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DEVELOPMENT OF A CORPORATE VENTURE CAPITAL STRATEGY TO SUPPORT AMBIDEXTERITY

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Abstract

Corporations that operate their own venture capital activities (known as Corporate Venture Capital) can situate these investment activities within a range of possible operational configurations. While there is good understanding of corporate venture capital fund strategies, structures and operations, there is less research on the linkages between corporate strategic expectations, and tactical activities of corporate venture capital funds. Understanding of how these linkages may influence firm ambidexterity is also lacking. Hence, this paper explores how strategic and tactical activities of firms utilising corporate venture capital funds can support ambidexterity. Theories are drawn from the field of strategic management, innovation management and venture capital. The question of how firms can reconfigure assets as well as capabilities to capture value from existing and potential innovation assets has been an historical debate. Underlying this debate is whether long term sustained competitive advantage is possible (Barney, 1991; Keynes, 1923; Teece et al., 1997) and, if so, how? (Hill & Birkinshaw, 2006; O'Reilly & Tushman., 2008; Schumpeter, 1943). A perspective from innovation management, argues that firms who manage industrial innovation through a closed innovation approach may face problems with capturing value from such investments (Chesbrough, 2003). Another view, from strategic management shows that corporate executives play an essential role in helping firms adapt and change (Argyris, 1991; Balogun & Johnson, 2004; Mintzberg, 1980; Porter, 1996; Senge, 1990). The latter view has also

been at the fore of recent innovation management debates, as evidence suggests ambidexterity, the ability of a firm to simultaneously capture value from existing and potential innovation assets, is what enables a firm to adapt over time (Hill & Birkinshaw, 2012; O'Reilly & Tushman., 2008; Teece, 2014). These viewpoints are explored in this paper, underpinning the core focus on the linkages between corporate venture capital funds and ambidexterity. This paper is focused on the corporate venture capital related strategies and tactics of two top global firms by market capitalisation with corporate venture capital funds, i.e. Apple and General Electric.

Secondary data archives (e.g. annual reports, analyst reports, press releases, et al.) are analysed using mapping techniques to explore and reveal linkages between strategic and tactical activities of firms utilising corporate venture capital to support ambidexterity. The data is drawn from Apple and General Electric to review the evolution of their corporate venture capital activities over a 33 year period. The initial analysis reveals a range of specific linkages between the communicated strategic expectations of the corporate executive teams and the observed tactical activities of the corporate venture capital fund managers. For instance, in order to support firm ambidexterity, corporate venture capital fund managers should be focused on capturing value for the firm from portfolio management of existing and potential innovation assets. There are four portfolio management themes for corporate venture capital funds that could support ambidexterity. These include: firms that either explored and, or exploited assets from portfolio companies sourced externally; and firms that made investments in an effort to explore and, or exploit internally generated assets. This results in different configurations and outcomes for corporate venture capital activities. For example, General Electric operated a venture capital subsidiary that attempted to explore externally sourced portfolio purely for profit in the early 1980s. The unit was initially considered a success by General Electric's corporate executives. However, it was sold off in the late 1980s before portfolio companies matured, as investments appeared to no longer fit into General Electric's strategy. The iFund in contrast was set up by an external venture capital firm, Kleiner Perkins Caufield Byers, in partnership with Apple. It aimed to exploit technology from within Apple by funding developers of software applications for the Apple iPhone. Two years into the operation, fund managers had succeeded in creating an annual market of \$2 billion for iPhone applications and selling portfolio company for profit. Subsequently, further funding was allocated to support developers of Apple's iPad applications through the same fund. This paper analyses the case studies using concepts derived from literature review and Abinusawa (2014). The cases reveals that there is a critical role for both strategic and tactical activities in supporting ambidexterity, and that there are various models for how these activities might be effected. The analysis shows that in order to sustain corporate venture capital initiatives and support ambidexterity, it was essential for initiatives to have clear goals and expectations. Furthermore, the cases showed that the effectiveness of these interventions depended to a large extent on the competency of fund managers, and complementarities between assets of the firm and portfolio companies. In conclusion, this paper highlights opportunities for further inquiry on the linkages between corporate venture capital and ambidexterity that addresses the needs of managers and policy makers.

