

IMPACT INVESTMENT AND RISK MANAGEMENT: OVERVIEW AND APPROACH *

JOSEPH CALANDRO, JR. ¹

¹ PwC and the Gabelli Center for Global Security Analysis at Fordham University

***Abstract:** Managing financial risk has proven difficult over time as evidenced by numerous high profile failures over the recent past including and especially those experienced in the stock market crash of 1987, the financial crisis of 1997-1998 (also known as the "Asian Contagion") and the 2007-2008 financial crisis (also known as "The Big Short"). Therefore, managing both the financial and social risks inherent in an impact investment, and across a portfolio of impact investments, could be particularly challenging in the absence of a practical framework. This paper profiles a framework for managing Impact Investment Risk as a function of investment risk, social impact risk, and the problem-set common to both. The taxonomy of the framework is illustrated, explained and then applied to a case study. The subject of the case is an actual impact investment that has been profiled as, "The Triple Bottom Line and Investing for Impact: The Case of Afram Plains District of Ghana." The case analysis leads to a discussion of performance measurement, basic statistical analysis and potential enterprise risk management considerations such as exposure classification and tracking, tail risk analysis, and potential broader uses of impact investment risk information.*

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JEL Classification: D81, G11, G32, H43, O16

"The growth of social finance has been driven partly by a growing universe of social purpose organizations that cannot access mainstream finance due to their projected financial returns failing to match their *perceived* levels of risk" (italics original).

-- Nicholls and Tomlinson (2015), p. 285

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Introduction

Managing investment risk has proven difficult over time as evidenced by the numerous high profile financial failures over the recent past including and especially those experienced during the stock market crash of 1987 (Carlson, 2006), the financial crisis of 1997-1998 (also known as the “Asian Contagion”; Lowenstein, 2000) and the 2007-2008 financial crisis (also known as “The Big Short”; Lewis, 2010). Therefore, managing both the financial and social risks of an impact investment, as well as across a portfolio of impact investments, could be particularly challenging in the absence of a practical methodology (Morgan Stanley, 2013). As Nicholls (2010) explains, “Investment is taken here to mean any flows of capital that start-up, sustain, or grow individual, group, organizational or sectoral action, and which generates a return appropriate to the initial outlay, taking into account risk. Such flows should be seen as distinct conceptually from consumption. However, this distinction is problematized in the case of social investment in two ways. First, the nature of risk and return is more complex than in pure financial investing. Second, there are sometimes blurred boundaries – for the investor – between consumption and investment in terms of both their own logics of action and in the accounting conventions of the non-profit income statement and balance sheet” (p. 72).

One challenge with creating such a methodology is structural; for example, in many financial risk frameworks volatility is used as proxy for risk, but such an approach is difficult to apply in an impact investment context for a number of reasons: First, what would be the basis of the volatility measure—a financial variable, a social variable, or some combination of the two? Second, impact investments can involve inherently volatile (and illiquid) initiatives and thus volatility-based measures may not provide much, if any, insight into the actual risk of an impact investment. Third, it must be remembered that volatility is *not* risk.

Volatility refers to variation over time as measured by standard deviation and has no direction; meaning, it does not indicate whether something goes up or down, just how variable it is over time while *risk*, as Klarman (2009) explained, is “the probability and amount of potential loss” (p. xxxviii). Bernstein (1998 [1996]) defines risk more philosophically: “The word ‘risk’ derives from the early Italian *risicare*, which means ‘to dare.’ In this sense, risk is a choice rather than a fate. The actions we dare to take, which depend on how free we are to make choices, are what the story of risk is all about. And that story helps define what it is to be a human being” (p. 8). Applied to impact investing, “risk” could emanate from either investment and/or social considerations, and therefore we have defined *impact investment risk* across a broad, matrix-based set of classes and potential problems that could cause loss and/or generate volatility.

By way of background, Whitman and Diz (2013) observed that, “the word ‘risk’ is always modified by an adjective. There is no general risk. There is market risk, investment risk, interest rate risk, inflation risk, failure-to-meet-maturities risk, securities-fraud risk, excessive-promoters’-compensation risk, and so on” (p. 120). Furthermore, there is no one definition of “investment risk” because, as Whitman and Diz (2013) further observed, what is commonly referred to as *investment risk* is a function of *business risk*, which can generally be defined as “something” going wrong with an individual business or initiative, and *market risk*, which can generally be defined as some form of market-wide disturbance. This taxonomy lends itself to practical investment risk assessment (e.g., Martin J. Whitman is the founder and non-executive Chairman of the highly successful money management firm, Third Avenue Management, LLC.,

and this author has employed the taxonomy while both leading and advising a number of global risk management functions).

