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Comparative study of social impact bonds – capital per beneficiary and scheme duration

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Abstract

Despite numerous articles on Social Impact Bonds (SIBs), the current academic debate lacks in-depth empirical research on how countries differ in terms of the direction and level of support using SIBs.

The purpose of the article is to examine whether in countries issuing SIBs the intervention objectives differ between countries in terms of the amount of capital allocated per support beneficiary and the term of repayment from the bonds. It shows that schemes classified as 'social' have on average higher capital allocated per beneficiary and a longer repayment date. This is confirmed for both SIBs issued worldwide and those issued in the UK and USA. The results of this study provide guidance for public policy makers on the scale of expenditure and the duration of intervention depending on objectives, which can be important both in the sustainable budget planning process and for the issue itself.

Keywords: Social Impact Bonds, bond repayment date, unit capital of bonds, social policy, scheme duration

JEL: G1, G10, G15

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1. Introduction

Social Impact Bonds are a form of social service arrangement or public-private partnership, where capital from private investors backs the delivery of social interventions using an outcome-based contract (Vecchi, Casalini 2019). The name, therefore, is misleading because SIBs are not a bond in the way the term is understood in the financial sector. The biggest promise of the SIB approach lies in the improved achievement of social outcomes derived from linking payment to performance (Butler, Bloom, Rudd 2013). On the other hand, the literature highlights several potential risks of SIBs, such as technical issues, the considerable administrative burden and transactional costs (sometimes even outweighing possible government savings), and perverse incentives ("parking", "creaming", "cherry--picking", etc.) (e.g. Albertson et al. 2018).

The academic and practitioner debate around SIBs is for sure timely and currently very apt, but it is also controversial. There is much hype, mainly from practitioners, about the promises of this novel scheme, but actual experience has shown considerable softening regarding the SIB reference model (Wilson et al. 2020).

In particular, the operational variances concern the degree to which payment is tied to the impact; the nature of the working capital; the social intent of the provider organization; and the performance management approach (Edmiston, Nichols 2018). Different authors have expressed their scepticism towards this mechanism, concerning its efficiency in terms of costs and savings for the public sector and its effectiveness in achieving better outcomes in terms of solving social problems and meeting promises.

Given the existing knowledge on SIBs' effectiveness and efficiency, there is a gap in SIB literature in terms of empirical research (in contrast to conceptual research) and quantitative analysis (in contrast to qualitative analysis). It makes this study unique among other similar studies. Much of the work conducted is limited to commentary papers found in the "grey" literature or reports evaluating specific deployments and single or multiply case study analyses. As Bandini, Chiappini and Pallara (2022) point out it restricts the external validity of the results. There is a distinct lack of broad comparative analysis providing the necessary quantitative information to intermediaries involved in the process of issuing SIBs. This research complements the knowledge of investors, public authorities, and social organizations about the levels of capital per beneficiary and scheme duration in different parts of the world. This creates conditions for making more rational investment decisions.

The model of issuing social impact bonds is related to the delegation of part of the state's tasks, which are financed with public funds. The issuance of social impact bonds involves capital from private investors (individual and institutional social investors). They are also referred to as patient capital, as they are willing to accept a longer time horizon of return on capital (SITF 2010; Mulgan et al. 2011; Deeg, Hardie, Maxfield 2016). Investors receive financial returns based on project performance, the achievement of predetermined social goals. With the traditional social bond model, the government obtains funding from the investor. The investor provides funds to a service provider that implements a project designed to solve a specific social problem. If the project meets the specified social goals, the investor receives a return on the initial investment plus interest. In many of the issues, investors receive no money if the goals are not met. Studies show that outside of Anglo-Saxon countries, patient capital willing to invest in SIBs is still underrepresented globally compared to investment in commercial projects (Deeg, Hardie, Maxfield 2016). This is one of the most likely reasons for the still-poor uptake

