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NONPROFIT ORGANIZATIONS AS IDEAL TYPE OF SOCIALLY RESPONSIBLE AND IMPACT INVESTORS

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***Abstract**: Nonprofit organizations (NPOs) as mission-driven organizations could profit from investing in stocks diametrically opposed to their mission, as they serve as a perfect hedge. Earning more income from oil or tobacco companies when there is a greater need for ecological interventions or cancer research might help effectively fighting the cause. We show the flaw in this logic as in its optimal state, this strategy is at most a financial zero-sum game. However, as NPOs strive at creating net value by aiming at a most effective mission-accomplishment, socially responsible and impact investments may offer a better way of doing so. We present NPOs as an ideal type of a socially responsible and impact investor and give the corresponding formal economic reasoning. For mission-driven organizations only the combination of financial and mission-based goals allows for an effective, goal-oriented financial decision-making. The full application of this logic is what is broadly understood under the term of mission investing (MI). Based on a theoretic introduction, we present a formalized way of analyzing multidimensional trade-offs in the case of NPOs being mission-driven investors. This formalization will supply NPOs with a tool that enables them to capture their investments' financial and mission-based impact and therefore the full benefit of responsible and impact-driven investments.*

***Keywords**: Impact investing, Mission investing, Nonprofit organizations, Socially responsible investments, Trade-off analysis*

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Introduction

Imagine a nonprofit organization (NPO) with the mission of helping people suffering from smoking-induced lung cancer. Now it might seem inappropriate for this organization to invest any portion of its portfolio into tobacco companies. It might seem even more absurd and ethically unjustifiable for them to solely invest in these companies. Yet, based on typical financial hedging methodologies investing exclusively in companies diametrically opposed to the NPO's mission might be the most effective way of investing. The idea is that such investments represent the perfect hedge: In times when tobacco companies operate profitable and are expanding, the problem the NPO is trying to solve must be growing as more people are smoking. But the value of the NPO's portfolio will increase with tobacco companies being more profitable, providing the organization with more funds to pursue its mission. Conversely, if all tobacco companies go bankrupt because nobody is buying cigarettes anymore, the value of the NPO's portfolio is zero. However, there are no more people smoking and thus suffering from smoking-induced lung cancer.

It soon becomes clear, that there is a flaw in this logic – even if we assume there exists at least one company for every NPO that does the exact opposite of what the organization is trying to achieve. The logic is flawed as hedging by only holding sin stocks is at most a financial zero sum game. The ultimate goal of NPOs is the most effective mission accomplishment (see Oster, 1995; Moore, 2000; and Sawhill and Williamson, 2001) and therefore the creation of mission-specific net-value. In this article, we show that NPOs as mission-driven organizations (Sawhill and Williamson, 2001) must not evaluate their investments only with regard to their financial success and cash flows (which instrumentally contributes to mission-accomplishment – see Young, Jung, and Aranson, 2010) but have to include their influence on mission and stakeholders. The full implementation of this logic will ultimately lead to an alignment of investment- and contribution-policy, usually referred to as mission investing (MI, see Cooch and Kramer, 2007; Emerson, 2003; and Wood and Hagermann, 2010). Given our proposition and economic reasoning that NPOs should follow a mission-driven investment process, they represent an ideal-type of a socially responsible and impact investor. Given this mission-orientation NPOs face multidimensional trade-offs when evaluating their effectiveness (see for instance Sowa, Coleman Selden, and Sandfort, 2004). This also applies to evaluating investments, where not only financial risk and return (as traditionally proposed by the capital asset pricing model – CAPM) but also a value-based impact[1] should be included. Based on these ideas we introduce a formulation of these trade-offs. The analysis of this formulation allows us to discuss consequences for the financial management of NPOs in contrast to regular "asset-only" optimizing investors.

NPOs should profit from this analysis, as it enables them to evaluate their investments on a more accurate basis, given only the mission inclusion allows them to draw conclusions about whether an investment did help further the accomplishment of the organization's superordinate goal. Further, the formalization of these additional trade-offs

[1] Grabenwarter and Liechtenstein (2011) propose the term "gamma" in the context of impact investments.

lays the foundation for empirical testing of possible co-movement of financial returns, risks, and mission-specific values.

Research question

The main aim of this article is to show if, why and how NPOs constitute an ideal type of a socially responsible and impact investor. This article, therefore, ultimately is about the evaluation of an investment strategy's desirability (i.e., the utility an investor derives from a set of assets). In order to determine how NPOs should evaluate financial investments we assume a rather provocative position: For NPOs the exclusive investment into companies perfectly opposing its own mission (i.e., sin stocks) is most desirable, as it offers a perfect hedge of cash flows and spending. This article, therefore, first tries to answer the following:

- How are sin stocks representing the most effective investment for mission-driven organizations?