Turning now to *social risk*, which Nicholls and Tomkinson (2015) define as “the likelihood that an intended *social* return will be realized [or conversely will not be realized] in a given investment context” (p. 284; italics original).¹ In the framework that follows, these three risk classes (i.e., business risk, market risk and social risk) will not be evaluated quantitatively, but rather will be assessed qualitatively in the context of a potential problem set that could cause the risk of loss to manifest over time. As such, it is beneficial to first review what is meant by the term “problem.” A dictionary defines *problem* as “any question or matter involving doubt, uncertainty or difficulty.” Grint (2008a) effectively classified three different types of problems based on their levels of “doubt, uncertainty or difficulty” as follows:

- A *critical problem*, which “is presented as self-evident in nature” frequently over a compressed duration, e.g., fire, flood, earthquake, etc. The resolution of critical problems should occur relatively quickly, e.g., fire departments immediately respond to fires, etc.
- “A *tame problem* may be complicated but is resolvable through unilinear acts and it is likely to have occurred before.” Such problems are therefore “solvable” and have likely been solved in the past, e.g., turning around troubled business performance, rebalancing an under-performing investment portfolio, etc. The resolution of tame problems could exceed one-year but, once again, are solvable over a finite duration of time.
- “A *wicked problem* is more complex, rather than just complicated – that is, it cannot be removed from its environment, solved, and returned without affecting the environment. Moreover, there is no clear relationship between cause and effect.” As a result, wicked problems may never be resolved.

The adaptive nature of this problem taxonomy has proven insightful from a risk management perspective, even when it is applied to such risk-laden events as war. For example, Grint (2008b) applied the taxonomy to a detailed analysis of the Normandy D-Day landings during World War II to derive lessons and insights across all three problems—critical, tame and wicked—experienced during the landings and, significantly, into how certain problems could transition if they are neither timely nor effectively resolved. For example, critical problems not addressed timely and/or effectively could transition to tame problems just as tame problems could transition to wicked problems if they are not timely and/or effectively resolved, etc. Weick and Sutcliffe (2007) observed that problem transition has occurred when, “small failures went unnoticed, simple diagnoses were accepted, frontline operations were taken for granted, recovery was treated as routine, and experts deferred to authorities” (p. 1). Integrating the risk classes profiled above (i.e., business, market and social) with Grint’s problem taxonomy (i.e., critical, tame and wicked) gives the following framework.

¹ There are numerous ways to frame social risk factors. Brandstetter and Lehner (2015) provide a useful summary of various approaches (p. 94).

Figure 1: Impact Investment Risk Management Framework

		Types of Potential Problems		
		Critical	Tame	Wicked
Risk Types	Business	(1)	(2)	(3)
	Market	(4)	(5)	(6)
	Social	(7)	(8)	(9)

Below are working definitions for each of the above cells, followed by a demonstration of the framework in use via a real, albeit scrubbed and anonymous, impact investment case study.

Overview of Impact Investment Risks and Potential Problems

We begin with *business risk*, which can be more exactly defined as the possibility of disruptive strategic and/or operational problems arising in an enterprise that can negatively impact its performance. For example, and noting that the numbers listed below correspond to cells (1), (2) and (3) in Figure 1., above:

- 1) *Critical business problems* include exposure to natural catastrophes such as hurricanes, earthquakes and floods, as well as man-made catastrophes such as arson, terrorism, cyber-attacks, etc. Ways of mitigating exposure to such problems include crisis prevention and response strategies such as business continuity planning (BCP), the purchase of property insurance/micro-insurance, information technology security strategies, etc.
- 2) *Tame business problems* frequently evolve over time such as, for example, a pattern of deteriorating business performance, profound legal or regulatory issues, etc. Ways of mitigating exposure to such problems include processes such as turnaround management, the implementation of strong governance, risk and compliance processes, the purchase of general liability insurance, etc.
- 3) *Wicked business problems* can be defined as a business’s “unknown unknowns” (Rumsfeld, 2002) such as unanticipated but widespread injuries arising out of a product/service. Such injuries could result in extensive legal and governmental actions including product recall orders and fines, criminal proceedings, international sanctions, mass tort litigation, etc. An example that is frequently cited when describing this type of risk is asbestos and its related litigation in the United States (Sells, 1994), which continues to this day (as of mid-2016). Ways of mitigating exposure to such problems include scenario planning (Fahey and Randall, 1998), participative management (Grint, 2008a and 2008b), the purchase of excess/umbrella insurance, hedging, etc.

