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**Evaluation of Social Risk
in the
Social Impact Investing**

Tutor:
Prof.ssa
Emilia Di Lorenzo

Candidate:
Elisabetta Scognamiglio

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*A te, che oggi, come sempre, mi avresti guardata
e senza troppe parole mi avresti fatto capire
di essere fiero di me.*

Abstract

This study aimed at implementing the framework on social impact investing, focusing the attention on the identification, evaluation and measurement of social risk. In the last ten years, partly because of the financial crisis, there was an increasing interest in the world of social finance, especially in the theme of social impact investing. This theme attracts the attention not just of practitioner but also of research field in academia. However, the recent history of this theme, caused a lack of an adequate discussion about many aspects linked to SII regarding, in particular the evaluation and measurement of return and risk of this form of investment. Starting from this consideration this study follow three main passage. A formulation of a unique definition of social risk through a content analysis; an identification of main social risk factors, through a case study methodology; a construction of a social risk table score that is able to give a final quantitative value corresponding to the level of social risk of the program evaluated. This last step represent an innovation in the social finance evaluation topic, that could be considered an easy tool for practitioner and, in the same time, a first step to further research.

Keywords:Social Impact Investing, Social Impact Bond, Social Risk, Social Finance

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Introduction

This work aimed at implementing the framework on social impact investing, focusing the attention on the identification, evaluation and measurement of social risk. In the last ten years, there was an increasing interest in the world of social finance, especially in the theme of social impact investing. This was due to the occurrence of some contingent events: the financial crisis that puts in discussion the traditional financial system, especially the traditional financial objective. The crisis of many local governments, whose funds are not sufficient to offer properly service to care the welfare system. The contextual development of the ability of social entrepreneurs to solve societal problems (Bornstein, 2007; Nicholls, 2006) with their scalable approaches and to act as intermediaries between the public and private sectors in the provision of social welfare support (Lehner, 2011; Nicholls, 2010c). A renovate interest to operate in the financial world generating not just a profit but also a positive impact for the life of people. Within this context, it was a developing interest and discussion among investors, governments, philanthropists, and nonprofits around the topic of Impact Investment, along with a growing number of early adopters of this asset class. (Tekula et al, 2015) The Social Impact investing attracts the attention not just of practitioner but also of research field in academia. However, the recent history of this theme, caused a lack of an adequate discussion about many aspects linked to SII as, for example, standard impact metrics, lack in investment track record or the industry capacity to really deliver sustainable impacts (Evans, 2013a; Jackson, 2013b; Warner, 2013a). One of the topic that needs of more study is the theme of the evaluation of social impact investing, in particular for the

aspects regarding the evaluation and measurement of return and risk correlated to the SII. The investment variables in Social Impact Investing differs from those considered in mainstream investment decisions, generally made in accord with widely recognized financial theories and models. More in detail, investing in SII, involves a high level of uncertainty as well as a high risk of failure given the high variability in the outcomes and in the performance of the project financed through the SII model. In this case, the evaluation regards not just the financial risk and return, as in the case of traditional investment, but need to include also a social component. Is for this reason that for the SII needs evaluate the social return that a social program could generate and the social risk that could affect the program. About this aspect some few studies was implemented but most of them regrading exclusively the evaluation of impact and social return. To measure this form of return was implemented also a measurement instrument, the SROI (social return on investment), that even if results a good and complete tool, is not more used for its complexity. Few study and prevalently theoretical are, instead, implemented on the social risk, on which there is a lack also of a unique definition. Starting from this consideration, to achieve the object purposed, this study presents different steps: the first consists of analyzing the social impact investing contex, the definition and the main features; in particular we focus on the geographic and sector distribution of investment, the analysis of actors involved and the definition of social risk and return. Then a particular form of Social Impact Investment, the Social Impact Bond, is investigated. The recipients of social investments contains multiple asset classes that include real estate, private equity, infrastructure, public equities and fixed income” (Hebb, 2013) In this range of financial instruments, the SIB could be considered, for its features, the most innovative asset. It was indeed defined , as an ”audacious idea for solving the world’s problems” (Schmid, 2012). Since the first Social Impact Bond issued in 2010, public and private sectors are showing a growing interest in this new financial innovation which enables the mobilization of private capital for public sector interventions. The choice to consider a specific impact asset is important for the second step of this work. Moving

from the perspective emerged in the first step, in second step we aim at providing a unique definition of social risk and identify the different social risk factors that could affect a program of investment. To do this, we implement a content analysis, taking into account the results provided by the academic and practitioner literature. Then, we implement a case study considering three typology of Social Impact Bond to verify what risk factors find in literature emerged by the SIB reports. In the last part, this work contributes to the ongoing debate about investor perspectives in Social Impact Investing evaluation by proposing social risk scoring model. The information emerged by content analysis and case study are used to implement this system. It would be a quali-quantitative evaluation mechanism, that permit to give a score to impact investing program, based on the level of social risk. It could be considered a first step to quantify the social risk level of an impact investment in this early stage in which the lack of historical data doesn't permit the traditional evaluation of this variable.

Chapter 1

Social Impact investment: an overview

1.1 Social impact investment: definition and main features

Social Impact Investing (SII) is object of growing interest in these last years. This is evidenced by the development of market but also by the increase of researches about this theme, especially by academic and practitioner world that implemented many studies in different disciplines. The heterogeneity of research focus is due to the complexity of this form of investment that needs to be analysed from different perspectives. In this sense, the first essential step to implement the research was to identify a structured definition of Social Impact Investing. (Beckmann et al. 2014). In the academic literature, actually, 58 definitions of SII (Rizzello et al, 2016) were identified and they present some common aspects but also some important dissonances. The first difference regards the "category" in which SII could be allocated. Some studies consider the SII as a category of investment while some others define this form of investment an emergent asset class. This dichotomy is generated from the historical development of SII that was considered at first as an

evolution of existent categories, in particular as a form of SRI, (Eurosif, 2010). However, this definition did not capture the main features of SII that is significantly different from SRI for three main reasons. The first one is a greater proactive of impact investing to solve social and/or environmental challenges, that represents the core business of social program financed, while in the case of SRI the evaluation of ESG indicator is an added value for the business activity. The second one is the size of investments, that are small investments in publicly listed companies for SRI while are large direct investments in the form of private debt or equity in the SII case. The last difference regards the nature of investments and the expected level of financial return. (Dalberg Global Development Advisor, 2011). Considering these aspects, it is possible to consider the SII as an emergent asset class (Suetin, 2011; Koh et al. 2012; O' Donohoe et al. 2010), arriving to be defined, especially in the American contest, as a part of the larger world of Social Finance (Geobay e Weber, 2013)¹. A further analysis of SII definitions shows that this concept is a hybrid that draws together two relatively distinct areas of practice: social investment and impact investing. At one side, the impact investing concerns the use of capital to obtain a predefined social or environmental impact, through direct capital allocation, investment in funds, or contractual agreements (i.e. SIBs). The focus is therefore mainly on investor behaviour and motivations. On the other side, social investment concerns providing access to repayable capital for social sector organisations (SSOs), where the providers of capital are motivated to create social or environmental impact. The focus, in this case, is on capital provider. The SII considers together these two aspects. In addition to the analysis of literature definitions, emerged the main features of this form of investment that are in the specific:

¹The expression Social Finance defines the use of private financial resources to support the creation of public social and environmental value or impact and encompasses a range of models and research topics including: Islamic finance; mutual finance; crowdfunding; community finance; targeted socially responsible investment; and social enterprise financing (Hochstadter et al, 2014)

- The intent of the investor to generate social and/or environmental impact through investments. This is an essential component of impact investing. (Addis et al. 2013))
- Investment vision - The SII represents a financial investment. For this reason, the social investor would obtain a financial return, represented at least by the invested capital²
- Impact measurement - A hallmark of impact investing is the commitment of the investor to measure and report the social and environmental performance and progress of underlying investments. (O'Donohoe et al. 2010)

These three aspects have different implications. At first, they give an important indication about the Social Investors features. This type of investor is different from the traditional one because its objectivity generate a voluntary and predefined social outcome without renouncing to the presence of a financial return. About this aspect, a helpful contribution came from Alex Nicholls that gave a clear definition of Social Investor, considering two elements: the investment logic and the level of rationality. The investment logics of an investor, according with its preference, could be in origin exclusively social oriented or exclusively financial oriented. Considering the features of SII (especially the intentionality and investment approach), Nicholls introduces a third type of investor logic oriented to a creation of a blended value (social and financial together). Referring to the investor rationality, that is the criteria of choice between different risk/return models, Nicholls identified three type of investors: i) the means-end driven investors (social investors oriented on efficient process and measurable outcomes) ii) the value driven investors (that choice investment in line with the value shared) iii) the systemic rationality that represent a mix of the other two options (investors that would generate blended return with efficient investment process). Considering these two

²Impact investments generate returns that range from below market (sometimes called concessionary) to risk-adjusted market rate. (GIIN, 2014)

criteria, Nicholls elaborated the follow scheme that represents a classification of all social financial asset.

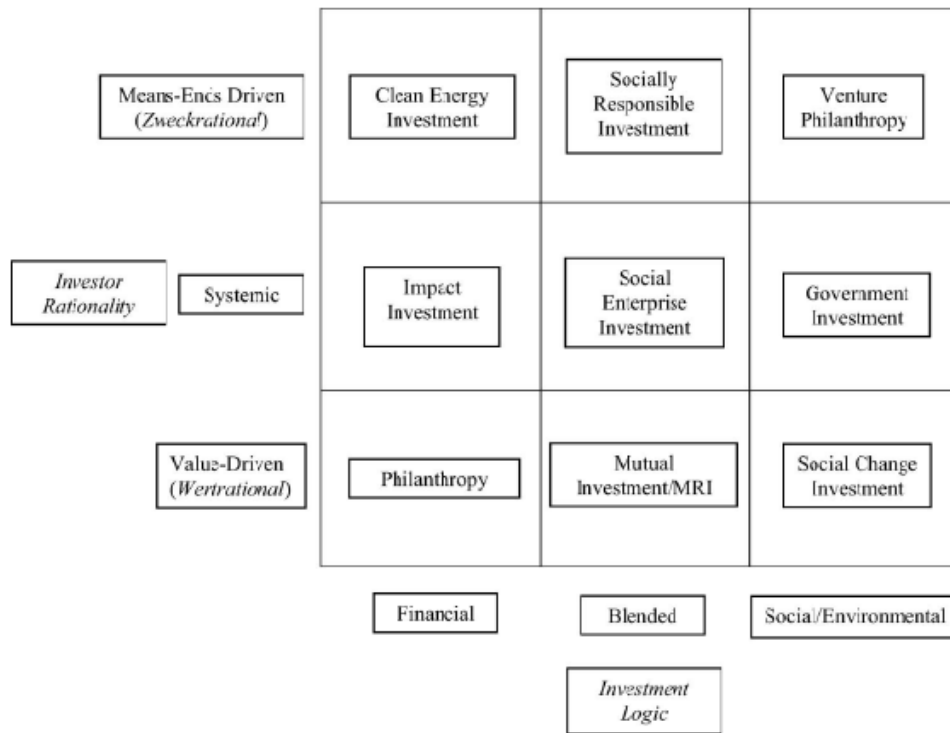


Figure 1.1: Social Impact Investment matrix

In accordance with this classification, it is possible to define the SII as an investment oriented to the achievement of blended value through a structured contract. The concept of blended value is strictly correlated to another important feature of SII process, the outcome measurement, one of the main object of study for academic and practitioner. The first purpose of this argument is to understand what is important to measure and then to define how to measure it. In order to do this, the first step was to identify the value generate by a social impact investment. The scheme below shows the chain value of a SII-

Observing the chain value, it is possible to underline two main aspects. The first one is the clear distinction between three elements in the social process: social output, social outcome and social return. This consideration puts in evidence that for SII the

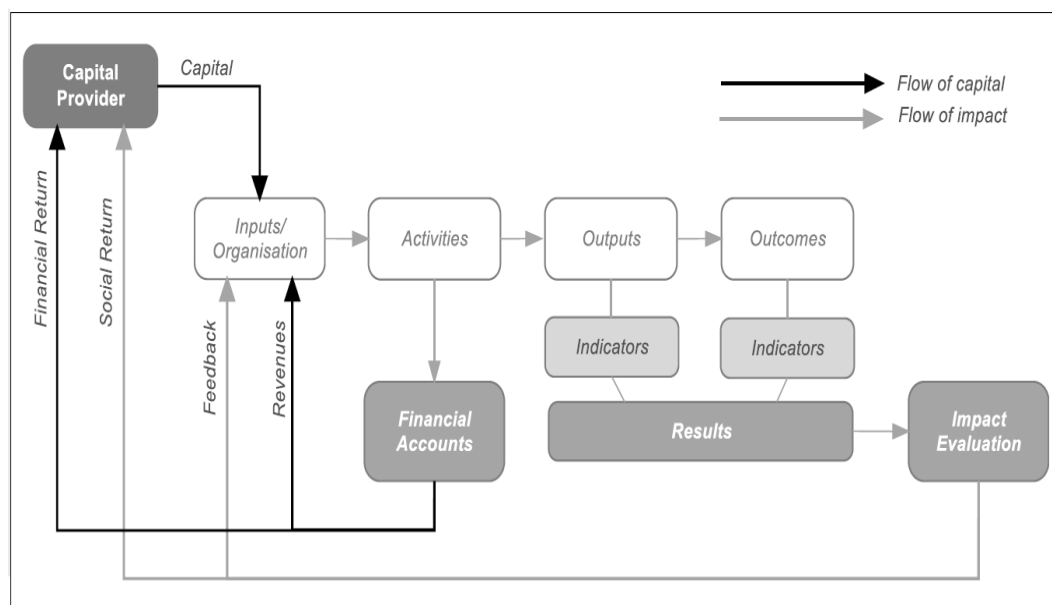


Figure 1.2: Social Impact Investment value chain

social evaluation regards three aspects: the measurement of outputs realised, the identification of social outcome variables and the development of methodology to measure them. The second observation regards the presence of two different value flows: one of capital and the other one of outcome. For this reason, the evaluation needs to include the measurement of the financial risk and return as in the traditional finance and, in addition, the estimation of social risk and return. The measurement of social return is important not only to evaluate the social impact of program but also for the strictly connection with the financial return. The achievement of social return, especially in some social impact instruments like SIB, could indeed determine the financial return for investors, which in same case could loss the entire invested capital. For this reason, the return of SII programs are defined as Blended Return, following the theory introduced by Emerson, about the so-called Blended Value Proposition. The core concept of this theory is that the nature of investment and return is not a trade-off between social and financial interest but rather the pursuit of an embedded value proposition composed of both. (Emerson 2000). The figure below clearly shows the trade-off between social

and economic value. The total investment value is evaluated following the Zero Value Proposition for a traditional investment and the Blended Value Proposition for a SII. In the first case, social and economic values are complementary and the maximization of one of them implies the minimization of the other one. In the second case, in accordance with the blended value proposition, the maximum value of investment is due to the simultaneous maximization of both measures that give a unique blended result.