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1. Introduction

This paper aims to enhance understanding on the role strategic and tactical activities can play in supporting ambidexterity in firms utilising corporate venture capital funds. Ambidexterity, refers to the ability of a firm to both explore new opportunities and exploit existing capabilities (O'Reilly & Tushman, 2004; Teece, 2014). Ambidexterity has attracted and continues to fascinate scholars, practitioners, and public policy makers (Gedajlovic, Cao, & Zhang, 2012; O'Reilly & Tushman, 2013; Teece, 2014). Ambidexterity empowers firms to explore new opportunities by competing with technologies and in markets where autonomy, experimentation and flexibility is required, and simultaneously exploit existing capabilities by competing in mature technologies and markets where control, efficiency, and incremental improvement is essential. A gap in knowledge that has been highlighted by both practitioners and scholars are the linkages between corporate venture capital funds and its potential ability to support ambidexterity in firms (Hill & Birkinshaw, 2012). An important reason why this interest has developed is that venture backed companies have been observed to provide future technologies regardless of economic cycles (EVCA, 2002; Pahnke, Katila,

& Eisenhardt, 2015). Many leading companies in a range of sectors have flourished as a result of venture capital investment (Axelson & Martinovic, 2013). These types of investments have provided firms seeking to support ambidexterity with external pathways to assets deficient internally, without the need to set up a subsidiary venture capital fund which is owned and governed by the firm.

Corporate venture capital investments have been encouraged by the successful initial public offerings (IPOs) of venture capital backed firms (Reichardt & Weber, 2006). The experiences of firms perceived to have successfully achieved ambidexterity supported by non venture capital type initiatives in examples such as USA Today and Ciba Vision (O'Reilly & Tushman, 2004) have encouraged others to attempt ambidexterity enabling projects. However, the uses of corporate venture capital as an important means to support ambidexterity have been highlighted by Basu et al. (2011) and; Hill & Birkinshaw (2006), (2012). Though, some of these studies indicate that ambidexterity could be supported irrespective of corporate venture capital funds, between 2008 and 2013, firms have spent about \$2 billion per annum through corporate venture capital funds (NVCA, 2013). The NVCA (2013) report shows that most of the funding has been to support elements of ambidexterity such as exploratory and, or exploitative activities, and this presents some scope for inquiry.

This study is not focused on the broader issues of why firms may choose to support ambidexterity using corporate venture capital investments. Instead, this study is focused on how ambidexterity can be supported through corporate venture capital based on the following question:

- How can the strategic and tactical activities of firms utilising corporate venture capital funds support ambidexterity?

The subsequent section presents a literature review that links the strategic and tactical activities which could support ambidexterity in firms. This paper then presents two case studies illustrating how ambidexterity has been supported in different contexts through corporate venture capital funds. The case studies are analysed as a result of concepts derived from the background literature and Abinusawa (2014). Conclusions are then drawn and future work is proposed.

2. Literature Review

2.1 Strategic Activities

Numerous scholars have examined the impact of strategic activities on tactical operations and performance (Argyris, 1991; Balogun & Gerry, 2005; Barney, 1986; Bigelow, 1910; Mintzberg & Waters, 1985; Porter, 1996; Sloan, 2013), but studies show the performance of corporate venture capital activities vary (Chesbrough, 2002; Gompers & Lerner, 2000; Hill & Birkinshaw, 2012). Scholars including O'Reilly & Tushman (2004), Porter (1996), and Teece (2014), have argued that strategic activities are what impacts performance such as ambidexterity. Others claim attaining the desired expectation from strategic activities could be impeded by gaps in understanding of mechanisms, architectures and dynamics that underlie how firms can both explore future possibilities while exploiting present opportunities (Teece, 2014; Turner, Swart, & Maylor, 2013). These factors were observed to underlie ambidexterity (O'Reilly & Tushman, 2004). Though results have varied, studies confirm that strategic expectations have a considerable influence on ambidexterity (Hill & Birkinshaw, 2012; Charles. O'Reilly & Tushman., 2008; Teece, 2014). Furthermore, prior literature supports the notion that strategic expectations can have a significant impact on operational support for ambidexterity. For instance, Nemanich & Vera (2009) showed that the expectation of the firm's leadership can promote ambidexterity at the team level. Harreld, O'Reilly, & Tushman (2007) also observed that IBM was able to support ambidexterity because IBM's strategy process permitted both exploration of new markets and technologies, as well as exploitation of mature products and markets. This implies that the potential to support ambidexterity can increase when they are linked with strategic expectation. Hence, a sensible notion the firm's leadership could expect from its investments is that to sustain success of such initiatives, by considering support for ambidexterity, emphasis can be made on the need for a balanced orientation to both short term and long term objectives (Minoja, 2012).

