VENTURE PHILANTHROPY AND NONPROFIT PROGRAMS: THE EFFECT OF HIGH-ENGAGEMENT GIVING ON GRANT EFFICIENCY

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VENTURE PHILANTHROPY AND NONPROFIT PROGRAMS: THE EFFECT OF HIGH-ENGAGEMENT GIVING ON GRANT EFFICIENCY

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Abstract

One of the newest faces in the philanthropy world is venture philanthropy and, since its introduction of corporate business rhetoric and venture capitalist techniques to the industry, the actual effectiveness of venture philanthropy has been questioned. This thesis examines where traditional philanthropy is currently failing its beneficiaries, how venture philanthropy presents solutions to those failures, and ultimately, it compares how the venture philanthropy approach affects time of program completion and resulting social returns, as opposed to traditional philanthropy. By developing venture and traditional philanthropy mathematical models based on a venture capital model by Jovanovic and Szentes (2007), I found the optimal stopping point for funding and level of social return are dependent on nonprofit effort and program scope.

KEYWORDS: (Venture Philanthropy, Nonprofit, Grant Efficiency)

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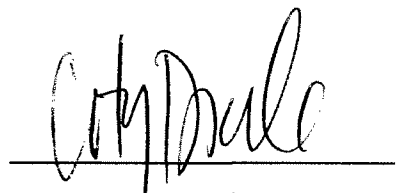

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CHAPTER 1

INTRODUCTION

1.1 Literature Review

Philanthropy has been traditionally defined as "private action for the public good".[1] However, the essence of philanthropy can be found it its Greek root *philia,* which means friendship love and implies affection and appropriate nourishment for others. When this type of love is outwardly expressed, it takes the form of meeting the true needs of others. From this concept we can draw the ideal philanthropic relationship—one of mutual nourishment where the true needs of both parties are addressed.[2]

Many approaches have sprung from this very basic definition of philanthropy, and, like every other industry in the U.S., innovative approaches continue to arise. One of the newest faces in the philanthropy world is venture philanthropy. This new approach uses the rhetoric of corporate business and adopts venture capitalist techniques to support nonprofit organizations. The purpose of this paper is to examine where traditional philanthropy is failing its beneficiaries, how venture philanthropy presents solutions to those failures, and, ultimately, to determine how the venture philanthropy approach

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[1] Eleanor Brown and James M. Ferris, "Social Capital and Philanthropy: An Analysis of the Impact of Social Capital on Individual Giving and Volunteering," *Nonprofit and Voluntary Sector Quarterly* 36, no. 1 (03 2007): 85.

[2] Paul G. Schervish, "Is Today's Philanthropy Failing Beneficiaries? Always A Risk, But Not For The Most Part," *Nonprofit and Voluntary Sector Quarterly* 36, no. 2 (06 2007): 375.

affects the time of project completion and resulting social returns, as opposed to traditional philanthropy.

The first issue to address in considering this topic is whether a new approach is actually needed. There is no question that some grants have accomplished impressive feats in affecting social change, however, the effectiveness of grants remains a vague concept for many foundations. Some typologies that foundations employ in order to gain a better idea of the effectiveness of their grant money are foci on a proactive orientation, technical assistance, social policy or internal development.[3] The over 71,000 foundations in the United States form a broad spectrum of emphasis on these different typologies, so it is very difficult to make a statement about the overall effectiveness of grants given by foundations.

In the nonprofit sector, it takes only basic reasoning to arrive at the conclusion that effective programs will have significant social impacts. A foundation's ability to ensure that the organizations it funds will produce effective programs determines how effective the foundation is itself under the more common definition of effectiveness, termed "program effectiveness". Foundations can also focus on "mission effectiveness", which factors in a donor's goals or mission in the process of grant-making. The field of philanthropy has brought program effectiveness to the forefront because, not only does the outward focus buffer donors against criticism, but it is easer to assess. Also, program efficiency data is traditionally viewed as more useful and valuable in order to justify funding continuation or termination, and rationalize the giving of funds. Although

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[3] Francie Ostrower, "Foundation Approaches to Effectiveness: A Typology," *Nonprofit and Voluntary Sector Quarterly* 35, no. 3 (09 2006): 510-516.

program effectiveness has these advantages over mission effectiveness, its measurement (in the form of performance data from nonprofits) is often still imperfect and unreliable.[4]

Unfortunately, under this definition of effectiveness, many foundations focus on funding only programs and neglect the organizations that are expected to carry them out. Traditionally, foundations have focused on developing and testing new ideas, functioning as research and development tools in the nonprofit sector. While this approach may create an incentive for nonprofits to develop innovative programs, the benefiting organizations often fail to carry out assessments of their strengths, goals and internal needs. Without this component, an organization is often not even able to carry out the programs that are funded, due to a deficiency in organizational resources. The resources that are frequently neglected include funds to track current and changing client needs, management training, sufficient program planning time, improvements to finance operations and human resource development.[5]

Another trend that is apparent in today's foundations is the relative power of donors in philanthropic relationships. The result of this shift is the endangerment of the implied public benefit of grants, a democratic process in grant-making and the effectiveness of grants with little beneficiary input. The implication of public benefit through grant-giving is that the needs of beneficiaries should take priority for funders in order that the initiatives of beneficiaries prevail. Thus, although funders may desire that their contributions create public benefit, restrictions or stipulations that donors may place on grant money can be detriments to the actual creation of said benefits. The most

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[4] Peter Frumkin, *Strategic Giving: The Art and Science of Philanthropy* (Chicago and London: The University of Chicago Press, 2006), 57-65.

[5] Christine W. Letts, William Ryan, and Allen Grossman, "Virtuous Capital: What Foundations can Learn from Venture Capitalists," in *The Entrepreneurial Venture* Second edition; Practice of Management Series; Boston:; Harvard Business School Press, 1999), 555-565.

common forms of philanthropic relationships today are often characterized by little or no direct interaction between donors and beneficiaries, which endangers the effectiveness of grants to create public benefit by responding to community needs. Some remedies to the decreased effectiveness of greater donor control in philanthropic relationships include increased access to information about grant recipients and more collaborative interactions between donors and recipients so that donors will disperse funds according to existing needs rather than their own initiatives, which may coincide with public need.[6] A scenario that highlights the impact of and a reaction to excessive donor control that was included in an ethics article from *Advancing Philanthropy* states:

> *Case One*
> A donor wants to contribute an important art collection to a local museum, contingent on the paintings being hung in perpetuity in a separate, named gallery that will often be closed to the public for private events. The collection must be placed exactly as it had been in the donor's home, and the individual paintings must never be sold or loaned.
>
> *Issues at stake:* Do the gift's static nature and stringent conditions 'unduly influence' the museum's mission? Does the gift jeopardize the museum's 501(c)(3) status by failing to serve a public purpose and conferring a private benefit (creating a personal memorial)? Will the gift's terms prevent the generation of income, causing it to eventually become unsustainable?
>
> *One possible resolution:* The museum's board must weigh the contribution of the paintings against the museum's mission and against the gift's constraints on public access and the museum staff's administrative discretion. Given the additional litigation and financial risks, the museum must confer with the donor about dropping some of the conditions. If the donor refuses, the museum may seriously consider declining the gift.[7]

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[6] Susan A. Ostrander, "The Growth of Donor Control: Revisiting the Social Relations of Philanthropy," *Nonprofit and Voluntary Sector Quarterly* 36, no. 2 (06 2007): 356-372.

[7] "Emerging Issue: How Much Donor Involvement is Too Much?" *Advancing Philanthropy*, November/December (2000) [cited 2008]. Available from http://www.afpnet.org/ka/ka-3.cfm?content_item_id=1230&folder_id=900.

In an article that critiques the current state of philanthropy, Michael Bailin also recognized the trend of power asymmetry in philanthropy, but his solutions focus more on changing the whole field than addressing that specific problem. He claims that foundations can avoid the consequences of excessive donor control by being more selective in choosing beneficiaries that have realistic theories of change, effective programs, strong leadership, and that are committed to growth, but beneficiaries must change some of their processes as well. Some efforts nonprofits can make are to form credible business plans that delineate goals and time frames for growth, to create programs that are consistent with the organization's theory of change, and to establish measurable interim goals or benchmarks for progress of programs.[8]

The donor control issue considered by other scholars falls into one of Frumkin's three major complaints of the philanthropy field,[9] which is accountability. He argues that, because philanthropic decisions are different from ordinary private consumption decisions in that they are accompanied by a public subsidy in the form of tax breaks, their effects are felt by others, whether directly or indirectly, and the disparity of wealth and power between donors and recipients renders the exchange unequal and guarded. One result of less openness between donors and recipients is limited feedback from programs, especially those that fail. If failures are not well communicated back to donors, an ineffective program is followed by a missed opportunity to learn from the failure and inform future philanthropic practices.[10]

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[8] Michael A. Bailin, "Requestioning, Reimagining, and Retooling Philanthropy," *Nonprofit and Voluntary Sector Quarterly* 32, no. 4 (12 2003): 638.
[9] Frumkin's three "central problems in philanthropy" include effectiveness, accountability and legitimacy.
[10] Frumkin, *Strategic Giving: The Art and Science of Philanthropy*, 71-83.

Venture philanthropy is a new trend that attempts to adjust for the aforementioned complaints in organized philanthropy. It is relatively small in the world of philanthropy with about 40 funders that invest about $60 million annually, while the over 71,000 total foundations in the U.S. gave upwards of $19.1 billion in 2006.[11] Whether it goes by the name of venture philanthropy, high-engagement grantmaking, social venture capital or social entrepreneurship, it is marked by investment and corporate rhetoric, an emphasis on performance measurement, long-term relationships in which donors provide both financial and organizational support, benchmarks to assess the progress of programs and a goal of achieving tangible results on a broad scale. Venture philanthropy is based on an investment metaphor and can be likened to venture capital in many ways.

The language used in venture philanthropy finds its roots in the new meaning given to *investment* by the technological revolution in Silicon Valley beginning in the early1980's and the New Democrats' references to social investments after George W. Bush Sr.'s victory in the 1988 presidential election. The difference in the investments of a venture philanthropist and those of the business world and government is the struggle to find the resources to affect widespread social change and to assess impact with concrete performance measures. Some of the most prominent venture philanthropists today are leaders in business and technology who have turned their sights to philanthropy and who want to use the investing and business knowledge they have gained from prolific careers in foundation operation. The results are foundations that measure progress either quantitatively (if possible) or with benchmarks, have multi-year funding relationships,

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[11] Peter Frumkin, "Inside Venture Philanthropy," in *In Search of the Nonprofit Sector* (New Brunswick, New Jersey: Transaction Publishers, 2004), 99-113. , "Foundation Giving Trends Preview," December 2007 [cited 2007]. Available from http://foundationcenter.org/gainknowledge/research/pdf/fgt_preview_2008.pdf.

invest nonfinancial contributions, and focus on building an organization's capacity rather than solely funding programs. Notable foundations of this type are the Kirsch Foundation, the Bill and Melinda Gates Foundation, the Omidyar Network, the Brainard Foundation and the Draper Richards Foundation for Social Entrepreneurship.