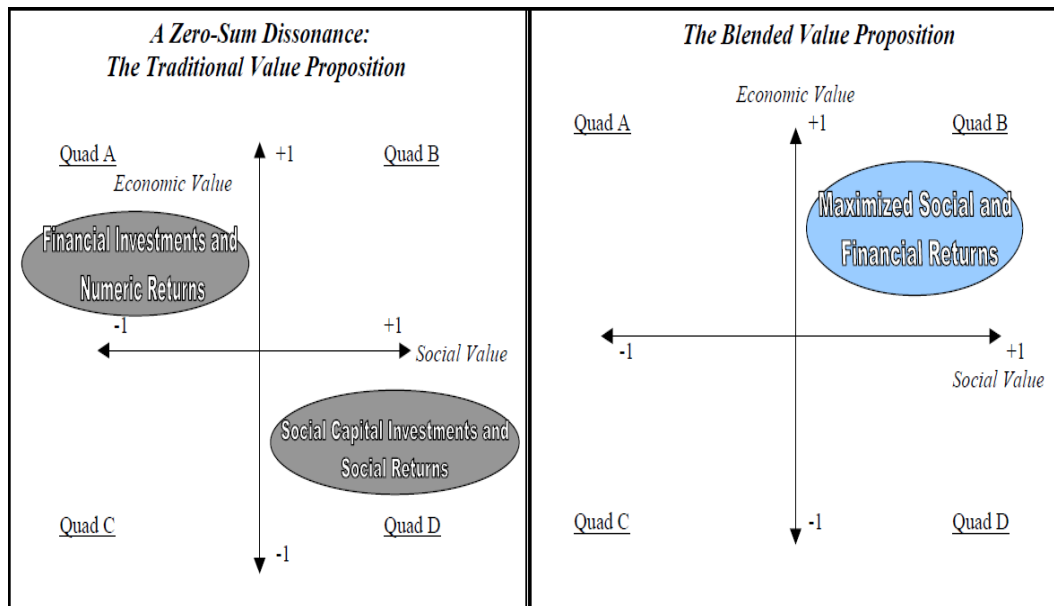


Figure 1.3: Blended Value proposition

In the evaluation topic, the most of research focused on the measurement of social return. Indeed, the first finding of these studies was a methodology universally recognised to evaluate the social return: the SROI (Social Return On Investment). Even if this methodology represents an important evolution, it was not used by most of practitioner because their complexity and costly. The concept of blended value is important not only for the evaluation of social return but also for the definition of risk. Referring to the risk, in the SII needs to consider two components: the financial risk, as traditional investment and the social risk that represents the innovative element specific of SII. Regarding the evaluation and measurement of risk there are few contributions in both academic and

practitioner literature and most of them consider just the financial risk and follow the evaluation methodology applied in the traditional finance. There is therefore a lack of studies about the concept of social risk even if this has a considerable weight in the evaluation of SII. This is the reason why the objective of this study aimed at define and evaluate social risk

1.1.1 Market structure, Actors and Financial Instrument

The Social Impact Investments are not currently negotiated in a structured market. This is due to the early stage of this form of investment. However, the increasing interest in social finance and the growth of capital amount invested, determines the need of a market structure for the transactions development. To define the market structure it is important to identify at first: the dimension of market in term of capital invested, geographic and sectorial distribution; the actors of market; the financial asset negotiated. Referring to capital invested, it is possible to affirm that the potential SII market is estimated to be from 1 trillion\$ to 14 trillion\$ when global infrastructure investments are included (Hebb, 201). These funds are invested in different geographic areas. In particular, many impact investors choose to focus either on developing or developed markets (Oleksiak et al, 2015). The choice is influenced by different factors. At first, the investors preferences, that sometime are oriented to solve domestic issues and in the other case invest where they perceive the need to be the greatest. The available data show that the emerging markets are the most popular destination of impact investing, maybe because the historical information demonstrated that in these countries there is a higher and more stable GDP growth. The graphic below shows the distribution of impact investments in the different geographic areas

The choice of the geographic intervention areas is linked to choice of social area of intervention. The studies showed that the intervention areas preferred are food and agriculture, followed by healthcare. The scheme below shows more in details

Referring to the market, there is an interesting framework developed by Nicholls who

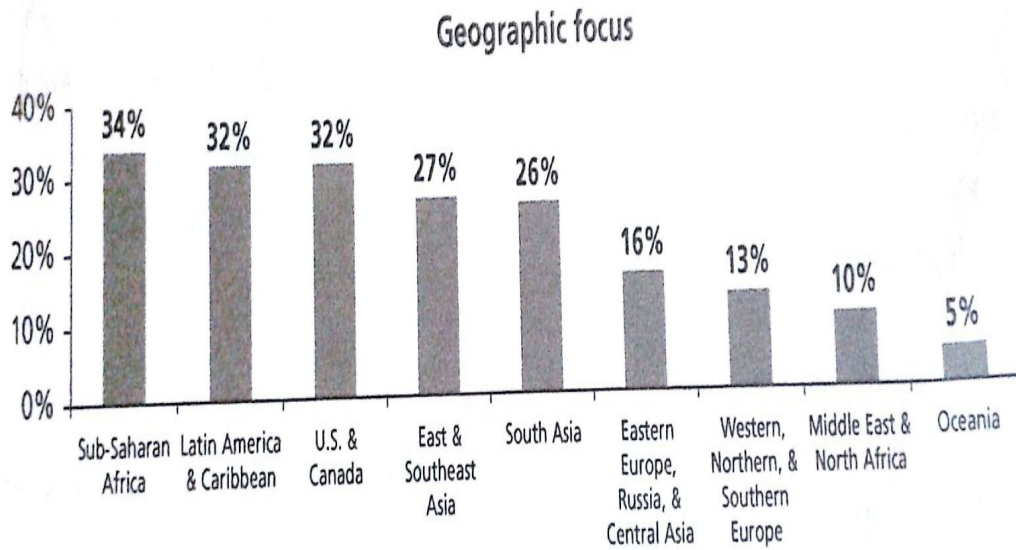


Figure 1.4: SII geographic distribution

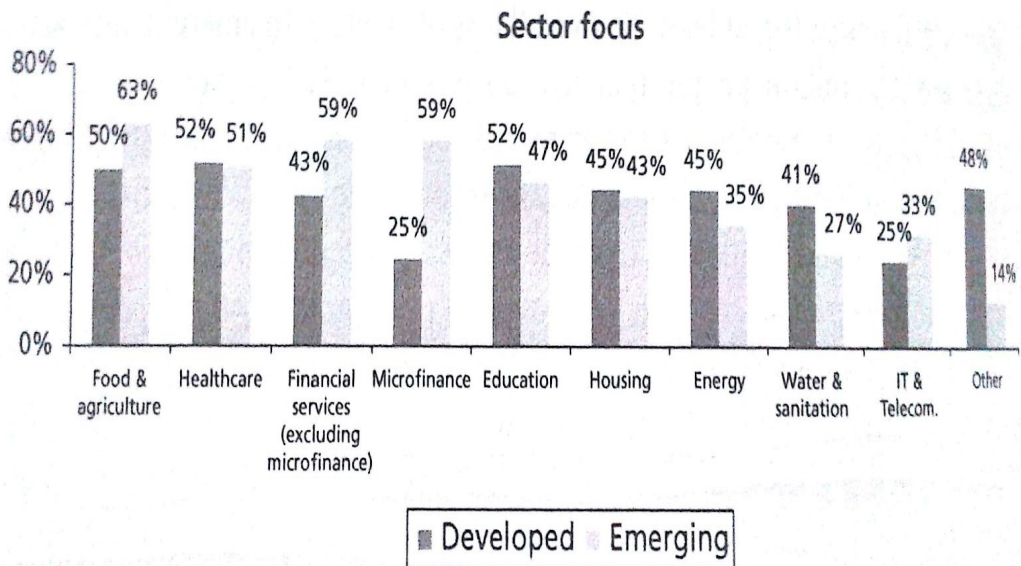


Figure 1.5: SII sector distribution

classified the market actors in four categories: asset owners, asset managers, demand-side actors and service providers, as shown in the figure below

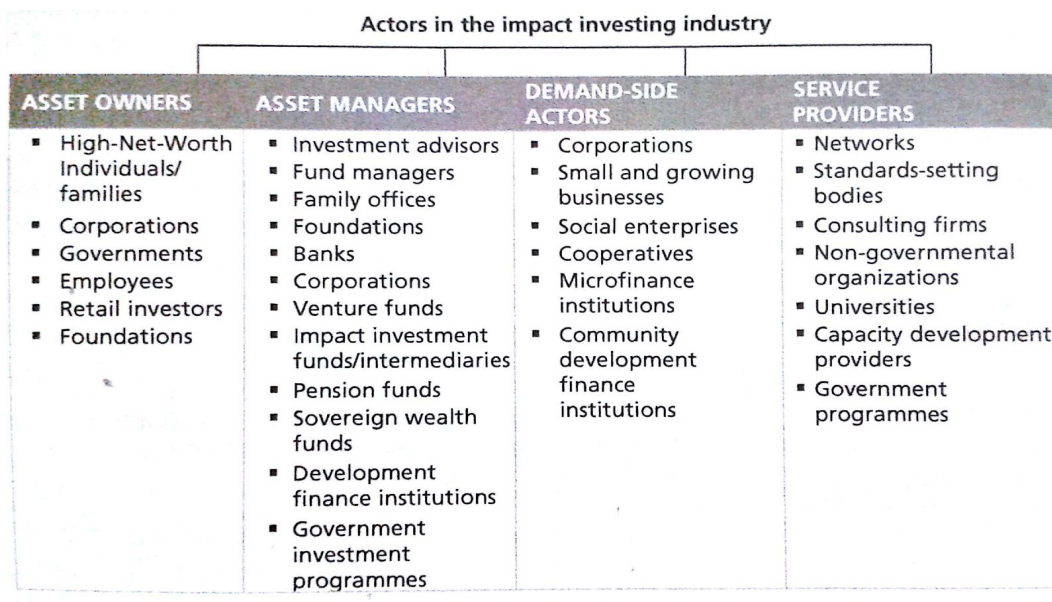


Figure 1.6: SII actors

The asset owner and manager category includes institutional investors like pension funds, insurers, corporations, family offices and financial institutions. (The Social Investment Consultancy & London Economics, 2014). In addition, there is an increasing number of investors in the market. They are individuals and family offices, with more flexibility and autonomy of institutional investors. This class includes also foundations, philanthropists, charities, investment, commercial banks and financial advisors, with the role to provide and allocate capital to impact project. Referring to the investors, another classification emerged by literature identifies two opposite typologies of investors in according to their expectations about the investment return. Is possible define impact first, the investors which would obtain a specific social return and could accept a lower financial return, and finance first the investors that, would obtain mainly a financial return from their investment, while the social impact is a secondary objective. This division represents an ideal conception of literature, while in the real world be not clear.

Some investor could assume for example an intermediate position or could prefer the social return (as an impact first investor) in some programs and the financial return (as a financial first investor) in some other programs. This is due to the different contractual conditions that correspond to different degrees of investor freedom in the capital allocation choice. They can prefer a particular mission they wish to support, where allocate their portfolio and, in some cases, in which part of lifecycle of program invest. (Oleksiak, 2015) The demand-side category includes investees request capital to develop social impact programs. This includes social enterprises, some corporations, cooperatives and microfinance institutions. Finally, the service provider category includes all operative organizations that directly provide the output services to obtain the expected social outcome. In this complex structure, some actors play a determinant role. At first, the intermediaries are a key component of market to successfully connect asset manager, supply, demand and service providers, and efficiently catalyse investor's capital. (Wilson, 2014) The lack of intermediaries that have multiple skills to manage this complex typology of investment is indeed one of the limit of SII. In addition, the government plays an important role in building and growing the impact investing market. The policy decisions could affect positively the development of impact investing in different ways: supplying impact capital, that means provide co-investment for the program; demanding impact capital, building institutional capacity to develop impact project and capital recipients; and finally directing impact capital and defining the way investment are made in the capital market (Oleksiak, 2015). In the end, considering the assets negotiated, it is possible to underline that, despite slight differences in comparison to mainstream financial products, the investment possibilities in the impact sector are similarly classified along asset classes (Harji et al. 2014); Social investment instruments can include grants, loans, guarantees, quasi-equity, bonds, equity and, in addition, some category of real assets. In addition, this market includes also products do not always align with mainstream definitions of asset classes. (Harji et al., 2014), as for example the outcome-based contract. This is the so-called Social Impact Bonds (SIB) in the UK, Pay-for-success (PFS) in the

US and Social Benefit Bonds (SBB) in Australia. The latest version of outcomes-based finance is the Development Impact Bond (DIB), which is based on SIBs, with a global focus that involves external development agencies besides governments (Saltuk et al., 2014). This type of investment represents the new frontier of public-private investment in social program.

1.2 Social Impact Bond: definition and main features

The Social Impact Bond (SIB) is the most innovative financial instrument in the range of Social Impact Investing. The first one was launched in 2010 in London. From that time, it was a growing of SIB launched not only in UK but also in other European and extra-European countries. The expression SIB identifies many different programs developed. For this heterogeneity, the SIB structure needs a clear definition. The first important consideration is about the appellative "bond". A traditional bond is a debt instrument that offers a fixed return to investors over a fixed period. The Social Impact Bond contract, instead, is a risky investment that operate over a specified period. The financial return that investors could receive is not fixed. This could change according to their success in achieving the social outcomes specified in the Social Impact Bond contract. (Social Finance, 2010) Therefore, the term "bond" gives a false information about SIB contract that is more similar to an equity investment asset. Considering the definition of SIB, many versions are present in literature. The first extended definition of SIB describes this instrument as a financial vehicle that brings in non-government investment to pay for services which, if successful, delivers both social value and public sector cost savings. Investors receive a financial return from a proportion of the cost savings delivered (Social Finance 2009) In this definition it is possible to find actors involved and the different steps of development of a SIB contract. The process is shown in the table below:

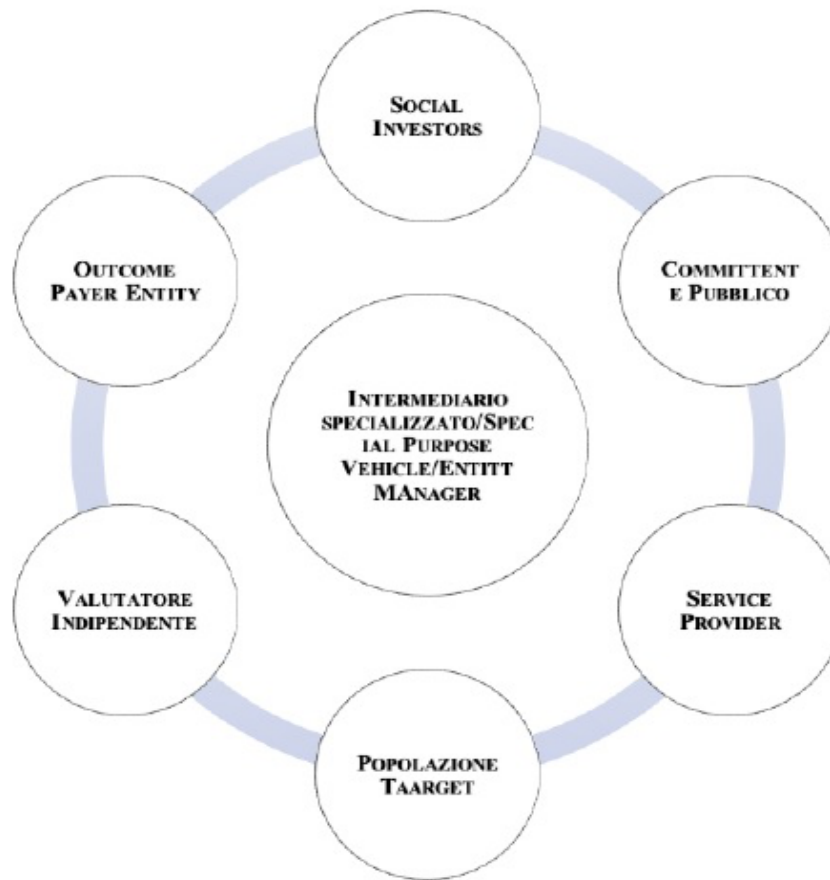


Figure 1.7: SIB basic model

As it is possible to observe, the actors involved are:

- The government or public commissioner that provides payment to investors if the outcome predefined are achieved. The repayment is made up of the capital invested plus a financial return that depends on the degree of improvement of the outcomes
- The service provider (one or more for each program) that delivers social intervention to a specific target population.
- The investor (one or more) that provides capital.
- The evaluator, which is an external actor with the role to implement the evaluation system and define the achievement or not of social outcome.