of SIBs in continental Europe, particularly in Central and Eastern European countries. Despite the increase in researcher interest in social impact bonds as a financing tool for public programmes, the author has been unable to find theoretical and empirical analyses of the capital commitment per beneficiary and the payback period of SIBs. The present work addresses this gap. It provides hitherto missing information for private investors about differences in the timing of return on capital in different countries implementing SIBs issues and the amount of capital per beneficiary of support to the very few works analysing a broad spectrum of issues. These include items that attempt to create models of SIBs presenting the benefits of interventions using Social Impact Bonds. For example, in the work of Pauly and Swanson (2017), the authors consider a theoretical model of SIB benefits in which the government values a successful social programme, but for political reasons cannot make funds available for the programme before proven success. The authors consider a model that does not consider information asymmetry in which the researchers argue that if investors in SIBs are not only socially motivated, but also have special skills to contribute to the production or supply of a public good or to mitigate externalities then SIBs can play a useful role. However, as the researchers admit, they do not "have sufficient data on SIBs to analyse the engagement empirically," adding that, "As we are aware of no mechanism via which SIBs would better attract altruistic investors' capital than traditional bond markets, we leave this point for future research" (Pauly, Swanson 2017, p. 21–22). An empirical extension of Pauly and Swanson's model is the work of Tortorice et al. (2020). The authors study SIBs that allow the government to finance projects with positive net present value that cannot be financed through traditional debt financing. As the researchers point out, SIBs solve two inefficiencies. The first occurs when the government is overly pessimistic about the possible success of a project. The second inefficiency arises when political realities (mainly electoral) make politicians overly concerned about paying for projects that do not deliver the expected results. By allowing disbursements to depend on project success and investor conviction, SIBs provide opportunities to finance projects with positive net present value when one or both of these inefficiencies make it impossible to finance a project with traditional debt financing. Since both of these features are common in public investment, SIBs represent a useful innovation in public finance and should be considered when traditional debt financing is rejected. However, the authors consider the model, "where there is asymmetric information about the probability of project success and where governments, because of electoral concerns, are particularly averse to states of the world when they must pay costs associated with a project in excess of benefits" (Tortorice et al. 2020, p. 3). The call by researchers Tortorice et al. (2020) that, "Looking forward, additional features of SIBs are worthy of exploration. One such feature is the role an investor can play in affecting the probability a project succeeds," provided the inspiration for the present study to provide new knowledge presenting the implementation of an intervention using Social Impact Bonds in terms of the parameters included in the hypotheses.

This is because the verification of the hypotheses in the present study to some extent reduces this asymmetry of information, answering the calls of the authors while providing the opportunity for further development of further SIBs models. Investigating differences in the amount of capital employed per beneficiary due to different issuance objectives and the return period of SIBs provide additional knowledge for public and private entities. It therefore contributes to the existing state of knowledge on SIBs. In addition, as the SIB case studies show, the transaction costs associated with developing SIB contracts are high, as they now include not only the identification of the intervention, service provider and evaluation process, but also the recruitment of private financiers and the

structuring of investment repayment systems, which can be quite complex (Warner 2013; Bel, Fageda, Warner 2010; Warner 2013). This study provides important additional information to public entities as issue originators, as they can make estimates based on this in terms of savings, or lack thereof, through SIBs. This information is also important for the social entities (non-profit organizations) involved in issuing SIBs that carry out publicly funded tasks (Warner 2013), and for private social investors making comparative calculations of investments in SIBs with investments in traditional debt instruments.

This article covers a wide range of 51 issues of Social Impact Bonds carried out in 13 countries across Asia, Europe, Australia, and North America. In view of growing social needs (including the consequences of the COVID-19 pandemic), insufficient spending on solving social problems and the growing number of social organizations competing for public support, the greater parameterization of SIB issues seems to be crucial. Therefore, the purpose of this article is to examine whether in countries issuing Social Impact Bonds the intervention objectives differ between countries in terms of the amount of capital allocated per support beneficiary and the term of repayment from the bonds. In the study, the author is interested in whether such factors as the intervention goals of social, activation and education have an impact on the size of capital allocated per support beneficiary and the term of repayment from the bond. Due to the fact that Anglo-Saxon countries like the US and UK dominate over other countries in terms of the number of interventions implemented using SIBs. To attain the paper's goal and verify the hypotheses, analysis of the SIB issue structure and an ANOVA analysis were conducted. The article presents two research hypotheses that result from the literature review. The first hypothesis (H1) assumes that SIB emissions related to social objectives are characterized by a higher average capital value per beneficiary. The second hypothesis (H2) is that the purpose of the SIB emission differentiates the average repayment period of SIB intervention.

This article firstly presents the SIBs as dealt with in scientific considerations to date. The further section presents the methodology of the study. The next section of the article includes the structure of SIB emissions in particular countries as well as the results of ANOVA analysis for identifying the statistically significant differences between emission objectives in relation to the average capital value per beneficiary and the average maturity of the issued bonds. The final section of the article presents conclusions, recommendations for further research and the limitations of the study.

2. Literature review

What are Social Impact Bonds, why do they matter, and what effect they have had has been described in the existing literature sufficiently. For example, Roman et al. (2016) write about a new method of forming public private partnerships. Joy and Shields (2013) identify SIBs as innovative alternative service funding. In turn, Liebman (2011) finds SIBs as a new promising financial tool of central and local governments that limit the use of more universal and institutional forms of care over the long term. Tan et al. (2021) broadly describe SIBs as, "a financing mechanism in public services and a risk--free way to experiment with innovative or untested policy interventions where private, philanthropic, or social investors provide up-front financing for service delivery that is only reimbursed by government if outcomes are met".

In advanced capitalist economies, Social Impact Bonds have become an innovative financing mechanism that improve service quality, mitigate risks associated with service experimentation and

enhance the social outcomes achieved using public resources (Edmiston, Nichols 2018, p. 57). Olson et al. (2022) argue that SIBs facilitate capital injections from the private sector into the production of social goods as well as facilitate parts of the process of social innovation.