We now turn to *market risk*, which can be more exactly defined as the possibility of problems arising in the capital markets that disrupt a business's financing and/or an investment's performance. For example, and noting again that the numbers listed below correspond to cells (4), (5) and (6) in Figure 1., above:

- 4) *Critical market problems* effectively pertain to liquidity that, if manifest, could result in "forced selling" (Marks, 2011), the canceling of scheduled and/or value creating projects or initiatives, etc. Ways of mitigating exposure to such problems include cash strategizing (Calandro, 2015a), economical hedging (Calandro, 2015b), etc.
- 5) *Tame market problems* are frequently addressed through a variety of well-known investment portfolio analytical and management techniques such as mean-variance analysis (Markowitz, 1952), periodic rebalancings, delta hedging, "stop loss" orders, etc.
- 6) *Wicked market problems* reside in the proverbial and much commented on "fat tail." Some such problems may be unforeseeable, e.g., "Black Swans" (Taleb, 2007 and 2005 [2004]), but many others are more akin to "Predictable Surprises" (Bazerman and Watkins, 2004) that can and should be foreseen, tracked and either mitigated, diversified away from and/or hedged. Such activities frequently fall within the scope of enterprise risk management (ERM), which is commented on in the Conclusion below.

Grint's problem taxonomy can also be applied to *social risk*, which can be more exactly defined as "the likelihood that a desired set of social outcomes and impacts (social returns) will be achieved [or conversely will not achieved] as a consequence of the *deliberative* actions of a programme/organization whose objectives are to achieve these social outcomes and impacts" (Nicholls and Tomkinson, 2015, p. 293; italics original). For example, and noting that the numbers listed below correspond to cells (7), (8) and (9) in Figure 1:

- 7) *Critical social problems* can threaten the legitimacy of a social enterprise; in other words, such problems could raise significant levels of "doubt" (referencing the definition of "problem" discussed above) that a social enterprise can fulfill its mission due to some form of short-term volatility or catastrophe. For example, consider the case of a child who suffers a severe injury in a day-care facility. Such an accident could raise significant levels of doubt that the facility, school or program is able to adequately care for the children under its care, especially if the: child does not receive adequate emergency care, parents/guardians are not timely notified of the accident, other children are not appropriately cared for post-accident, etc.
- 8) *Tame social problems*: As noted above, tame problems may be complicated but they are resolvable and indeed may have been solved before. Therefore, such problems tend to be resolved through process-related solutions, but it may be "uncertain" (referring again to the above of definition of "problem") whether a particular solution can be either successfully or timely implemented thereby threatening the viability of a social enterprise. For example, a social enterprise that is not compliant with a governmental provision over time could be fined, sued, audited, and possibly charged criminally. Resolutions to such problems frequently require a coordinated effort by executive management, corporate counsel, outside counsel, and operational managers to prove that compliance has been established *and* that the social enterprise will be proactive in maintaining its compliance over time.
- 9) *Wicked social problems* threaten the existence of the desired impact itself and, in extreme cases, can threaten negative impact. Solutions to such problems are either extremely

“difficult” to solve or, in fact, unsolvable. For example, consider the case of several nursing homes during Hurricanes Katrina, Rita and Wilma in 2005 in the United States. These nursing homes neither evacuated prior to the storms nor took adequate precautions to protect the elderly people under their care during the storms. As a result, some elderly people were literally washed away during the storms’ flooding. This is a vivid example of how a critical/tame social problem (i.e., how to care for elderly people during a natural catastrophe) could transition to a wicked social problem; namely, how to prevent mass deaths of at-risk elderly people during a severe natural catastrophe absent adequate pre-storm preparation.

The practical utility of this framework is illustrated below by way of an impact investment case study.