These actors interact in this way. At first, the public institution commissions the SIB to realize a program that could achieve a pre defined social outcome. This relation is regulated by an outcomes contract. The funds raises from investor was delivered to the service provider, directly or through an intermediary. Then, the service provider receives and addresses the social issue for the target population. The intervention could be developed from one or more service providers. They define, at first, the features of program: target, typology of intervention, number of worker, outcome measurement methodology. In according with the contractual conditions, outcomes are evaluated and/or validated by an independent, third-party evaluator. If the program achieves the expected social outcome, then the investment generates financial return for investors and saving for Government. In the opposite, if the expected outcome is not achieved, the investors are not repaid. With this system, all risks linked to the failure of program are transferred to the investors that are the unique actors that could lost the invested capital. The SIB contractual structure could be different from the basis form. The first difference could be in the investors involved. Indeed, the SIB can be implemented through two system of funding: an individual transaction or an investment fund focused on specific social objective. The two different schemes are showed in the figure below:

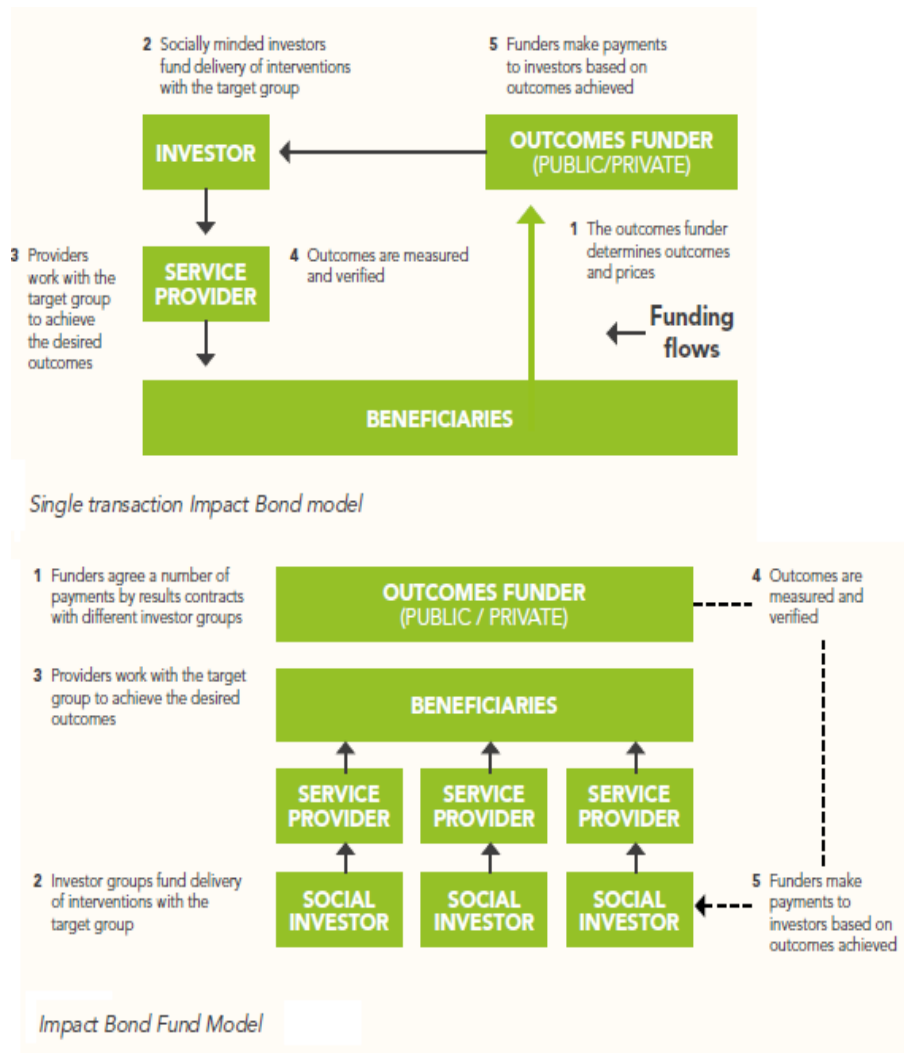


Figure 1.8: SIB single investor and fund scheme

In addition, the contract structure of a SIB can be developed in different ways, with other actors involved in the process, with specific roles. In particular, it is possible to put in evidence three SIB structures. The first one is called direct contract structure because of the direct contractual relation between service provider, investor and commissioner. The second one is called intermediated SIB structure and it includes a fourth actor, the Special Purpose Vehicle (SPV) that could be involved in the delivering phase to support the performance management or during the development phase to define and implement the financial model. The last structure is called managed SIB contract and it includes a fourth actor, the prime contractor, with the role to manage the SIB. The intermediary in this case take a lead role during all the duration of program process. (Bridges Ventures, 2014). The structure of these models is presented in the figure below.

By this model description, it is possible to understand that the SIB presents more complexity that affect:

- The development of social program, from the commissioning to the definition of measurement methodology;
- The actors involved, from the choice of actors to the building of contractual and operative relations;
- The evaluation methodology, from the choice of outcome metrics to the data collect and measurement of outcome.

By contrast, this asset has also many benefits that are the reason of the growing use in these years. According with the study of Nicholls (2015), the benefits regards: The effectiveness of program, especially, the focus on outcome (rather than output), the introduction of social outcome measurement methodology, the building of dataset and the identification of social metrics that determine a new way to define the social service system. This could be considered as a system structured, able to attract investment and realize profit if correctly implemented and managed.

The other benefit regards the efficiency of SIB: the contractual structure allows a

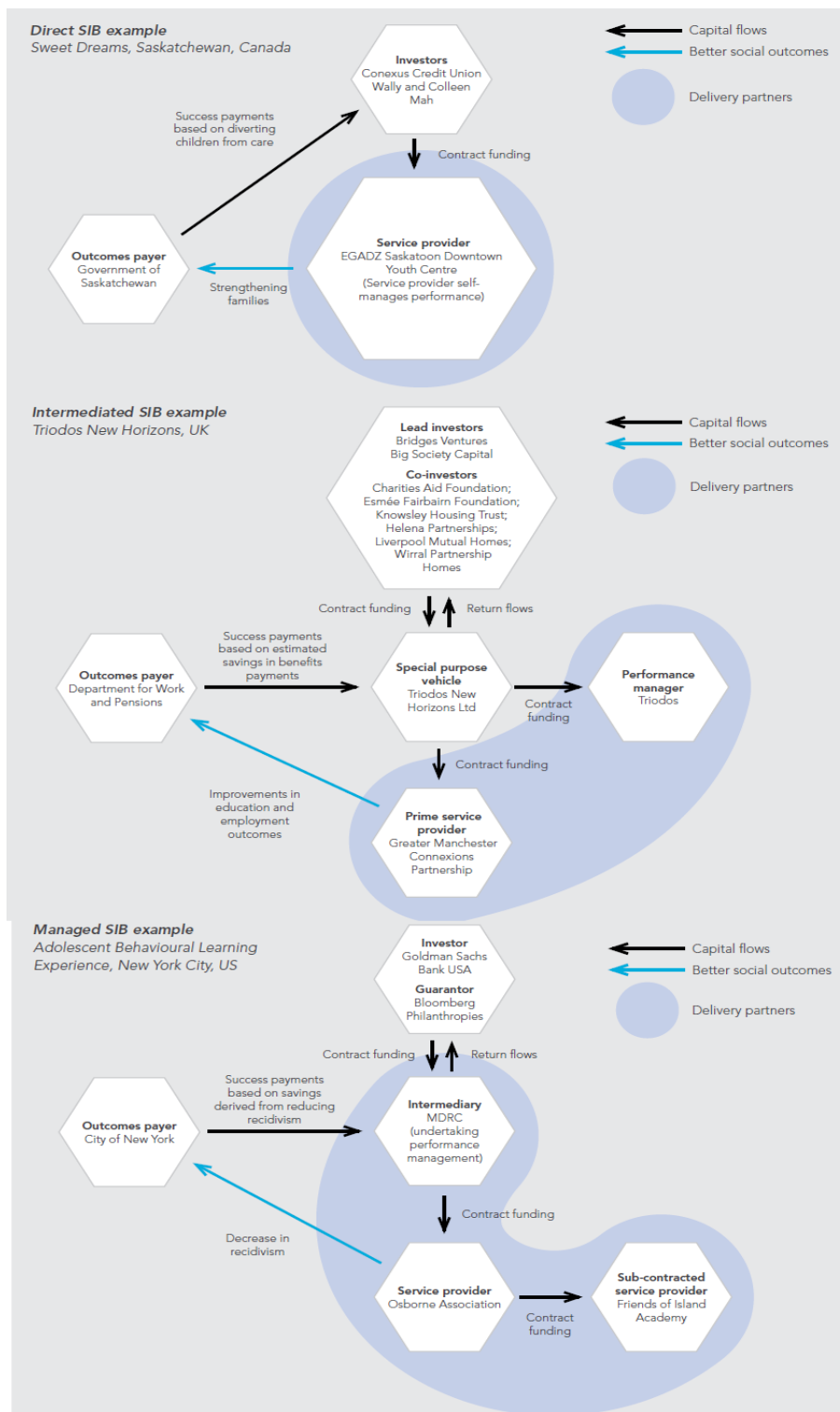


Figure 1.9: Direct, Inermediate, Indirect SIB model

better relation between commissioners, investors and service providers, a better use of resource that could finance in a new way the welfare services and the expansion of effective interventions that became available for more people. Furthermore, this use of SIB innovates the way to provide services, improves a better actors coordination and the possibility to implement early intervention that could prevent many social problem.

The third benefit regards the accountability and refers to the incentives for each part involved to develop the program; the flexibility of contractual condition and the possibility of innovate the process to solve old problem.

Even if the SIB presents many benefits there are also some objective limits regarding:

- The early stage of asset that had as consequence the lack of structured market, of historical data about program, outcomes, return and risk
- The role actors, in particular the government welfare role that could be altered by the risk and responsibility transfer to the investor.
- The contract, that presents more complexity and sometimes costs more.
- The risk of program totally transferred on the final investors that could be adverse to this type of risk in absence of specific information about the program

This limits and the growing interest need the development of further studies about SIB.

Chapter 2

Social risk in Social Impact investment

2.1 Introduction

In the evaluation system of Social Impact Investment (SII) the aspect that present many points to develop is the evaluation of risk. Both academic and practitioner studies, focused their attention on measurement and quantification of impact only, to further develop the market and attract further investments (Brandstetter et al., 2014). By contrast, the need of quantify risk was not been addressed, even if a clear risk evaluation makes the investment more readable for investors, especially for traditional or institutional once. Talking about risk for SII means consider the measurement of two component: financial and social risk. Most of literature about this, considering this two element as components of a "blended risk" variable, basing this idea on the Blended Value Proposition presented by Emerson. The core concept of this theory is that the nature of investment and return is not a trade-off between social and financial interest but rather the pursuit of an embedded value proposition composed of both (Emerson, 2000). Following this hypothesis, also the risk is considered as a blended measure that include both financial and social value. Is important understand that unified portfo-

lios of blended value/ blended return investments can incorporate all traditional asset classes (Fullwiler, 2016) not just SII. This is the case of social responsible investments where the investors estimate the ESG factors to evaluate the impact of the business activity in terms of environmental, social and government factors. This type of investment is different from SII. In the first case, the impact is a marginal aspect of business, while for a SII the social impact represents the core objective of business activity. For this reason, the social risk has a different weight. For SII became important evaluate both social and financial risk separately to understand where and how they influence the process. Without doing this the latter simply slides into the former or disappears completely within a less precise term such as overall social or blended impact. (Nicholls, 2015). Starting from this idea, some studies consider at first the financial risk, defined as the likelihood that the expected financial return is not achieved, including just this element in the evaluation of a SII. By contrast, the review of existing literature reveals a research gap about the measurement of social risks. Indeed, that appears not easy to realize, especially for the measurement of intangible aspects linked to it. Furthermore, not only the measurement but also the correlations between various risk factors need to be considered, because many findings in the document analysis, showed that impact investments face a multifaceted set of interdependent risks. However, further research is needed to define risk factors, empirically analyse interdependencies between those risks and their effects on financial and social return. (Brandstetter et al., 2014). Considering the importance of evaluation and measurement of social risk and the lack of information about this theme in the literature, this study aims to contribute to the definition of this form of risk and its components.

2.2 Literature review

2.2.1 Methodology

In order to develop a correct study about social risk evaluation, it is important understand what dimension need to consider. Therefore, it is essential to present an overview of the field's development and examine the content about the definition of social risk present in the main stream academic and practitioners research. To do this, it was developed a content analysis. This is as a flexible method for analysing text data (Cavanagh, 1997) and describes a family of analytic approaches ranging from impressionistic, intuitive, interpretive analyses to systematic, strict textual analyses (Rosengren, 1981). This type of design is usually appropriate when existing theory or research literature on a phenomenon is limited (Hsieh et al., 2005). For this reason, considering the lack of literature information about social risk, this methodology seemed to be adequate to our study. To develop a content analysis is possible to follow different approach. The specific type of content analysis approaches chosen by a researcher varies with the theoretical and substantive interests of the researcher and the problem being studied (Weber, 1990). In this case it was used the conventional content analysis approach. However, all methodologies require a similar analytical process of seven classic steps, including formulating the research questions to be answered, selecting the sample to be analysed, defining the categories to be applied, outlining the coding process and coding process, analysing the results of the coding process (Kaid, 1989). Following this methodology, the first step was to formulate the research question. In this case, the research aims to find i) a common definition of social risk and ii) a definition of the main risk factors to analyse. Then, to built the sample object of analysis, it was implemented a process of "literature identification", following the methodology presented by (Cit. Alessandro). Considering the explorative nature of this study, I included in the dataset all the results, by academia and practitioner. The article sources considered was Google Scholar, Scopus and ISI WoS, following the indication present in a Cobo. This affirmed that there are several

online bibliographic (and also bibliometric) databases where scientific works are stored” and, undoubtedly, the most important are ISI WoS, Scopus, and Google Scholar. The same criteria were used for all databases. With respect to time period, we selected the algorithm ”every year.” and database analyses were performed on November 30, 2016 including all works published as of that date. Search strings have been built by matching couple of keywords linked to the object of research (see Table 1).

KEY EXPRESSION	Results SCOPUS	Results WoS	Results Google Scholar	Ex ante
Social risk and finance	45	14	12.400	12459
Social finance and social risk	1	0	83	84
Social finance and risk	5	3	2670	2678
Risk and social impact bond	4	1	1270	1275
Risk and pay for success	2	3	1240	1245
Risk and impact investing	8	4	2740	2752
Risk and impact investment	21	8	4210	4239
Social risk and impact investing	1	1	101	103
Social risk and impact investment	1	1	80	82
Social risks and Social Impact Bond	0	0	26	26
Social risk and Pay For Success	0	0	12	12
TOTAL	88	35	24832	24955

Table 1: *Bibliography Results*

In this way, the results obtained was 24.955. All articles were analysed to verify relevance by analysis of the abstracts. I include only the paper written in English language, considering just the topic of the research relevant enough for the review. (Daggers et al., 2016) Following this criteria, I just consider the results related to impact investment and not all articles related to social responsible investment, corporate social responsibility and public policy intervention, because this topics are linked each other and with the theme of impact investing but there are substantial differences in terms of definition, objective, instruments, value. Then, I removed the overlaps resulting from the use of

the same keywords matched in a different way in multiple databases. These procedures reduced the number of results to 194. Once composed the dataset, in order to code and analyse the content of the articles, the keyword "social risk" was considered to search in the articles the correlated definition where present. Therefore, the final results was a set of 11 definition, shown in the table.