Improved performance measures theoretically allow nonprofits to improve programs and investors to make better future funding decisions, however, there is little evidence that the impact of having quantitative measures of the social return on investment is worthwhile. Nevertheless, the most sophisticated attempt at quantifying social return was developed by the Robert Enterprise Development Fund; it divides value creation between enterprise value and social purpose value. The REDF measures are able to quantify the impact of social purpose enterprises that generate monetary profits for nonprofts and benefit society by employing workers to operate the enterprises. Part of the value measured is from the tax dollars saved when the nonprofits employ people who would otherwise be dependent on homeless shelters and government supported services.[12]

Donors who engage in this type of giving invest nonfinancial resources, such as leadership and business experience as an entrepreneur, in beneficiaries and aid in forming substantial partnerships between foundations, beneficiaries and corporate, social and community organizations. Because a funder's investment extends beyond the distribution of funds, she forms a more intensive, engaged and frequent relationship with a recipient group. A goal of venture philanthropy is to achieve lasting and sustainable goals for nonprofits; this is accomplished through long-term funding, strategic advice and

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[12] Frumkin, *Inside Venture Philanthropy*, 100-101, 109-111.

investments in organizational infrastructure, governance and management, and decision making on the part of a funder.[13]

In the attempt to have broad social impact, venture philanthropists incorporate corporate strategy for growing companies into their support of nonprofits. They employ either franchising or commercialism from nonmission-related ventures to get nonprofits to scale. Venture philanthropists often create franchise models, which offer a programmatic idea to other social entrepreneurs. The idea is either offered as an autonomous, unaffiliated model, or as an affiliated entity to the founding nonprofit, and the model is developed, tested and considered debugged before it is extended to other sites. Nonmission related ventures can also achieve scale by creating a stream of revenue to stimulate internal growth. The danger of this option is that there is a risk that the alternate venture will in fact not be profitable; it is dependent upon the proficiency of a nonprofit's "entrepreneurial instinct to succeed".[14]

An example of a successful nonprofit franchise model supported by a venture philanthropist is through the HealthStore Foundation, founded by Schott Hillstrom. This foundation responded to the need for consistent healthcare and medication distribution in sub-Saharan Africa. The basic model is a health care clinic called the Children and Family Wellness (CFW) shop, and at the end of 2007, there were over 65 franchises of CFW shops established in Kenya which serve hundreds of thousands of clients each year. Kenyan CFW shops employ local nurses, healthcare workers and franchisees, and the HealthStore Foundation provides financing, training and organizational support. The model is markedly different from the results of a traditional funding relationship in that

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[13] David M. Van Slyke and Harvey K. Newman, "Venture Philanthropy and Social Entrepreneurship in Community Redevelopment," *Nonprofit Management and Leadership* 16, no. 3 (Spring 2006): 345-368.
[14] Frumkin, *Inside Venture Philanthropy*, 102-103.

the HealthStore Foundation was an integral financial and nonfinancial partner in the development of CFW shops in Kenya, and the HealthStore Foundation achieved greater scope by franchising the shops based on a tested model.[15]

1.2 Approach

In this paper, I will compare the effects of venture philanthropy and traditional philanthropy by evaluating the length of time until program success or termination and the amount of social return that each approach produces. Because venture philanthropy applies venture capital techniques to a funding relationship, and a venture capital funding relationship parallels a venture philanthropic funding relationship in many ways, venture capital models lend themselves as bases for such an analysis. The primary models that I will reference are based on the uncertainty of time of program completion and the uncertainty of success.

The venture capital model by Bergeman and Hege (2005) utilizes Bayesian learning and dynamic programming to model relationship and arm's-length financing. In relationship financing there is symmetric information between the venture capitalist and entrepreneur and no finite stopping point. On the other hand, an arm's-length financing relationship is dependent upon asymmetric information and there is a finite stopping point for support. Each type of financing finds a funding equilibrium, at which point a venture capitalist will choose to cease funding. The models show that arm's-length financing is advantageous for project completion, primarily because there is a finite stopping horizon, and that, under the arm's-length relationship where there is a large

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[15] "Wise Givers: Scott Hillstrom Builds a Franchise for Africa," in Beyond Philanthropy [database online]. 12/29/07 [cited 2008]. Available from http://www.beyondphilanthropy.org/reviews/jeff_sandefer_reinvents_the_mba/.

discount rate, there tends to be a larger funding rate as a project reaches its point of termination.[16] In the venture philanthropy model, the contracting stage will incorporate first-best policy from the Bergemann and Hege model, using a hazard rate rather than Bayesian learning to approximate the parties' belief in program success, but it will stop short of utilizing dynamic programming to evaluate the total value of the program.

The other model that this paper is primarily based upon is by Jovanovic and Szentes (2007), and takes a simpler approach, by utilizing cumulative distribution functions, their densities, a hazard rate and maximization to describe the incentives for venture capitalists and entrepreneurs within a contract and how they behave as they make socially optimal decisions to terminate projects. The primary findings are that venture capital backed companies reach larger IPOs earlier, venture capitalists earn a higher excess return than solo entrepreneurs and contracts should be the same in all venture capital financing relationships. Although the Bergemann and Hege model parallels a comparison between venture and traditional philanthropy, the Jovanovic and Szentes model is preferable because of its incorporation of incentives, and its analysis of the share of profits due to each party in a venture capital financing relationship.[17]

I will base my venture philanthropy model closely on the Jovanovic and Szentes model, with several important modifications. The most prominent difference between venture capital and venture philanthropy is the type of return that the funder receives—where profit margin for a venture capitalist is the revenues less the monetary costs of a project, for a philanthropist, returns are purely social and therefore do not take into

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[16] Dirk Bergemann and Ulrich Hege, "The Financing of Innovation: Learning and Stopping," *RAND Journal of Economics* 36, no. 4 (Winter 2005): 719-752.

[17] Boyan Jovanovic and Balazs Szentes, "On the Return to Venture Capital," Working Paper, National Bureau of Economic Research Working Paper Series, New York. 12874.

account the monetary cost incurred to produce them. I will use the term "social returns" as profit in the philanthropy models, which encompasses the net positive benefit produced by a successful program. For a nonprofit organization, this may be in terms of transitional housing units constructed, schools built in a developing country, people served at a homeless shelter, or any other social benefit generated by a nonprofit program. If there were any social costs caused by the program, they are also included in the social return term, so that the term is truly net benefit. Because the units of social return are not uniform in dollars, the financial cost of the program cannot be included in the term. Therefore, the funds contributed by the philanthropist are considered a sunk cost in the philanthropy model.

There are other more minor changes, such as social value in the model, which is the 5% of the philanthropist's total wealth that a foundation is federally required to give annually to maintain its 501(3)(c) status, as opposed to the original social value of an uncommitted venture capitalist. Also, in the venture philanthropy model, there is a term to represent the nonfinancial effort exerted by the venture philanthropist, which is absent in the traditional philanthropy model.

The chapter that follows outlines the theory behind the philanthropy models by examining the economic principles behind altruism and egoism, philanthropic behavior, cumulative distribution functions, probability density functions, the hazard rate and venture capitalist behavior. The third chapter will present both the venture philanthropy model and the traditional philanthropy model. In the fourth chapter, the basic models will be adapted to represent alternative philanthropic relationships, including a philanthropist interested in receiving a share of returns without effort and a venture

philanthropist funding multiple nonprofit initiatives. Chapter five will contain my discussion of the models and their extensions and my conclusions.

CHAPTER 2

THEORY

2.1 The Altruist and the Egoist

When economists consider consumer utility, we generally only go so far as to say that the tastes that define said utility are dominated by self-interest. We feel more liberty in describing preferences for their completeness, continuity, transitivity and monotonicity, however we define no such properties for tastes. Therefore, if self-interest is all we know of the tastes that define the all important utility that consumers derive from their purchases, philanthropy and its root, altruism, seem at first to be contradictory to the most basic of economic principles. However, altruism has been a topic of study in economics in works by Adam Smith, John Stuart Mill, Ysidro Edgeworth, Vilfredo Pareto , Léon Walras and Philip Wicksteed, among others.[1]

Altruism is a sociobiological phenomenon; Darwin defined evolutionary processes by survival of the fittest, not survival of the most giving. Economic principles can, however, explain altruism by considering it as rational behavior. An altruist is defined as an individual who "is willing to reduce her own consumption in order to increase the consumption of others".[2]

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[1] Serge-Christophe Kolm and J. Mercier Ythier, ed. *Handbook of the Economics of Giving, Altruism and Reciprocity,* (Amsterdam: Elsevvier, 2006), 5.
[2] Gary Stanley Becker, *The Economic Approach to Human Behavior* (Chicago: University of Chicago Press, 1976), 284.

If in fact an altruist is a rational consumer, she will consume in such a way that exhausts her disposable income while maximizing her utility. Based on the simplest case as presented in Becker's theory of altruism (1976), an altruist, called a, derives utility from her own consumption of good X_a, and consumption X_g by the egoist g to whom she is altruistic, while g only derives utility from his own consumption, X_g.

$$U^a = U^a(X_a, X_g) \tag{1}$$

We can define the budget constraints for a and g as

$$\begin{aligned} I_a &= pX_a + a_g \\ I_g + a_g &= pX_g \end{aligned} \tag{2}$$

where a_g is the dollar amount given to g by a and I_a and I_g are the pre-gift disposable incomes of a and g, respectively. We can consider the amount given, a_g, equal to that received under the assumption that there is no monetary loss or gain during the transfer. The variable S_a is defined as a's social income, which is the sum of a's monetary income and the value to her of her social environment, which is the egoist's income, I_g. The budget constraint for a's social income is therefore

$$S_a = I_a + I_g = pX_a + pX_g . \tag{3}$$

We can maximize the utility function (1) subject to a's social income budget constraint (3) using the Lagrangian method to find the following equilibrium:

$$\frac{\partial U^a / \partial X_a}{\partial U^a / \partial X_g} = \frac{p}{p} = 1 \tag{4}$$

Because this is expression of the marginal utility of a's consumption relative to the marginal utility of g's consumption, we can draw the conclusion that a change in g's consumption has the same effect on a's utility as the same change in a's consumption.

We can draw several more conclusions from this maximized equilibrium. First, because *a*'s social income is a function of her and *g*'s incomes, she will not engage in an action that increases her income but decreases *g*'s income to a greater degree. Second, an altruist *a* is in the unique position that she can raise her consumption and utility while reducing her income. If the altruist engages in an activity that increases her social income by lowering her own income but raising the egoist's income by a greater degree, her utility will increase. Such a situation would occur in the case where an altruist gives an egoist some amount money, which the egoist proceeds to consume by paying tuition at a university. Because this investment not only paid for the actual education that the egoist received, but it also incurred human capital for the egoist, the egoist's income increases by a greater degree than just the amount of funds that were given by the altruist, and, as a result, the altruist's utility increases.