In order to discuss this question, we need to identify the ultimate organizational goal NPOs are pursuing and how the achievement of such a goal should be measured. For a mission-driven organization the success of actions taken – including investment decisions – can only be effectively evaluated by taking its mission as ultimate point of reference. This includes performance as well as risk measurement. This inclusion, however, asks for the integration of mission-specific factors into common trade-offs of traditional financial market theory. We therefore must answer:

- how this integration of mission-specific factors can be formulated,
- how these multidimensional trade-offs should be empirically tested in the context of the NPOs' heterogeneous fields of activity,
- and what consequences arise for NPOs as mission-driven investors.

The answers derived from our theoretical analysis then allow us to identify how NPOs constitute socially responsible and impact investors and how they may contribute to the further establishment of value-oriented investment strategies.

Relevance and Literature

Value-oriented investment strategies are gaining momentum. Among these strategies are socially responsible investments (SRI) or more recently introduced the concept of impact investing. SRI, although an already well-established investment strategy, still lacks a unanimously agreed definition. Sandberg, Juravle, Hedesström, and Hamilton (2009) specifically addressed this problem in their article on the heterogeneity of SRI (including an excellent overview over the subject of SRI). This heterogeneity not only includes the definition of SRI but also its application on a strategic and practical level. Renneboog, Ter Horst, and Zhang (2008) and Derwall, Koedijk, and Ter Horst (2011) agreed (among others) that SRI generally stands for the inclusion of additional, non-monetary criteria into the process of financial decision-making. Very often, these criteria come in the form of the three ESG-factors (see Sandberg et al., 2009, who cite various sources defining SRI based upon ESG-integration). These factors combine measures for ecologic, social,

and governance-related (hence, ESG) performance and risk of companies. In contrast to SRI, impact investing is a rather "young" investment strategy. This strategy focuses more proactively on a positive social impact than SRI while still realizing financial returns. Most often this is achieved through instruments not traded in secondary markets (see for instance Thornley, Wood, Grace, and Sullivant, 2011; Wood, Thornley, and Grace, 2013; and J.P. Morgen and Global Impact Investing Network, 2014). Grabenwarter and Liechtenstein (2011, p. 10) define every profit-oriented investment activity as impact investing which "intentionally generates measurable benefits for society" and stress that the intended impact must be measured. Wood et al. (2013, p. 75) similarly subsume any "investment with the intent to create measurable social or environmental benefits in addition to financial return" as impact investing. In comparison to SRI, Oehri, Dreher, Jochum, and von Schnurbein (2013) understood impact investing as funding through direct investments rather than as a strategy that holds publicly traded shares. Impact investing therefore does not try to minimize negative effects, but specifically aims at creating positive impact. This is also supported by J.P. Morgan and The Rockefeller Foundation (2010) who defined impact investing as a more proactive strategy than SRI. Grabenwarter and Liechtenstein (2011) presented detailed case studies on how impact investing can be implemented.

The market volume for ESG-integrating investments in Europe alone has seen a growth of over 700% between 2005 and 2013 and is now estimated to total at 5.2 trillion EUR of invested assets (Eurosif A.I.S.B.L., 2014). The volume of impact investing has more than doubled since 2011 and is estimated to be at 20.3 billion EUR (ibid). In the US a similar growth can be observed; assets managed under ESG incorporation are currently valued at 6.2 trillion USD (US SIF Foundation, 2014), while there are no current numbers for the US-market volume of impact investments.

Discussions about whether these investments are violating the fiduciary duties in the context of charitable foundations and NPOs, as they might be forgoing financial returns, are still ongoing. However, since the publication of the so called "Freshfields report" in 2005 and its second version in 2009 (see Sandberg, 2011, for a discussion in the context of SRI) these types of investments have become more accepted and made their way into financial "mainstream". NPOs as value- or mission-driven organizations may represent an ideal-type of a socially responsible or impact investor. Assets held by US NPOs alone (2.71 trillion USD – see Roeger, Blackwood, and Pettijohn, 2012) exceed the total assets under management of the world's largest asset manager (UBS, with a total of 1.96 trillion USD[2]). NPOs may therefore play an important role in the future development and establishment of SRI and impact investing.

Existing literature with regard to the implementation of MI (for an European overview see for instance Fritz and von Schnurbein, 2015; for US data see Lawrence and Mukai, 2011) points out the importance of impact measurement of investments, but does not supply any linkage between basic principles or theories from financial market theory and nonprofit management. Wood and Hagermann (2010), in their article about MI, stressed the need for future theoretical and empirical research. We aim at partially filling this gap by providing a way of combining standard mean-variance optimization with

[2] http://www.ft.com/intl/cms/s/0/5414e8dc-0cf3-11e4-bf1e-00144feabdc0.html#axzz3FS12Gy8s

qualitative, mission-based factors, as similarly contemplated by Grabenwarter and Liechtenstein (2011) in the context of impact investing. This combination allows us to specifically show how NPOs differ from private investors in their way of evaluating the desirability of financial investments and therefore have a different understanding of the terms risk and return.