2.2.2 Analysis of results

The first observation that could be done is about the number of definition obtained. This could appear a small number, considering the size of dataset analysed, but it is coherent with the evidence about a lack of an adequate discussion on some aspects of impact investing, as, for example, standard impact metrics, lack in investment track record, or the industry capacity to really deliver sustainable impacts (Evans, 2013a; Jackson, 2013b; Warner, 2013). Analysing in details each definition word by word, it is possible put in evidence some common aspects that could be summarizes as follow:

The first element that appear clearly is that the social risk is a measure of uncertainty. As the other measures of risk, this represents the likelihood or in other words the uncertain of generating the intended impact (Godeke et al., 2009). In according to this, it is possible to affirm that uncertainty is one of the keywords for the definition of social risk. The other element considered refers to the type of results that are measured. The first key expression resulted is expected social outcome. The social risk was indeed also defined as a measure of the likelihood that a given allocation of capital will generate the expected social outcomes irrespective of any financial returns or losses (Nicholls, 2015). Another definition evidenced the measurement of social return, that is strictly linked to the concept of social outcome. The social return indeed represent the return in term of impact that a project aims to obtain, achieving the expected level of outcome, given a certain amount of output. Therefore, this dimension refers also the possibility that interventions and investment practices might have negative social returns (Geobey at al., 2013). Considering the social program it was clear that the social risk is also a form of

Authors	Title	Definition	Year
Sean Geobey, Frances R. Westley, Olaf Weber	Enabling Social Innovation through Developmental Social Finance	"How interventions and investment practices might have <u>negative social returns</u> ."	2013
Godeke, Pomares	Solutions for Impact Investors: From Strategy to Implementation.	"The <u>uncertainty</u> of generating the <u>intended impact</u> "	2009
Lisa Brandstetter1 and Othmar M. Lehner	Impact Investment Portfolios Including Social Risks And Returns	"While some authors interpret social risk solely as the risk of <u>not reaching the intended impact</u> , others apply a broader lens including for example exit risk, liquidity risk, measurement risk or unquantifiable risks"	2014
Nicholls	Social Finance	" <u>Likelihood</u> that a given allocation of capital will generate the <u>expected social outcomes</u> irrespective of any financial returns or losses"	2015
Othmar M. Lehner	An epiphany of Social and Sustainable Finance (in Routledge Handbook of Social and Sustainable Finance)	"Social risk has not been fully conceptualized at present; it ranges from negative societal impacts despite the well-intended investment motives, to opportunity costs because of an adverse selection of impact projects that fail to deliver."	2016
Leoni	Social investment: A guiding principle for welfare state adjustment after the crisis?	"Social risks", defined as socio-economic circumstances resulting in a significant loss of income and, consequently, an <u>increased likelihood</u> of <u>poverty</u> ."	2016
Liliana Guran1_ & David Turnock2	A preliminary assessment of social risk in Romania	"Social risk (Dumitru, 1996; Mares, 1996), manifest through poverty, unemployment, drugs-alcoholism, criminality, illiteracy, ethno-religious pressure and genetic inheritance."	2000
Wallen, Daraio		" <u>Likelihood that life chances are reduced while a perception of insecurity, isolation, inequity and inequality is fuelled</u> " tha emerge from the 2009 intersections between the different life dimensions of an individual."	
Hornsby, A. & Bhumberg, G	The Good Investor: A Book of Best Impact Practice	"Social risk as impact risk to describe the measure of uncertainty that an organisation will deliver on its proposed impact" Impact risk is a measure of the certainty that an organisation will deliver on its proposed impact (as detailed in the impact plan). The question implied is: <u>How sure is the impact plan to work, and what is the risk that the impact won't be generated?</u> "	2013
Laing, N., Long, C., Marcandalli, A., Matthews, J., Grahovac, A., & Featherby,	The U.K. Social Investment Market: The Current Landscape and a Framework for Investor Decision Making.	"Social risk refers to the risk that an <u>institution's investments might alienate key stakeholders and/or compromise the values of the organisation</u> . This is considered an uncompensated risk as there is no increased expected return when exposed to this type of risk. social risk, as defined here, does not capture all types of social risks. For example, when making a social investment, there is the risk that the investment may not produce the desired social outcome (e.g., jobs may be lost rather than created). However, this social risk and others may be captured within the combined return framework."	2012
Puttick, R. & Ludlow	Standards of Evidence for Impact Investing	"Impact Risk is a concept we have developed to give an indication of the <u>certainty that an output will lead to the stated impact</u> ."	2013

Table 2: Social Risk Definitions

Dimensions	The definition is coded to the dimension if it refers to	Example phrases
Uncertainty	Social risk as a measure of uncertainty or probability	"...the uncertainty of generating.." "...likelihood that a given allocation of capitale give..." "...how was sure..." "...indication of the certainty..."
Evaluation of expected social outcome	Evaluation that have as object the measure of social outcome	"...generating the intended impact.." "...not reaching the intended impact..." "...generate the expected social outcomes..." "...will lead to the stated impact..."
Social return	The possibility to have negative social return	"...might have negative social returns..." "...no increased expected return..."
Evaluation of impact plan	The possibility that the output doesn't give the outcome expected	"...how sure is the impact plan to work..." "...certainty that an output will lead to..."
Socio-economic condition	Likelihood of worsening of socio-economic condition of people	"...socio-economic circumstances resulting in a significant loss of income.." "...increased likelihood of poverty..." "...manifest through poverty.." "...likelihood that life chances are reduced..."

Table 3: Key features of social risk

evaluation of impact plan. Indedd, the achievement of the expected social outcome, and the risk that this is not achieved, implies the question about how sure is the impact plan to work (Hornsby, 2013). This is an important point because the connection between social risk and impact plan, demonstrated that the evaluation, measurement and risk mitigation are important during all the process of impact generation. By the analysis emerge that some definitions considered the social risk as a measure of the likelihood that life chances are reduced while a perception of insecurity, isolation, inequity and inequality is fuelled (Warren, 2009). The key expression in this case is "socio-economic condition" that are not linked to the effect of a social intervention but to a worsening of socio-economic situations that sometimes are the the causes of impact intervention. In conclusion Is possible adfirme that the main dimensions emerged by the analysis of social risk definitions are referred to the following dimensions: uncertainty, social outcome achieved ; social return obtained; socio-economic conditions.

2.3 Definition of social risk

The table below summarize the different dimensions related to the definitions of social risk.

Definition source	Definition	Dimensions
Sean Geobey, Frances R. Westley & Olaf Weber (2013)	<i>"How interventions and investment practices might have negative social returns."</i>	Social return Evaluation of impact plan
Godeke & Pomares (2009)	<i>"The uncertainty of generating the intended impact."</i>	Uncertainty Evaluation of expected social outcome
Lisa Brandstetter ¹ and Othmar M. Lehner (2014)	<i>"While some authors interpret social risk solely as the risk of not reaching the intended impact, others apply a broader lens including for example exit risk, liquidity risk, measurement risk or unquantifiable risks"</i>	Uncertainty Evaluation of expected social outcome
Nicholls (2015)	<i>"Likelihood that a given allocation of capital will generate the expected social outcomes irrespective of any financial returns or losses."</i>	Uncertainty Evaluation of expected social outcome
Othmar M. Lehner (2016)	<i>"Social risk has not been fully conceptualized at present; it ranges from negative societal impacts despite the well-intended investment motives, to opportunity costs because of an adverse selection of impact projects that fail to deliver."</i>	Evaluation of expected social outcome Evaluation of impact plan
Hornsby, A. & Blumberg, G (2013)	<i>"Impact risk is a measure of the certainty that an organisation will deliver on its proposed impact (as detailed in the impact plan). The question implied is: How sure is the impact plan to work, and what is the risk that the impact won't be generated?"</i>	Uncertainty Evaluation of expected social outcome Evaluation of impact plan
Laing, N., Long, C., Marcandalli, A., Matthews, J., Grahovac, A., & Featherby (2012)	<i>"Social risk refers to the risk that an institution's investments might alienate key stakeholders and/or compromise the values of the organisation. This is considered an uncompensated risk as there is no increased expected return when exposed to this type of risk. social risk, as defined here, does not capture all types of social risks."</i>	Social return Evaluation of impact plan
Puttick, R. & Ludlow (2013)	<i>"Impact Risk is a concept we have developed to give an indication of the certainty that an output will lead to the stated impact."</i>	Uncertainty Evaluation of expected social outcome Evaluation of impact plan
Leoni (2016)	<i>"Social risks", defined as socio-economic circumstances resulting in a significant loss of income and, consequently, an increased likelihood of poverty."</i>	Socio-economic condition
Liliana Guran ¹ & David Turnock (2000)	<i>"Social risk (Dimitru, 1996; Mares, 1996), manifest through poverty, unemployment, drugs-alcoholism, criminality, illiteracy, ethno-religious pressure and genetic inheritance."</i>	Socio-economic condition
Wallen, Daraio (2009)	<i>"Likelihood that life chances are reduced while a perception of insecurity, isolation, inequity and inequality is fuelled" tha emerge from the intersections between the different life dimensions of an individual."</i>	Uncertainty Socio-economic condition

Table 4: Key features in social risk definitions

Considering the elements analysed from different definitions, it could be possible build a definition of social risk, that contains all of these different aspects. Is important underline that this analysis due to a double definition of social risk, concerning two different thematic areas. At one hand the definition of social risk considering the social science contest, and referring to the life chance that caused the impact intervention. On

the other hand the definition of social risk in the social finance contest. In according with all the dimensions identified is possible in summary define, in this case, the social risk as *the likelihood that a defined impact plan doesn't generate the social outcome expected and doesn't achieve the social return expected from the investment*. Despite the social science is strictly linked to research topic, for this study will be considered just the definition of social risk in the social finance contest. Starting from this, the second step was try to identify also the social risk factor that influence the variation of this measure of risk.

2.4 Definition of social risk factors

The objective of this second step is try to identify and catalogue the different factors of social risk presented in the literature. To achieve this objective, the methodology followed was the same used for the definition of social risk. Indeed, all articles of the dataset built, were analyzed for the second time, considering a different key expression: social risk factors. The risk factors found were selected considering just the factors that are not present in the traditional finance. Even if these factors was not indicated explicitly as social risk factors, is possible consider them as a right proxy of risk factor that consider not only the financial results but also the social results. The results are shown in the following tables.

Is possible observe that there are two source of risk factors: at one side the macro categories identified from academic word; on the other side the factors identified from the practitioners reports. This is the result of due diligence that the practitioners realize for the investment proposals. From the analysis of definitions, resulted that the risk factors present in the practitioners report, could be, sometimes considered as subcategories of more generic risk factors presented in academic discussions. This is, maybe, the results of the natural mission of research for practitioners and academic. Another aspect to observe is a lack of homogeneity between the measure metrics and also between the practitioners. There are indeed many factors and different way to evaluate the risk,

Authors	B2:D7C4I Title	Risk Factors Definitions	Year
Saltuk	A Portfolio Approach to Impact Investment.	<p>Early stage of the market: Risks might arise from the market's small size, the short track record of performance, small portfolio and deal sizes and fund managers little experienced with dual return objectives.</p> <p>Ecosystem Risk: The impact investment market depends on infrastructure, e.g. policy support and measurement systems, which adds risk.</p> <p>Mission drift: Investees might drift away from the intended mission without the approval of investors.</p>	2012
Emerson, J	Risk, Return and Impact: Understanding Diversification and Performance Within an Impact Investing Portfolio.	<p>Measurement & Reporting Risk: Given the challenges in measuring social and environmental impact, investors sacrificing financial returns for impact may be exposed to inaccurate assessment of impact.</p> <p>Social Enterprise Risk: Viewed through the lens of a venture's social commitments and orientation, this type of risk has much in common with traditional enterprise risk. This risk includes a likely range of outcomes related to the successful execution of the business and the projected social and environmental outcomes.</p> <p>Thematic area risk: The category of sustainable agriculture may have a lower risk assessment than investments in Renewable Energy or Health Research.</p>	2012
Barby and Gan	Shifting the Lens	<p>Unquantifiable risk: In general, risk is quantifiable and expressed through different measures such as volatility. Unquantifiable risk on the other hand is the probability of risk factors which are not necessarily known to be relevant or even exist. Since impact investment is not yet a mainstream strategy quantifying the level and type of risk is particularly challenging.</p> <p>Impact risk: The potential for impact risk can take various forms. On the one hand there may be a lack of evidence that an intervention will produce the desired outcome or the investment could cause displacement leading to reduced or no benefit. On the other hand the investment may create positive change for its target beneficiaries but a negative change for other stakeholders. In this respect, impact risk is directly linked to reputational risk. Additionally, the impact risk is even greater as the product needs to demonstrate that the investor's foregone financial return will generate equivalent or superior outcomes relative to an alternative approach to achieving the same impact.</p>	2014
Hornsby, A. & Blumberg, G.	The Good Investor: A Book of Best Impact Practice	<p>Validity of impact plan: Reasoned: Does the impact plan present a compelling and well-reasoned theory of change? Integral: Is the generation of impact integral to the organisation's business and operations? Feasible: Is the impact plan feasible? Evidenced: Is there evidence to support the impact plan's approach to impact generation? Evidenceable: Will the impact be evidenced by carrying out the impact plan? Explicit: Is the impact plan explicit in all particulars?</p>	
Puttick, R. & Ludlow	Standards of Evidence for Impact Investing	<p>Standards of evidence about impact and measurement: five levels representing different stages of how impact evidence is gathered, interpreted and assessed.</p>	2013
Lisa Brandstetter1 and Othmar M. Lehner	IMPACT INVESTMENT PORTFOLIOS INCLUDING SOCIAL RISKS AND RETURNS	<p>Impact risk: Include Impact risk/ Mission drift/Moral Hazard/Validity of impact plan/Standards of evidence about impact.</p> <p>Early stage market: transition cost risk/evidenced about impact plan/Ecosystem risk/ Fund development risk.</p> <p>Measurement and reporting: measurement/social impact risk/ evidenceable of validity of asset plan.</p>	2014
Deborah Burand	Globalizing Social Finance: How Social Impact Bonds and Social Impact Performance Guarantees can Scale Development	<p>Intervention Model Risk: Refers to the risk that the chosen social service interventions do not produce the expected outcomes.</p> <p>Execution risk: Is closely related to intervention model risk because it encompasses the performance challenges that are unique to the SIB structure and goals as well as the performance challenges that one often encounters in project financing.</p> <p>Intermediary Risk: Is the risk that the SIB intermediary will fail to perform its obligations, which in turn would frustrate the achievement of the SIB's social and financial goals.</p> <p>Political Risk: relates to both the capacity and the will of the host government to undertake its obligations under a SIB structure and, equally importantly, not to hinder others from meeting their respective SIB obligations.</p>	2013
Nicholls	Social Finance	<p>Probability Likelihood that social impact will be achieved.</p> <p>Variance Standard deviation of the impact predicted for the programme.</p> <p>Uncertainty Risk factors that cannot be known.</p>	2015

Table 5: Academic social risk factor definition

that makes impossible the comparison between different projects. There is a lack of an unique risk evaluation system. After this first classification of risk factors, the study try to understand which of these are most frequently analyzed in the risk evaluation of a specific impact instrument: the social impact bond. To do this, it was developed a multiple case study.

2.5 Case study: social risk in the Social Impact Bond

The choice of Social Impact Bond for this multiple case study is motivated by a consideration about this instrument. This represents a new financial asset and is object of a growing interest of institutions and investors. By the analysis of the social impact investing landscape, Rizzello et al. (2016) have identified SIBs as one of the most promising pillars of the impact investing research. However one of the limit of the development of a market of this instrument is the lack of performance data and financial information, especially about the definition of return and risk. For this reason, a correct evaluation of social risk could be an important incentive for the development of SIB market that presents many potential features.

2.5.1 SIB contest

To better understand the case study is important know some aspects of the actual SIB contest. It is difficult to gather precise information on SIBs but a scan of the literature and web sites suggests that 65 SIBs have been implemented around the world.. There was a relevant implementation from the launch of the Petherborough SIB in the UK, the first one. The graphic below show the growing of amount of SIB along the time

The analysis and the presentation of this instrument is not easy, because this asset could assume different features, in term of geographic area, welfare contest of action, model of intervention, number of actors, amount invested, outcome measured and methodology used to evaluate it. The most of SIB around the world was implemented

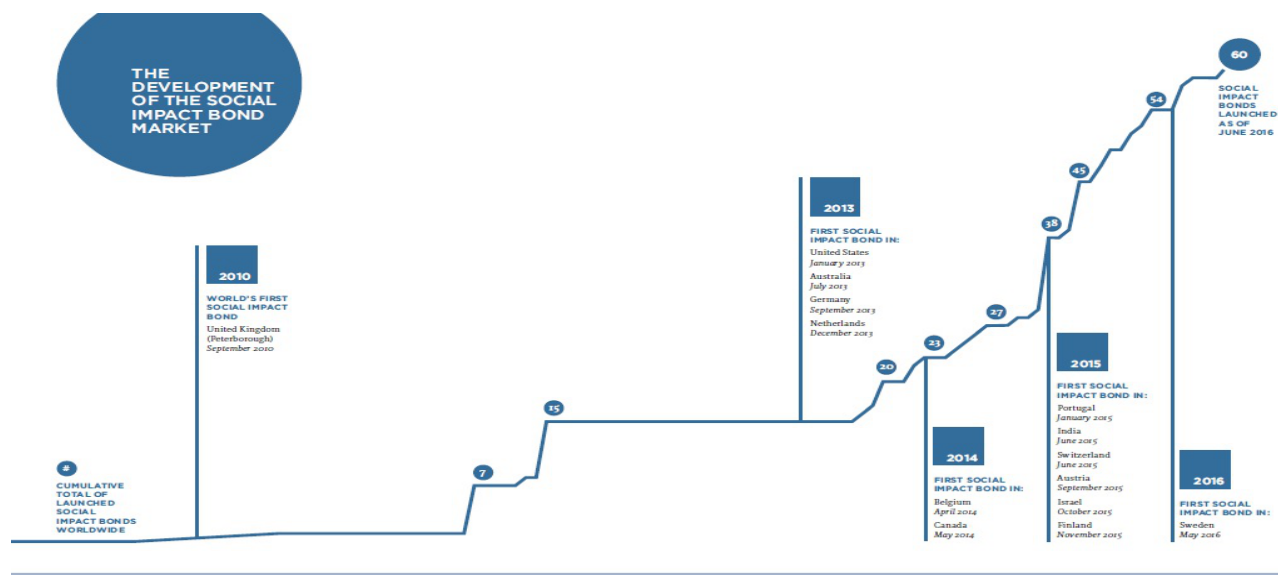


Figure 2.1: Historiactical growing of SIB market

in the UK, followed by EU countries and by the US, arriving in the last three years at the launch of SIB in India, Korea, Israel and Per. The country that invested the higher amount is the US, followed by UK and Europe. Considering the amount invested is possible see a growing of investment from the 3,788,166 USD of the 2010, to 33,908,212 USD in the 2016, for a total amount invested in this six year of 196,772,739 USD. The growing of SIB emitted, number of countries involved and amount totally invested are important indicators of the growing interest of market on SIB. About the investors, from the data shown in the Rizzello et al (2016), is possible see that the typologies of investor are the following:

For each one is evidenced the number of SIB financed. Is important underline that it was considered just the SIB financed by only one investor, that are the 42% of the total number of SIB emitted. This data shows that the most of investment is done from the investment fund and individual investors, while the banks are the institution that invested less. This information demonstrated that the SIB is an asset attractive for investor that have also a social impact objective and that could understand the value

Categories of SIB investors	Number of SIB financed alone
Trusts and foundations	2
Individual investors	6
Corporate and social enterprise	2
Banks	3
Impact funds/social venture capital funds	13
Local entities (social investment financial vehicles)	1

Table 6: SIB investors

of this instrument, this is not the same for traditional investor like bank that not have enough data and information about SIB. Considering the area of intervention, the most of SIB is developed to implement educational and employment program for young people, family care, health, rehabilitation of homeless and reduction of recidivism. From this analysis is possible understand the main features of SIB. To go in depth is important the availability of performance data. Indeed even if the SIB launched are 65 for 15 countries, the SIB that presented performance data are just 22. Referring to these, it was developed this multiple case study.