Risk on the Afram Plains District of Ghana

Peterson and Yawson (2013) profile an impact investing case study pertaining to the fictional Afram Plains District of Ghana; “fictional” meaning all of the profiled information in the case has been disguised for educational purposes. By way of background, the case presents an approximate \$22.5 million agricultural impact investment that promises to increase agricultural production five-fold thereby reducing hunger, creating jobs as well as generating other economic opportunities. In other words, the investment promises to have fairly dramatic social and economic impacts. Like all investment opportunities, this one contains certain risks of which only two will be addressed in this abbreviated analysis: (a) The use of child labor on the farm, and (b) The use of five pesticides out of a total of fifteen that are banned in the impact investor’s country but not in the investment country of Ghana. Each of these risks will be profiled separately using the above framework, followed by a side-by-side comparison of the two.

We begin with the risk of using child labor on the Afram Plains. In an ideal world, children would obviously not have to work. This is not an ideal world, and as such in some developing countries children have to work to help support their families and, as a result, may socially be expected to work. Furthermore, some children may actually need to work to support themselves, in addition to contributing to the support of their families. In such cases, if child labor is deemed categorically not acceptable some children will be forced to turn to the black market for work, or worse. It is important to understand that this observation in *no* way condones child labor; rather, it is a practical recognition that in some economies and countries official child labor may be preferable in the near-term to existing alternatives.² Given the volatile appearance of such situations many mainstream investors would understandably pass on such investments, as they have over time. For example, in 1927, the late J.P. Morgan & Company senior partner Thomas Lamont noted that, “Capital is timid and most investors are not free from the influence of a statement that a proposed operation is likely to produce international misunderstandings” (Pak 2013, p. 177). Such an environment is clearly not indicative of “capitalism at work” (Shiller,

² This position was persuasively, and forcefully, argued by a representative of the European Bank for Reconstruction and Development during the 2015 *Oxford Impact Investing Programme*.

2013), which not coincidentally is one of the dynamics driving the need for social entrepreneurship financing and impact investing (Woolley, et al., 2013; Nicholls, 2006).

In situations like this, impact investors face the possibility of *critical social problems* (cell (7) of Figure 1.), which could threaten the legitimacy of the impact that is the subject of the investment. Potential ways to mitigate the risk of such problems include structuring work and educational programs for child laborers, and ensuring the safe and effective implementation of the work-education balance over time. However, executing solutions like these generates the possibilities of *critical* and *tame business problems* (cells (1) and (2) of Figure 1.). This risk profile can be practically illustrated using our framework as follows.

Figure 2: Impact Investment Child Labor Risk

		Types of Potential Problems		
		Critical	Tame	Wicked
Risk Types	Business	(1)	(2)	
	Market			
	Social	(7)		

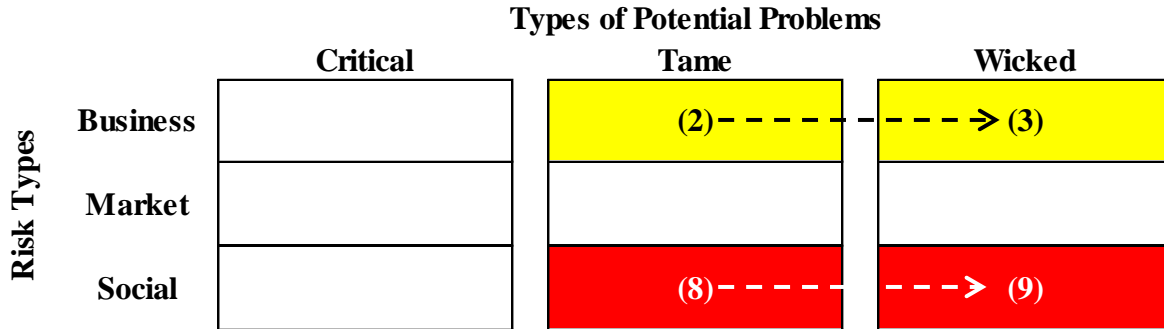
Note: the shaded cells are in “yellow” denoting an increased possibility of risk manifestation. The color scheme is for illustration purposes only and was subjectively assessed. For cell definitions see Figure 1., above and its related commentary.

Ways to mitigate the potential risk of these problems include the preparation of a communications statement that can be used in the event of “media scare stories” surrounding impact investors’ alleged “support of child labor,” and through the development of a close working relationship with local government officials. Just because impact investors are explicitly socially motivated does not mean they are immune to “the influence of a statement that a proposed operation is likely to produce international misunderstandings,” once again quoting Pak (2013).