With the increase in utility U^a both the altruist and egoist's consumption would increase, assuming neither consumption good lowers utility. The only way the altruist can increase her consumption is by decreasing her transfers to the egoist, and the result is, although both the altruist's income and the transfers to the egoist were reduced, they both increase their consumption.

Finally, *g* must consider the impact of his consumption on *a*'s consumption because *a* links *g*'s consumption to her own. The egoist only factors consumption into his utility,

$$U^g = U^g(X_g, Y_g, ...) \tag{5}$$

and his consumption is restricted by his budget constraint,

$$I_g + a_g = p_X X_g + p_Y Y_g + ... \quad . \tag{6}$$

However, if *g* consumes in a way that lowers *a*'s consumption, *g* will in turn feel the impact. This leaves *g* acting in an altruistic way toward *a*, although it is purely out of self-interest.[3]

Altruism is a topic of study in economics because, not only do we see it occur naturally in society, but it appears in experimental settings as well. Hu and Liu show that people will cooperate in social dilemmas, whether for altruistic or self-interested reasons, and the rates of cooperation vary based on personal attributes and external conditions.[4] Evans and Chang also found that altruism appeared in their experimental scenarios regardless of the sources or targets of altruistic behavior; often people were altruistic towards both relatives and strangers.[5]

2.2 Philanthropic Behavior

Now that altruism has been established in economic terms, philanthropic behavior must be explained. As with altruism, philanthropy can be considered a sub case of consumer choice theory, where philanthropic activity yields utility in and of itself. A more interesting question is what motivates philanthropic behavior; this addresses how philanthropists make decisions about whom to fund and the role that social interdependence plays.

There are several economic models of philanthropic behavior, the first being that of David Johnson (1968). Johnson hypothesized that the reason individuals donate to charity is to avoid social pressures, religious beliefs and psychic unpleasantries, termed

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[3] Ibid., 284-286.
[4] Yung-An Hu and Day-Yang Liu, "Altruism Versus Egoism in Human Behavior of Mixed Motives: An Experimental Study," *American Journal of Economics and Sociology* 62, no. 4 (10 2003): 677-705.
[5] Martin G. Evans and Young Chul Chang, "Cheater Detection and Altruistic Behaviour: An Experimental and Methodological Exploration," *Managerial and Decision Economics* 19, no. 7-8 (1998): 467-480.

"social costs". Normally, the free-rider problem may dampen the success of charity, where an individual contribution is small in comparison with aggregate philanthropic activity, so individuals feel they can rely on other contributions to supplement the absence of their own contributions; however, in this model, social costs overcome the problem, as others in society will view any selfish behavior negatively and therefore motivate philanthropic behavior. The following model shows how social costs affect giving,

Social Costs and Giving

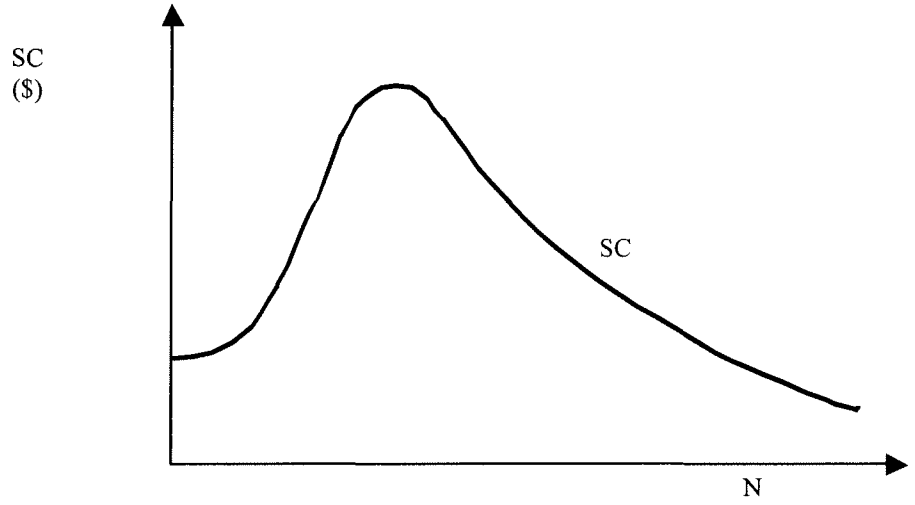

FIGURE 2.1

SOURCE

Bruce Bolnick, "Toward a Behavioral Theory of Philanthropic Activity," in *Altruism, Morality, and Economic Theory* (New York: Russell Sage Foundation, 1975)

where SC is the dollar amount designated to a level of social cost, N is the size of the community, and the height of the curve at any given community size is the amount used toward philanthropy. Johnson claims that the height, or amount of funds given, is dependent upon "the folkways and mores of the community, the type of quantity of the

public good, and the social position and wealth of the individual in question" although he only demonstrates the quantity of public good in his model.[6]

Bruce Bolnick (1975) incorporates social behaviors in his economic analysis of philanthropic behavior by placing a rational individual in a social context. In reference to interpersonal influence, Bolnick asserts that individuals are rewarded by social relationships and individuals are highly motivated by the consistency and avoidance of dissonance.[7] He also examines the effect of an individual's status. A high status individual will generally be less influenced by differing attitudes or norms than a low status individual, because she can influence norms in her community to a greater degree. Also, norms developed in high status groups will be more readily transmitted throughout the group. Finally, the size of an individual's social group can affect the degree of social pressure in several ways. Social pressures make themselves felt directly in small groups that function as part of a larger group, through pressure to identify oneself with reference groups or leaders of a group, or through other "channels of influence" that may exist in even large groups.

The resulting model incorporates social pressures, as well as the costs and benefits of philanthropic activity to determine the likelihood of such activity occurring. The model is as follows

$$\Pr(B) = F(I, D, E, C) \tag{7}$$

where B is a behavior an individual i may or may not choose to perform, I is the indirect social pressure from identification with reference groups, D represents the direct social pressures an individual perceives, E is the utility i gets from B, and C is the cost of

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[6] Bruce Bolnick, "Toward a Behavioral Theory of Philanthropic Activity," in *Altruism, Morality, and Economic Theory* (New York: Russell Sage Foundation, 1975), 198-199.
[7] Ibid. 198-199.

behavior *B*. *I* can be expanded to aggregate a set of I_j, $j = 1,2,\ldots,J$, where an individual *i* is a member of J reference groups. Each reference group *j* is defined by its prestige, the information it transmits to *i* concerning *B*, how the norms of group *j* conflict or correspond with common social norms, and how strongly *i* identifies with group *j*. Similarly, *D* can be expanded to a set of D_k, $k = 1,2,\ldots,K$, in which the number of primary groups to which *i* belongs is represented by K. The amount of pressure inflicted by each *k* is dependent on how *i* values her relationship to *k*, the clarity with which a group *k* communicates its norms, and the degree to which *k*'s norms deviate from *i*'s established norms.

The utility and cost of behavior *B* are traditionally defined. The individual's utility, *E*, is determined by her set of preferences. We expect *i* to derive more utility from philanthropic behavior that benefits demographics or services that she most values. The cost of *B*, or the amount an individual decides to contribute, may depend on many factors, and it is possible that utility and or direct social pressures may be dependent on *C*. For example, if the cost of B is very small in comparison to the individual's wealth, there may be more social pressure on the individual to increase the cost of future philanthropic acts, because others scrutinized the last. This is a special case of a traditional consumer choice model because, if social pressures are absent, *Pr(B)* will simplify to a function of *E* and *C* and become $Pr(B) = 1$ when $E > C$ and $Pr(B) = 0$ when $E < C$.[8]

The definition of utility for venture capitalists differs from philanthropists because when building theory, venture capitalists are egoists; altruism is absent from their considerations. However, the traditional concept of consumer choice applies to venture capitalists, where rational individuals will choose to consume a good as long as their

[8] Ibid..

utility matches or exceeds the cost of the good. Therefore, the difference between a venture capitalist and a venture philanthropist lies primarily in their respective definitions of utility.

When comparing venture philanthropy to traditional approaches, the most important factor is the relationship that donors have with beneficiaries, and an overview of the theory behind venture capitalist behavior is a good place to begin in understanding the difference. The following sections will examine the concepts of cumulative distribution functions, the hazard rate and the contracting, incentives, shares, optimal stopping point and profit determination phases that a venture capitalist executes during a project, primarily based on Jovanovic and Szentes' (2007) and Bergemann and Hege's (2005) models of venture capital.

2.3 C.D.F. and Continuous Probability Density Function

One of the fundamental concepts incorporated in Jovanovic and Szentes' model is the cumulative distribution function, more commonly known as a C.D.F. The model uses this function to define the probability of project success as a function of time, until time *T*, which is the point at which a contract is terminated and the venture capitalist is simply cutting losses. A C.D.F. is the induced probability space, or probability distribution, for a random variable, which in this case is over time *t*, and is usually denoted $F_t(\cdot)$ or just $F(\cdot)$. The definition of $F_t(\cdot)$ is $\Pr(t \leq T)$ for a point $T \in \mathbb{R}$, which in the case of the model is the time at which a contract must be terminated, and it has the following properties:

(i) $0 \leq F(t) \leq 1$ for all $T \in \mathbb{R}$;

(ii) If $T_1 < T_2$, then $F(T_1) \leq F(T_2)$ or F is nondecreasing (monotone increasing), and for a continuous random variable, F is an strict increasing monotone function;

(iii) for all $T_0 \in \mathrm{R}$, F is right continuous;

(iv) $\lim_{T\to-\infty} F(T) = 0$ and $\lim_{T\to\infty} F(T) = 1$;[9]

(v) $F_t(T) = \int_{-\infty}^{T} f_t(\xi)d\xi = P\{t \le T\}$.

By using a C.D.F. to represent the probability of some event occurring before some time T, we can allow for the uncertainty of the time at which that event occurs. The C.D.F. is expressed in terms of the probability density function in (v), which is $f(T)$, and simply the derivative of $F(T)$. A continuous probability density function has the following properties:

(i) $p[a \le t \le b] = \int_a^b f(t)dt$

(ii) $f(t) \in \mathrm{R_t}$

(iii) $\int_{-\infty}^{\infty} f(t)dt = 1$.

For a continuous probability function, the probability at a single point is always zero because the function is defined for an infinite number of points over a continuous interval; thus, probabilities must be measured over intervals as in (i). [10]

2.4 Hazard Rate

A random variable t with a C.D.F. F and density f has a hazard rate, also known as a failure rate, $h(t)$ which is defined as

$$h(t) = \frac{f(t)}{1 - F(t)} \tag{8}$$

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[9] Marc S. Paolella, *Fundamental Probability : A Computational Approach* (Chichester, England; Hoboken, NJ: John Wiley, 2006), 114.