Many studies of strategic activities focus on the correlation between strategic expectations and firm performance rather than ambidexterity. Previous studies indicate four main lenses for examining issues of strategy development for a firm (Scholes, Johnson, & Whittington, 2008). One

lens, espoused by scholars such as Chesbrough (2002) and Porter (1996), examines the strategic expectations from corporate strategy and its objectives (strategic and, or financial). The other three lenses evaluates the structure of business units that can influence investment decisions, managerial incentives, syndicate partners, and portfolio management (Agrawal & Mandelker, 1987; Chandler, 1962; Hill & Birkinshaw, 2008; Maula, Autio, & Murray, 2005). Although most studies have adopted some of these lenses, the literature shows that corporate strategy and an associated business unit strategy can considerably influence the ability to support ambidexterity. For example, Hill & Birkinshaw (2012) revealed that the goal of enhancing firm ambidexterity through the establishment of corporate venture capital funds were seldom achieved, because the funds were frequently seen as too exploratory, funding projects were too far from firms' line of business or portfolio assets held were too difficult to integrate into firms' business. This implies that an essential component to enhancing firm ambidexterity was the alignment between expectations of corporate strategy and activities of the business unit or subsidiary (in this case, corporate venture capital funds). Griswold & Jarvis (2014) illustrate this point in their argument that paramount to the success of the ongoing relationship between the fund manager and the investment committee (usually an investor or corporate executive team where the firm is an investor) are a clear position description and agreed upon goals and objectives. Griswold & Jarvis (2014) argue that without this clarity, it was difficult to know if the fund manager was satisfying the committee's expectation. Therefore, this study takes into consideration the strategic (activities of the corporate executive team) and tactical activities of the fund managers. In particular, the expectations of the fund's investors and investment objectives are considered in relation to ambidexterity.

2.2 Tactical Activities

One cannot begin to explore tactical activities of corporate venture capital funds without considering how they are structured, because as Mintzberg (1990) puts it, structure follows strategy as the left foot follows the right in walking. In essence, the strategic activities and structure of corporate venture capital funds both support the firm's operations in supporting ambidexterity. Most studies on

corporate venture capital fund structure have focused on subsidiaries, governed to develop mechanisms that could help overcome information asymmetries (Van de Vrande & Vanhaverbeke, 2013). Here, the fund's portfolio is managed to ensure overlap with the firm's technological bases in order to recognize, assimilate, and integrate new knowledge from portfolio companies and assets. There are two main structures of corporate venture capital funds. They are either structured as subsidiaries or through investment vehicles such as venture capital firms. Many programs operate as subsidiaries within the firm and are backed by them. An NVCA (2011) survey result showed that 70% of corporate venture capital groups were structured as operating units, with fund managers reporting to a member of the corporate executive team within the firm. This implies that majority of corporate funds are structured as subsidiaries and likely to have access to capital and recourses at the discretion of the parent firm. They are also less likely to raise funds from institutional or other types of external investors (Gaba & Meyer, 2008; Macmillan, Roberts, Livada, & Wang, 2008). The other way firms structure their funds is by partnering with other independent firms (mostly venture capital firms and in certain cases established firms who may poses complementary assets) (Wingfield, 2015).

Corporate venture structures have traditionally been designed to support startups that have innovation potential, in contrast to ventures backed purely for financial gain, such as those of venture capital investors (Alvarez-Garrido & Dushnitsky, 2013; Dushnitsky, 2013). From 1980 through 2003, established firms made decisions to invest over \$40 billion in enterprising ventures (Benson & Ziedonis, 2010). Some of these investments were through corporate venture capital funds mostly for deals of a strategic nature. As of 2011, over 95% of the corporate venture groups surveyed by the National Venture Capital Association, had a strategic focus at its core (NVCA, 2011). This focus seemed to resonate with popular thinking at the time, because as Chesbrough (2002) put it, utilising the firm's resources for initiatives other than those intended by shareholders was arguably a misuse of funds. The primary expectation of value derived from corporate venture capital investments include to (a) serve as a window to new technologies and markets, (b) support existing business with technology and commercial opportunities, and (c) establish new lines of business (NVCA, 2011). Investment decisions in corporate venture capital funds have similarities with venture capital firms, in that both

may be able to generate deals, conduct due diligence, and contract with portfolio companies. There are however minor variations in expectations because corporate venture groups are likely to be governed by the firm and their executives (Dimitrova, 2013), while most of the investors in venture capital funds have limited rights and obligations relating to governance of the fund (Lerner, 2013).