The Perfect Hedge?

Introduced as our first research question and as a rather provocative proposition one may ask if it was not sensible and economically reasonable to aim for a co-movement of cash flows and necessary spending within an NPO – by investing into companies directly *opposed* to the organizations mission. How does that make sense? The principle of "hedging" in context of financial decision-making simply means to protect oneself or an organization against possible losses coming from current investments. A perfect hedge therefore generates maximum income when it is needed the most – it acts as insurance. Applied to NPOs the term "investment" may take two forms. Next to traditional financial investments, it also may take an unconventional "real" form: grants and donations aimed at fulfilling the organization's purpose can also be perceived as investments. For instance, derived from its mission, an organization might focus on helping lung cancer patients. It therefore *invests* time and money into treating patients, supporting cancer research, and leading prevention campaigns. The "return" from these investments, however, is non-financial: Patients receive better treatment and fewer people will get lung cancer or die from it. Now, if assuming there is an increasing number of smokers, there is a bigger need for such real investments. At the same time tobacco companies are selling more cigarettes and therefore operate more profitable. Therefore, a financial investment into tobacco companies might very well be sensible as it acts as a hedge for the NPO's real investments into its purpose and mission. If the organization's campaign is successful the number of smokers will decrease; the tobacco companies earn less, will pay lower dividends, and share prices might drop. At the same time the number of smoking-induced cancer patients will decline as well, making fewer real investments necessary. The financial investment therefore displays a (perfect) negative co-movement with the organization's success. It therefore acts as insurance for needed cash flows.

The same logic or mechanism is applicable to various fields of activity. However, there is a flaw to this logic. First of all, it would be necessary to find a company that actually almost perfectly opposes the organization's specific mission, which is very hard to come by. Second and far more important, even if such a company exists for every NPO, financially the perfect hedge is at its best a zero-sum game. The money earned by harming its own cause is invested again into programs that undo the harm caused. This also requires the NPO to accrue no administrative costs while doing so. Even in the case of an NPO solely run by volunteers the opportunity costs of the volunteers would prevent this hedge from being a zero-sum game. Further, the financial investment into the opposed company does not only generate income for the NPO but also influences the companies' cost of capital: Hong and Kacperczyk (2009) showed that there is a significant impact of shunning sin stocks on the cost of capital of such companies. The capital supplied there-

fore actively supports a purpose that contradicts the NPO's own. A charitable organization's tax-exempt status is only justified "as long as the organization's resources are employed to cultivate its purpose constraint in a constructive, progressive, and tolerant fashion" (Crimm, 1998, p. 483). Failing to meet these conditions due to the inappropriate usage of resource may result in a possible loss of the tax-exempt status and therefore poses a financial risk to the NPO.

So far, our analysis about whether sin stocks represent an optimal investment with regard to NPOs solely focusses on financial factors. However, when talking about the success of an NPO, financial means cannot describe the organization's ultimate achievement of objectives. We will therefore look at how these goals should be measured before coming to a preliminary conclusion about the sense or nonsense of solely investing into sin stocks.

Nonprofit Organizations (NPOs)

Despite their name, the popular belief that nonprofit organizations are exempt from making profit is not at all true. The word "nonprofit", however, hints that the realization of financial profit is not the organization's ultimate goal. But then what is? NPOs also strive at maximizing some kind of profit, but this profit takes on a different form. Valentinov (2008, p. 8) described an NPO as firm that orients itself toward "utility rather than profit maximization". An NPO's ultimate goal simply is the most effective mission accomplishment (see Oster, 1995, Moore, 2000, and Sawhill and Williamson, 2001) and therefore the creation of net-value, derived from its purpose. NPOs can therefore be perceived as "mission-driven" organizations (Sawhill and Williamson, 2001). Analog to regular for-profit organizations (i.e., companies), every action taken within the organization should contribute to the achievement of the organization's top goal and has to be measured by means that are compatible with said goal (see Schmiel, 2012). Although for-profits therefore judge investments by their contribution to maximizing net present value (NPV), investments within NPOs should be evaluated on the basis of their contribution to a most effective mission accomplishment. Thus the NPO becomes something we refer to as a "mission-driven investor". This may still allow an NPO to fully invest into sin stocks. If the money earned from financial investments is used in such a manner that the purpose-related utility created afterwards outweighs the harm done by supplying capital to companies opposed to the organization's purpose, there is actual net value created. However one might ask oneself, if it is most effective, when harm first has to be undone before actually realizing net value. Therefore, in order to get a holistic picture of the organization's created net value, it is vital to incorporate the organization's mission into the evaluation of investments, as an ultimate point of reference. This mission-orientation is not exclusive to NPOs. In the context of asset-liability management, a similar way of compiling an investment policy has been proposed for pension funds. These funds set the obligation to their beneficiaries at the center of their investment policy (Berkelaar and Kouwenberg, 2010). Translated back to NPOs, the obligation to beneficiaries simply is the organization's mission. We will propose a formalization of such incorporation for NPOs in the remainder of this article. This will then allow us, to actually determine which investment strategy offers the highest desirability with regard to the most effective mission accomplishment.