[10] Venkatarama Krishnan, *Probability and Random Processes* (Hoboken, N.J.: Wiley-Interscience, 2006), 73-74.

where $h(t)$ is the probability that an event with the lifetime T has existed for t units of time does not survive for an additional time dt. Mathematically, that is $P\{T \in (t, t+dt) | T > t\}$ and we can derive the statement (8) as follows

$$\begin{aligned} P\{T \in (t,t+dt) | T > t\} &= \frac{P\{T \in (t,t+dt), T > t\}}{P\{T > t\}} \\ &= \frac{P\{T \in (t,t+dt)\}}{P\{T > t\}} \\ &\approx \frac{f(t)dt}{1-F(t)} = h(t)dt \end{aligned} \tag{9}$$

The hazard rate $h(t)$ is therefore the conditional probability density that an event existing at time t will not succeed.[11]

2.5 Venture Capitalist Behavior

The venture capital market includes two main actors: venture capitalists with unlimited wealth and entrepreneurs with projects and limited wealth. In comparison to the number of entrepreneurial proposals, venture capital funds are scarce, which effectively raises the returns to and quality of venture capital funded projects. Another effect of the ratio of venture capitalists to proposals is impatience among venture capitalists, which creates an incentive for entrepreneurs to execute high quality projects and raises the IPO value of venture capital funded firms.[12]

Entrepreneurs propose their projects to venture capitalists and request funding for start-up and continuation costs. The decision the venture capitalist makes to invest is guided by three basic criteria: concept, management and returns. An entrepreneur's concept must exhibit significant potential for earnings growth, it must involve an already

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[11] Sheldon M. Ross, *Introduction to Probability Models*, 8thd ed. (San Diego, CA: Academic Press, 2003), 276.

[12] Jovanovic and Szentes, *On the Return to Venture Capital*

tested or feasible business idea in the short term, it must have a comparative advantage in its industry or be in a relatively non-competitive industry, and capital requirements for the concept must be reasonable. Qualities that venture capitalists look for in management are personal integrity, success in prior jobs and realism in identifying and dealing with risk. Also, venture capitalists want managers who are flexible, hard workers, knowledgeable about their proposed project and who are both strong leaders and adept in general management. Finally, in order be approved by a venture capitalist, there must be an exit opportunity from an investment and the investment must have both a high potential rate of return and a high potential absolute return. The decision-making process involves several screens and evaluations, based on firm-specific criteria on the size, industry, location and state of financing of the investment, before an investment proposal is funded.[13]

If all of these criteria are present, a venture capitalist is likely to present a contract for a project. The Jovanovic model addresses feasible contracts and the timing of a contracted relationship between a venture capitalist and an entrepreneur. All possible contracts will consist of two numbers, p and s, where p signifies the lump sum paid to the entrepreneur when a contract is signed and s is the share of payoff that the entrepreneur gets if the project succeeds. Therefore, the only up-front cost for the entrepreneur is the cost of the project c less p and, if there is a payoff R from a successful project, the entrepreneur receives sR and the venture capitalist gets $(1\text{-}s)R$. Any effort put forth by either party is not contractible but may increase the probability of project success.

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[13] Vance H. Fried and Robert D. Hisrich, "Toward a Model of Venture Capital Investment Decision Making," *Financial Management* 23, no. 3 (Autumn 1994): 30-32.

The conditions under which both parties will sign a contract must be that the expected returns from the investment will exceed the expected costs, which is called first-best policy. For the investor, or venture capitalist, this is called the participation constraint,

$$h(t)(1-s)R \geq C \tag{10}$$

where $h(t)$ is the hazard rate, or belief in project success, s and R are as defined previously, and C is the total expected cost of the project, which includes the up-front cost p. The entrepreneur operates under an incentive constraint, which includes c, the total expected cost to the entrepreneur,

$$h(t)sR \geq c \ . \tag{11}$$

When the constraints are compatible, financing will be provided and

$$\begin{aligned} h(t)R &\geq C + c \\ h(t) &\geq \frac{C+c}{R} \end{aligned} \tag{12}$$

If the venture capitalist and entrepreneur sign a contract and the venture capitalist pays p towards cost c but the payoff has not materialized by a certain date, both parties must make a decision. The venture capitalist must decide whether to invest further and the entrepreneur must decide if she will put forth more effort. They may decide to continue until R is realized or one or both may decide to stop investing and the entrepreneur leaves the market and the venture capitalist moves on to another project.

For any given project, if there are high returns, it will receive full funding, but if the project has low returns, the venture capitalist will provide only restricted funding. Because a venture capitalist benefits from high returns, she desires to reach the maximum value of R in a project, and she can increase the chances of realizing return by the level of

investment in a project, whether in the form of funds or nonfinancial contributions. Also, the relationship that a venture capitalist chooses to have with an entrepreneur may influence the realization of returns, so she will employ the relationship and resources in the manner that is most advantageous to maximum return.

If a venture capitalist's market value corresponds with her social value and if she is able to extract all project surpluses, she is able to make socially optimal decisions regarding investments and support of projects. According to the Jovanovic and Szentes model, in order that the outcomes of entrepreneurial projects be socially optimal, a venture capitalist only supports projects proposed by entrepreneurs who would abandon their projects without venture capital backing because they lack the wealth to execute it independently. Entrepreneurs with initial wealth that is sufficient to support a project to its completion should execute their projects without backing from a venture capitalist. Therefore, venture capitalists have the market power to extract all suplus from projects, which means that the venture capitalist receives all rents from the project while the entrepreneur receives none.[14]

We define p^* as the lump-sum funds that the venture capitalist pays out while still being able to extract all surplus, and s^* is the socially optimal sharing rule between both parties. When the sharing rule s in a contract coincides with the socially optimal sharing rule s^* and contracts allow venture capitalists to extract all rents with fixed costs p^*, the market equilibrium E occurs

[14] Jovanovic and Szentes, *On the Return to Venture Capital*, 12-13.

Venture Capitalists: Supply and Demand

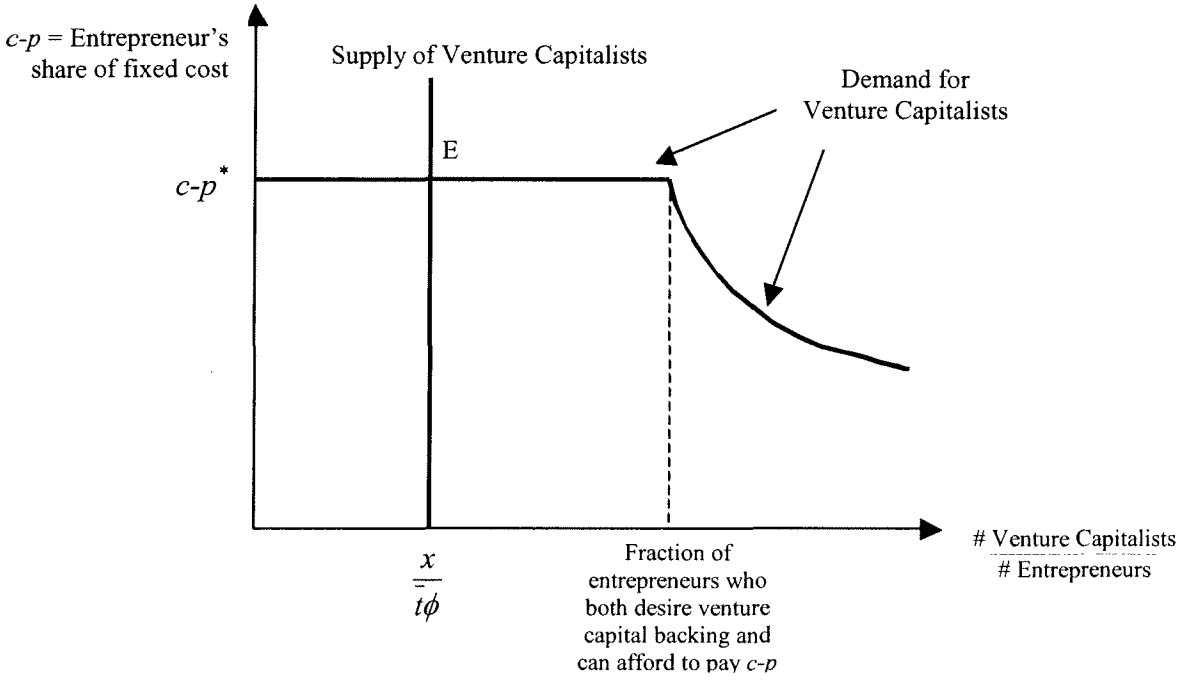

FIGURE 2.2

SOURCE

Boyan Jovanovic and Balazs Szentes, "On the Return to Venture Capital," Working Paper, National Bureau of Economic Research Working Paper Series, New York. 12874.

where x is the number of venture capitalists, $\bar{t}$ is the average time required to complete a project, and ϕ is the flow of proposals confronting venture capitalists. The venture capital market is such that the supply of venture capital backing is inelastic and the demand for venture capitalists is infinitely elastic until the point at which entrepreneurs can afford to back their own projects, and therefore have a lower demand for funding from venture capitalists. The effect of a scarce quantity of venture capitalists is an equilibrium where the venture capital market's ability to fund proposals falls short of the number of entrepreneurs who can afford to pay *c-p* and want venture capital backing.[15]

[15] Ibid. 10-14.

Once an entrepreneur successfully signs a contract with a venture capitalist, she is paid the lump sum p and further funding in the form of contract extension is conditional on performance. After explaining the process of contracting in their model, Jovanovic and Szentes analyze how long a project should be funded according to socially optimal decisions for a venture capital backed project and one supported by a solo entrepreneur. From this, they state the conditions under which an entrepreneur will support his project independently, seek funding from a venture capitalist or simply abandon his project. The social optimum is then determined where it is a competitive equilibrium and Jovanovic and Szentes prove the welfare theorem by analyzing the parties' incentive compatibility, the optimality of a contract, and how entrepreneurs choose a mode of financing for a project.

After the theoretical model is established, Jovanovic and Szentes show the empirical implications of the conclusions in the model, and find that the impatience that venture capitalists experience to start new projects and terminate non-performing projects contributes to a tendency for venture capital backed companies to reach IPOs earlier, and at a higher value than other start-ups. They also find that venture capitalists earn a higher excess return than entrepreneurs, although by only a small margin. Finally, the model showed that contracts should be the same irrespective of the degrees of project quality, entrepreneurial personal wealth or venture capital wealth.

Thus, in the following chapter, I adapt and extend the Jovanovic and Szentes model to describe contracting, incentive, stopping points and social return as they occur in venture philanthropic and traditional philanthropic relationships.