Over the years, the uses of corporate venture capital funds have significantly developed (Chemmanur, Loutskina, & Tian, 2014; Rind, 1981; Sykes, 1990; Wadhwa, Phelps, & Kotha, 2015; Yang, Narayanan, & Carolis, 2014). Some corporate venture compensation schemes (incentives) can be seen to have had a direct impact on the performance of certain investment projects. For instance, unlike venture capital fund managers, most corporate personnel that undertake investment activities for firms do not receive favourable incentives such as performance pay, and are not encouraged to pursue investment in innovative and risky projects that have resulted in the profound economic successes of venture backed firms (Dushnitsky & Shapira, 2010). Due to the varied incentive compensation schemes of venture capital firms and corporate venture capital funds, endogeneity have been seen to emerge, that resulted in disparities between investment strategies and expected goals (Dokko & Gaba, 2012). According to Dimitrova (2013), in addition to financial gains that could be required of some corporate venture capital fund managers through sale of portfolio companies, corporate venture fund managers have the additional goal of obtaining strategic benefits from synergies with existing activities of the parent firm. These investors may have strong incentives to nurture portfolio companies for acquisition by the parent firm, even if such deals may not maximise the corporate venture capital fund's financial return on these investments (Maula et al., 2005; Souitaris & Zerbinati, 2014; Van de Vrande & Vanhaverbeke, 2013). This disincentive to pursue investments in disruptive projects with high risk potential may explain the reason why corporate venture capital funds find it difficult to replicate the successes of venture capital firms, and hold a precarious position within many firms.

However, Dushnitsky & Shapira (2010) found that when the corporate investors incentivized managers using performance related pay, there was a reduction of disparity between the number of participants in a venture capital syndicate that involved a corporate investor, and those that consisted

solely of venture capital firms. Though some corporate investors can complement private investment from venture capital firms where they add unique value to startups who can tap into their deep core technologies and industrial knowledge, they can also facilitate portfolio companies' access to marketing capabilities and help them leverage corporate reputation (Souitaris & Zerbini, 2014). They however rarely become the lead investors in syndicated investments or take seats on boards of startup ventures. Corporate venture capital funds prefer to co-invest alongside private investors who take the lead on deals and seat on boards of portfolio companies (Gaba & Meyer, 2008; Macmillan et al., 2008). Because of the brokerage role that the corporate venture capital fund can play between startups and the firm's business units, it can become particularly essential to resolving a key challenge of ambidexterity, that is, enabling access to scarce resources externally for the exploration and, or exploitation of assets (Hill & Birkinshaw, 2012), both within and beyond the firm. However, a concern for some corporate investors is the lack of absorptive capacity (Cohen & Levinthal, 1989). Absorptive capacity can impede the firm's ability to capture value from new innovations developed as a result of corporate venture capital activities. Though Hill & Birkinshaw (2012) showed that firms that co-invest as part of a venture capital syndicate can be successful, it is unclear whether this finding can be applied to global top companies by market capitalisation. Being a corporate venture capital fund can help a portfolio company access to the firm's resources including expertise, but the concern is that corporate investors have been criticized for dissolving their funds before the ending date initially scheduled when they set up their funds (Clark, 2013; Gompers & Lerner, 2000). Since corporate venture capital funds are generally in a precarious position, they may face a dilemma where their portfolio companies and assets are maturing and in need of more financing, while the firm's profit is declining.