Multidimensional Trade-Offs

As we try to capture the desirability of investment strategies for NPOs and the additional trade-offs which arise from the integration of mission-based goals into financial decision-making, we propose a simple formulation which will serve as the foundation of our analysis and thus answering our second research question. We argue that in addition to the amount of invested assets held at the end of an investment period (I_t), the average of investments held over that period ($(I_{t-1}+I_t)/2$) should be weighed with a mission-related "impact factor". In reference to Grabenwarter and Liechtenstein (2011), we denote this factor with γ. In their work, this factor acts as a multiplier based on the established impact objective of an investment project (>1 if objectives are exceeded, <1 if investments fall short of objectives). In our model, this multiplier is constructed slightly different. If the portfolio has no impact on the organization's mission γ will simply be zero. It takes positive values depending on the positive impact in relation to the impact the organization generates with the money spent on projects. It is therefore a relative indicator of the effectiveness of the financial investments (measured by the organization's mission) in comparison to the organization's real investments. According to the same logic γ may also be negative, if the financial investments work against the organization's real investments. The impact multiplier is therefore not bound to a specific interval and is a continuous variable.

Based on this assumption we show how future, uncertain developments of investments and the impact factor influence the perceived utility coming from investments. Given this formulation we aim at showing which parameters NPOs should focus on, when making mission-driven investment decisions in order to guarantee a most effective use of invested tax-exempt assets.

Proposed model

We acknowledge that an NPO as mission-driven organization cannot neglect the mission-related impact of its investments (in order to fully capture the utility gained from investments). This leads us to the conclusion that an NPO's perceived utility from investments stems from multiple sources. Firstly, the instrumental usage of assets (I_t) (as source of funds for disbursements/programming) creates utility. The utility derived from these assets is assumed to be equal to the monetary value and marginally non-diminishing. Secondly, the direct impact the investments have on the organization's environment and relevant stakeholders also affect the organizations perceived utility. This direct impact on mission accomplishment is expressed as a weighed arithmetic average of the assets held over a given period. We therefore introduce the impact multiplier γ that weighs this average sum of assets. The sum of this indirect and direct influence on total perceived utility from investments ($U_{I,t}$) is formalized in the Equation 1 and marks the first step in calculating the desirability of the chosen investment strategy as laid out in our second research question:

$$U_{I,t} = I_t + \frac{I_{t-1} + I_t}{2} \gamma_t. \quad (1)$$

For the current period (t) this utility is assumed to be known. However, the next period's development of asset value as well as the impact of the investments is uncertain. We denote this uncertainty by adding a tilde to these factors:

$$\widetilde{U}_{I,t+1} = \tilde{I}_{t+1} + \frac{I_t + \tilde{I}_{t+1}}{2} \tilde{\gamma}_{t+1}. \quad (2)$$

When making investment decisions we are interested in the next period's utility created using today's assets. We therefore simply divide the equation by the end of period value of today's assets (I_t):

$$\frac{\widetilde{U}_{I,t+1}}{I_t} = \frac{\tilde{I}_{t+1}}{I_t} + \frac{\frac{I_t + \tilde{I}_{t+1}}{2} \tilde{\gamma}_{t+1}}{I_t}. \quad (3)$$

Rewriting the expression $\tilde{I}_{I,t+1}/I_t$ as financial return $(1 + \tilde{R}_{I,t+1})$ leads to the following form:

$$\frac{\widetilde{U}_{I,t+1}}{I_t} = (1 + \tilde{R}_{I,t+1}) + \tilde{\gamma}_{t+1} + \frac{\tilde{R}_{I,t+1}\tilde{\gamma}_{t+1}}{2}. \quad (4)$$

To evaluate the desirability (d) of the investor's portfolio and ultimately create a mean-variance efficient portfolio the following equation should be maximized (see for instance Sharpe, 2007):

$$d = E(\tilde{Z}) - \left[\frac{var(\tilde{Z})}{\tau}\right], \quad (5)$$

where $E(\,)$ denotes the expected value, $var(\,)$ the variance, τ the investor's risk tolerance and $\tilde{Z}$ contains all parts of the previous utility function from Equation 4 with uncertainty. In our model these uncertain parts are the following:

$$\tilde{Z} = \tilde{R}_{I,t+1} + \tilde{\gamma}_{t+1} + \frac{\tilde{R}_{I,t+1}\tilde{\gamma}_{t+1}}{2}. \quad (6)$$