SIBs are payments based on performance contracts that use private social investment to cover initial expenses related to social care services. Therefore, some researchers highlight the role of various stakeholders in the process of issuing SIBs. As Dagher (2012) argues, the significant advantages of SIBs include the transparency of the implementation of socially important programmes due to the need to quantify their results, as well as the free market nature of the selection of entities and tools for achieving social goals by selected partners specialized in each field, including non-governmental organizations and social enterprises.

Similarly, Rizzello and Carè (2016) exploring a wide spectrum of SIB issues, point out promising SIB funding trends that are represented by social enterprises. Moreover, they indicate that in the case of some SIB issues, the investment raised from these actors is due to the direct engagement of a single SIB service provider. In other cases, the financial involvement of social enterprises corresponds to the direct connection of the investor with the social issue or intervention addressed by the SIB.

According to Ragin and Palandjian (2013), SIBs offer a new way to establish cross-sectoral partnerships and to introduce innovative financing for preventive social programmes. However, one of the basic goals of an SIB is to motivate private investors to finance social programmes that were unable to attract public capital (Fox et al. 2022). It is assumed that given the high level of return found in SIB-funded investments, private social investors will be looking for ways to invest in programmes that will bring them high levels of both social and financial benefits, even at the price of risk (Kosmynin, Jack 2022).

Wilson and Karen (2014) indicate that the SIB model seeks to improve the effectiveness of projects financed by traditional donors by emphasizing the quality of successfully delivered products/services. As Nazari Chamaki, Jenkins and Hashemi (2019) argue, SIBs attract private-sector, upfront funding for social interventions. If the programme achieves the agreed targets, taxpayer funds repay the investor. If the programme fails to meet agreed targets, investors take the loss. The introduction of private sector entities is justified from the point of view of their ability to take greater risks related to innovation compared to the public sector (Butler, Bloom, Rudd 2013).

SIBs are built around the SIB model, as well as the Pay-For-Success scheme that focuses on developing countries (Fox, Albertson 2011; Jason 2022). The main distinction is the involvement of a third party – a private investor. One can clearly distinguish between the two models, in that Social Impact Bonds involve a private investor, while Payment-by-Results (PbR) schemes do not (i.e. the service provider itself produces the upfront capital, with or without contributions from the commissioning authority). Some researchers and practitioners treat PbR as a broader category (see Hazenberg, Paterson-Young 2021). Others even consider them as two mutually exclusive sub-types (Albertson et al. 2018). Sinclair et al. (2014) claim that as a form of payment by results, SIBs extend this by harnessing social investment from capital markets to cover the up-front costs of service intervention. Similarly, Edmiston and Nichols (2018) stress that social impact bonds are payment by results contracts that leverage private social investment to cover the up-front expenditure associated with welfare services.

In turn Olson et al. (2022) distinguish Pay-for-Success in the US, Payment-by-Results in the UK, while Tan et al. 2021 write about Development Impact Bonds (DIBs) in low-middle income countries, such as India and Colombia.

Most scholars believe that the PbR model brings greater efficiency and innovation, and has a positive impact on the solving of social problems, since it provides a constant and definite financial incentive for providers to deliver good services throughout the term of the contract (Iovan, Lantz, Shapiro 2018). This approach encourages providers to work more closely with citizens and communities to build services that are both more efficient, innovative, and qualitatively different. The model has been suggested to provide "more" social services for "fewer" public resources (NAO 2015). Similarly, claims by Cooper, Graham and Himick (2016) indicate that the introduction of private social investment in PbR contracts may create space for experimenting with services and innovation, as it redistributes some or all the financial risk of not providing services "away from government and small suppliers for social investors". In this context, Ormiston et al. (2020) explain that SIBs shift government participation to the front end of a contract, with much of the 'innovation' on the part of the government done during the launch phase. This contrasts with traditional government contracting, where service providers are more heavily monitored by government. Similarly, Nazari Chamaki, Jenkins and Hashemi (2019) stress that the success of a SIB depends on careful implementation, evaluation, and monitoring. Roman et al. (2016, p. 2) propose a five steps model for ensuring the sustainability and quality of pay for success (PFS) programmes. As authors argue, "The five-steps guide stakeholders through a process that identifies drivers of populations and costs, develops evidence-based solutions for identified service gaps and barriers, empirically derived prices, returns on investments, and performance targets to give investors transparent guidance on risks and benefits, provides governments the best chance to achieve their policy objectives, and ensures that key populations receive the best possible evidence-based services." These steps include: (1) value the PFS product, assess risk, and set performance targets; (2) develop the deal; (3) develop infrastructure; (4) deliver service and targeted technical assistance; (5) evaluate the programme.