We now turn to the second risk profiled above; namely, the risk of banned pesticides. By way of background, pesticides are very important in modern agricultural practices but, like all chemicals, some pesticides can be extremely dangerous. In this case, the prospective impact investor knows that pesticides banned in their home country, but not in Ghana, are being used and at a very high rate, i.e., one-third of the total. The use of such pesticides can lead to significant problems: First, if developed countries banned the use of certain pesticides it can safely be assumed that agricultural managers in emerging countries will not have the requisite knowledge to use such chemicals safely, assuming such knowledge even exists. This state of affairs virtually assures that some form of business and/or social problem will arise over time (cells (2) and (8) of Figure 1). Furthermore, the continued use of banned chemicals could result in wide-spread injuries either directly (e.g., farmers injured by exposure to the chemicals, people injured from eating the produce grown in infected areas, etc.) or indirectly (e.g., people injured from eating fish caught from polluted water, etc.). The recriminations from such occurrences could result in

wicked business and/or social problems (cells (3) and (9) of Figure 1.). This risk profile can be illustrated as follows.

Figure 3: Impact Investment Pesticide Risk



Note: the lightly shaded cells are in “yellow” denoting an increased possibility of risk manifestation while the darker shaded cells are in “red” denoting likely risk manifestation; the only question is timing. The color scheme is for illustration purposes only and was subjectively assessed. Dashed-arrows denote the possibility of problem transition from tame-to-wicked if the problems that arise are not timely and/or effectively resolved. For cell definitions see Figure 1., above and its related commentary.

Before proceeding it is important to note that “heat maps,” such as those provided above, contain limited information and are obviously subjective. However, assessments of risk are by definition subjective in nature whether they are formed qualitatively, like the ones in this case study, or quantitatively (Homer and Sylla, 2005 [1963], p. 416). Furthermore, heat maps are just profiles and as such are not intended to be detailed analyses (Kaplan and Mikes, 2010). This is especially important to note here as our analysis profiles just two of this impact investment’s potential risks and thus leaves unassessed various other risks, including and especially market-related risks. Nevertheless, heat maps can be highly useful as information summarization tools; for instance, compare and contrast the heat map structure to more graphical structures (e.g., Saltuk and El Idrissi, 2012).

Returning to the Afram Plains District of Ghana case, if we assume this proposed impact investment has just the above two risks, then a relatively quick glance at Figure 3., suggests there is no practical way to mitigate the risk of using internationally banned pesticides; indeed, using such pesticides generates the potential to surface problems that could transition from tame-to-wicked or, in the language of modern finance, such problems are at-risk of fairly dramatic volatility expansion. As financial history has shown, when volatility dramatically expands things have a way of moving together; hence, the daunting possibility exists here of simultaneous business and social problem transitions (as illustrated by the dashed-arrows in Figure 3). Therefore, no impact investment should be made in this project unless management protocols and controls are in place to ensure that only internationally approved pesticides are ever used.

With respect to the first risk that was profiled (i.e., the use of child labor) a glance at Figure 2., suggests it has volatility potential also; however, it is relatively limited in nature compared to Figure 3. Nevertheless, the possibility of critical and tame problems necessitates the implementation of preventative protocols and controls, as well as management processes for dealing with such problems should they manifest (Grint, 2008a and 2008b). Significantly, many social entrepreneurs are in the process of developing managerial skills (Nicholls, 2006), which

provides impact investors with the opportunity to make managerial, as well as financial, “impacts” to the extent they have the necessary expertise to advise social entrepreneurs on the creation, implementation and tracking of select risk management protocols and controls. If such protocols and controls are actively managed they can help mitigate the risk of loss thereby increasing the possibility of a successful investment that will have a meaningful social impact.

Measurement and Statistical Analysis

Risk quantification is not easy. One way to practically approach it is from a performance perspective. For example, consider again the case of the Afram Plains District of Ghana, which pertained to an approximate \$22.5 million agricultural impact investment promising to increase agricultural production five-fold thereby reducing hunger, creating jobs as well as generating other economic opportunities. A risk-based performance assessment of this social enterprise could be structured as follows:

Strategic: The farm’s business plan should explain exactly how agricultural production will be increased five-fold, accompanied by select metrics—such as crop yield projections—that can be used to track performance. The plan should also profile the operating model the farm will use to execute its strategy, as well as the capabilities required to work the model over time.