Therefore, the expected value of $\tilde{Z}$ is:

$$E(\tilde{Z}) = E(\tilde{R}_{I,t+1}) + E(\tilde{\gamma}_{t+1}) + \frac{1}{2}E(\tilde{R}_{I,t+1}\tilde{\gamma}_{t+1}) \tag{7}$$

and the variance of $\tilde{Z}$ as follows:

$$\begin{aligned} Var(\tilde{Z}) = {} & Var(\tilde{R}_{I,t+1}) + Var(\tilde{\gamma}_{t+1}) + \frac{1}{4}Var(\tilde{R}_{I,t+1}\,\tilde{\gamma}_{t+1}) + 2Cov(\tilde{R}_{I,t+1}, \tilde{\gamma}_{t+1}) \\ & + Cov(\tilde{R}_{I,t+1}, \tilde{R}_{I,t+1}\,\tilde{\gamma}_{t+1}) + Cov(\tilde{\gamma}_{t+1}, \tilde{R}_{I,t+1}\,\tilde{\gamma}_{t+1}). \end{aligned} \tag{8}$$

Combining the parts from Equations 7 and 8 with consideration of risk tolerance therefore yields the expression in Equation 9, describing the portfolio's desirability. This is the objective function which the investors ultimately tries to maximize by choosing an optimal set of assets:

$$\begin{aligned} d_1 = {} & E(\tilde{R}_{I,t+1}) + E(\tilde{\gamma}_{t+1}) + \frac{1}{2}E(\tilde{R}_{I,t+1})E(\tilde{\gamma}_{t+1}) - \frac{Var(\tilde{R}_{I,t+1})}{\tau} - \frac{Var(\tilde{\gamma}_{t+1})}{\tau} \\ & - \frac{1}{4}\frac{Var(\tilde{R}_{I,t+1}\,\tilde{\gamma}_{t+1})}{\tau} - 2\frac{Cov(\tilde{R}_{I,t+1},\ \tilde{\gamma}_{t+1})}{\tau} \\ & - \frac{Cov(\tilde{R}_{I,t+1}, \tilde{R}_{I,t+1}\,\tilde{\gamma}_{t+1})}{\tau} - \frac{Cov(\tilde{\gamma}_{t+1}, \tilde{R}_{I,t+1}\,\tilde{\gamma}_{t+1})}{\tau}. \end{aligned} \tag{9}$$

Analysis of Model

Given the formalization of portfolio desirability under inclusion of the organization's mission as a central point of reference in Equation 9, we can now move a step forward and compare the perception of desirability under two different optics: mission inclusion and "asset-only" optimization. When an NPO as mission-driven investor adopts an asset-only optic when evaluating investment opportunities it commits an "estimation error". Comparing expression d_1 from Equation 9 with a simple asset-only optimization, which takes the subsequent form (see Sharpe, 2007):

$$d_2 = E(\tilde{R}_{I,t+1}) - \frac{Var(\tilde{R}_{I,t+1})}{\tau}, \tag{10}$$

the size of the estimation error for a mission-driven investor becomes evident. This is simply done by subtracting Equation 10 from Equation 9:

$$d_1 - d_2 = E(\tilde{\gamma}_{t+1}) + \frac{1}{2} E\left(\tilde{R}_{I,t+1}\right)E(\tilde{\gamma}_{t+1}) - \frac{Var(\tilde{\gamma}_{t+1})}{\tau} - \frac{1}{4}\frac{Var\left(\tilde{R}_{I,t+1}\,\tilde{\gamma}_{t+1}\right)}{\tau} - 2\frac{Cov\left(\tilde{R}_{I,t+1},\ \tilde{\gamma}_{t+1}\right)}{\tau} - \frac{Cov\left(\tilde{R}_{t+1,I}, \tilde{R}_{I,t+1}\,\tilde{\gamma}_{t+1}\right)}{\tau} - \frac{Cov\left(\tilde{\gamma}_{t+1}, \tilde{R}_{I,t+1}\,\tilde{\gamma}_{t+1}\right)}{\tau}. \quad (11)$$

The investor, therefore, underestimates the desirability of an investment by the expected value of the impact of his investment and half of the investment's return times its impact (first and second expression in Equation 11). However, he also overestimates the desirability by the additional variance and covariance caused by including the additional impact factor divided by his own risk tolerance (third to last expression in Equation 11). Only when investing in a mission-neutral portfolio (meaning there is no positive or negative impact coming from the investments, hence $\gamma = 0$) the two ways of calculating the investment's desirability yield the same. Such a mission-neutral portfolio could for instance be used as a benchmark when ex-post evaluating the organization's investment performance.