CHAPTER 3

THE VENTURE PHILANTHROPY AND TRADITIONAL PHILANTHROPY MODELS

3.1 Initial Conditions

There exists one venture philanthropist and one nonprofit organization. The venture philanthropists has $\overline{W}$ total assets and is willing to invest W, where $W=0.05\overline{W}$. The venture philanthropist will contribute funds incrementally, with an initial value $p(0)$. At any given time, the venture philanthropist will have contributed $P(t) = \sum_{i=0}^{t} p(i)$, where the final sum of investments is $P(T^*)$, which is equal to the total cost, C, of the program. The venture philanthropist is also willing to support the program nonfinancially, through organizational and strategic support, which is measured by k units of effort.

The nonprofit will only take on one program at a time and has zero wealth to contribute to the program; rather the nonprofit exerts a units of effort until the program is either determined successful or terminated. The program is successful when it yields π, the social return or benefit from the program at time τ, where both π and τ are random variables. The cumulative distribution function (C.D.F.) of τ is $F \in \mathrm{R}_+$ and f is its density. The distribution F is known by both parties, although neither π nor τ is known. After C is incurred and π becomes known, the venture philanthropist must decide when to terminate support, at time T. The optimal stopping time to terminate a contract is termed T^*. If π is not achieved by time T, the venture philanthropist will terminate the

contract and be left with W less the funds expended, $P(T)$, or C. Similarly, in a traditional philanthropic relationship, once π is revealed to the nonprofit organization, T^* is the time at which the nonprofit stops exerting effort, a.

The belief that parties have in program success is represented by the hazard rate, h, which is bell shaped and equivalent to $f/(1-F)$. The shape of the hazard rate indicates that as time passes, parties become increasingly optimistic about the realization of π at the unknown time τ, and then more pessimistic.

3.2 Contracting

In order for any philanthropist to accept a grant proposal, the benefits of the proposed program must exceed funding costs. The main difference in the contracting stage between venture and traditional philanthropy is that both the venture philanthropist and the nonprofit organization receive a share of social return.

3.2.1 Venture Philanthropy

While a venture philanthropist is an altruist in the nature of her business, her focus is on results, and she expects a return for her investments, in the form of social benefit. A venture philanthropist will offer a contract, ($p(0)$, s), where $p(0)$ is the initial amount offered to the nonprofit, to be followed by later investments that sum to $P(T)$ at the time of termination, which is equivalent to total cost, C. The share of social return that the nonprofit will derive from this type of funding relationship is s, and the venture philanthropist receives a share equal to (1-s). In order for a venture philanthropist to agree to fund a particular program, it must fulfill the following condition,

$$h(0)(1-s)\pi \geq C + k \tag{13}$$

and the nonprofit's proposal has the condition that,

$$h(0)s\pi \geq a. \tag{14}$$

The parties will sign a contract when these conditions are compatible, where belief is at the level,

$$\begin{aligned} h(0)\pi &\geq C + a + k \\ h(0) &\geq \frac{C + a + k}{\pi} \end{aligned} \tag{15}$$

3.2.2 Traditional Philanthropy

In contrast, a traditional philanthropist is an altruist in the most pure sense—she will incur the cost C to fund the program without expecting to share in π. Also, because she does not contribute anything beyond C, her condition for signing the contract is,

$$h(0)\pi \geq C \tag{16}$$

and the condition in the grant proposal is,

$$h(0)\pi \geq a. \tag{17}$$

A traditional philanthropist will accept a contract if

$$\begin{aligned} 2h(0)\pi &\geq C + a \\ h(0) &\geq \frac{C + a}{2\pi} \end{aligned} \quad . \tag{18}$$

Because all parties share the hazard rate as an approximation of their belief in program success at any given time, we can compare the level of initial belief required for each approach,

$$\frac{C + a + k}{\pi} > \frac{C + a}{2\pi} \tag{19}$$

to determine that acceptance of a grant proposal by a venture philanthropist requires a stronger belief in program success than by a traditional philanthropist. The implication of

this contrast is that a grant proposal that is accepted by a venture philanthropist somehow communicates more confidence in success, which does not necessarily mean that the quality of the program is inherently greater, or that the likelihood of actual success is greater. Two programs may be of equal quality, but the organizations themselves may not be equally competent in executing the program. A venture philanthropist must be willing to contribute more than money, but effort as well; because the stakes are higher, a proposal must communicate that not only the project, but also the organization is worthy of the investment.

3.3 Incentives

3.3.1 Venture Philanthropy

The determination of s for the venture philanthropic relationship is dependent upon the incentives that each party has to work. The benefit that the venture philanthropist expects to receive from the program is

$$\int_0^T ((1-s)\pi + W - P(t))e^{-rt} f(t)dt + e^{-rT}(1-F(T))(W-C) \qquad (20)$$

where the likelihood that the program will yield π at time t is $f(t) \in t \leq T$, and the benefit to the venture philanthropist would be (1-s) π + W - $P(t)$. If, however, time T is reached and π still has not been realized, the probability that the contract will be terminated is (1-$F(T)$) and the resulting reward would be (W - C). The expected cost at time t, where $t \leq T$, is subject to the probability that success has not yet occurred, or (1-$F(T)$) and is therefore

$$\int_0^T ke^{-rt}((1-F(t))dt$$
$$\int_0^T ke^{-rt}\frac{1-F(t)}{f(t)}dF(t)\,. \tag{21}$$
$$\int_0^T \frac{k}{h(t)}e^{-rt}dF(t)$$

The venture philanthropist will base her incentive to work on the maximum of the expected benefit less the expect cost, or

$$\max_T \int_0^T ((1-s)\pi + W - P(t) - \frac{k}{h(t)})e^{-rt}f(t)dt + e^{-rT}(1-F(T))(W-C)$$
$$\max_T \int_0^T ((1-s)\pi + W - P(t) - \frac{k}{h(t)})e^{-rt}f(t)dt + e^{-rT}W - e^{-rT}C - e^{-rT}F(T)W + e^{-rT}F(T)C$$
$$[(1-s)\pi + W - P(T) - \frac{k}{h(T)}]e^{-rT}f(T) - rWe^{-rT} + rCe^{-rT} + rWF(T)e^{-rT} - Wf(T)e^{-rT} -$$
$$rCF(T)e^{-rT} + Cf(T)e^{-rT} = 0$$
$$(1-s)\pi f(T) - P(T)f(T) - \frac{kf(T)}{h(T)} - rW + rC + rWF(T) - rCF(T) + Cf(T) = 0 \tag{22}$$
$$(1-s)\pi - P(T) + C + r(W-C)\frac{F(T)-1}{f(T)} = \frac{k}{h(T)}$$
$$(1-s)\pi - \frac{r(W-C)}{h(t)} = \frac{k}{h(t)}$$
$$k = (1-s)\pi h(t) - r(W-C)$$

The definition of the solution $h(T(\pi))$ is the first-order condition

$$h(T(\pi) = \frac{k + r(W-C)}{(1-s)\pi} \tag{23}$$

and the second-order sufficient condition $h'(T(\pi)) < 0$ shows that this solution is, in fact, a maximum. The newly contracted nonprofit organization in a venture philanthropic relationship has incentive to put forth effort that maximizes net benefit, which is the expected benefit,

$$\int_0^T s\pi e^{-rt}f(t)dt \tag{24}$$

less expected cost

$$\int_0^T ae^{-rt}(1-F(t))dt$$
$$\int_0^T ae^{-rt}\frac{1-F(t)}{f(t)}dF(t). \tag{25}$$
$$\int_0^T \frac{ae^{-rt}}{h(t)}dF(t)$$

We can therefore determine the value of a by solving

$$\max_T \int_0^T (s\pi - \frac{a}{h(t)})e^{-rt}f(t)dt$$
$$(s\pi - \frac{a}{h(T)})e^{-rT}f(T) = 0 \tag{26}$$
$$s\pi = \frac{a}{h(T)}$$
$$a = s\pi\, h(T)$$

where the first-order necessary condition is

$$h(T(\pi)) = \frac{a}{s\pi} \tag{27}$$

and the second-order sufficient condition is $h'(T(\pi)) < 0$.

3.3.2 Traditional Philanthropy

The incentives for a traditional philanthropic relationship are much more simple, because the role of the philanthropist ends after a grant proposal is accepted and the total amount C is given to the nonprofit for the program. Thus, in the traditional philanthropy model, there exists no k. However, the nonprofit organization solves

$$\begin{aligned} &\max_T \int_0^T (\pi - \frac{a}{h(t)}) e^{-rt} f(t) dt \\ &(\pi - \frac{a}{h(t)}) e^{-rt} f(t) = 0 \\ &a = h(t)\pi \\ &h(t) = \frac{a}{\pi} \end{aligned} \tag{28}$$

where $h(t)$ is the first-order condition and the second-order condition is again $h'(T(\pi)) < 0$. When we compare the effort exerted by nonprofits in each type of relationship,

$$sh(t)\pi < h(t)\pi \tag{29}$$

indicates that within a venture philanthropic relationship, a nonprofit organization expends fewer units of effort, presumably because the venture philanthropist contributes k. Even if s is not socially optimal as defined the previous section, it is always a proportion between 0 and 1, so there is always less incentive for a nonprofit to work within a venture philanthropic relationship than in a traditional philanthropic relationship.

3.4 Share of Social Return

We can derive what the socially optimal share of social return that the nonprofit organization should receive in a contract by setting the two first-order conditions equal to each other

$$\begin{aligned} &\frac{k + r(W - C)}{(1 - s)\pi} = \frac{a}{s\pi} \\ &a\pi(1 - s) = s\pi[k + r(W - C)] \\ &a\pi = s\pi[k + a + r(W - C)] \\ &s = \frac{a}{k + a + r(W - C)} \end{aligned} \tag{30}$$

Although the share of social return was exogenously determined before the contract was signed, the share is most efficient when it is defined by the equation above. Thus, the share of social return that the nonprofit organization should get is the proportion of the effort that the nonprofit exerts to the sum of total effort and the opportunity cost for the venture philanthropist of continuing the program. In programs that are more extensive and therefore cost more as a proportion of the assets a venture philanthropist is willing to give, a nonprofit organization should receive a greater share of the social return to a successful program.