Finally, corporate venture capital fund practices in the areas of portfolio management may cause managers difficulty in ascertaining whether investments should be monitored in terms of strategic value and, or financial returns. Some corporate investors work with their fund managers to define types of assets in constructing a portfolio, how investments should be monitored, and exits managed. Many studies show that there is still an inability to define which model to follow in many

corporate venture capital funds (Campbell et al., 2003; Lanhenke et al., 2008). As a result, some corporate investors have found it difficult to maximise their innovation performance when they invested in a very diverse portfolio of companies (Wadhwa et al., 2015). However, the issue lies with corporate investors who prefer to make investments in assets that are either emergent or with tangential connections to their business strategy (Chesbrough, 2002). Though Chemmanur, Loutschina, & Tian (2014) discovered that the influence of managing portfolios with emergent or tangential connections with the firm's strategy can be positive, Hill & Birkinshaw (2008, 2012), demonstrated that by classifying how portfolios should be managed and embracing an ambidextrous orientation, corporate venture capital funds could constitute vehicles through which firms may act ambidextrously. However, it is unclear if this observation is applicable to the global top firms by market capitalisation. Reaping benefits from tangentially aligned or emergent investments may help firms meet their economic expectations in the short or long term (Chesbrough, 2002), but many firms have both short and long term concerns relating to technology and market threats. Since global firms are made up of complex interconnections, they may face the problem of how to allocate finite resources in their quest to sustain the business.

Based on the issues observed, corporate venture capital fund managers have to maintain complex relationships with executives within the parent firm who may have different expectations from the fund managers. Since the linkages between corporate strategic activities, tactical activities, and ambidexterity remain largely convoluted, this study is focused on understanding these linkages. This perspective will help respond to the research question of this paper: how can the strategic and tactical activities of firms utilising corporate venture capital funds support ambidexterity development?

3. Research Method

3.1 Research Objectives

The research question for this study is 'how can the strategic and tactical activities of firms utilising corporate venture capital funds support ambidexterity development?' This type of research that poses

“how” questions, Yin (2009) argues should utilise case studies as the preferred method of data collection. Yin (2009) suggests how questions are more explanatory and likely to lead to use of case studies as the preferred research method because such questions deal with operational links needed to be traced over time, rather than mere frequencies or incidence. Thus, as this paper aims to help understand ‘how the strategic and tactical activities of firms utilising corporate venture capital funds support ambidexterity development?’ it seems logical to utilise case studies. However, Yin (2009) and other scholars such as Bryman (1989) have highlighted key concerns on uses of case study research such as its generalisability. As a result, Yin (2009) emphasises Schramm (1971) argument that: “*the essence of a case study, the central tendency among all types of case study, is that it tries to illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result*”. In essence, “*case studies should be evaluated in terms of the adequacy of the theoretical inferences that can be generated. The aim is not to infer the findings from a sample to a population, but to engender patterns and linkages of theoretical importance*” (Bryman, 1989). This perspective has also been extended by scholars such as (Eisenhardt, 1989).

The observations presented in the introductory section of this paper indicate that ambidexterity can be supported without the use of corporate venture capital funds. However, research on firms that do utilise corporate venture capital funds to support ambidexterity shows that conflicting forces exist between “*operational and strategic priorities*” (Narayanan, Yang, & Zahra, 2009). The ideas developed in Abinusawa (2014) and literature review provided the concepts that are applicable to case studies, which could successively help better understand the observations presented in the introductory section of this paper.

The two firms that were selected for observation include:

- Apple Inc.
- General Electric

Both cases were selected because they illustrated models of firms utilising corporate venture capital funds to support ambidexterity. They also are in the global top 100 companies by market capitalisation as indicated by PwC (2013). To respond to the research question, analysis of secondary

data archives and data mapping was used to reveal the linkages between strategic and tactical activities of firms utilising corporate venture capital funds to support ambidexterity. Data was drawn from archives including annual reports, analyst reports, press releases, et al.