However, in the scientific debate related to SIBs, several significant limitations to the development of SIBs have been identified, of which, in the context of this study, the following should be emphasized in particular: the shortage of standard valuation methods for this portfolio strategy instrument, insufficient documentation of investment successes, the lack of parametrization of intervention; and the lack of indicators and measures on the level of financial support in SIBs (e.g. Fox, Morris 2019; Geobey, Westley, Weber 2012). A lot of scholars stress that because of SIBs' structural, contractual and financial features, which make them unattractive to professional investors, their spread is modest to date (see e.g. Gallucci, Del Giudice, Santulli 2022; Thompson 2022). Geczy et al. (2021) demonstrate that the higher the target financial return, the higher the complexity and stringency of prescriptions on both social and financial aspects of SIBs. Moreover, Barber, Morse and Yasuda (2021) indicate that financial performance may represent a potential issue, limiting the investments of mainstream investors. Their analysis, comparing the performance of social impact venture capital funds with traditional venture capital funds, reveals the lower profitability of social impact venture capital funds.

For example, Geobey and Weber (2013) indicate that in terms of reporting, SIBs lack an indicator based on comparative figures that would allow stakeholders to compare the impact of products and services with those of other financial institutions. Deficiencies in this regard may be crucial to the results of various researchers. Gruyter et al. (2020), examining SIBs related to health, prove that rates of return do not meet the expectations of investors, who expect them to be at a level close to that of the market. The authors suggest that commissioners could target selected investors who are ready to accept lower financial returns with a higher risk blended with impact returns. This may include maximizing

potential returns and reducing exposure to financial risk. Moreover Economy, Carter and Airoldi (2021) prove that in both the US and the UK, upfront capital is generally independent and at-risk, but risk mitigation strategies may limit the intended transfer of risk to investors. In turn, Warner (2013) emphasizes that SIBs are promoted for two main reasons: to bring rigor in assessing the intervention of social services, and to attract private funds to areas that lack public investment. While such a rigor of evaluation is crucial in structuring a private investment programme, it can undermine development evaluation approaches that encourage critical reflection and continuous innovation in the programme. The author indicates that previous experience shows that private investors do not seem willing to invest in proven programmes, even at high returns, unless the risk is guaranteed by a subordinate investor. In addition, the risk is increased by the uncertain duration of the programme and therefore the period of return on invested capital. Thus, the basic justification for the SIB may not hold its ground.

Regardless of the findings to date related to SIBs, the concerns of various researchers related to the ethical dimension of intervention should also be taken into account, for example, regarding the over--proactive treatment of the role of investors, especially in the initial stages of investment (e.g. Wilson et al. 2020; Ormiston et al. 2020), or the financialization of the welfare state (Dowling 2017), as well as supporting certain interventions at the expense of others due to lower levels of capital per beneficiary. For example, Fraser, Knoll and Hevenstone (2022) identified a tension between the requirement to align civic and financial interests in SIB-financed programmes alongside a drive to reform public sector procurement in a more entrepreneurial direction. Roy and Teasdale (2022) stress that the emergence of Social Impact Bonds and social impact measurement tools such as Social Return on Investment have troubling implications of financialization of everyday life. Critical arguments against SIBs can also be found in the work of Dowling (2017), in which the author writes about the financialization of the British welfare state. The author emphasizes that forms of labour market activation funded by the welfare state are being replaced by engaging forms of social engineering aimed at producing self--aware individuals and communities that are financially literate, "investment-ready" and economically efficient. In turn Joy and Shields (2013) stress, that "the politics of austerity have pushed the third sector to the centre of attention as governments turn to nongovernmental institutions to pick up the social deficits created by economic recession."

In the few theoretical and empirical studies examining SIBs undertaking parameterization of SIBs based on analyses of a broad spectrum of social impact bond issues, the findings in the work of Pauly and Swanson (2017) and Tortorice et al. (2020) seem to stand out. Both papers make equivalence arguments, i.e. debt financing and SIBs in a world with perfect information and no risk aversion. In the first theoretical study, Pauly and Swanson (2017) confirm two hypotheses. The first hypothesis was that SIBs will emerge when other sources of capital have relatively high costs. The second hypothesis was that SIBs will emerge when investors in them have special skills that can be used to improve programme effectiveness. SIBs may be partly technical in nature: they may offer an investment vehicle that makes better use of the broader capital market than what governments or for-profit companies can do. In contrast, an empirical analysis of SIB issuances carried out through 2019 is examined by Tortorice et al. (2020). The researchers break down the Pauly and Swanson model with perfect information and no risk aversion proposed by the authors. The researchers find that social impact bonds have advantages over traditional debt financing. When the government is overly pessimistic or particularly averse to certain projects and where the costs of the project cannot be offset by the benefits of the project. Then SIBs can finance projects with a positive net present value that debt financing cannot.