3.5 Optimal Stopping Point

First we consider the venture philanthropic relationship. When C is incurred and π is revealed, the venture philanthropist solves the following maximization problem to determine the optimal stopping point, T^*.

$$\max_T \int_0^T (\pi + W - C - \frac{a+k}{h(t)})e^{-rt}dF(t) + e^{-rT}(1-F(T))(W-C)$$

$$\max_T \int_0^T (\pi + W - C - \frac{a+k}{h(t)})e^{-rt}dF(t) + e^{-rT}(1-F(T))(W-C) + e^{-rT}W - e^{-rT}C - e^{-rT}F(T)W + e^{-rT}F(T)C$$

$$(\pi + W - C - \frac{a+k}{h(T)})e^{-rT}f(T) - re^{-rT}W + re^{-rT}C + re^{-rT}F(T)W - e^{-rT}f(T)W - re^{-rT}F(T)C + e^{-rT}f(T)C = 0$$

$$\pi f(T) - r(W-C) + rF(T)(W-C) = \frac{a+k}{h(T)}f(T)$$

$$\pi + r(W-C)\frac{F(T)-1}{f(t)} = \frac{a+k}{h(T)}$$

$$\pi - \frac{r(W-C)}{h(T)} = \frac{a+k}{h(T)}$$

$$a + k + r(W-C) = \pi h(T)$$

(31)

The last line of (31) expresses the moment at which the cost of waiting any longer before terminating the project is equal to the expected benefit of waiting. Thus, at any time after

T^*, the cost will exceed the benefit of prolonging program support and stopping is no longer optimal. The first-order condition for $h(T^*(\pi))$ is the last line of (31) rearranged

$$h(T) = \frac{a + k + r(W - C)}{\pi}, \tag{32}$$

again with the second-order condition $h'(T^*(\pi)) < 0$. Further, we only consider values of π that are greater than the initial minimum π as it was defined in (3) (here termed $\pi_{\min_{VP}}$) and equal to $\frac{C + a + k}{h(t)}$. Although a bell-shaped function is not invertible, we can invert the function under the condition that $\pi > \pi_{\min_{VP}}$, while any other condition not $\pi > \pi_{\min_{VP}}$ would not occur according to previous assumptions made in the formation of the model. We can therefore derive the optimal stopping time T^* as

$$T^*(\pi) = \begin{cases} h^{-1}\left(\frac{a + k + r(W - C)}{\pi}\right) & \text{if } \pi > \pi_{\min_{VP}} \\ 0 & \text{otherwise} \end{cases}. \tag{33}$$

The determination of the stopping point for a program under a traditional philanthropic approach is identical to (16), where $h(t) = \frac{a}{\pi}$ and we can define the optimal stopping point as

$$T^*(\pi) = \begin{cases} h^{-1}\left(\frac{a}{\pi}\right) & \text{if } \pi > \pi_{\min_{TP}} \\ 0 & \text{otherwise} \end{cases} \tag{34}$$

where $\pi_{\min_{TP}}$ corresponds to π in (6), which is the minimum acceptable value of social return that is required to proceed with program funding. The value $\pi_{\min_{TP}}$ is equivalent to $\frac{C + a}{2h(t)}$. Figure 3 shows the optimal stopping points for each approach, and the minimum values of social return. In addition, optimal stopping points are shown for different levels

of profit. For a venture philanthropist, $\pi_{\min_{VP}} < \pi_{1_{VP}} < \pi_{2_{VP}}$, and for the traditional philanthropist, $\pi_{\min_{TP}} < \pi_{1_{TP}}$.

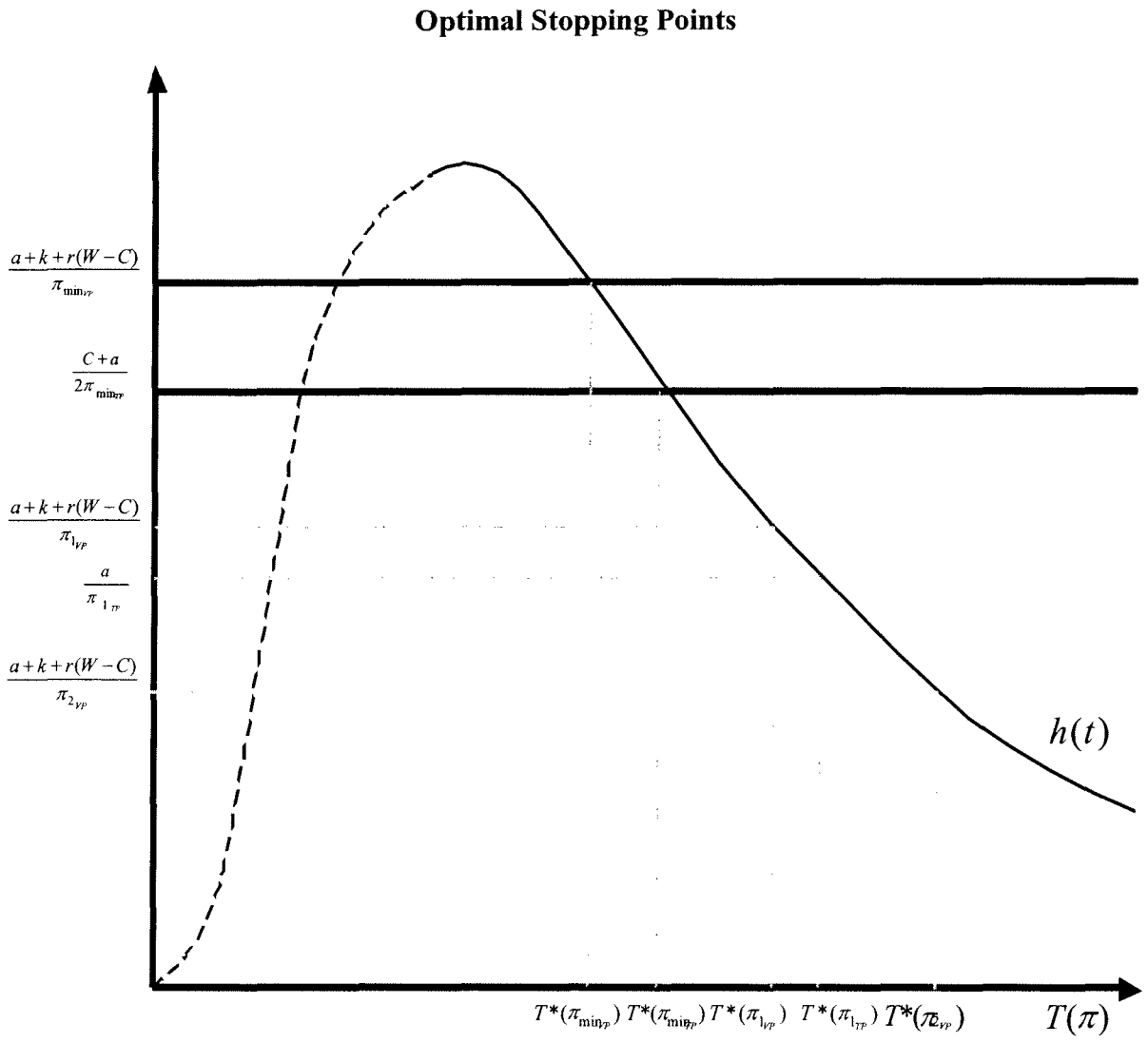

FIGURE 3.1

3.6 Social Return

The only analysis remaining under the conditions set in this model is that of the degree of social return under each approach. We previously determined that the social return achieved at the optimal stopping point under the venture philanthropy approach

was $\frac{a+k+r(W-C)}{h(t)}$ and the social return enjoyed by a nonprofit organization under the traditional philanthropy approach was $\frac{a}{h(t)}$. It is therefore clear that

$$\frac{a+k+r(W-C)}{h(T_{VP}^*)} > \frac{a}{h(T_{TP}^*)}, \tag{35}$$

and the social return that is achieved in a venture philanthropic relationship exceeds that in a traditional philanthropic relationship if the nonprofits exert the same amount of effort. However, if the organizations behave according to their aforementioned initial incentives, the social return from each program that is terminated at the optimal time is equal.

$$\begin{aligned} &a_{VP} = sh(T)\pi \\ &a_{TP} = h(T)\pi \\ &k = (1-s)h(T)\pi - r(W-C) \\ &\frac{sh(T^*)+(1-s)h(T^*)\pi - r(W-C)+r(W-C)}{h(T^*)} = \frac{h(T^*)\pi}{h(T^*)} \\ &\pi = \pi \end{aligned} \tag{36}$$

Thus, the conditions under which venture philanthropy is more socially beneficial are when the nonprofit organization's effort exceeds its incentive-driven effort level or when the scope of a venture program is more extensive than a traditionally funded program and accordingly has a larger impact.

3.7 Summary

To conclude this chapter, the model has first shown that initial belief for a venture philanthropist must be greater than that of a traditional philanthropist for a contract to be signed. This implies that a venture philanthropist is more selective when creating an investment portfolio of nonprofit programs, although it does not illuminate the causation

for said selectiveness. The analysis of effort showed that nonprofit organizations in venture philanthropic relationships have less incentive to put forth effort in the completion of a program. As with the previous finding, we can only speculate as to the cause of this result, but a plausible cause would be that, because the venture philanthropist is also contributing effort, the nonprofit does not feel obligated to expend as much effort as it would if it's donor only made financial contributions.

In the analysis of efficient share of social return, the model showed that the share should be the proportion of the nonprofit's effort to the sum of total effort expended and the opportunity cost for the venture philanthropist to continue funding the program, which implied that more extensive programs should benefit nonprofit organizations by granting them a greater share of social return. The optimal stopping point for a program funded by a venture philanthropist occurred sooner than that for a traditionally funded program if the nonprofits exerted the same amount of effort; if, however, they behaved according to their incentives to work, the optimal stopping point was identical if both nonprofits expended the same amount of effort. Further, FIGURE 3.1 showed that a program that produces a greater social return takes longer to reach its optimal stopping point. Finally, if nonprofit organizations behave according to their aforementioned incentives, venture philanthropy does not produce more social return than traditional philanthropy; if, however, a nonprofit organization under venture funding behaves as if it were under traditional funding and exert effort exceeding its initial incentives, the social return will exceed that of a traditionally funded program.

CHAPTER 4

EXTENSIONS

The models outlined in the previous chapter only give one set of conditions for philanthropic relationships, so it is natural to extend the basic model to other conditions and examine the resulting implications. The first section, 4.1, will model a relationship in which a philanthropist requires a share of the social return from the nonprofit, but does not put for any nonfinancial support, and the 4.2 has initial condition that a venture philanthropist funds multiple nonprofit programs. Finally, 4.3 will determine the optimal quantity of programs for a venture philanthropist to take on.

4.1 Returns Without Effort

The first extension to consider is one in which the philanthropist is driven by returns—she requires a share of the social return from a program—but she only gives financial support to the nonprofit organization. The participation constraint for the philanthropist is

$$h(0)(1-s)\pi \geq C \tag{37}$$

and the incentive constraint for the nonprofit is the same as in the venture philanthropic relationship in (14). The philanthropist will accept the nonprofit's grant proposal as long as

$$h(0)\pi \geq C + a$$
$$h(0) \geq \frac{C+a}{\pi} \quad . \tag{38}$$

When compared with the belief required to enter a venture philanthropic relationship, this philanthropist is less selective when considering grant proposals, as

$$\frac{C+a}{\pi} < \frac{C+a+k}{\pi} . \tag{39}$$

The philanthropist does not exert any effort, k, so there is no incentive to work after cost C has been incurred. However, the nonprofit has less incentive because it will only receive a share, s, of the social return as in the venture philanthropic relationship in (14). The result is less incentive to work on the part of the nonprofit than under a traditional philanthropic relationship, but where it would be supplemented by effort by a philanthropist in a venture philanthropic relationship, the returns without effort relationship simply discourages the nonprofit with the loss of $(1\text{-}s)\,\pi$.