2.5.2 Case study methodology

The methodology used for this multiple case study is funded on a qualitative analysis of reports realized before and after the launch of SIB object of research. The first step was create the set of analysis. It was considered just 22 SIBs that presented performance data at July 2016. In this group were selected two set of SIB. One, composed by SIBs that didn't achieve the desired outcome and the other one composed by a group of SIB that have positive outcome. Furthermore, in each set was included the SIB with the same social objective, to make the set more homogenous. Considering these two conditions, the first set was composed by the Peterborough SIB and Rikers Island SIB, while, the second one was composed by the SIBs implemented through the Innovation Fund in the

UK Once obtained the set, the second step was to analyse in-depth each SIB structure, considering the actors involved, the social program implemented, the contract model developed, the outcome metrics and measurement methodology used. Finally, for each set were evidenced the social risk factors emerged by the reports. For these aspects were included the factors that are considered to develop a correct due diligence ex-ante and the factors that are present in the analysis ex post. Both of them were evidenced as possible influencer of the positive or negative results of program. For each risk factor identified in the reports it was selected the key expressions. The similar expressions are considered together and associated at the same risk factors presented in literature. Then, the results are analyzed trying to understand what of the risk factors present in literature are most frequent in the SIB structure. It was the base analysis to implement a qualitative evaluation system of risk factors.

2.5.3 SIBs that didn't achieve the expected social outcome

Peterborough pilot SIB

The Peterborough pilot SIB, the first SIB launched, has the objective to reduce reoffending by offenders released from HMP Peterborough having served a short prison sentence (of less than 12 months. (Social Finance 2011) It was emitted in the March 2010, after a process conduct by Social Finance, an organization launched in 2008, to accelerate the creation of a social investment market in the UK (Social Finance, 2008). Social Finance during the preliminary phase of study considered all the areas of social need where costs are high and there was potential to make a significant difference with new or preventive programmes. Criminal Justice was an obvious choice (Nicholls, 2016). Starting from this problem, considering in particular the high rate of reoffending, it was implemented the project of the first to finance a social program to reduce the reoffending rate. The contract scheme is the following: There was the introduction of a special purpose vehicle (SPV) that is Social Impact Partnership, with the role to find the financial resource

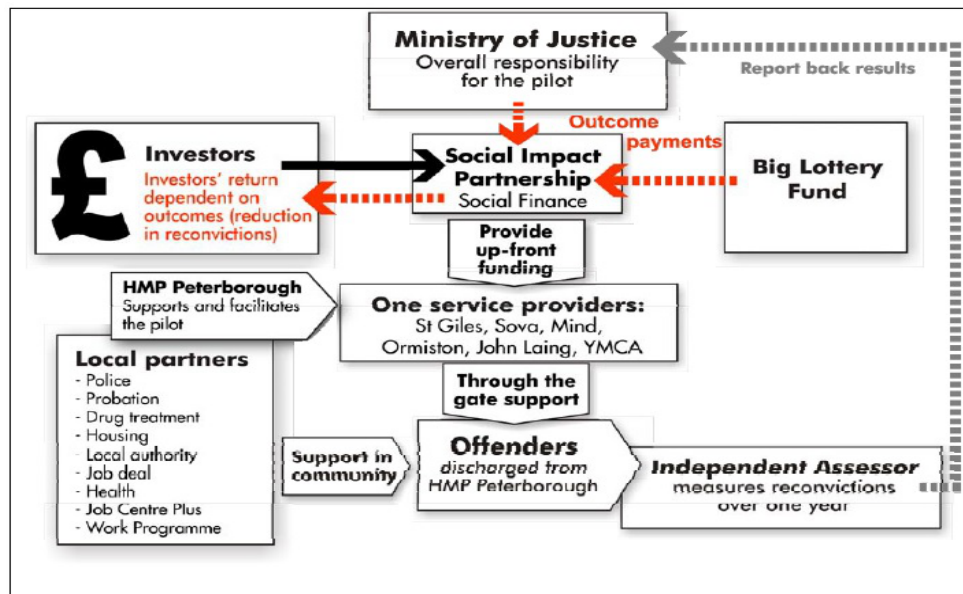


Figure 2.2: Petherborough SIB structure

and coordinate and manage One Service activities. One Service, the service provider that is responsible with other organizations of the correct execution of the social program. Minister of Justice, with the Big lottery Fund, provided at the outcome payment, if the social outcome was achieved. At the end, there is an independent assessor, to measure the social outcome over one year. The values obtained from this assessor, are the data that determine the payment of outcome. The amount of investment was 5m, from seventeen investors. They were especially foundation, investors that are usually social oriented. The target of the program is composed by 3000 short sentenced male prisoners, divided in three cohort approximately of 1000 people, leaving Peterborough prison over six year period following three criteria: at least 18 years of age at the time of sentencing; sentenced for a consecutive period of fewer than 12 months; discharged from HMP Peterborough during the pilot after serving their sentence (or any part thereof) at HMP Peterborough. The outcome measure used was the frequency of reconviction events, which related to offences committed in the 12 months after release from HMP Peterborough (during which time cohort members were eligible for support from the One

Service). If reconviction events are reduced by 10% or more in cohorts 1, 2 and/or 3, investors will receive an outcome payment. If a 10% reduction in conviction events has not been detected for any of the three cohorts at the end of the entire SIB period, the three cohorts will be evaluated together. If a 7.5% reduction in conviction events is detected, investors will receive an outcome payment. (Rand, 2015) The methodology used by the independent assessor to measure the outcome is funded on a contractual approach, identifying a comparison group through the propensity score matching methodology.¹ To achieve the expected social outcome the service providers offered different services to permit the social inclusion, the development of employment and the obtainment of a discrete condition of life for the ex-prisoner to disincentive the reoffending case. After the first year of program, the results were no positive. For the first cohort indeed, it was a reduction demonstrating an 8.4% reduction in reconviction event relative to comparable national baseline.² This was a good result but it was not enough to ensure the return for the investors. Following the contractual condition, indeed, the reduction should be at least 10%. This result, didn't permit the repayment after the first cohort, but could be considered for the final average of the three cohorts results. This result showed that even id the social program obtained social changes, the expected social outcome contractually defined is not obtained. This means that the achievement of social return influenced the repayment of the financial return. Indeed, the Minister of Justice

¹Propensity score matching (PSM) is the statistical technique that was selected by the Ministry of Justice (MoJ) and SF as the method of controlling for the observable differences between the cohort and the Comparison Groups. This methodology can eliminate the pre-existing differences between those released from HMP Peterborough and those released from other prisons, on measurable variables The process had these steps: data extraction, data quality assessment, data restriction and data cleaning. In this way is possible build a comparison group to match with the target group.

²About this Social Finance affirm that: "Results for the first group (cohort) of 1000 prisoners on the Peterborough Social Bond (SIB) were announced today, demonstrating an 8.4% reduction in reconviction events relative to the comparable national baseline. The project is on course to receive outcome payments in 2016. Based on the trend in performance demonstrated in the first cohort, investors can look forward to a positive return, including the return of capital, on the funds they have invested."

and the Big Lottery Fund, in this case, didn't make the payment to investors. Even if the program didn't achieve the outcome for the first cohort, there is for the investors, the possibility of repayment considering the average of reconviction rate of the three cohorts. However, on May 2014, something changed. Social Finance announced: "The Ministry of Justice has proposed an alternative funding arrangement for Peterborough Social Impact Bond (SIB) in light of the expected introduction of a new approach to UK probation and rehabilitation services at the end of 2014." The consequence was that the intervention on the third cohort was delayed. The SIB program involved just the second cohort and the results about this cohort is not available yet. This means that the SIB program was not delete because doesn't achieve the expected social outcome but for a change in the government decision. Even if is a particular case for this suddenly changing, the Peterborough SIB was considered for this case study. It was for two reasons: the first one is that it was the first SIB emitted, and for this it could be an example to understand many lessons; the second one is that is one of the case that had (even if is partial) an outcome that didn't permit the repayment (after the first cohort analysis).

Social risk factors

Even if the result for the second cohort was not available yet, about this SIB there were many report by various parts involved in the SIB and developed during different phases of life program. These reports included both qualitative and quantitative evaluation. By the analysis of them, it was possible find a list of elements that could be considered as social risk factor. The first element evidenced was the flexibility of contract. It refers to the condition for what the service provider Social Finance had to achieve the social outcome to reduce the reoffending rate but the contract conditions didn't specify in which way to do it. This was considered as an advantage because it enabled to address the needs of each individual and change plan of action during the program if this action was not

efficient³ However, the flexibility had also some negative aspects, especially referring to the replicability of the intervention model. The continuous changes that could be in the program, indeed, couldn't permit to consider a specific intervention program, understand the different steps of this and put in evidence which of them have positive and negative effect for the prisoners. This could be a limit to attract investors that would know at the begin the contents of program, and create a specific evidence data set about the program.

Another risk factor is defined by the duration of the contract. It refers to the possibility that the duration of contract could be adequate to permit a correct development of social program. In this case, the seven-year funding agreement is considered a positive feature that demonstrated how services are delivered on the ground. The long-term nature means that One Service can be taken seriously in the prison service space where so many services come and go frequently'. (Nicholls et al, 2013)

The third risk factor is the absence of particular contractual condition to regulate the SIB in case of change of policy. The consequence was that, during the program, it could been possible reduce the number of prisoners that receive the treatment was reduced through a policy intervention and the third cohort was deleted. This was not just a change for service providers, but influenced also other two aspects: the dimension of target and, consequently the evaluation of outcome. The measurement of recidivism rate, indeed, in this way could be calculated considering just the average outcome of the two cohort (2.000 people, instead of 3.000) and this could influence the last outcome value. The absence of contractual regulation about this event is, for this reason, an important risk factor to considerate. Another risk factor presented is the right number of outcome measured. In this case it was possible observe that there was a several advantages in focusing the delivery on a single outcome rather than a prescriptive process. As affirmed

³The One Service has one-year contracts with their service providers, reformulating contracts at each annual renewal and, sometimes, changing providers. The sub-contracted service providers see the One Service as their commissioner and the SIB as their overall project. (Nicholls et al,2013) In this way, One Service could change strategies to better respond to the need of prisoners.

by Nicholls et al, in this way, the lifestyle changes are what outcomes attempted to capture and measure, so it seems that in this case the choice of outcome and measurement system have produced an effective alignment. (Nicholls et al, 2013)

Other factor identified was the strong collaboration between different organizations and between service providers and community. Even if it was some difficulties, the reports underlined the advantage of the interaction between organizations that permit an integration of resource and know how.

Linked to this factor is the use of volunteers in the One Service. The use of connections workers within HMP Peterborough was considered to play an important role in encouraging cohort members to engage in the One Service. (Disley et al, 2014) In this system is essential the presence of an organization, like social finance to supervise and manage the volunteers.

In the program process another important element emerged is the presence of an intermediary The success of this depends from its financial knowledge, experience in the relevant policy areas and skills to negotiate with a range of stakeholders including the government, investors, and local organizations and agencies potentially affected by implementing a SIB (Disley et al, 2011)

There are the risk factors presented in the report analyzed. They are summarized in the figure below

Rikers Island SIB

The Rikers Island SIB was launched in August 2012. The objective of this SIB was to support the delivery of therapeutic services to 16- to 18-year-olds incarcerated on Rikers Island. (Social Finance, 2015). The area of intervention is the same of Peterborough SIB, but it is already clear the first difference: the geographic area of intervention. In the Peterborough case, the SIB was launched in UK, while, in this case, in the US. This implied a different social and political contest that need to be evaluated for further considerations. The contract scheme was the following:

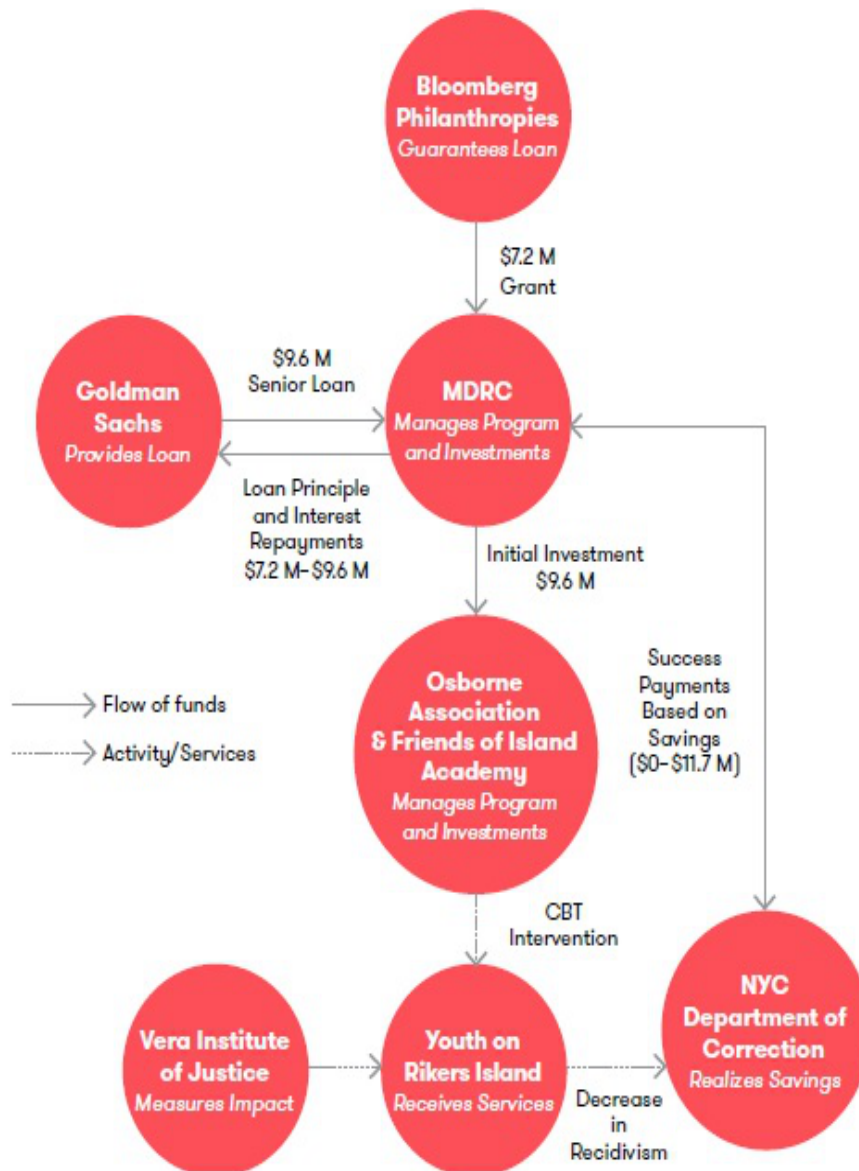


Figure 2.3: Rikers SIB structure

As is possible observe was present two different investors. The Urban Investment Group of Goldman Sachs Bank USA, a commercial lender and Bloomberg Philanthropies, a philanthropic investor. These two investors had different roles. The Urban Investment Group, made a \$9,6 loan to implement the program, while Bloomberg Philanthropies provide a \$7.2million as grant. This amount could be used to partially repaid the commercial lender if the program fails, or to reinvest in the project if the program can ensure the repayment of loan. From this structure emerged another important difference between Rikers Island SIB and Peterborough SIB: in this case there is a grant that reduce the financial risk for the lender. Furthermore, the structure showed also others partners that operates in different ways. MRDC, the intermediary that had to the Pay-for-Success terms, hammered out contracts with the various partners, and currently oversees the day-to-day, (MRDC,2013) This used the loans obtained by Urban Investment Group, to funding the program implemented by the service providers, Osborn Association and Friend of Island Academy, that submitted the target people to the ABLE program ⁴ Furthermore, MDRC, through a contract with New York City, oversees the day-to-day implementation of the project and is responsible for any payments to Goldman Sachs. (Vera Institute, 2015) Finally, the Vera Institute of Justice, an independent evaluator, determines whether the project achieved the intended reduction in recidivism, which will in turn determine repayment. (MDRC, 2013) The metric used to evaluate the reduction of recidivism is the number of "reentry bed-days", a measure that captures the number of days that members of the study group were held in the jail during the 12 months following their release from Rikers. (Vera Institute, 2015 ⁵ In according with the con-

⁴The ABLE program utilizes Moral Reconciliation Therapy (MRT), a form of cognitive behavioral therapy. Developed in 1985 by Correctional Counseling, Inc., MRT has been used in prisons, jails, drug courts, residential facilities, and schools, and has been shown to be effective in a variety of settings. Participants progress through a series of steps with the help of a trained facilitator, graduating from one stage to the next by delivering testimonies or presentations about themselves. There are 12 steps in total, with "Honesty" as Step 1 and "Choosing moral goals" as Step 12.