As the researchers point out, under such conditions SIBs are a useful form of financing and should be considered for projects where debt financing has been rejected. In the Tortorice et al. (2020) article (as opposed to the Pauly and Swanson 2017 study), the authors write about, "asymmetric information about the probability of project success where governments, because of electoral concerns, are particularly averse to states of the world when they must pay costs associated with a project in excess of benefits."

3. Research methodology

The number of issues worldwide is not large. The first SIB emission in the world was carried out in the UK in 2010. By 2022, 142 emissions had been carried out. In this article, a full population survey was carried out. By 2016, a total of 79 issues of social impact bonds had been carried out in the world. Issuances in which the end date of the intervention, the number of beneficiaries and the values of the issues were specified were accepted for analysis. As a result of this selection, in view of the lack of availability of all data in the entire population adopted for the study, 51 issues were accepted for further analysis. The author obtained data from the Social Impact Bond Global Database as compiled and maintained by Social Finance. This work is ongoing and will be used to supplement the Social Finance database. Data for the study were also obtained from selected documents published by foundation consultants and internal materials from financial services companies: Impact Bond Global Database of Social Finance,[1] Centre for American Progress,[2] Rockefeller Foundation (2014), Gustafsson-Wright, Gardiner, Putcha (2015), Gustafsson-Wright et al. (2022). To obtain more accurate and detailed data and information, memoranda, and information documents for investors on government websites of the countries initiating the intervention were analysed extensively.

Based on the data obtained, a synthetic summary was prepared of 51 Social Impact Bond interventions and the conditions of their issues. They were divided according to the criteria of location (individual countries), date of intervention, project duration, social purpose of intervention, field of intervention, amount of capital obtained from investors, number of beneficiaries and amount of capital per one intervention recipient, i.e. specific populations to which the programmes were addressed (Table 12).

According to the information contained in Table 12, the objectives of SIB interventions are divided into three coherent categories, i.e. activation, social and educational goals. The first of these, activation (A), includes two fields of social assistance, unemployment, and recidivism. The second, social (S), dealt with homelessness, support for the well-being of children, support for poor students, prevention of violence against women, support for children of single mothers in difficult life situations and family reunification or prevention of long-term foster care. The third goal has been marked as educational (E) (see Table 1).

To achieve the purpose of the article, analysis was first conducted of the structure of Social Impact Bond issues. Then, out of the group of 51 issues presented in Table 12, selection was made of all those for whom the amount of acquired capital was made public – the issue amount and the bond repayment time. The author chose these two specific aspects to investigate the capital per beneficiary and the repayment time. The unit capital per beneficiary was used as a measure of the level of financial support in SIBs. Moreover, quantitative analysis is a suitable tool and may add value to the existing knowledge on SIBs.

[1] https://sibdatabase.socialfinance.org.uk/.
[2] https://dasycenter.org/?s=Social+impact+bonds.

In the group analysed, three issues of SIBs did not have a fixed amount of capital due to a lack of data. In addition, one issue did not have bond maturity. Therefore, these observations were removed from the analysis. The interventions with an educational goal were also excluded from the analysis due to there being only two observations, even though statistically its results were significantly different from the other two groups. Therefore, 45 SIBs interventions were adopted for the analysis, which constitutes 88% of the interventions analysed. Since the educational goal appeared in only two issues, even though it showed the lowest values of average unit capital (279 USD) and average repayment period (36 months), which resulted in a statistically significant difference in relation to the activation and social goals, analysis of this goal was abandoned. Three variables were then selected. The first is unit capital, understood as the ratio of capital raised because of issuing social impact bonds to the number of beneficiaries (dependent variable). The second relates to the bond repayment time in months (dependent variable), while the third relates to the type of assistance and covers two purposes – activation and social (grouping variable) (see Table 1).

Of the 51 interventions of social impact bonds in 2010–2016, with a total value of USD 225.1 million, 43% of interventions were related to the social goal. They constituted as much as 63.2% of the total number of all bond issues. Activation issues came second, with 43.1% of interventions, accounting for 35.6% of the total issue capital. The educational purpose of social impact bonds was covered by only 4% of the total number of bonds (see Table 2).

In total, of the 45.1% of Social Impact Bond issues, 30.6% were directed at combating unemployment. Next on the scale were funds allocated to supporting families (27.7% of the total capital). Prevention of recidivism among prisoners was dealt with by only 7.8% of issues, but their value represented 24.6% of the total capital of all interventions. Further, 5.9% of the total issue value was earmarked for educational aid, and 3.2% was targeted at supporting the homeless. In terms of amount, the least capital was directed to health issues (2.4% of the total value of the SIBs issues). In quantitative terms meanwhile, the issues concerned primarily assistance to families (12), homeless people (7) and former prisoners (4) (see Table 3).

