operation for more than ten years. This relatively high survival rate may be resulted from the management style of the Japanese corporations to think long-term.

[7] Some prior research [20] suggests that exploitation-oriented CVC units survive longer than exploration-oriented CVC units, but the six cases in this study do not match to this argument because both exploitation-oriented Company C and exploration-oriented Company F did not survive for long, and exploitation-oriented Companies A and B and exploration-oriented Companies D and E have been in operation for more than ten years.

Because the quantitative evaluation of strategic achievement of CVC operation is difficult, in reality, the CVC performance is often evaluated according to financial returns, even if the CVC goal is not capital gain. A loss from the investment, no matter how much success is achieved strategically, would lower the evaluation of a CVC because it is difficult to prove that a CVC investment's contribution to the successful business is greater than the investment loss. Financial return is an unavoidable criterion when considering the continuity issue of CVC in a decadal time frame because it is difficult to resist short-term external pressures when a CVC investment is losing money. This is the basic motivation of Type 1 CVC to seek a Type 2 structure. However, if a financial gain does occur from the investment, or if at least the investment did not lose money, then any strategic return, even if it is not measurable, can be regarded as an outcome achieved without a cost, or with a capital gain as a by-product.

Based on the discussion above, an important implication for the management is that the CVC should not be regarded as something targeted either for financial gain or for strategic gain, but should instead be regarded as an activity that is intended to pursue a strategic return on the condition that the investment will be recovered. As long as the CVC is regarded as an investment from the parent company, an investment risk exists, but even if the objective of the CVC is purely strategic, the CVC investment should not be made unless the corporation can assume that the equity investment will be recovered. If the financial risk of the equity investment is high, then a funding mechanism other than equity investment should be considered no matter how much the investment is regarded as strategic. If the funding is associated with business collaboration, then funding should be put into the company in the form of joint development fees or in some other way so that the corporation can obtain some rights or benefits other than equity. If the investment is made for information gathering, then an alternative mode of spending the funds would be to work with a research firm or a consulting firm. In other words, if one can assume that the investment will be recovered, then CVC is a business development function without development fees and CVC is a research function without research fees.

4.5 CVC Staff and Compensation Issue

Although the six cases in this study generally follow the discussions found in prior studies, there are some features that can be attributed to the characteristics of the Japanese corporations. One of them is the characteristics of CVC staff and their compensation scheme. Lerner [35] pointed out the CVC staff compensation issue as one of the key issues of Type 1 CVC. Since Type 1 invests directly to startup companies, the CVC staff needs to have a skill set such as deal sourcing skills and due diligence skills just like a professional venture investor. Operating companies usually do not have such talent pool internally. In order to attract external people with appropriate skills, companies have to prepare compensation package comparable to VC firms. Even if they train internal people to be a venture investor, unless they prepare compensation package suitable for investment professionals, it is hard to prevent them from quitting and joining independent VC firms.

In contradiction to the above argument, most Type 1 CVCs in this study did not provide any special compensation package for the CVC staff except for the first few years of operation at Company A. This can be understood that these Japanese companies did not need to attract a real professional investor since the two major venture investor's skills that a usual corporate employee does not have, deal sourcing skill and deal evaluation skill, are available without having a professional investor. As for the deal sourcing skills, because of a strong corporate brand, certain deal flow are automatically generated as long as CVC presence is properly set up and marketed. As for the deal evaluation skills, since these CVCs usually do not lead a round, they can rely on the due diligence of a lead investor who is typically a first-tier professional VC.

Rather than a professional investor, what these CVCs need is a personnel who knows the complicated corporate structure of the large parent corporation. Since the value that a CVC of these large Japanese manufacturers can add as an investor is the potential of establishing business relationship with parent company's business units, having a personnel who can bridge the cultural gap between business units and portfolio companies is a critical factor for the success of CVC. All of the Type 1 CVC (Company A, B and C) have Japanese employees dispatched from the parent corporation and also have their counterpart employees in Japan in charge of business development. Since the dispatched Japanese employees are supposed to rotate back to the parent company in several years under the assumption of lifetime employment, there is not much need to prepare a special compensation structure for the dispatched Japanese employees.

5. Conclusions

We have studied the characteristics of CVC activities of Japanese corporations through analysis of the six largest electronics manufacturers in Japan. All six companies started their CVC operations in the mid-1990s, mostly in Silicon Valley, with subsequent expansion to other regions. In all six firms, the primary goal of the CVC activities was strategic impact on its businesses rather than financial gain, but some of them also cite financial return as an additional goal of CVC along with the strategic return. The six CVCs investigated in this research are split between exploration-oriented CVCs and exploitation-oriented CVCs, but a common pattern is apparent in the structures of CVC operations. When the technology window function to explore external technologies is the main strategic objective of a CVC, investments through external venture capital funds are the typical choice. If the company seeks a more direct contribution to its businesses by exploiting external technologies, then the CVC tends to have internal direct investment functions.

Actually, CVC operations often alter their goals and structures for various reasons, but some common evolutional

patterns exist. An explorative CVC often evolves into an exploitive CVC, but not vice versa, because the CVC often starts with LP investments when the corporation has inadequate startup experience. Exploitive CVCs do not evolve into explorative CVC because the in-house direct investment CVC can also have an explorative function of gathering information from startup companies and VCs when the parent corporation has strong brand recognition. The CVCs with internal direct investment functions prefer to make operations more independent from the parent corporation as they accumulate CVC knowledge, but sometimes the corporation does not want to lose the control of the CVC by allowing it to become increasingly autonomous. Making the CVC operation independent from the parent corporation will make the CVC operation stable without imposing the various restrictions of being part of a large corporation, but a tradeoff exists with the corporation's concern about losing strategic control of the CVC operation.

Strategic gain and financial gain are not mutually exclusive goals of a CVC. A CVC should be positioned to pursue strategic goals of various kinds under the condition that an investment will be recovered financially. Financial success is important to secure continuation of CVC operations even if the CVC is purely strategically driven.

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