⁵Vera used a quasi-experimental design to do this evaluation. This method compared the 16- to

tractual structure, if the results find by Vera Institute showed the expected reduction of the outcome indicator, the Department of correction, had to provide payment to MDRC, following the payment schedule shown in the figure: By the report it was possible under-

Reduction in Re-Admission Rate	Net Savings (\$)	City Payment to MDCR
$\geq 20.0\%$	\$20,500,000	\$11,712,000
$\geq 16.0\%$	\$11,700,000	\$10,944,000
$\geq 13.0\%$	\$7,200,000	\$10,368,000
$\geq 12.5\%$	\$6,400,000	\$10,272,000
$\geq 12.0\%$	\$5,600,000	\$10,176,000
$\geq 11.0\%$	\$1,700,000	\$10,080,000
$\geq 10.0\%$ (<i>breakeven</i>)	$\$ \geq 1,000,000$	\$9,600,000
$\geq 8.5\%$	$\$ \geq 1,000,000$	\$4,800,000

Figure 2.4: Return structure

stand that also in this case the expected outcome was not achieved.. Vera determined that the change in recidivism for the eligible 16- to 18-year-olds, adjusted for external factors, was not statistically significant when compared to the matched historical comparison group. Furthermore, the 19-year-olds and the study group (16- to 18-year-olds) displayed similar trends in rates of recidivism over time, indicating that any shifts were the result of factors other than the ABLÉ program. (Vera Institute of Justice, 2015)

18-year-olds people who were eligible to participate in the ABLÉ program during 2013 with a matched historical group who passed through the jail before the program was established (from 2006-2010). To ensure an "apples to apples" comparison, these groups were matched on a variety of factors including charge, criminal history, gender, and age using a statistical technique called propensity score matching. Furthermore, to control some external factors, that could influence the fluctuation of rates of recidivism, researchers also tracked RBDs for 19-year-olds over the same periods and then adjusted the results of the analysis accordingly. (Vera Institute. 2015)

Social risk factors

As in the case of Petherborough SIB, also for Rikers Island SIB, was possible identify by reports different element of social risk that influence the achievement of the outcome. The first element that could affect the achievement of social outcome was the presence of a pilot phase that was helpful to identify important issues. Another element regards the social program implemented. As said before, the SIB financed the implementation of ABLE program, utilizing the Moral Reconciliation Therapy. This choice was not casual. This program, indeed, had been used in many setting, including jails and could be considered as a program evidence-based. This is a factor that influence positively the probability to achieve the social outcome and, for this reason, is an incentive for the investors. If the evidence-based program and the presence of a pilot phase were strong guarantees, in the Rikers Island case, another factor influenced the SIB in the opposite direction. The MRT had been implemented in more situation, but never on this scale and with an adolescent population in a large urban jail. (Parsons et al, 2016) This represent an element of risk because additional challenges may come to light after a program goes to full scale. There is a different level of risk between a program that replicate an evidence-based process and a program, like Rikers Island, that attempt to scale an evidence-based process. In this second case, indeed, the original program could be change to ensure the outcome achievement, giving less value to the historical data about the program. Considering the Rikers Island SIB, the first element of changing generating from the scaling of program was the dimension of target group. As a consequence of the increasing number of prisoners involved in the program, also the group of worker was larger and this generate two main problems: the first one is that the groups are too largely for a single facilitator to manage effectively. The second one regarding the young people that in this large group was not able to reveal personal details about their life. (Rudd et al, 2013) This situation requested the intervention of MDRC and service providers to adapt some elements of program, without compromise the objective of intervention. This adaptation could also be a problem for investors that financed a

program with rigorous evidence. This last aspect underline the importance of the presence of an intermediary with different skills that could manage the process with training, technical assistance, and extensive monitoring services. For this reason is important that the intermediary have enough resources to provide this type of support. Another element that influenced the development of the program was the structure of prison. The report's data evidenced that the day-to-day operational realities of the jail setting limited the participation of young people in MRT. For example, lockdowns, alarms, and other security measures sometimes pre-empt MRT sessions. Similarly, it is unclear whether it will be possible to deliver MRT to young people in Punitive Segregation. (Rudd et al, 2013). In addition, many adolescents did not complete MRT while they are incarcerated but many of them had court-mandated obligations including alternative-to-incarceration programs, school, or probation. Since MRT is not mandated, it is difficult for it to attract young people who have other obligations. (Parsons et al, 2016) The consequence is that the program couldn't include the prisoners expected and that fewer of them achieved the key milestones projected. Also for Rikers Island SIB of contract the duration of contract, was a risk factor. The reports in particular evidenced the difference between the short-term indicators and the long-term outcomes that influence the evaluation. Another element that is also different by Petherborough SIB is the presence of guarantee fund. About this factor is important underline that, as in the traditional finance, the presence of guarantee doesn't influence the achievement of social outcome, but just reduce the potential loss for investors. Finally, it was considered the evaluation methodology. The quasi-experimental approach as defined as a rigorous outcome evaluation system even if there is some problems because the adolescent moved frequently between housing units due to security and space issues. For this reason Vera researchers concluded that this situation led to a high degree of "contamination" between the proposed treatment and control groups, severely compromising the ability to assess program impact. (Parson et al, 2016) However the positive aspects of this methodology is that the stakeholders are forced to develop proxies of success to monitor the performance and this is important to

give more transparent information about a SIB program.

2.5.4 SIB that achieve expected outcome

The Innovation Fund

The Innovation Fund is a pilot initiative launched in 2012, in the UK by the Minister of Work and Pension. This resulting in 10 SIB, emitted with the same objective: preventing young people from becoming NEET (not in education, employment or training), or supporting those already NEET to re-engage with education, training and employment. (Department for Work and Pension, 2014) A detailed description is presented in the table below

The SIB was committed for the first time via an open competition and launched in two rounds. The first one, composed by six SIB and went live in April 2012. It covered the location of Birmingham, Nottingham, Perth and Kinross (Scotland), Greater Merseyside, London (Shoreditch) and London (Stratford, Canning Town, Newham and Waltham Forest). The second round, composed by four SIB launched in November 2012 and covering the local area of Manchester, South Wales, Thames Valley and West London. The duration of program is three years, with outcomes monitored for a further six months. The target group is composed by up to 17.000 disadvantaged young people, aged 14 to 24 years. More in detail, the round one involved young people aged 14 to 24 years, while the round two involved people 14 to 15 years. The program include different ways of intervention. All models share the funding model but the design of project is different. It was a choice of the Department for Work and Pensions that use a "black box" approach towards the types of interventions to be deployed, and leaving choice over the precise mechanisms of delivery to the projects. (Department for Work and Pension, 2014) The variety of intervention models could be categorised in three structures: the intermediary model; and the multiple investor SPV model. The schemes are shown in the figure below:

Name	Type of investor(s)	Year of launch	Participant ages	Project size	Amount invested	Target group	Service offered	Financial returns
New Horizons	Social Investment Funds; Bank; Registered Social Landlords; Charitable Foundation	2012	14+	Large	1,136,450	Eligible NEET clients from CCIS database. Young people with learning difficulties, care leavers, young offenders.	One to one coaching, mental toughness training, signposting to provision, access to ring-fenced job interviews and links to employers. Carried out on partner premises and in schools. Referrals from Youth Offending Team, Leaving Care Teams and Registered Social Landlords.	Unknown
The Advance Program	Single private sector	2012	14-24-year-olds	Medium	2,272,899	Young people including those excluded from school) who are NEET or at risk of becoming NEET in "hot-spots" within the City of Birmingham, in both white outer city estates and inner city black and minority ethnic communities	Fully integrated support program with a flexible, non uniform delivery model. School-based delivery provides Level 1 and 2 coaching, family, counselling, extracurricular activities and work experience tasters linked to supported progression onto apprenticeships. A strong focus on embedding literacy and numeracy skills within vocational training, supplemented by small tutorial groups. Targeted engagement outside schools. Delivered on agency premises and at outreach venues. Referrals through schools, Connexions Service, YOS and community networks.	Unknown
Think Forward	Social Investment Funds	2012	14-17-year-olds	Medium	681,87	The 20% of school pupils in the Shoreditch area most at risk of becoming NEET.	Intensive coaching and employment mentoring in groups and one to one. Activities and links to training and to employers (in the City of London). Delivered by progression managers in 10 schools and in community venues.	Upon completion, the Social Impact Bond provided a full return of capital plus a return to social investors.
Nottingham Futures	Single public sector	2012	16+	Large	1,287,976	The most at risk young people among those initially 'not known' on CCIS database with a focus on the six most deprived wards in the city.	Advice, coaching and signposting to specialist services and to apprenticeships agency. Links to employment and training partnerships. Provision on Nottinghamshire Futures premises, with home million in and community outreach.	The Social Impact Bond triggered £2.5 million in outcomes payments.
Links for Life	Social Investment Fund; Regeneration Partnership	2012	14-19-year-olds	Small	280,324	The most vulnerable young people and those falling through gaps in mainstream provision.	Long-term, holistic support. Crisis support, intense coaching, signposting and brokerage using community 'hubs'. Referrals from schools, local NEET forum, Leaving Care Team, Mental Health Teams and youth providers. Also self-referrals.	Unknown
Living Balance	Individuals; Local small businesses; Church; Private sector; project management company	2012	14-24-year-olds	Small	378,817	Young people including those excluded from school) who are NEET or at risk of becoming NEET	Complete support package under one roof, including confidence building, training, employment placements in social enterprises and links to employers. Delivered at the premises of Perth YMCA, at community venues and schools outreach locations. Referrals from agencies and schools, and self-referrals from young people. Complete support package.	Unknown
Teens & Toddlers	Social Investment Funds, Charitable Trusts and Foundations	2012	14 and 15-year-olds	Medium	606,107	Young people in schools in areas with high levels of gang involvement and high rates of being NEET.	Phase 1 pairs at-risk 14 and 15-year-olds with toddlers in a nursery setting one afternoon a week for 18 weeks, using this to explore their own vulnerabilities and aspirations, followed by an hour in a classroom to work through a structured development programme (to QCF entry level qualification). In phase 2 participants meet facilitators monthly and focus on their work in school.	The Social Impact Bond was fully repaid to investors with final returns anticipated in 2016.
Capitalise	Social Investment Fund, Third Sector Partnership Organisation	2012	14 and 15-year-olds	Medium	318,206	Those at risk of not gaining a GCSE in English, with literacy and self-esteem issues.	In school, cognitive behavioural approach, three levels of intensity of intervention. Mentoring, study skills, literacy support, and small group motivational work.	Unknown
Energise	Social Investment Fund, Charitable Trusts, Local Authority, Social Housing Provider	2012	14 and 15-year-olds	Large	681,87	Young people with one or more 'vulnerable flags on CCIS database.	One-to-one mentoring combined with variable lengths of time (appropriate) at motivational residential.	Investors have been fully repaid with final returns anticipated in 2016.
Prevista	Training and Business Development Organisation, Consortium of private individuals	2012	14 and 15-year-olds	Large	227,29	Young people with offending histories, substance misusers and/or involved in gang knife crime activity.	Stabilisation and prevention programmes, workshops on gang activity and social skills programmes, prison reality workshops and further education and work integration programmes.	Unknown

Table 7: Innovation fund composition

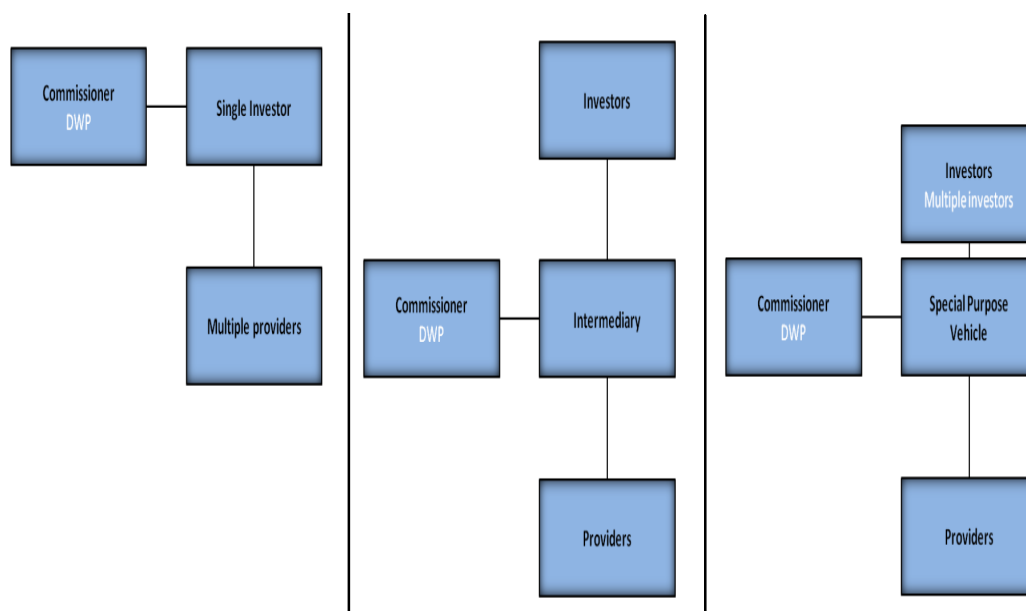


Figure 2.5: IF models structure

The total amount invested is around 10m. The range of investors includes social funds, business, private individuals and registered social landlords. The total maximum payment for outcome amount to 28.4m which are directly related to increasing future employment prospects. The outcome was evaluated over three years of project by an independent evaluator, the National Centre for Social Research and Insite Research and Consulting, through a counterfactual approach. The payment structure linked to the employment outcome is shown in the figure below:

The Department for Work and Pension provided monthly payment on successful completion of one or more proxy outcome measure. The result of this program was positive. All the ten IF pilots, without exception, were perceived to have been a success by projects partners. Indeed for more of them, also the final report showed that the expected outcome was achieved and that social investors were repaid.

Nature of Outcome	Maximum Price of Outcome
Improved attitude towards school	£700
Improved behaviour	£1300
Improved attendance	£1400
Entry Level Qualification	£900
NVQ level 1 or equivalent	£1100
NVQ level 2 or equivalent	£3300
NVQ level 3 or equivalent	£5100
Entry into employment	£3500
Sustained Employment	£2000

The Maximum amount payable per individual is £11,700. The figure is based on 3 years of Annually Managed Expenditure (AME) savings.

Figure 2.6: Outcome payment table

Social risk factors

Also in this case thanks to the analysis of report is possible evidence the elements that could be influence positively the achievement of social outcome. The first element was the fund structure. The report, indeed, showed that the funding model was seen as having been significant factor in driving-up performance and developing expertise (Department for work and pensions, 2016), achieving better results than traditional methods. However, the main factors regarding the program process. The first one is the choice of target group. Even if the program had positive social outcomes, it was evidenced that this had more effect for school pupils than the after school people that are most at risk to becoming NEET. For this reason, it is important that the target selection criteria should be tight enough to minimise the risk of deadweight. The other element regard the wat to provide the service. About this the positive aspect evidenced are the one-to-one relationship between worker and people and the presence of small group of work that influence positively the relationship. The last aspect evidenced is the presence of service providers with strong skills. In this last case study nothing is not evidence about

the risk factors concerning the evaluation methodology.