Capabilities: The business plan should outline the people, practices, equipment, and technology required to successfully execute the farm’s strategy over time. The impact investor(s) in this case could require the following practices to mitigate potential risks on the farm: (1) work and educational programs for child laborers to ensure a work-education balance, (2) communications protocols in the event of “media scare stories” surrounding allegations of “support for child labor,” (3) development of close working relationships with local government officials, and (4) protocols and controls to ensure that only internationally approved pesticides are ever used on the farm. All of these practices were profiled in our above risk discussion and, significantly, all are subject to basic performance measurement.

Processes: The business plan should also outline the crops that will be planted from “seed to store”; meaning, how the relevant seeds will be procured and planted, as well as how the resulting crops will be grown, harvested, stored, and transported to their final destination. Also discussed should be the farm’s various management processes, including processes to mitigate operational risks, which are also subject to basic performance measurement.

Stakeholder Satisfaction: The business plan should outline and explain how all of the various stakeholders will be satisfied such as: increased produce to customers, some form of financial return to investors, compliance with local laws and customs to foster positive, long-term governmental relations (Wood, et al., 2013), timely payment to suppliers, safe working conditions, the timely payment of wages, etc. This is particularly important from an impact investment perspective where broad stakeholder alignment is a critical long-term performance driver (Rodin and MacPherson, 2012; Spitzack and Chapman, 2012), and thus it should be—and indeed can be—subject to basic performance measurement within the context of an overall framework.

The above classification structure is based on the *Performance Prism* (Neely, et al., 2002), which is a popular performance management framework that is ideal in situations involving broad stakeholder bases such as those found in impact investments (the basic structure of the Performance Prism is illustrated in Figure 4.). There are many different kinds of performance measurement frameworks including and especially the popular *Balanced Scorecard* (Kaplan and

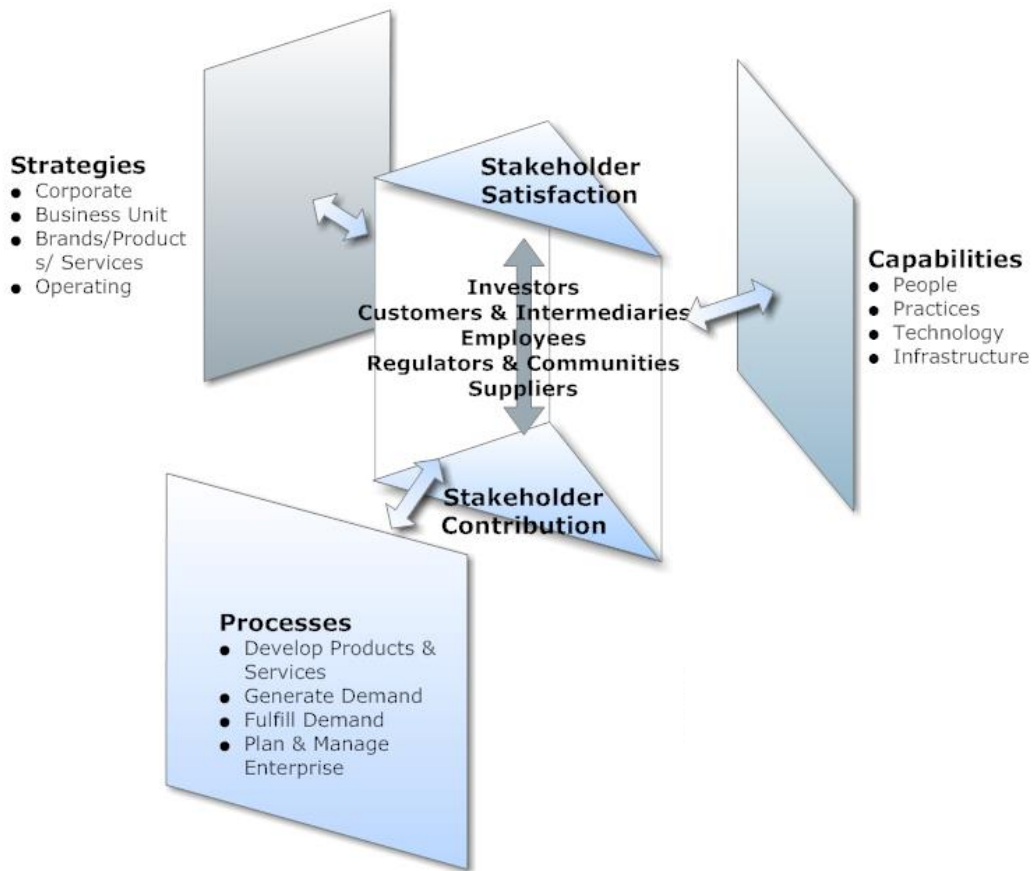
Norton, 1996). Benefits of employing the Performance Prism in an impact investing context include the following:

- The Prism explicitly includes diverse stakeholders within the scope of its framework; as such, social considerations are not “add-ons,” which facilitates the practical measurement and management of social entrepreneurship across stakeholder classes, from asset owners and asset managers to demand-side actors and service providers (Jackson, 2013). Significantly, analyses of this information over time could help facilitate targeted private-public collaborative efforts (Sorensen and Torfing, 2015).
- The Prism is accompanied by a comprehensive catalogue of basic performance measures for each of its categories. For example, Neely, et al. (2002) include 184 specific process measures, which can be used “as is” or as inspiration for the creation of new measures as may be required to ensure the efficient execution of a strategic plan.
- Measures from the Prism’s Stakeholder Satisfaction category can be reviewed and compared to social impact assessment/reporting frameworks such as the Impact Reporting and Investment Standards (IRIS), the Global Impact Investing Rating System (GIIRS), frameworks such as the one proposed by Saltuk and El Idrissi (2015),³ including expansive frameworks such as, for example, theory of change-based frameworks (e.g., Jackson, 2013).

One benefit of employing a performance-based framework is that, over time, select measures can be used to generate statistics that, albeit basic, could be used to “risk-adjust”—or, more accurately, volatility-adjust—select measures to inform both performance and risk analyses (Calandro, et al., 2008). Over time, the use of such statistics could help lead to the creation of social-based accounting betas for use in factor models, which can be used to inform capital analyses via estimation of a social weighted average cost of capital (SWACC; Nicholls and Tomkinson, 2015). Factor-based approaches could also help to inform the development of more robust, simulation-based models.

³ Note also the September 2014 publication, *Measuring Impact: Subject paper of the Impact Measurement Working Group*. <http://www.socialimpactinvestment.org/reports/Measuring%20Impact%20WG%20paper%20FINAL.pdf>
This working group was established under the United Kingdom’s presidency of the G8.

Figure 4: The Performance Prism



Source: <https://www.smartdraw.com/performance-prism/examples/performance-prism-framework/> The following disclaimer accompanies the diagram, “The Performance Prism is a performance measurement and management framework arising out of the work of the Center for Business Performance at Cranfield University in the UK.”

For example, Brandstetter and Lehner (2015) proposed an impact investing portfolio optimization model, which employs social impact measures in the modeling process in a manner that is both rigorous and practical. Going forward, the authors noted several near-term issues to be resolved with their model including distributional assumptions and model constraints (p. 103). Ranking impact investment data from strategic, capability, process, and/or stakeholder satisfaction perspectives, and then ordering those rankings based on the use of select metrics, could help inform distribution analysis (e.g., comparing statistical differences in stakeholder classes, etc.). Similarly, factors based on performance-generated metrics could help to inform parameterization efforts and to validate key assumptions such as, for example, those pertaining to normality. Performance data could also help to inform tail analyses, as discussed in the below Conclusion.

In closing this section, an objective of performance-based risk analysis should be the generation of data and information that can be used to enhance select modeling efforts, the output of which could be used to identify aspects of a portfolio that requires managerial

attention/intervention to improve overall performance, which will be tracked via measures that, over time, could be used to attract the attention of socially impactful investors.

Conclusion

This paper opened with a quote commenting on the difference between the actual levels of risk of social enterprises versus perceived levels risk. To address this difference, we proposed an impact investment risk management framework that dimensioned “risk” across three risk classes (i.e., business, market and social) and a broad potential problem set that could cause risk(s) to manifest (i.e., critical, tame and wicked). The utility of the framework was demonstrated via a risk-based analysis of the fictional Afram Plains District of Ghana case. We then profiled a basic performance measurement assessment of that impact investment and noted how, over time, certain measures could be used to produce basic statistics that enable further analyses via risk/volatility adjustment and the creation of accounting betas, which could inform capital analysis as well as more rigorous modeling efforts, including and especially portfolio analysis (Brandstetter and Lehner, 2015).