In terms of amount, the greatest capital obtained was in only 11 SIB issues in the United States and Canada, which constituted 65.1% of the capital of all interventions. Europe came second with 23.7% of the total capital. This translates into 66.7% of all interventions being carried out on the Old Continent. In Asia and Australia, on the other hand, less than 6% of SIB issues were carried out – three issues on each continent. Most of all SIBs were carried out in the United Kingdom, with a 47.1% share. However, the United States dominates in terms of total amount. Australia came third (see Table 4) with over USD 17 million raised. Over USD 7 million was raised in Israel and the Netherlands. Their percentage share in the total capital value was respectively 3.4% and 3.3%. The percentage share of funds obtained through issues of SIBs in other countries did not exceed 1% (see Table 5).

To achieve the purpose of the article and verify both hypotheses, ANOVA analysis was used. ANOVA is a statistical method used to study observations that depend on one or more simultaneously operating factors. The method indicates which factors may be responsible for differences between the group means observed. As part of the one-way variance analysis, a normality test was performed. Due to the smaller size of the studied groups, the distribution normality test was carried out using the K-S test with the Lilliefors correction. The non-parametric K-W test was used for variables that did not meet the assumption of normality of distribution in the one-way variance analysis.

To check the assumption of homogeneity of variance, the B-F test was used due to the unequal number of groups, and the Levene test because of the smaller diversity of the groups studied. If the assumption of homogeneity of variance was met, the F test was used to assess the differences. Otherwise, the Welch test was used to assess the mean values. The verification of the research hypotheses was divided into two parts, separately for the world and separately for the UK and the US. The separation of the US and the UK in the analysis was dictated by the fact that both countries had the largest issuance of social impact bonds, both in terms of volume and value.

4. Results

4.1. Hypothesis H1

SIB unit capital – world

Using one-way ANOVA analysis, the author examines whether the capital per SIB beneficiary regardless of the issuance target category is equal. If statistically significant differences between the averages are confirmed, it means that the purpose of the issue influences the amount of capital allocated per support beneficiary. In the first stage, a distribution normality test was carried out, which resulted in a Kołmogorow-Smirnow test of $p < 0.01$, a K-S test with a Lilliefors correction p value of < 0.01. Therefore, a basis was obtained for rejecting the hypothesis about the normal distribution of the examined feature – unit capital. As the assumption about the normality of the distribution was not met, a non-parametric K-W test was used to compare the average values of unit capital. The p-value was lower than the significance level of 0.05. Therefore, there are grounds to reject the assumption that there are no significant differences between the average values of unit capital in groups with activation and social bond goals.

The B-F test and Levene test were used to check the assumption of homogeneity of variance. The B-F test result showed a lack of homogeneity of variance in both groups ($p < 0.05$). The Levene test result also indicated a lack of homogeneity of variance in both groups ($p < 0.05$), hence the Welch test was used to assess the mean values. The result showed a value of $F = 9.27$, at $p < 0.05$. It should be recognized that the average value of unit capital differs significantly between the categories of social bond objectives studied (the average value of unit capital is higher for the group in which the objective was indicated as social) (see Table 6). The average value of unit capital in the group of bonds with the activation goal was 3,264.25 USD. In turn, the average value of unit capital in the group of bonds with a social purpose was 9,298.96 USD.

SIB unit capital – United Kingdom and the United States

Due to the dominant role of the United Kingdom and the United States in issues of social impact bonds, an attempt was also made to show the differences between individual groups of intervention objective fields in terms of unit capital per one beneficiary of support in particular countries using a one-way ANOVA analysis.

It should be recognized that the average value of unit capital differs significantly between the examined groups of goals presented in Table 6 (higher in the case of the group in which the objective

was indicated as 'social'). The average value of unit capital in the group of social impact bonds with the activation goal was 3,106.28 USD, while the average value of unit capital in the group of bonds with the social objective was 10,243.47 USD.

4.2. Hypothesis H2

Bond repayment date – world

Using one-way ANOVA analysis, the author examines whether the bond repayment date of SIB (intervention period) regardless of the category of issue target is equal. If statistically significant differences between the averages are confirmed, it means that the purpose of the issue influences the bond repayment date of SIB (intervention period). The results showed that the average repayment date of social impact bonds does not differ significantly between the two types of purpose of these instruments (activation (A) and social (S)). The average repayment date in the group of bonds with the activation goal was 46 months, while in the group of bonds with the social goal it was 52 months (see Table 7).

Bond repayment date – the United Kingdom and the United States

The test results allow similar conclusions to be formulated regarding the differences between the presented groups of goals and the bond repayment date (intervention period) for the United Kingdom and the United States. It should be acknowledged that the average SIB repayment date (intervention period) also did not differ significantly between the individual assistance objectives – activation (A) and social (S). The average repayment date in the group of bonds with the 'activation' objective was 47 months, while for those with the 'social' objective it was 50 months (see Table 7).