2.6 Conclusion

The case study presented a short analysis of three SIB program emitted in the UK. There were analysed two SIB that had a (partial or finale) negative results, and didn't achieve the expected social outcome and didn't guarantee the payment to investors and a SIB fun that achieved the expected social outcome. Even if all of them assets are called "SIB", they present different feautres. The main aspects are summarize in the table below:

Name	PETERBOROUGH - ONE SERVICE SIB	RIKERS ISLAND SIB	INNOVATION FUND
Objective	Reduction of recidivism rate of young people	Reduction of recidivism rate of young people	Preventing young people from becoming NEET (not in education, employment or training), or supporting those already NEET to re-engage with education, training and employment.
State	United Kingdom	New York Cit - New York (US)	United Kingdom.
Duration	8 Years	4 Years	3 Years.
Investment	5.000.000 £ from 17 impact investors	7.200.000,00 USD raised by Goldman Sachs (9,6 USD mln were the maximum amount of investment, in case if the program had continued for the full four years initially projected)	£10m from external investors including include social funds, business, private individuals and registered social landlords.
Target Population	3,000 short term (sentences of less than 12 months) male prisoners aged 18 and older released from Peterborough Prison.	3,400 high-risk minority young men at risk for reincarceration	17.000 disadvantaged young people, aged 14 to 24 years.
Outcome metrics	Reduction in the reoffending rate over 12 months following release from the Peterborough Prison.	Reduction of "reentry bed-days" (days in jail after youth initially released from jail)	Re-engagement in education and ultimately employment - more detail in measurement and payment section below. Outcome metrics and pricing were informed by a review of the available evidence and included an assessment of deadweight.
Outcome evaluation method	Matched control group	Matched control group: comparison of the recidivism bed days for a cohort of 16-18 year-olds entering DOC custody while the ABLE program is operating (the program group) to a cohort entering DOC custody prior to the start of the ABLE program (the comparison group).	Counterfactual approach.
Outcome payments/returns	Outcome payments capped at 8£ million. Equivalent to a maximum IRR of 13% in case of maximum outcome performances.	Maximum outcomes payments capped at 11,2mln USD.	Total maximum payments for outcomes amount to £28.4m.
Presence of guarantee	No	Yes	No
Performance data	No early Payments for first cohort, but on track for payment in 2016 if 7,5% reduction achieved across the project (intervention on the third cohort will be not operational due to changes in UK policy about recidivism that made impossible to match a control group for the third cohort)	Discontinued as of August 31, 2015 (anticipated term). The evaluation of MDRC, show that the intervention failed to demonstrate sufficient reductions in recidivism (in other terms less than the minimum threshold of 8,5% in reduction in readmission rate) investment.	ll the ten IF pilots, without exception, were perceived to have been a success by projects partners.

Table 8: SIBs features

Considering these SIBs different for structures and results, the study put in evidence the social risk factors, the elements presented in the qualitative and quantitative reports

that could affect in positive or negative way the achievement of expected social outcome. (see Table 9) It was possible observe that, all the risk factors identified in the different

SIB	Risk factors
Petherborough SIB	Collaboration Use of volunteers Intermediary Flexibility of contractual condition Duration of contract No regulation of change of policy Number of outcome evaluated
Rikers Island SIB	Presence of pilot phase Choice of evidence-based program Choice of program to scale Presence of intermediary External operative condition Presence of guarantee Choice of rigorous evaluation system Correct choice of control group
Innovation Fund SIB	Choice of target group One-to-one relation with people Small group program Presence of service provider Fund structure

Table 9: Social risk factors

SIBs could be included in three main categories, that represent three main features of SIB, that could be affected by social risk. They are: i) the program process, that includes all the risks that regarding mainly the different phases of program development; ii) the contractual condition, that reflect all the factors linked to the definition of contractual structure; iii) The evaluation methodology, that refers to the element that could influence the ex post program evaluation phase. The table below shows the division of the risk factors identified in these three categories.

Starting from the element presented in literature, and from the factors resulted from this case study is possible to build a first ranking system based on the evaluation of social risk.

Risk Category	Petherborough SIB	Rikers Island SIB	Innovation Fund SIB
Program Process		Presence of pilot phase	
	Collaboration	Choice of evidence-based program.	Choice of target group.
	Use of volunteers	Choice of program to scale.	One-to-one relation with people.
	Intermediary	Presence of intermediary.	Small group program.
		External operative condition.	Presence of service provider.
Contractual Structure	Flexibility of contractual condition		
	Duration of contract	Presence of guarantee.	Fund structure.
	No regulation of change of policy		
Evaluation methodology	Number of outcome evaluated	Choice of rigorous evaluation system.	
		Correct choice of control group.	

Table 10: *Social risk factors categories*

Chapter 3

Evaluation of Social Risk

3.1 Methodology

The introduction of social aspects in the evaluation system, was difficult not just for social impact investing but for social finance world in general, for all type of investment and for all aspects of the evaluation, starting from the measurement of social impact. The lack of enough social data makes difficult to use conventional statistical tools (Serrano et al, 2013) that can't measure the different priorities according to the Social Financial institution mission. The research in this last years, concentrate the attention on the evaluation of return, developing some tools that including monetary, non monetary and qualitative data. Is the case of the Social Net Present Value (SNPV) or the Social Return On Investment (SROI), NEF (2004) and Nicholls et al. (2009). (NOTA) However, the complexity of this decisional system doesn't permit the use of this tools, for the small Micro Finance Institutions. Furthermore, all of these solutions regarding just the evaluation of social return. Nothing of similar is formulating about social risk. For this reason, this study aims to build a scoring system of social risk. To do this, it was considered an approach similar to the credit scoring system. This system was chosen for different reasons. The first one is that there is already a similar approach in the Social Financial world. Serrano et al, indeed, studied and implementing a credit scoring to help

the microfinance institutions in the evaluation of microcredit assets. The second reason is that this tool could be useful for the institutions (especially intermediaries) to describe the investments level of risk of the Impact Investing program analysed. The last reason is that this methodology could include in the evaluation the qualitative elements typical of social finance in an easy and less costly way. This system of scoring indeed aims to be less complex of the other methodology to be useful in the daily activities of the intermediaries. This methodology follow two different steps. The first stage is modeling. The model has to include all the aspects that matter to evaluate the scoring. The second stage is focused on reflecting the priorities of the MFI, respect to the variable indicated. Different techniques can be used, one of which is the Analytic Hierarchy Process (AHP) by Saaty (1980). It is a technique that enables subjective judgments among different criteria by pairwise comparisons. (Serrano et al., 2013) This two steps was followed also to implement the social risk scoring system, considering, the social risk factors as criteria of evaluation. The final result was a system of evaluation that include on one side some objective factors defined by the social risk factors and on the other side some subjective factors defined by the priority of this factors, expressed by the intermediaries.

3.1.1 Step one: Modelling stage

Following the microcredit scoring methodology the first step was to implement the model. Modelling means choose the criteria that could include all the elements to evaluate. For this reason, it was consider all the social risk factors identified through the literature review and the case study. All duplicates were eliminated and similar risk factors were put together. The result was the scheme below: As is possible observe there is a first division in three main categories: The risk factors linked to the program process; the contractual conditions and the evaluation methodology. For each categories there are evidenced different risk factors and for some of that the relative sub factors. For each one it was specified a key question and the score relative to each level or risk.

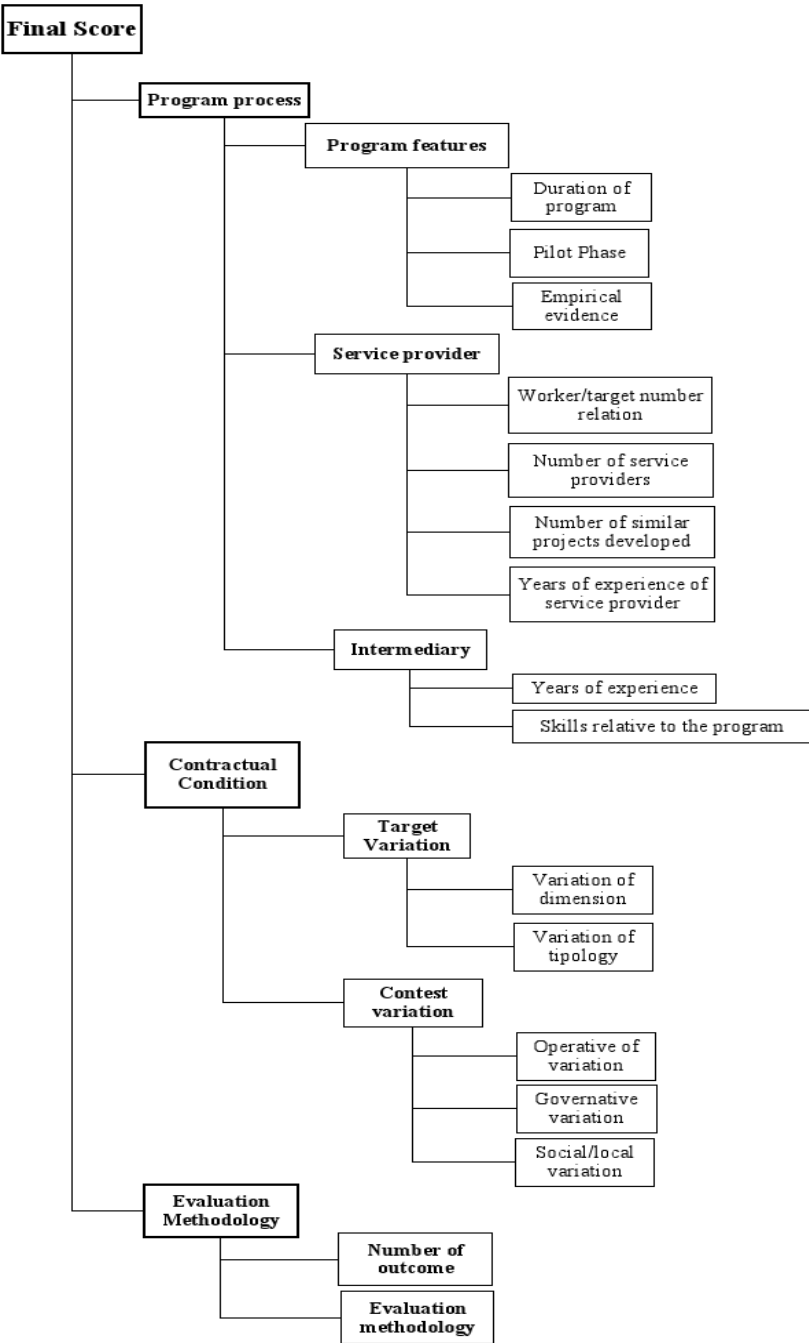


Figure 3.1: Model structure

Program process

The table below show the detail the program process factors Considering the program

Risk category	Risk Factor	Sub-factor	Key question	Options	Risk level
Program process		Duration of program	How long is the project?	less than 3 Years	1
				from 3 to 5 years	2
				more than 3 years	3
	Program Futures	Pilot Phase	Is present a pilot phase?	Yes	1
				No	2
		Empirical evidence	Is an evidence based program? On wich scale?	Evidence on large scale	1
				Evidence on small scale	2
				No evidence	3
		Worker/target number relation	How many worker are present for each target group?	one-to-one	1
				not more than one to ten	2
				more than one to ten	3
	Service Provider	Number of service providers	How many service providers are involved?	from 3 to 5	1
				from 1 to 3	2
				more than 5	3
		Number of similar projects developed	How many similar project had developed the service provider involved in this program that present more experience in the same area of intervention?	more than 10	1
				from 5 to 10	2
not more than 5				3	
	Years of experience of service provider	How many years of experience have the older service provider involved in the program?	more than 10	1	
			from 5 to 10	2	
			not more than 5	3	
Intermediary	Years of experience	How many years of experience have the intermediary?	more than 10	1	
			from 5 to 10	2	
			not more than 5	3	
	Skills relative to the program	Has the intermediary social, political and legislative skill relative to the program analysed?	yes	1	
			no	2	

Table 11: Program process factor's score

process the first risk factor evidenced regarding the program features. This includes the main aspects that could affect the design of a program process and that are considered when a program is implemented. The adequate choice of these elements is essential to ensure the achievement of social outcome. In particular, the specific sub factors considered are the presence of empirical evidence, the duration of program and the presence of a pilot phase Referring to the presence of empirical evidence there were identified three possible states of nature corresponding to different levels of risk. Proximity of this evi-

dence base to the target context and population is a key consideration here. It is unlikely there will ever be a perfect match, but the closer the fit between the historic evidence and planned intervention context / population the stronger the evidence base can be considered to reduce the risk. (Social Finance,2016). About this aspect, previous studies put in evidence two elements. The first one regarded the relation between the scale of program and the risk is lower if there is Quantified link between interventions targeted at the outcome and population of interest well established in context (Social Finance, 2016). This is the case of evidence- based program. The second element regarding the relation between scale of program and risk. In this case, the program risk is lower in case of large scale (e.g. national or regional level), outcomes detectable at a population level. (Social finance,2016) Matching these two aspects the three possible state defined consider i)the development of a no evidence based program, ii) development of evidence based program on small scale and iii) the development of evidence-based program of large scale. Each state had a different level of risk. Referring to the duration of program are considered two different range of time associating to different level of risk. Also in this case, the choice is motivated by information presented in the literature. In according with this study, is considered at high risk in the case of long time period program (e.g. 5 years) over which context is likely to change, while is considered at low risk a short time period (e.g. 1-2 years) over which context is likely to remain stable (Social Finance, 2016). For this reason also for the duration three different ranges are considered (0-2 years program, 2-5 years and 5 or more years program) corresponding to different levels of risk. Finally, referring to the presence of pilot phase, the cases study analysed have demonstrated that the risk is lower if a program include a pilot phase. For this reason, for this aspect it was considered two option: presence and absence of pilot phase with two different levels of risk. The second sub factor included in the program process list regards the service provider. The case study showed the importance of service provider, in particular the need of experience and skills that permit to develop the program. For this reason, the elements concerning the service provider, influencing the risk, are: i)

years of experience, ii) number of projects developed that are similar to the project in analysis. At this elements was added other two important aspects. At first, the number of workers/volunteers for each target group. This is important because the analysis of case evidenced that small groups or better, one to one relation reduce the risk of failure. The last element regard the number of service provider. To evaluate the risk in this case, is important consider two element: at one side, more service providers could bring more different skills; on the other side, too much providers could create a difficult of interaction and coordination. Finally, it was identified three different options, corresponding to different levels of risk. The last sub factor considered for the program process is the presence of the intermediary for the importance of this rule evidenced in the case study. For this factor the elements evidenced were the presence but also the skills of intermediary to understand if they are adequate to manage the complexity of program.