The approach presented above could also be used more broadly in an ERM context. By way of background, the central purpose of ERM is, generally, to understand the nature of exposure concentrations and how material concentrations can be either mitigated, diversified away from or economically transferred (in whole or part). Popular classification dimensions to identify and track exposure concentrations include asset classes, countries/regions, industries/sectors, counterparty names, etc. Concentrations can also be tracked by “risk manifestation catalysts” such as, for example, exposures at-risk of a credit downgrade, liquidity constraints, hitting a maturity wall without ready refinancing, etc. The approach presented here can be used to extend the classification taxonomy into potential “problem types” such as potential business and market problems (critical, tame and wicked). The focus here would not be to identify the exposure of every potential problem, but rather to identify material “problem concentrations” on a balance sheet that should be tracked from an enterprise perspective.

A risk management activity that frequently follows exposure concentrations analyses is the evaluation of tail risk (Calandro, 2015b). As Mandelbrot and Hudson (2006 [2004]) bluntly observed, “nasty surprises are not scarce in financial markets” (p. xvii), which has certainly proven true over the past 30 years (see references cited in the introduction). There is, of course, no one way to evaluate tail risks, but the approach presented here lends itself to this type of analysis via its wicked problem dimensionality; in other words, cells (3), (6) and (9) of Figure 1. This could be especially significant from an impact investing perspective for as Snook (2000) has insightfully observed: “as basic scientists, we do know quite a bit about individual, group, and organizational behavior. However, as applied theorists, we know much less about how complex untoward events cut across levels of analysis and time; and as practitioners, we seem largely incapable of either identifying or recognizing general sets of conditions that increase the likelihood of failures at all levels” (p. 203).

Insight into impact investing tail risk(s) will likely increase in importance as the field continues to mature, especially if impact investors/funds are negatively affected by a financial crisis, which has yet to occur (Nofsinger and Varma, 2014). One way to approach tail risk analysis is by using data—qualitative, quantitative and behavioral—that has been accumulated over time to gain an understanding of the types of scenarios that could generate tail events in a manner

similar to that propounded by Camillus (2008), especially with respect to the troubling prospect of “problem transition” (e.g., a tame problem that is not timely and/or effectively resolved transitioning to a wicked problem, etc.). During the course of tracking how select, problem-specific risk scenarios are developing, “big data” such as social media can, at times, help to inform more in-depth risk assessments. McAfee and Brynjolfsson (2012) broadly profile practical uses of “big data” from a performance management perspective, which has risk management implications inasmuch as risk can, in some ways, be thought of as the flip-side of performance (e.g., decreasing the risk of losing potential customers as the flip-side of growing revenue, etc.). The area of big data and risk management is a candidate for further formal research in general, and with respect to impact investing in particular.

At this point, a question can arise regarding the extent to which impact investment risk management information can be leveraged in broader ERM efforts; meaning, to what extent can information on social risk provide insight that can be used to either decrease the overall risk of an investment portfolio or mitigate a portfolio’s volatility profile, perhaps via diversification benefits, coordinating social efforts and initiatives of policymakers and institutional investors (Wood, et al., 2013), etc. In general, adjacency benefits of financial information are difficult to prove. For example, the benefits of Corporate Social Responsibility (CSR) with respect to financial performance have been mixed, as McWilliams and Siegel (2000), for instance, have shown. Likely as a result of such studies, Rangan, et al. (2015) refocused CSR back to “what must be its main goal: to align a company’s social and environmental activities with its business purpose and values” (p. 4). Focus on the “main goal” has direct implications to impact investment risk management in that its “main goal” is providing capital to socially impactful projects that, given their risk profiles, often fall outside of mainstream financing. Such investments may, from time-to-time, provide insights that could be leveraged from a mainstream investment perspective (e.g., a mature socially impactful firm transitioning into mainstream financial markets for a recapitalization, etc.), but such benefits will likely “be a spillover, not their reason for being,” quoting once again from Rangan, et al. (2015).

In closing, the approach presented here can be used to both assess the risk of potentially impactful investments, and to help inform the modeling and management of impact investment portfolios. It also reconciles with many popular risk management methods and techniques (e.g., Damodaran, 2008 and Crouhy, et al., 2006), and therefore output from the approach could be useful to investors who are considering funding social purpose organizations.

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