Despite the rise of social impact bonds as a financing tool for public programmes, the author has been unable to find a theoretical analysis of the capital commitment and payback period of SIBs. This paper addresses this lack. In the case of hypothesis 1, the results of the study justify the assessment of the analysis of social impact bond issues according to several intervention goals. There are significant differences in the average capital value per beneficiary depending on the purpose of the issue. An interesting finding was that SIB interventions for social purposes in different countries, such as combating homelessness, supporting the well-being of children and single mothers in difficult life situations, assisting poor students, combating violence against women, family reunification and the prevention of long-term foster care for children, have higher levels of unit capital compared to other intervention goals both in Anglo-Saxon countries and internationally. There is a three-fold higher average value of capital per beneficiary of support compared to the goal of "activation". The difference is even slightly greater for the most active countries in terms of volume and value of emissions, i.e. the United Kingdom and the United States. Thus, the obtained results confirm the author's assumptions indicated in hypothesis no. 1.

When verifying hypothesis no. 2, the analysis shows that the average SIB repayment (intervention) period does not differ statistically significantly between individual support objectives – activating and social. Thus, the second hypothesis was not confirmed. However, it is worth noting that the average repayment date for SIBs with a social objective is six months longer than that for SIBs with an activation objective. In the United Kingdom and the United States, this difference is halved.

5. Discussion and conclusions

SIB social bond interventions cover a variety of purposes. The fields of support include numerous areas of broadly understood social problems, both in the social sphere and in the professional activation of the unemployed or in education. Given the global nature of the reported data on SIB issues, their number would not appear to be very large.

The relative scarcity of quantitative data on SIBs makes it difficult to conduct more extensive research. Hence, there is still little and insufficient quantitative research in this area. Therefore, demonstrating differences in capital per beneficiary and repayment periods enriches the current state of the scientific literature with quantitative studies. The results provide important guidance to various stakeholders in the complex process of issuing SIBs. They inform public policymakers in which countries around the world and to what extent the capital commitment per beneficiary of support is being financed for various social purposes using SIBs. Based on the results of the hypothesis verification, public policymakers can estimate the average values of the commitment of public funds to planned community projects depending on the lines of support being pursued. The study's data also complement the few quantitative (e.g. Tortorice et al. 2020), theoretical (e.g. Pauly, Swanson 2017) studies to date examining SIB benefit models. Their call for, "Looking forward, additional features of SIBs are worthy of exploration. One such feature is the role an investor can play in affecting the probability a project succeeds", provided the inspiration for this study to provide new knowledge demonstrating the implementation of interventions using Social Impact Bonds within the parameters included in the hypotheses.

In addition, given the growing social needs and difficult economic situation in post-covid economies, empirically verified parameters regarding the amount of support per beneficiary and differences in repayment periods play a critical role in the preparation of interventions by public policymakers. Based on the data presented, they can compare the legitimacy of implementing SIBs with other instruments for financing social goals (such as traditional bonds). Such theoretical attempts are made by Pauly and Swanson (2017) or Tortorice et al. (2020). The implementation of the research hypotheses has applications for social impact investors. Their activity in continental Europe still seems insufficient compared to Anglo-Saxon countries. The validation of the hypotheses is a source of knowledge for investors seeking information on what period of return on capital they can expect when committing their capital to the various goals of SIBs interventions. Although European countries conducted the most issues of SIBs during the period under review, in terms of value, the largest amount of capital was obtained in the United States and Canada. In Europe, over 70% of issues of Social Impact Bonds were made by the United Kingdom. Interventions are undertaken primarily in the field of social activities, and as this study confirmed, are related with the highest average capital value per beneficiary support (9,300 USD). The funds allocated to the 'activation' objective were almost three times lower (3,300 USD). In addition, the average repayment date of issued SIBs for the implementation of social goals is longer than activation interventions by as much as six months. These results support and contribute to the Olson et al. (2022) and Albertson et al. (2018) works, which stress that in England a disproportionate amount of public spending has historically gone towards expensive social care as opposed to preventions. The authors point out that SIBs in the UK and the US focused on the following policy areas: workforce development, housing and homelessness, health, child and family welfare, criminal justice, education and early years, and poverty and the environment. SIBs in both countries

commonly addressed housing and homelessness or health; the UK programmes frequently addressed workforce development; and the US programmes often targeted criminal justice.

However, considering the countries where the largest volume was observed, both in terms of the quantity and value of SIB issues (the United Kingdom and the USA), the above-mentioned difference in relation to unit capital is even higher ('activation' objective – 3,100 USD, 'social' objective – 10,200 USD). However, the difference in the average repayment period of issued bonds for the accomplishment of both purposes is slightly lower, being only three months ('activation' objective – 47 months, 'social' objective – 50 months).

The results of this study provide guidance to public policy makers on the scale of expenditure and the duration of intervention depending on their objectives, which can be important both in the budget planning process and the issue itself, as well as in providing sustainable economic growth supported by the system of PbR. As Lowe and Williams (2020) indicate, due to the potential significant fiscal and societal impacts of a SIB, governments may choose to seek guidance and advice to ensure achievement of sound fiscal, programme and operational designs.