4.1 Summary of Case Studies

4.1.1 Case 1: Apple Inc.

Apple Inc. (Apple) is a multinational technology company with headquarters in California. Apple's strategic expectation was to share value chain activities with a great financial and company building partner to bring their new platform to market (Bradner, 2008). Having Kleiner Perkins Caufield Byers (KPCB) investment experience and funding backing Apple's third party efforts was considered essential to develop iPhone and iPod touch applications (Deffree, 2008). Creating strategic value by using its software developer community as the source of fresh impetus for iPhone sales (Bradner, 2008), was the investment objective of the iFund that was subsequently set up. Apple hoped that the efforts would enable it move into the advertising business (Economist, 2010), and help the iPhone better compete in the corporate world, a market that has a huge spending power and that favoured BlackBerry smart phones (Deffree, 2008). To provide funding for the initiative, KPCB committed \$100 million to the iFund initiative, targeted at innovation in the Apple iPhone and iPod touch platform (BW, 2008; Deffree, 2008). Investment decisions primarily lay within KPCB as deal origination, due diligence, and contracts were managed by them, while Apple provided the KPCB with market insight and support (Feldman, 2008). Corporate venture capital is designed by Apple to make *"the iPhone a serious rival to the BlackBerry and greatly broaden the array of programs available for the device"* (Wingfield, 2008). KPCB partner Matt Murphy managed the iFund in collaboration with other partners (Feldman, 2008). Partners are compensated in different ways at KPCB, some *"receive salary and bonus, some receive a significantly higher salary but no bonus, and the most senior partners receive no salary or bonus, but instead take a share in KPCB's profits"* (Hermle, Perry, Seekao, & Lawson, 2015). Salaries have been seen to start at \$200,000, and went as high as \$3 million per annum (including bonuses), for senior partners at KPCB (Alba, 2015).

Syndicate partners of iFund companies included venture capital firms, corporate venture capital funds, firms, and business angels. Portfolio companies were managed to exploit internal assets from Apple, i.e. iPhone, iPod, and subsequently the iPad. Software development tools provided to developers were free. However, Apple took a percentage cut of sales and required that developers paid to make the software available through the Apple online store (App Store) (Brown, 2008). KPCB announced the \$100 million iFund initiative for the iPhone and iPod touch platform in February 2008 (BW, 2008). By October 2008, a little over two months since the App Store's launch, the store was making sales of \$1 million a day (Kharif, 2008). In 2010, the annual market for iPhone applications was estimated at \$2 billion (Madhavan, 2010). KPCB subsequently committed another \$100 million into the iFund for iPad applications (Aragon, 2010; Engadget, 2010). This indicates progress for using corporate venture capital investments in supporting exploitation of current assets. There is however recognition of the need for explorative activities, as far as the perspectives towards support for ambidexterity is concerned.

4.1.2 Case 2: General Electric

General Electric (GE) is a multinational conglomerate with headquarters in Connecticut. According to Guyon & GUPTA (1987), GE entered the venture capital business in 1968. However, there was no other evidence observed of such activities. Its more recent foray in the last thirty three years was in 1982, when the subsidiary was renamed GE venture capital (Prendismo, 2005a). The expectation from venture capital activities was to transfer capabilities from portfolio companies into GE's businesses. GE's venture capital activity was supposed to take advantage of the assets and resources of the corporation. It was believed that the venture capital portfolio companies would be of interest to different lines of businesses within GE (Prendismo, 2005b). The unit tried to perform like a traditional venture capital firm by generating profit from its invested assets. GE expected the efforts would enable them grow their venture capital operations (Prendismo, 2005a), as they were trying to change the culture of the company (Prendismo, 2005c). Investment decisions were made internally by GE with funding provided to smaller firms using a mixture of equity and loans (NYT, 1982; WSJ, 1982c).

The corporate venture capital fund at GE was managed by employees and manned by people who had a technical and business background with familiarity of GE's operations (Prendismo, 2005a). For instance, *"Mr. Rein joined GE in 1979 and became manager of GE's speciality lighting business (Cuff, 1987). He was subsequently "president and chief executive of GE venture capital" (WSJ, 1984). It is likely that compensation would have been a salary or incentives typical to managers in similar positions within GE's business lines. A look at salaries of GE capital, a GE subsidiary, shows that the employees are paid between \$50,000 and \$70,000, with analysts at the lower end of the scale, and directors at the higher end (Glassdoor, 2015). It is highly unlikely that compensation would be anywhere close to what venture capital fund managers might receive. The GE venture capital fund made investments decisions internally and purchased issued shares in companies it was interested in (WSJ, 1982a, 1982b). Loans with interest were also provided to some of these companies (NYT, 1982). Portfolio companies were managed to potentially be of future strategic significance to GE, as the subsidiary aimed to carry "a pro-rata share of the profits from the portfolio companies" (Guyon & GUPTA, 1987). The fund attempted "to perform as a real P&L center operating in the venture capital industry" (Prendismo, 2005a). This however "misfired because many the startup companies in its portfolio posted losses...and the unit's returns had been declining" (Guyon & GUPTA, 1987). Though the fund managers at GE were encouraged to make use of the firm's assets and resources wherever possible to try to enhance its potential return, they were doing something that was so different in terms of the nature of their activity from all other major business units within GE (Prendismo, 2005b). As a result, "after having some great performance between 1982 and 1985 (Prendismo, 2005a), by 1987, GE had backed away from the venture capital business. GE "sold a substantial part of the assets of its venture capital unit to the unit's managers" (Guyon & GUPTA, 1987). Though "GE aimed to get a jump at new technologies that would somehow benefit its other businesses. But ... later discovered that the individual business units were much better at identifying new technologies for development (Guyon & GUPTA, 1987).*