Contractual condition

The factors referred to the contract, regard essentially the conditions included in the contract, the aspects that they regulate, the way in which they regulate or don't regulate each aspect. This aspect influence the flexibility of contract that is one of the element that could affect the risk. Pritchett and Sandefur (2013) showed that, in the education literature, the impact of a programme is better predicted with non-experimental studies in the same context than RCTs in different contexts. This is just an example that motivate the introduction of contractual condition as risk factors. Furthermore, if the flexibility of contractual condition permits the variation of on going program, the risk is reduced, because in this way the service provider could operate all the strategies to achieve the social outcome. On the other hand, the flexibility doesn't permit the identification of a clear program and although if it regards some aspect of contract, could affect negatively the program process. This is the case, for example, of the flexibility of contract respect to government policy, presented in the Peterborough SIB. The absence of limitation, could permit, in this case that a change of policy determined an early

close of program. Starting from this consideration, the sub factors considered are two and regarding i) the target variation (with two attention to variation of dimension and typology) and ii) the contest variation, referring to operative, social/local and govern policy variation. The table below show these aspects in detail:

Program process

The table below show the detail the Program process factors

Risk category	Risk Factor	Sub-factor	Key question	Options	Risk level
Contractual conditions	Target Variation	Variation of dimension	The contract permit the on going variation of target dimension?	yes	1
				no	2
		Variation of typology	The contract permit the on going variation of target typology?	yes	1
				no	2
	Contest variation	Operative variation	The contrat permit on going operative variation?	yes	1
				no	2
		Goverantive variation	The contract permit the on going variation cosequent to a policy change?	yes	2
				no	1
	Social/local variation	The programe is implemented in the same social and local contest?	yes	1	
			no	2	

Table 12: Contractual condition factors score

Evaluation methodology

The last category of risk factors regarding the evaluation methodology. This was one of the most complex element for the social impact investing because offers different points: at first, the need of tool that guarantee an accurate evaluation, at second, the cost that this system could have that could be not sustainable. For this reason, is important evaluate a right trade-off between these two aspects. Considering the case study analysed and the literature about the risk of different evaluation methodologies, the sub- factors defined are in this case two: i) one regards the evaluation methodology (with different methodology correspondent to different levels of risk; ii) the other one regards the number of outcome. The scheme below show the criteria more in detail:

Risk category	Risk Factor	Sub-factor	Key question	Options	Risk level
Evaluation methodology	Number of outcome		How many outcomes are measured?	from 1 to 3	1
				from 3 to 5	2
				more than 5	3
Evaluation methodology			Which methodology is used?	Experimental design that controls for both observed and unobserved variables	1
				Live but non-experimental counterfactual	2
				'Constructed' counterfactual with no live control	3
				No counterfactual	4

Table 13 Evaluation methodology factors score

3.1.2 Step two: evaluation of final score

Once identified the criteria of evaluation, the second step was to apply a mathematical methodology to transform these qualitative information in quantitative data, and obtain a final score. The idea that leads all the process is that the final score should represent an evaluation that include both objective and subjective factors. The objective aspects were evidenced through the level of risk assigned to each risk factors. This is relative to the main features of the program in analysis, and for this reason couldn't be influenced by subjective consideration of the evaluator. The subjective aspect, instead, is included in the final score, through the weight assigned to each risk factor. This is determined by the evaluator, considering all risk factors though a matching methodology and assigning a value that represent the importance of a risk factor respect the other for the evaluator. This evaluation is realised using the AHP methodology, that will then presented more in detail. This presents all categories of risk factors, with the respective sub-factors. For each sub-factors there are different options that represent the different possible features of the program to implement. For each option there is a number, from 1 to 3, that

corresponds to a level of risk. In particular, the value 1 indicate low risk, 2 medium risk and 3 high risk. This is the first instrument that an evaluator or intermediary need to use to obtain the final score. Considering the features of program analysed, the needs to identify the correspondent level of risk for each sub-factor. Then, starting from this value is possible calculate the value corresponding to each risk factors in this way: Defining the variables

sf_{ij} : the value corresponding to the level of risk for each sub-factor of a risk factor j

n_j = the number of options (levels or risk possible) for each sub-factor i of a risk factor j

N_j = the sum of all n_j for each risk factor j

Rf_j = the value corresponding to each risk-factor j

Is possible evaluate each Rf_j as a weighted average of sf_{ij} in this way:

$$Rf_j = \sum_{i=1}^n \frac{sf_{ij} * n_{ij}}{N_j}$$

Once obtained the value of Rf_j , the next step is evaluate the final score, that is indicated as FS , in this way:

$$FS = \sum_{j=1}^m w_j * Rf_j$$

Where Rf_j represent the value assigned to each risk factor and include in it the objective element linked to the features of program, while w_j is the weight assigned from the intermediaries that expresses the subjective elements related to the importance from the intermediaries of each risk factors respect the other, in the specific contest considered, that change for the different programs that could be evaluated.

3.1.3 The evaluation of weight trough AHP methodology

The evaluation of weight is obtained using the Analytic Hierarchy Process (AHP). This method was introduced by Thomas Saaty in the 1980. This is a methodology used in different research areas with complex decision making. The AHP methodology reduces the complexity of a decision, using a series of pairwise comparisons, and synthesizing

the results. The mechanism of Analytic Hierachy Process is the following: at first, it generates a weight for each evaluation criterion according to the decision maker's pairwise comparisons of the criteria. The higher value is assigned to the criteria considered more incisive in the specific program analysed. Then, for a fixed criterion, the AHP assigns a score to each option according to the decision maker's pairwise comparisons of the options based on that criterion. Finally, the AHP combines the criteria weights and the options scores, thus determining a global score for each option, and a consequent ranking. The global score for a given option is a weighted sum of the correspondent risk factor. Furthermore, this process, includes also a technique to check the consistency of decision maker's evaluation. (Saaty, 1980) The choice of this methodology for the evaluation of weight has two reason. The first one is that the AHP is a very flexible and powerful tool and the second one is that this method was already used in the social finance sector to evaluate the credit scoring in the microcredit asset. This is considered as a further demonstration that this methodology could be a right way to evaluate intangible aspects like these correlated to social finance assets. For the evaluation of each weight the criteria used was the different risk factors. In this case, in the comparison the higher the score, the higher the risk related to one factor respect to the other. The proceeds had different steps At first for all risk factors it was a couple comparison. In this the evaluator use a number to define its preference. The value considered had this meaning

<i>Value of a_{rk}</i>	<i>Interpretation</i>
1	<i>r and k are equally risky</i>
3	<i>r is slightly more risky than k</i>
5	<i>r is more risky than k</i>
7	<i>r is strongly more risky than k</i>
9	<i>r is absolutely more risky than k</i>

Figure 3.2: IF models structure

Considering this, the table below shows an example of comparison. The second step

Consideration of future programme risk factor extremely more risky than service provider risk factors.									Consideration of service provider risk factor extremely more risky than future programme risk factors.								
	Very strong	Strong	Moderate	Equal risk	Moderate	Strong	Very Strong										
	9	8	7	6	5	4	3	2	1	1/2	1/3	1/4	1/5	1/6	1/7	1/8	1/9

Table 14: Risk factors score table

was built the matrix of comparison A . This is a matrix $m \times m$, where m is the number of risk factors considered. Each entry a_{rk} of the matrix A represents the influence on the achievement of social risk, of the r th risk factor relative to the k risk factors. If $a_{rk} > 1$, then the r th risk factors is more influent than the k th factor, while if $a_{rk} < 1$, then the r th criterion is less influent than the k th criterion. If two risk factors have the same influence, then the entry a_{rk} is equal to 1. The entries $a_{rk} < 1$ and $a_{kr} < 1$ satisfy the following constraint:

$$a_{rk} * a_{kr} = 1$$

Obviously,

$$a_{rr} = 1 \text{ for all } r$$

Though this process, is possible to built the matrix A . Starting from this point, it is possible to derive the weight relative to each risk factor, as geometrical avarage of a_{rk}

$$w_{rk} = \sqrt[m]{\prod_{r=1}^m a_{rk}} \tag{3.1}$$

$$\tag{3.2}$$

Then, is possible to evaluate the normalized value of weight in this way:

$$\bar{w}_{rk} = \frac{w_{rk}}{W_{tot}} \tag{3.3}$$

$$\tag{3.4}$$

And, finally,

$$W_{tot} = \sum_{k=1}^m w_{rk} \quad (3.5)$$

$$(3.6)$$

Then, the other step was evaluated the consistence of the evaluation. The problem of consistence regard two aspect. The first one is influenced by the coherence of evaluator preference. Is it possible, indeed that, when more comparison are done, the evaluator could be incoherent. Evaluate the consistency means understand if this incoherence are "tolerable" or not. On the other side, considering the consistence means also understand in which measure the measure of weight represent in a right way the preference expressed by the evaluator. For this reason, in this process is important evaluate the Consistent Index (IC) as :

$$CI = \frac{x-m}{x-1}$$

Where n is the order of matrix, lambda max is the eigenvalues greater. The evaluation is considered consistent if $IC < 0.10$ (nota su autovalore) The process include also the evaluation of a Consistent Ratio (CR) as:

$$CR = \frac{CI}{RI}$$

where RI is a random index, a sort of baseline that is evaluated considering many matrix and that is considered as a proxy of a condition of perfect condition. The RI could assume the following value: To have an evaluation consistent, it needs $CR < 0.10$. This means that the Consistent Ratio could be not much the 10% more than RI , otherwise the deviation from perfect consistence is considered unacceptable and the evaluator need to modify its judgements. The following is an example. It considered the case of Rikers Island SIB, object of case study. The preference are chosen as example, but considering

<i>m</i>	2	3	4	5	6	7	8	9	10
<i>RI</i>	0	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.51

Figure 3.3: IF models structure

the consideration presented in the reports that could be an indication on perception of social risk.

Rikers Island SIB scoring

The first step to evaluate the social risk score relative to Rikers Island SIB, was to complete the Table of Risk Factors, to determine the level of risk correspondig to each subfactor. The result is showed in the following table: With the results of table (that is in the formula indicated as s_{ij}), is possible evaluate the value of each risk factor j (indicatad as rf_j), using the formula (1). The results are shown in the scheme below:

At this point, to evaluate the final score, the last step was evaluate the weight w_j of each risk factor. To do this, it was made the pairwise comparison between the different risk factors. Is important underline that the evaluation presented is used considering the informatio find in the report. It is not a contribute of intermediaries.

The two tables show the process of the evaluation. The first one represents the result of attribution of level or risk, considering the risk factors, while the second one contains the results of pairwise comparison and in addition: the value of weight, w_j , the value of normalized weight, \bar{w}_j and, the value of the eigenvalue. Finally, it presents the value of the final score, that in this case is 1,62. This value includes the evaluation of objective and subjective aspects concerning the analysis of social risk. The other element present in the second table is the eigenvalue, X_i . The final sum of this value is important to evaluate di index of consistency and the consistence ratio. Though the evaluation is possible adfirm that:

Risk category	Risk Factor	Sub-factor	Key question	Options	Risk level	
Program process	Program Futures	Duration of program	How long is the project?	from 3 to 5 years	2	
		Pilot Phase	Is present a pilot phase?	Yes	1	
		Empirical evidence	Is an evidence based program? On wich scale?	Evidence on small scale	2	
	Service Provider	Worker/target number relation	How many worker are present for each target group?	more than one to ten	3	
		Number of service providers	How many service providers are involved?	from 1 to 3	2	
		Number of similar projects developed	How many similar project had developed the service provider involved in this program that present more experience in the same area of intervention?	more than 10	1	
		Years of experience of service provider	How many years of experience have the older service provider involved in the program?	more than 10	1	
		Intermediary	Years of experience	How many years of experience have the intermediary?	more than 10	1
			Skills relative to the program	Has the intermediary social, political and legislative skill relative to the program analysed?	yes	1
			Target Variation	Variation of dimension	The contract permit the on going variation of target dimension?	yes
Variation of typology	The contract permit the on going variation of target typology?	yes		1		
Contractual conditions	Operative variation	Operative variation	The contrat permit on going operative variation?	yes	1	
		Goverantive variation	The contract permit the on going variation cosequent to a policy change?	no	1	
	Social/local variation	The programe is implemented in the same social and local contest?	yes	1		
Evaluation methodology	Number of outcome	How many outcomes are measured?	from 1 to 3	1		
	Evauation methodology	Which methodology is used?	Live but non-experimental counterfactual	2		

Table 15: Example of numerical comparison

Risk Factor	Sub-factor	S_{fij}	n_{ij}	r_{fj}
Program Futures	Duration of program	2	3	1,75
	Pilot Phase	1	2	
	Empirical evidence	2	3	
Service Provider	Worker/target number relation	3	3	1,75
	Number of service providers	2	3	
	Number of similar projects developed	1	3	
	Years of experience of service provider	1	3	
Intermediary	Years of experience	1	3	1
	Skills relative to the program	1	2	
Target Variation	Variation of dimension	1	2	1
	Variation of typology	1	2	
Contest variation	Operative variation	1	2	1
	Goverantive variation	1	2	
	Social/local variation	1	2	
Number of outcome		1	3	1,5
Evauation methodology		2	3	

Table 16: Evaluation of r_{fj} of rikers island SIB

	Program Futures	Service Provider	Intermediary	Target Variation	Contest variation	Number of outcome	Evaution methodology	weight (w _i)	normalized weight (w _j)	Xi	r _j	FS
Program Futures	1	3	5	5	3	5	3	3,19	0,35	0,89978	1,75	0,60562
Service Provider	1/3	1	5	3	3	5	5	2,33	0,25	1,33162	1,75	0,44247
Intermediary	1/5	1/5	1	3	3	1	3	1,01	0,11	1,4251	1,00	0,10962
Target Variation	1/5	1/3	1/3	1	1	5	5	0,92	0,10	1,33587	1,00	0,09969
Contest variation	1/3	1/3	1/3	1	1	5	5	0,99	0,11	1,22252	1,00	0,10724
Number of outcome	1/5	1/5	1	1/5	1/5	1	3	0,47	0,05	1,12935	3,00	0,1517
Evaution methodology	1/3	1/5	1/3	1/5	1/5	1/3	1	0,31	0,03	0,03397	3,00	0,10191
TOT	2,60	5,27	13,00	13,40	11,40	22,33	25,00	9,22	1,00	7,38		1,61826

Table 17: Evaluation of riskers island SIB final score

So, in this case, is possible adfirm that, the evaluation is consistent and the final social risk score value is 1,62.

3.2 Conclusion

In this chapter was presented a score system for the evaluation of social risk. Starting from the risk factors presented in the bibliographic research it was built a risk factors scheme including sub-factors with different choice options, corresponding to different level of risk. In addition, through the application of the Analytic Hierarchy Process, it was possible calculate the weight of each risk factor, that represent the influence that this risk could have on the achievement of social outcome. To verify the consistence of this measure, it was calculated the IC and the IR. Finally, it was possible evaluate the final score as weighted average of risk factor with their respective weight.

Conclusion

This study aimed at exploring the theme of social impact investing, focusing on the identification, measurement and evaluation of social risk. The process started with a content analysis developed to give a precise definition of social risk. From this analysis emerged a double conception of social risk. Once considered in the social science literature, the other one referred to the social impact investing. This last one, object of interest for this research, measured the probability that a defined impact plan could generate the social outcome expected, achieving the social return expected from the investment. This definition puts in evidence that the social risk could affect each phase of program, and properly these phases need to be object of analysis to identify the risk factors to manage. Through another content analysis matched with a case study, we identified the social risk factors. The case considered involves impact bonds: two that doesn't achieve (partially or totally) the expected social outcome, and the others (financed by a fund) that achieve the expected social return. From the analysis of ex ante, interim and final reports relative to this SIB, we defined three classes of social risk: the first one contains all the risk factors that could affect the program process. The second one contains the risk factors that could depend from contractual condition and the last one contains the risk factors related to the evaluation methodology. For each category, different sub-factors were defined. For each sub-factor there was a key question. From the answer to this question, we derived a score that correspond to a different risk level. The key question and the graduation of social risk was defined considering the academia contribution about different factors. This was a way to attribute a value that could be

consistent because opportunely motivated by the literature. Then, a weight was assigned to each risk factor through the AHP methodology. The result was a score table that, after a mathematical elaboration, gives a final score, that is a number corresponding to the social risk of the program evaluated. This method has different positive aspects. It includes objective and subjective evaluations. Indeed, through the score associated to the sub-factors, the value is correlated to the objective conditions of program (i.e. duration, contractual condition, workers involved). The correct assessment relative to this elements could influence the correct development of the program, and this score table captures in a simple way how and in which measure each risk factor could influence the possibility to achieve the expected social outcome and obtain the social return by the investment. Otherwise, the weight evaluated for each risk factors, include the subjective evaluation. The AHP methodology, through the pairwise comparison, allows the evaluator (or intermediary) who develops the scoring, to express its preference. Based on its own experience, the evaluator define which risk could more influence the program case by case. In this way the final score, that is the product of this two elements, could be a results of subjective and objective evaluation. Another positive element of this method consists of defining a specific level of risk for each program and ensuring the comparability between the social risk level of different programs. The comparability is an important element because it allows an investor to choice in a more transparency way the program in which he prefers to invest. Finally, the last advantage of this table is the lack of complexity. An evaluator could complete the scoring by means of non-excessive expenses in terms both of financial and human capital. Furthermore particular skills are not requested in order to understand the results. For these reasons, this score table could be considered a concrete tool for practitioners. It was, although, a start point for further research on this theme. It is a good result considering the lack of empirical data on the SIB but also for all the Social Impact Investment in general. However, with the development of dataset that could be possible collecting the first results edited after the end of the first SIBs, it will be possible to confirm or modify the features of the sub

risk factors involved in the evaluation and also the level of risk associated. Waiting for the growing of data available, that will permit a more accurate analysis, this instrument could be an easy tool to consider also the social risk in the complete assessment of a social impact investing program.

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