In order to increase the desirability of any given investment portfolio a mission-driven investor should not only aim at reducing the variance for a given rate of return (i.e., diversification) but also reduce the mission-related impact's variance and maximizing its expected value. This may be achieved by setting minimum requirements for selecting investments (i.e., screening) with regard to the impact of the companies related to the organization's mission.

Coming back to our initial proposal that NPOs should solely invest in companies directly opposed to their mission, such a process of screening is actually applied, however in a rather extreme way. To conclude, if this strategy is actually reasonable, we now calculate the estimation error as shown above in Equation 11. We assume the impact of the investments do not change over time, as it always diametrically opposes the organization's mission by construction. Therefore, γ is known, negative, and has a variance of zero. Adopting an "asset-only" optic, as done in the initial discussion, the desirability of the sin stock portfolio is therefore overestimated by the expected value of the investment's impact (as it is negative) and half of the investment's return times its impact (again, as γ is negative). Further, making γ a constant term eliminates the first and third covariance term from Equation 11, as the covariance of a variable with a constant is zero. The second covariance term becomes the simple variance of the return, times the investment's impact, by which the desirability is actually underestimated. This can be seen in the Equation 12:

$$d_1 - d_2 = \gamma_{t+1} + \frac{\gamma_{t+1}}{2}E\left(\tilde{R}_{I,t+1}\right) - \frac{\gamma_{t+1}^2}{4}\frac{Var\left(\tilde{R}_{I,t+1}\right)}{\tau} - \gamma_{t+1}\frac{Var\left(\tilde{R}_{I,t+1}\right)}{\tau}. \quad (12)$$

We now assume values for the expected annual return (0.15) and variance (0.0625, i.e., standard deviation of 0.25) of the investment based on the performance of British American Tobacco in the past twenty years. For simplicity, the value of the organization's risk tolerance shall be 0.5. Entered into Equation 12 the investor overestimates the desirability from an asset-only point of view as soon as γ drops below zero (i.e., $d_1 < d_2$). This is true for every positive value of an investor's risk tolerance. Given the sin-stock strategy, γ is by construction negative. Thus, the mission-driven investor falsely overestimates the desirability of such a strategy. Further, the sin stock strategy only relies on maximizing the portfolio's desirability through positively influencing financial income and minimizing the variance of γ. The strategy therefore has another shortcoming as it does not exploit the full potential of increasing desirability by trying to positively influence γ while minimizing its variance. This is equal to choosing a portfolio on the efficient frontier but with a negative expected return.

Thinking about the reverse case, where there is a constant positive purpose-related impact (γ > 0) and even with potentially much lower annual return rates and similar variance, the investor underestimates the desirability of the investment when adopting an asset-only optic.[3] This means that applying common asset-only tools for evaluating investment strategies that should further the organization's mission, such as SRI or impact investing (see Fritz and von Schnurbein, 2015), are being systematically underestimated in their desirability.

Evaluation of desirability using a mission-neutral benchmark

In order to be able to empirically test the consequences mission-inclusion has on the overall portfolio desirability and thus answering our third research question we will subsequently introduce a way of doing so without restricting the model to certain fields of activity. This is important, as the NPO sector is very heterogeneous. The calculation of the desirability of a chosen strategy should be performed in comparison to a mission-neutral strategy, which acts as a benchmark. This requires a similar formulation as shown in the calculation of the estimation error in Equation 11. However, the expected return on a mission-neutral portfolio ($E(\tilde{R}_n)$) as well as its variance ($Var(\tilde{R}_n)$) are different from $E(\tilde{R}_I)$ and ($Var(\tilde{R}_I)$) and therefore do not cancel out:

$$d_1 - d_n = E(\tilde{R}_I) - E(\tilde{R}_n) + E(\tilde{\gamma}_{t+1}) + \frac{1}{2} E(\tilde{R}_I)E(\tilde{\gamma}_{t+1}) - \frac{Var(\tilde{R}_I)}{\tau} + \frac{Var(\tilde{R}_n)}{\tau} - \frac{Var(\tilde{\gamma}_{t+1})}{\tau} - \frac{1}{4}\frac{Var(\tilde{R}_I\,\tilde{\gamma}_{t+1})}{\tau} - 2\frac{Cov(\tilde{R}_I,\,\tilde{\gamma}_{t+1})}{\tau} - \frac{Cov(\tilde{R}_I, \tilde{R}_I\,\tilde{\gamma}_{t+1})}{\tau} - \frac{Cov(\tilde{\gamma}_{t+1}, \tilde{R}_I\,\tilde{\gamma}_{t+1})}{\tau}. \quad (13)$$

[3] Except for extremely high values of γ which are rather unrealistic.