By 2000, GE had begun to use subsidiaries such as GE Asset Management, GE Venture Capital and GE Equity Capital Group as investment vehicles (Shieber, 2006). For instance, Giza GE

Venture Fund is an Israeli venture capital fund managed by Giza Investment Management. The fund provides seed to growth capital for technology related companies. GE Equity is a major investor in the fund (BW, 2000, 2001b). GE business units now made portfolio investments through the venture capital group to gain access to new research and technology that impacts the supply chain of their products in areas such as solar, wind, smart grid, energy efficiency, lightening and biofuel technologies (Gruen, 2011). GE recognised that in order to succeed, the investment philosophy of its venture capital activities should be aligned to its own philosophy, as a result, investments were in assets and technologies that fitted with GE's existing programs (Katell & Eldar, 2009). GE was also a customer of some of the companies it invested in (Gruen, 2011). In addition to investments in venture capital funds such as the Giza GE Fund, and joint venture to form Energy Technology Ventures Fund with NRG Energy and ConocoPhillips (Gruen, 2011), GE began to support accelerators as part of its initiatives. For example, GE and StartUp Health, an academy for entrepreneurs, designed programs to accelerate growth of consumer health companies (Parker & Stoakes, 2013). The program is part of GE's healthymagination fund (healthcare investing group of GE Ventures and part of GE's \$6 billion healthymagination initiative), a part of GE Ventures (Parker & Stoakes, 2013). Investment decisions were made by GE where the investing entity was a subsidiary such GE Ventures. However, GE is not always able to control all decisions when investments are made with or through other entities (Gruen, 2011). GE now makes investments in syndication with venture capital firms (PRNewswire, 2013), corporate venture capital funds (BW, 2001a), firms (BW, 2001a), and the government (CSRwire, 2013). The venture group says it expects to get top venture capital performance returns from its investments in external companies as well as access into potential billion dollar platforms. Some of its portfolio companies have since gone public (Gruen, 2011). GE is also harvesting existing assets such as the Predix Software Platform which was licensed to SoftBank Telecom (Gilthorpe, Oster, & O'Brien, 2014), and is building an industrial internet ecosystem by providing "*funding, resources and expertise to launch companies focused on industrial technologies and solutions that accelerate the advancement of intelligent machines, predictive and contextual analytics, and new workforce mobility tools*" (Gilthorpe, Farris, & Self, 2014).

5. Cross Case Analysis

5.1 How can the strategic and tactical activities of firms utilising corporate venture capital funds support ambidexterity development?

Both cases illustrated the significance of alignment between strategic and tactical activities (Abinusawa, 2014).

5.1.1 Apple

The strategic expectations of Apple and its corporate venture capital investment objective shows that Apple expected to share value chain activities with partners in order to create and capture strategic value. Its collaboration with an independent venture capital firm to structure the iFund acknowledges the importance of complementary assets in finance, which is outside its core business area. This transfers the fiduciary responsibility of making investment decisions and providing appropriate incentives such as performance bonuses to its financial partner. KPCB itself with decades of experience and demonstrated success in the venture capital industry was able to optimise business development support for portfolio companies by syndicating investments with other venture capital firms, corporate venture capital funds, firms, and business angel who were essential to the growth of portfolio companies. The effort to support ambidexterity by exploiting existing assets from within Apple was successful. However, there was no indication of exploratory activity being carried out through the corporate venture capital fund.