Under this approach, a program both takes more time to achieve success and produces less social return than even traditional philanthropy. The stopping point is

$$\max_T \int_0^T (s\pi - \frac{a}{h(t)}) e^{-rt} f(t) dt$$
$$(s\pi - \frac{a}{h(T)}) e^{-rt} f(t) = 0 \tag{40}$$

with the first-order condition $h(T) = \frac{a}{s\pi}$ and second-order sufficient condition $h'(T) < 0$ to ensure a maximum. From the first-order condition we can find the optimal stopping time, T^*, which is

$$T^*(\pi) = \begin{cases} h^{-1}\frac{a}{s\pi} & if\ \pi < \pi_{\min} \\ 0 & otherwise \end{cases} \tag{41}$$

and the social return incurred at the optimal stopping point, which is

$$\pi = \frac{as}{h(T^*)} < \frac{a}{h(T^*)}. \tag{42}$$

Thus, this approach appears to be inferior to both traditional and venture philanthropy on the basis that program success takes longer to occur, nonprofits have less incentive to work and it results in lower social return.

4.2 Venture Philanthropy and Multiple Programs

The amount of effort, k, that a venture philanthropist is able to expend on any given program is dependent on how many programs share W. In order to evaluate the return and stopping time for one program among many that are supported by a venture philanthropist, we will introduce a new term, $\theta \in (0,1]$, which is equivalent to C/W such that k is factored by the proportion of W that a particular nonprofit's program occupies.

The participation constraint for the venture philanthropist is

$$h(0)(1-s)\pi \geq C + \theta k \tag{43}$$

while the incentive constraint remains the same, as in (38). A grant proposal will be accepted if

$$\begin{aligned} &h(0)\pi \geq C + \theta k + a \\ &h(0) \geq \frac{C + \theta k + a}{\pi}, \end{aligned} \tag{44}$$

which, unless there is only one program with a cost $C=W$, results in a less selective venture philanthropist. The model indicates that when there are greater demands on a venture philanthropist's time, she will more readily accept grant proposals, because the belief required to enter contracts with multiple nonprofits is lower than that required to

accept only one, larger program proposal. The more programs that a venture philanthropist takes on at a time, the less selective she will be.

Once a grant proposal is accepted, the incentives for the philanthropist to put forth effort are as follows

$$
\begin{aligned}
&\max_T \int_0^T ((1-s)\pi + W - P(t) - \frac{\theta k}{h(t)})e^{-rt} f(t)dt + e^{-rT}(1-F(T))(W-C) \\
&\max_T \int_0^T ((1-s)\pi + W - P(t) - \frac{\theta k}{h(t)})e^{-rt} f(t)dt + e^{-rT}W - e^{-rT}C - e^{-rT}F(T)W + e^{-rT}F(T)C \\
&[(1-s)\pi + W - P(T) - \frac{\theta k}{h(T)}]e^{-rT} f(T) - rWe^{-rT} + rCe^{-rT} + rWF(T)e^{-rT} - Wf(T)e^{-rT} - \\
&rCF(T)e^{-rT} + Cf(T)e^{-rT} = 0 \\
&(1-s)\pi f(T) - P(T)f(T) - \frac{\theta k f(T)}{h(T)} - rW + rC + rWF(T) - rCF(T) + Cf(T) = 0 \\
&(1-s)\pi - P(T) + C + r(W-C)\frac{F(T)-1}{f(T)} = \frac{\theta k}{h(T)} \\
&(1-s)\pi - \frac{r(W-C)}{h(t)} = \frac{\theta k}{h(t)} \\
&k = \frac{(1-s)\pi h(t) - r(W-C)}{\theta}
\end{aligned}
\tag{45}
$$

The equation we get for k expresses that effort is factored by the size of the program relative to 5% of the philanthropist's wealth. The effort k under these conditions is simply the previous effort divided by θ, or multiplied by W/C, which indicates that as cost becomes a smaller proportion of wealth with the addition of programs, the venture capitalist's effort actually increases. It therefore appears that, reasonably, a venture philanthropist has incentives to increase her effort as she takes on more programs. The nonprofit's incentive does not change under these conditions.

In order to evaluate the share of social return that the nonprofit will receive, we can set the incentive equations equal to each other.

$$\begin{aligned}
&\frac{a}{s\pi} = \frac{\theta k + r(W-C)}{(1-s)\pi} \\
&a(1-s)\pi = s\pi(\theta k + r(W-C) \\
&a = s\pi(\theta k + r(W-C) + a) \\
&s = \frac{a}{\theta k + a + r(W-C)}
\end{aligned} \tag{46}$$

In comparison with the share of social return that the nonprofit organization received in the original venture philanthropy model, the share under the current conditions is larger,

$$\frac{a}{\theta k + a + r(W-C)} > \frac{a}{k + a + r(W-C)} \tag{47}$$

such that, as the philanthropist takes on more programs, the cost of each program becomes a smaller proportion of W and the θ term shrinks.

The optimal stopping point for a venture philanthropic relationship with respect to program size is similar to the initial venture philanthropy stopping point in that the θ term simply carries through all of the operations outlined in (18).

$$\begin{aligned}
&\max_T \int_0^T (\pi + W - C - \frac{a+\theta k}{h(t)}) e^{-rt} dF(t) + e^{-rT}(1-F(T))(W-C) \\
&(\pi + W - C - \frac{a+\theta k}{h(T)}) e^{-rT} f(T) - e^{-rT} rW + e^{-rT} rC + e^{-rT} rF(T)W - e^{-rT} f(T)W - \\
&e^{-rT} rF(T)C + e^{-rT} f(T)C = 0 \\
&\pi f(T) - \frac{a+\theta k}{h(T)} f(T) - r(W-C) + rF(T)(W-C) = 0 \\
&\pi - \frac{r(W-C)}{h(T)} = \frac{a+\theta k}{h(T)}
\end{aligned} \tag{48}$$

The first order condition that we derive is

$$h(T) = \frac{a + \theta k + r(W-C)}{\pi} \tag{49}$$

with a second-order sufficient condition $h'(T) < 0$. From the inverse of the hazard rate as defined in the first-order condition, we can define T^*, the optimal stopping point as,

$$T^*(\pi) = \begin{cases} h^{-1}\dfrac{a+\theta k + r(W-C)}{\pi} & \text{if } \pi > \pi_{\min} \\ 0 & \text{otherwise} \end{cases}. \tag{50}$$

If $\pi > \pi_{\min}$, the optimal stopping time for a program where $C<W$ occurs before the stopping time for a project in which a venture philanthropist puts all available k into one program. The resulting social profit, however, is lower due to a smaller total effort exerted by the philanthropist, assuming that C is the same in each instance.

$$\frac{a+\theta k + r(W-C)}{h(T^*)} < \frac{a+k+r(W-C)}{h(T^*)} \tag{51}$$

When we consider program size, as C becomes a smaller proportion of W, it both takes a shorter time to successfully complete a program and the resulting social return is smaller. A redeeming aspect this consideration is that a venture philanthropist may take on many projects in order to produce a cumulatively greater social return among all of its funded programs than would be possible with just one program. The question remains, what is the optimal number of programs for the venture philanthropist to undertake?

A note on traditional philanthropy and program size: because k does not exist in the traditional philanthropy model, the number of programs that a traditional philanthropist chooses to fund does not have any effect on time of completion or the size of social return.

4.3 Optimal Program Quantity

We consider each venture philanthropist able to fund $n = 0,...,\infty$ programs, where the total social return, $\pi = \sum_{i=0}^{n} \pi_i$ and for each program there exists a ratio $\theta_i = C_i/W$ where $C_1 + C_2 + ... + C_n = W$ and therefore, $\sum_{i=0}^{n} \theta_i = 1$. In the context of the philanthropist's

relationship with each nonprofit organization, contracting, nonprofit incentives and the share of social return remain identical to the previous application of the model. However, the cumulative incentive to work for the philanthropist differs.

$$\begin{aligned}
&\max_T \sum_{i=0}^{n} \int_0^T ((1-s)\pi_i + W - P_i(t) - \frac{\theta_i k}{h(t)})e^{-rt} f(t)dt + e^{-rT}(1-F(T))(W-C_i) \\
&\left((1-s)(\pi_1+\pi_2+...+\pi_n) + W - (P_1(T)+P_2(T)+...+P_n(T)) - \frac{k}{h(T)}\right)e^{-rT} f(T) - e^{-rT} rW + \\
&e^{-rT} r(C_1+C_2+...+C_n) + e^{-rT} rWF(T) - e^{-rT} Wf(T) - e^{-rT} r(C_1+C_2+...+C_n)F(T) + \\
&e^{-rT}(C_1+C_2+...+C_n)f(T) = 0 \\
&(1-s)(\pi_1+\pi_2+...+\pi_n) + W - (P_1(T)+P_2(T)+...+P_n(T)) = \frac{k}{h(T)} \\
&k = h(T)(1-s)\pi \\
&h(T) = \frac{k}{(1-s)\pi}
\end{aligned} \tag{52}$$

Thus, the total effort put forth by the venture philanthropist for all programs is dependent upon the portion of total profit that she will receive, weighted by her belief in the success of the programs. The share of social return, s_i, varies for different programs, and the (1-s) term used in (52) represents the proportion of total social return that the venture philanthropist receives at the conclusion of all of the funded programs. The optimal stopping point for each program will most likely differ, but it is dependent upon the same factors outlined throughout each application of the model.

$$\begin{aligned}
&\max_T \int_0^T (\pi_i + W - C_i - \frac{a_i + \theta_i k}{h(t)})e^{-rt} f(t)dt + e^{-rT}(1-F(T))(W-C_i) \\
&(\pi_i + W - C_i - \frac{a_i + \theta_i k}{h(T)})e^{-rT} f(T) - e^{-rT} rW + e^{-rT} rC_i + e^{-rT} rF(T)W - e^{-rT} f(T)W - \\
&e^{-rT} rF(T)C_i + e^{-rT} f(T)C_i = 0 \\
&\pi_i f(T) - \frac{a_i + \theta_i k}{h(T)} f(T) - r(W-C_i) + rF(T)(W-C_i) = 0 \\
&\pi_i - \frac{r(W-C_i)}{h(T)} = \frac{a_i + \theta_i k}{h(T)}
\end{aligned} \tag{53}$$