For positive values of this difference, the chosen strategy is more desirable than a mission-neutral and vice versa. The compilation of such a mission-neutral portfolio is, depending on the organization's field of activity, a difficult and often not exclusively objective task. Khan, Serafeim, and Yoon (2015) performed a similar analysis with regard to the materiality of sustainability issues for companies: In order to analyze if sustainability issues influence the company's financial performance, they identified issues that were actually material for the company. Only including material factors into their analysis allowed showing significant outperformance. For the construction of a mission-neutral benchmark the opposite task needs to be performed. All companies that are not "material" to their mission-accomplishment should be included, as they don't influence the value of γ and hence leave it equal to zero.

NPO as ideal type of a socially responsible or impact investor

As we have just shown, in order to account for false estimations of desirability of investment opportunities, NPOs as mission-driven investors need to include further factors into financial decision-making than pure monetary terms. The integration of the mission as central point of reference into financial decision-making is referred to as mission investing (MI) – as long as a non-negative value for γ is aimed at. NPOs are far away from applying such an inclusion of non-monetary factors on a broad basis: According to Lawrence and Mukai (2011), only 14% of US-foundations apply mission investing. Very often, the refusal of the application of MI is based on the assumption, that such strategies either pay lower return or display higher risks (see Fritz and von Schnurbein, 2015). This reasoning however adopts the wrong optic which leads, as just discussed, to an underestimation of desirability of such strategies.

When looking for investment strategies that increase the desirability through positively manipulating the expected value of γ and reducing its variance, SRI and impact investing might be a viable option. As the realization of MI can be achieved through the application of both, SRI and impact investing (see for instance Fritz and von Schnurbein, 2015) NPOs, as mission-driven investors, seem to present an ideal type of a socially responsible and or impact investor. We shall demonstrate this subsequently by linking the implications from our theoretical and mathematical analysis with findings in existing literature on both concepts. This will also allow us to answer our last research question by showing what consequences arise for NPOs as mission- or impact-driven investors when defining investment strategies.

Socially Responsible Investments

The initially discussed heterogeneity of SRI not only concerns its definition but also its strategic implementation. It is therefore not clear if SRI only aim at minimizing negative impact, or also strive at realizing positive impact. Either way, given a certain congruence of the NPO's mission with the core principles of SRI, this strategy helps these organizations preventing their investments' expected value of γ from becoming negative. This is mainly done through the implementation of negative or positive screening (Cowton and Sandberg, 2012), which is also a key instrument of MI (see Cooch and Kramer, 2007; and

Viederman, 2002). Negative screening, the exclusion of certain companies or even industries or sectors from the portfolio, helps reducing the negative impact of the portfolio, therefore, increasing γ from a negative toward a positive value. If this strategy was to achieve a value of γ around zero it could even serve as the mission-neutral benchmark as proposed in Equation 13. Positive screening, the formulation of minimum standards with regard to certain criteria (e.g., ESG factors) aims at setting a minimum positive value for γ which first of all contributes at realizing a positive expected value and should also reduce the variance of the portfolio's impact (see Equation 9). SRI are therefore a viable instrument for NPOs to positively influence their portfolios desirability.

However, exclusionary instruments have also caused critique. Scholars like Hamilton, Jo, and Statman (1993) and Fu and Shan (2009) mentioned the value-discounting hypothesis in the context of SRI. The hypothesis states that "SRI portfolios cannot outperform conventional portfolios because using a set of SRI criteria to screen securities imposes a constraint on the choice set of risk-return optimization, resulting in reduced diversification" (Fu and Shan, 2009, p.2). Even though several studies have shown, that SRI-funds need not underperform conventional portfolios (see for instance Renneboog et al., 2008; and the meta-analysis from Mercer LLC., 2009), if the value-discounting hypothesis was true, the argument again is based on an asset-only optic. For NPOs as mission-driven investors, this may pose less of a problem than for regular investors, as the additional gained utility from the achieved impact, might outweigh this loss (i.e., if the first and second terms in Equation 11 are bigger than the sum of the third to last term). This makes NPOs even more an ideal-type of a socially responsible investor.

Impact Investing

Impact investing does not only try to minimize negative effects but also specifically aims at creating positive impact while stile generating financial returns. It may therefore be used by NPOs to increase their investment's positive expected impact γ and minimize its variance, both increasing the portfolio's desirability, ceteris paribus (see Equation 9). But as direct investments into specific projects or social enterprises are likely to increase the financial risk of the portfolio ($var(R_{I,t+1})$), these will also negatively influence desirability. Careful selection of investment projects is therefore necessary to preserve the gained utility through the positive increase in γ. Depending on the organization's specific purpose or field of activity the bearing of such mission-specific risks, however, can also be seen as actually achieving more impact, thus again increasing γ. Crimm (1998) supported this argument independent of the concept of impact investing, as she states that NPOs deserve tax exemption, as they bear risks the market or state is not willing to. The tax exemption therefore acts as a risk-compensation, as derived from the classical theory of the capital asset pricing model (CAPM). The exact trade-off between these monetary and non-monetary factors have to be analyzed on an organizational level, as NPOs are very heterogeneous with regard to fields of activity and their missions' strategic interpretation.