5.1.2 General Electric

Between 1982 and 1987, General Electric's expectation was to transfer capability from corporate venture capital portfolio companies into the parent firm. Though its corporate venture capital investments objective was to generate a financial return, the unit was structured as a subsidiary and staffed with managers paid a salary, without the sufficient pay for performance required to generate sufficient returns to meet the firms expectations at what Zider (1998) describes as acceptable risk levels. GE acknowledged it was responsible for investment decisions and made no use of syndicates

for these investments. This meant there may have been some level of experimentation within the fund. The effort to explore external entrepreneurial activities and companies was unattainable as adequate steps were not taken to align the activities of the unit with those of the firm. Post 2000, expectations from GE’s corporate venture capital activities had morphed into a mixture of attempting to transfer capabilities from portfolio companies and sharing of activities with external partners across the value chain. Though its corporate venture capital investment objectives was to create strategic value, there was an intrinsic objective of generating financial returns as well, where investments were made through independent venture capital firms who then became responsible for investment decisions and portfolio management. Where GE made investments through its own subsidiaries, fund managers were paid a salary. In cases where investments were made using a syndicate, these included venture capital firms, corporate venture capital funds, firms, and the government. In its endeavour to support ambidexterity, GE’s improved approach to uses of corporate venture capital funds both explored and exploited external opportunities, in addition to efforts that exploit internal technology and assets. Table 1 below highlights key findings from the case studies. The structure for Table 1 has come from the literature review and conceptual framework in Abinusawa (2014).

		Apple	General Electric		
		2008- post 2010	Pre 1987	Post 2000	
				Subsidiary	Independent Fund
Strategic expectations	Asset management				
	Restructuring				
	Capability transfer		✓		✓
	Shared activities	✓			✓
Investment objectives	Strategic value	✓		✓	
	Financial returns		✓		✓
Fund structure	Subsidiary		✓	✓	
	Independent fund	✓			✓
Investment decisions	Deal origination		✓	✓	✓
	Due diligence		✓	✓	✓
	Contracts		✓	✓	✓

Incentives	Salary		✓	✓	
	Performance bonus				✓
Syndicate	Venture capital firm	✓		✓	✓
	Corporate venture capital fund	✓			✓
	Firms	✓		✓	✓
	Government			✓	
	Business angel	✓			
	Accelerator				
Portfolio Management	Internal explorer				
	Internal exploiter	✓		✓	✓
	External explorer		✓	✓	
	External exploiter				✓

Table 1: Categorisation of selected case studies

6. Conclusion

Based on the concepts observed in the literature review, the cases studied emphasise the importance of both strategic and tactical activities in supporting ambidexterity. By appraising the dynamic contexts within which support for ambidexterity was considered, both cases highlight the importance of clear goals and expectations. The cases showed that the effectiveness of corporate venture capital interventions depended to a large extent on the competency of fund managers, and complementarities between assets of the firm and portfolio companies. Hence, sustainability of the corporate venture capital investment model that could support ambidexterity depends largely on the clarity of expectations with alignment between strategic and tactical activities. This alignment should be underpinned by collective efforts across the firm towards fulfilling intended objectives.

A question that emerged from the literature review and case studies, that could provide an interesting subject of further inquiry of interest to managers, policy makers and scholars is:

- What type of ambidexterity early warning systems exist or can be developed? The cases studied show that support for ambidexterity was essential in order to sustain funding initiatives. However, the impromptu dissolving of the corporate venture capital fund at Xerox (Gompers & Lerner, 2000), and General Electric, shows there is an apparent need

to develop early warning systems that could alert managers when corporate venture capital funds are expected to deviate from objectives originally intended.

In conclusion, this paper has presented an initial examination of the linkages between strategic and tactical activities that could support ambidexterity in two case study firms. The analysis shows that these two firms believed there are inherent benefits in utilising corporate venture capital funds in supporting ambidexterity, and are using different corporate venture capital fund configurations to support ambidexterity. However, these configurations have resulted in different outcomes for the two firms' corporate venture capital activities. The analysis shows that these firms find it challenging to align strategic and tactical activities. Hence, one area of proposed further work is an analysis of early warning systems that could alert managers when investment initiatives may be deviating from intended objectives. With the current buoyant market conditions and high valuations of venture capital backed technology firms, the use of corporate venture capital by leading firms continues to be a popular tool to support ambidexterity. There is a clear on-going need for research to understand how this can best be achieved.

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