The first-order necessary condition is

$$h(T) = \frac{a_i + \theta_i k + r(W - C_i)}{\pi_i} \tag{54}$$

with a second-order sufficient condition is $h'(T) < 0$. The optimal stopping point for each program is therefore

$$T^*(\pi_i) = \begin{cases} h^{-1}\dfrac{a_i + \theta_i k + r(W - C_i)}{\pi_i} & \text{if } \pi_i > \pi_{i_{\min}} \\ 0 & \text{otherwise} \end{cases} \tag{55}$$

and the profit for each program is

$$\pi_i = \frac{a_i + \theta_i k + r(W - C_i)}{h(T)}. \tag{56}$$

Because π is simply the sum of the profit from each program that the philanthropist funds, we can maximize $\sum_{i=1}^{n} \pi_i = \sum_{i=1}^{n} \frac{a_i + \theta_i k + r(W - C_i)}{h(T)}$ to find the conditions under which the philanthropist will maximize total profit.

$$\begin{aligned} &\max_T \sum_{i=1}^{n} \frac{a_i + \theta_i k + r(W - C_i)}{h(T)} \\ &\max_T \frac{(a_1 + a_2 + \ldots + a_n) + k}{h(T)} \\ &-\frac{((a_1 + a_2 + \ldots + a_n) + k)h'(T)}{(h(T))^2} = 0 \\ &a_1 + a_2 + \ldots + a_n = k \end{aligned} \tag{57}$$

The first-order necessary condition states that the philanthropist's total effort must be equal to the total effort put forth by all of the nonprofits with whom the philanthropist works. The second-order sufficient condition is that $h'(T) < 0$. When considering how many programs to support, a venture philanthropist should limit herself to a number of programs within which she can distribute her effort to a degree that is proportionate to the effort exerted by the funded nonprofits.

CHAPTER 5

CONCLUSION

The initial stage of a philanthropic relationship, contracting or grant proposal acceptance, primarily has implications for how different groups select the nonprofits with whom they work, and how they select the programs they want to fund. The models outlined in Chapter 3 showed that the initial hazard rate was greater for a venture philanthropist and nonprofit at their contracting equilibrium, which means that the parties are more selective, and perhaps more apprehensive about working together. The implication is that the venture philanthropist demands more of a nonprofit before she will agree to fund a program—whether it is a higher demand of the organizational structure, business plan, or the intentions for the program itself is unclear. What is clear is whether the quality of one or more of these elements must exceed other proposals, and even other proposals that may have been accepted by a traditional philanthropist, if the proposal is to be accepted. The better that a nonprofit organization can convince a venture philanthropist that not only the program, but the organization itself, will be successful, the venture philanthropist will have greater belief and accept the proposal more readily.

The difference that creates the disparity between the beliefs required for each philanthropist lies in the share of profit. A venture philanthropist, like a venture

capitalist, looks for results and part of the success of a nonprofit organization is hers to claim. Thus, the stakes are higher and the selection process is more meticulous.

Once a contract is signed, the incentives to work gain relevance. The levels of effort factor into social return maximization as costs, but they are also necessary for success. As demonstrated in the model, the venture philanthropist bases her incentives on the probability and expected degree of success, and the probability and wealth remaining in the case of failure. The resulting level of effort is only dependent on the benefits, as defined in the contracting stage, less the remaining assets the philanthropist would have should she terminate the contract and cut her losses. We can therefore conclude that several factors will motivate her to put more effort into her investment: 1) a greater share of profits, 2) a greater expectation of social return, 3) a stronger belief in program success, 4) a more extensive program that incurs a greater cost proportionate to 5% of the philanthropist's assets. The traditional philanthropist does not contribute any effort aside from transferring funds, so none of these factors have an impact on program success in the case of traditional philanthropy.

The nonprofit's effort is only dependent on three things: 1) the share of profits it receives, 2) the size of expected social return, and 3) the degree of belief in program success. For the nonprofit organization, program size does not affect effort. However, a more extensive program may imply a greater expected social return, so it would in fact increase the level of effort put forth by the nonprofit. When compared to the traditional philanthropic approach, a nonprofit funded by a venture philanthropist does not have the incentive to put forth as much effort as a nonprofit funded by a traditional philanthropist. This, perhaps, is due to the fact that the philanthropist is also working towards success

with the nonprofit in venture philanthropy, and the nonprofit need not work as hard to achieve the same degree of success. It is also important when considering the incentives of both parties in a venture philanthropic relationship to remember the shape of the hazard rate as a function of time. Belief in the project at first increases, and then decreases when the social return has not yet been realized (prior to the time of contract termination). Thus, over time, each party's incentives to work should first increase and then, as time passes, decline as they become more skeptical of success.

The effort that the venture philanthropist and the nonprofit exert should be factored into the initial share of social return that is agreed upon when a contract is signed. The manner in which the nonprofit's effort appears in both the numerator and denominator, indicates that if a nonprofit's effort increases, the share of social return due to the nonprofit should also increase. Also, if a program is more extensive and the cost rises, the share of social return due to the nonprofit would increase—if the philanthropist's effort did not also appear in the denominator, because as cost rises, the philanthropist's effort rises as well. It therefore appears that there is little variation in the share of social return that nonprofit organizations receive in venture philanthropic relationships.

When the desired social return has been realized, a venture philanthropist must determine the optimal stopping point, which maximizes social return. The optimal stopping point is dependent primarily upon the quality of the program results, or the level of social return, and it occurs along the hazard curve. A program with a comparatively small return will be terminated more quickly than one with a larger return, as was shown in FIGURE 3.1. When we compare the optimal stopping points of each approach to

philanthropy, between two programs that produce the same level of social return, if the parties behave according to their incentives, the optimal stopping time for each approach will be the same.

Within the context of previous knowledge about venture philanthropy practices, the results of the model imply that when a program funded by venture philanthropy achieves a larger scope than may be expected from a traditionally funded program, the level of social return increases, and the term of the venture funding relationship will exceed the traditional relationship. However, the scope of a venture program must exceed that of a traditionally funded program for this to be true, which leads to the conclusion that if a venture program does not achieve the intended scope, funding will not endure as long.

If two nonprofit organizations under the different approaches examined here exert the same amount of effort, a, the venture program will always incur a larger social return. If, however, the nonprofit organizations in each relationship exert effort according to their incentives, or if the traditionally funded nonprofit exerts more effort than a venture philanthropist and its nonprofit combined, it is possible for a traditionally funded program to achieve greater social return. Because social return is dependent upon factors that vary depending on incentives, size and the quality of the funding relationship, we cannot say that venture philanthropy outright produces more social return.

The returns without effort approach puts nonprofit organizations at a disadvantage, where a philanthropist asks for returns on her investment, but does not supplement the investment with any effort. The results are a lower incentive for the

nonprofit organization to work, a longer period of time until program success occurs, and a lower profit than both the traditional and venture approaches.

When the model was expanded to analyze stopping time and returns for multiple programs under one venture philanthropist, the initial model presented became a subcase, which would occur if the cost to 5% wealth ratio was one. The results from this model are, for the most part, intuitive. When a venture philanthropist is willing to fund more programs, she is less selective as she considers grant proposals, but it is unclear whether her total effort increases. Also as the number of programs increase, nonprofit shares of social returns increase. The motivation for this change may be that the venture philanthropist is concerned more with her total returns among all of the programs, and there is less need to extract as large a proportion of returns from each individual program.

We find that the life of funding for each program is shorter and the returns are lower as a venture philanthropist takes on more programs. The benefit of a shorter funding period for the philanthropist is that she is free to move on to other programs sooner, and, although individual program returns are lower, the cumulative returns from all programs may greatly exceed what could be achieved with a single program as in the initial model. What we find by maximizing social returns for many programs is that the number of programs that a venture philanthropist will take on is dependent upon her ability to exert effort equal to her funded nonprofits' cumulative effort, based on nonprofit effort according to contractual incentives.

To summarize, venture philanthropy has been brought forth in the world of philanthropy as a new and questionably more efficient approach to grant giving. It attempts to solve the issues of low program effectiveness due to a lack of funding for

nonprofit organizational and structural necessities and excessive donor power. This model demonstrated the effects of nonfinancial contributions, selectivity, and incentives within a venture philanthropic relationship.

The findings are many, but conditional upon many factors. Venture philanthropists are more selective when considering grant proposals, but if the number of nonprofits with whom they work increases, their selectivity decreases. However, the number of programs that a venture philanthropist will take on is dependent upon how much effort the nonprofit organizations exert and whether the cumulative effort from the nonprofits (according to their incentives) exceed the effort the venture philanthropist is willing to put forth. If their cumulative effort motivated by the initial contract exceeds the venture philanthropist's, the venture philanthropist will reduce the number of programs.

A nonprofit in a venture philanthropic relationship has less incentive to exert effort according to the initial contract than a nonprofit funded by a traditional philanthropist. If both organizations behave according to these incentives, the optimal stopping point and social return for both the venture and traditional approach will be the same. If, however the nonprofits exert the same amount of effort, the venture philanthropy program will, if completed, produce a greater social return in a shorter period of time. Further, if a philanthropist desires to achieve a greater scope with a program, and therefore greater social return, then a traditional approach to funding the program will always produce less social return. In this case, the length of the venture philanthropic relationship will also exceed that of a traditional philanthropic relationship.

The implications of these results are consistent with assertions made by scholars in that, when venture philanthropy is employed in order to gain greater scope for programs, the social impact is indeed greater than with smaller, traditionally funded programs. Beyond this condition, when a venture funded program has the same scope as a traditionally funded program, factors that are subject to fluctuation begin to affect the relative impact of venture philanthropy—a nonprofit's effort and the number of programs that a venture philanthropist chooses to fund can have adverse effects on the efficiency of venture philanthropy. Therefore, this approach should be more effective than a traditional approach only when the funded nonprofit exceeds its incentive-driven effort and when the venture philanthropist does not overload her optimal program portfolio, as defined in 4.3.

Some other extensions of this model might be to either conduct a behavioral experiment to demonstrate the results, or apply it to data from actual foundations and nonprofits. This would require an accurate measurement of social return, which would be difficult to quantify. An interesting empirical application would be to determine whether the social return produced by a venture philanthropist with an optimal program portfolio that includes programs of large scale exceeds that produced by a traditional philanthropist with a larger investment portfolio of smaller-scale programs. Also, it would be interesting to adapt Bergemann and Hege's model to venture philanthropy in order to compare results.

As can be expected with any analysis of human behavior, whether motivated by altruistic or egoistic intentions, there are many factors that can influence results, and prevent the statement of an outright "better" approach to philanthropy. However, this

model shows that the success of venture philanthropy as an alternative approach to traditional philanthropy is primarily dependent on the effort exerted by nonprofit organizations and the scope of venture programs

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