Wood et al. (2013, p. 78) specifically highlighted that under the application of traditional measures derived from modern portfolio theory (MPT) the "assessment of investment opportunities on a limited number of indicators (…) may constrain the incorporation of impact investing into investment decision-making." This is precisely what our

formal analysis was able to proof. The adoption of an asset-only optic leads to a systematic misperception of desirability as shown in Equation 11. As NPOs (and private foundations specifically) as mission-driven investors should not base their investment decision on an asset-only optic, they are an ideal type of impact investors, as also mentioned in Bugg-Levine and Goldstein (2009) and J.P. Morgan and The Rockefeller Foundation (2010). With regard to the evaluation of impact investing Jackson (2013) also mentioned that non-financial models such as the "theory of change" should be a core element, further supporting the notion of the inclusion of non-monetary factors into financial decision-making for mission-driven investors. These elements typically are "input", "output", "outcome", and "impact" and are also the key to impact measurement as laid out by Grabenwarter and Liechtenstein (2011).

Impact investing can be perceived as a core strategy of MI, as stated by Fritz and von Schnurbein (2015) making NPOs (including private foundations) an ideal type of an impact investor. Although Wood et al. (2013) suggested the opposite logic, under which MI is presented as a practice of impact investing these logics are not in contradiction. They simply depend on the analysis' point of view. Fritz and von Schnurbein (2015) defined MI as an umbrella term that may or may not include different existing investment strategies such as SRI, impact investing, venture philanthropy, and program-related investments. Therefore, they also subsume impact investing under the term MI based on the point of view of an NPO being to sole investor of interest. Wood et al. (2013) on the other hand presented different strategic applications of impact investing. One of these applications is MI, which is the same finding, just from the perspective of impact investing as a strategy that can be applied by different types of investors.

Concluding Discussion and Outlook

Given their mission-orientation and instrumental usage of financial means NPOs can be perceived as mission- and therefore impact-driven investors. Although they profit from high financial returns, the mission-related impact created while assets are invested must not be neglected. Our analysis of the proposition of sin stocks being an optimal investment strategy demonstrated that this is only true from an asset-only optic. Under perfect condition this may be a suitable financial hedging strategy. However, the exclusion of the organization's mission as a central point of reverence for the evaluation of risk and performance leads to a misperception of desirability. Given our formalization the maximization of desirability is only possible under consideration of the organization's mission. Therefore, NPOs as mission-driven investors should also aim at high expected values of impact and low values of variance of said impact. As there may also be a covariance between the financial investment return and the mission-based impact, this relation has to be taken into account as well. The inclusion of the organization's mission into financial decision-making among NPOs (and specifically private foundations) is what is known as mission investing. Instead of investing into sin stocks, the desirability of a given investment portfolio can be better increased by applying strategies such as socially responsible investing and impact investing. NPOs therefore present an ideal type of a socially responsible and impact investor, as such strategies are often underestimated in their desirability by regular investors when adopting an asset-only optic. In order to evaluate the absolute

desirability of any given investment strategy and conduct a sound trade-off analysis, NPOs are required to construct a mission-neutral benchmark. Only comparing the portfolios net impact together with potential loss or gains of expected financial return and variance allow for a sound and holistic financial decision-making. The construction of a mission-neutral benchmark must be based on the organization's perception of its own purpose and will therefore differ across the NPO sector, and even within certain fields of activity.

The model and formalization presented in this article will supply NPOs with a tool that allows assessing the desirability of their investments in more a holistic way. However, as simple as the presented model may be, the more complex the calculation of the actual qualitative impact multiplier γ will be. Empirical testing of this model will give further insights into whether there exists a trade-off between mission-specific impact and financial return and variance and if such a trade-off differs across different fields of activity. Given the difficulty of objectively constructing and quantifying an investment's purpose-related impact we like to stress, that such an analysis will always stay somehow imprecise. Also, future research should look into if there is the need not only for the formulation of impact-related measures of risk and return but also risk tolerance. Especially, NPOs may display different levels of risk tolerance depending on whether it concerns financial or mission-related risks. Although the model we present in our analysis is based on simple assumptions and therefore has its limitations it provides a basis for a sound analysis for the economic trade-offs an NPO faces. Following our theoretic arguments we hence conclude that it is crucial for NPOs to conduct such trade-off analysis, as only under inclusion of the organization's mission, an economically effective use of tax-exempt funds can be achieved.

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