Considering the results obtained, the article provides an important contribution to the theoretical debate on the directions of involvement of public policy makers pursuing the objectives of intervention, as the dominant share of capital involvement in SIB interventions for social purposes demonstrated in the study may displace the desire to take an organization's activity into other areas. Furthermore, it shows who financially contributes to and financially benefits from educational and social progress of society.

This study also provides new knowledge for private social investors, who play a critical role in the preparation of interventions by policy makers. Their continuing insufficient involvement is a significant limitation on the wider use of SIBs in Europe, and requires clear indications based on wider research than the simple cases examined in studies to date (Maier, Barbetta, Godina 2018). In view of the controversy surrounding the rates of return of SIBs in relation to private investor market expectations (e.g. Gruyter et al. 2020; Economy, Carter, Airoldi 2021; Marchewka-Bartkowiak, Wiśniewski 2015), the results of this study provide relevant information for analysis in the context of risk diversification. For example, as the author indicates, schemes classified as 'social' have on average higher capital allocated per beneficiary and a longer repayment date, both for SIBs issued worldwide as well as in the UK and the USA. The study of Millner and Meyer (2022) shows the multitude of problems and costs that such a challenging arrangement of multiple stakeholders brings along, thus dampening overoptimistic expectations in SIBs.

The author is aware that the selected and investigated quantitative parameters are evolving, and that they do not constitute a spectrum in its entirety. Further research in the scientific debate is necessary to analyse relevant issues and technical aspects regarding social impact bonds.

The directions of subsequent empirical research should primarily concern the reasons for the poor involvement of some countries in the implementation of SIBs, mainly emerging and low developed countries, the possibility of issuing bonds in relation to the potential of social investors (patient capital), real savings for the budgets of public entities, and a level of rate of return for investors to stimulate their more extensive engagement.

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Appendix

Table 1
Objectives and fields of issue of social impact bonds

Issue objectives (interventions)	Field of intervention
Activation (A)	Unemployment Recidivism
Social (S)	Homelessness Support for children Support for poor students Combating violence against women Support for single mothers in a difficult life situation Reunification of families or preventing long-term foster care of children
Educational (E)	Registering students excluded from primary school education and improving their reading and writing skills Running professional programmes to improve the well-being and health of public sector employees

Source: own elaboration.

Table 2
SIB issue quantity and value, and purpose of intervention

Purpose of intervention	Issue value (in USD million)	% of issue value	Number of issues	% number of issues
Activation (A)	80.2	35.6	22	43.1
Educational (E)	1.0	0.4	2	3.9
Social (S)	143.9	63.9	27	52.9
Total	225.1	100.0	51	100.0

Source: own elaboration and analysis on the basis of selected documents published by foundation consultants and internal materials from financial services companies as well as memoranda and information documents for investors on government websites of the countries initiating the intervention.

Table 3
Amount and value of SIB issues and the field of intervention

Field of intervention	Issue value (in USD million)	% of issue value	Number of issues	% number of issues
Unemployment	68.9	30.6	23	45.1
Education	25.1	11.2	3	5.9
Other	0.7	0.3	1	2.0
Family	62.4	27.7	12	23.5
Recidivism	55.3	24.6	4	7.8
Health	5.5	2.4	1	2.0
Homelessness	7.1	3.2	7	13.7
Total	225.1	100.0	51	100.0

Source: see Table 2.

Table 4
The quantity and value of SIB issues on individual continents

Continent	Issue value (in USD million)	% of issue value	Number of issues	% number of issues
North America	146.6	65.1	11	21.6
Australia	17.15	7.6	3	5.9
Asia	7.9	3.5	3	5.9
Europe	53.4	23.7	34	66.7
Total	225.1	100.0	51	100.0

Source: see Table 2.

Table 5
The quantity and value of SIB issues in individual countries

Country	Issue value (in USD million)	% of issue value	Number of issues	% number of issues
Australia	17.2	7.6	3	5.9
Belgium	0.3	0.1	1	2.0
Finland	0.7	0.3	1	2.0
Netherlands	7.3	3.3	4	7.8
India	0.3	0.1	1	2.0
Israel	7.6	3.4	2	3.9
Canada	0.9	0.4	1	2.0
Germany	0.3	0.1	1	2.0
Portugal	0.1	0.1	1	2.0
Switzerland	0.3	0.1	1	2.0
Sweden	1.2	0.5	1	2.0
USA	145.7	64.7	10	19.6
United Kingdom	43.1	19.2	24	47.1
Total	225.1	100.0	51	100.0

Source: see Table 2.

Table 6
ANOVA analysis – hypothesis H1

SIB unit capital	Average capital value per objective		K–S	K–W	B–F	Levene	Welch
	beneficiary activation	social objective					
	in USD thousand		p-values				
A–S (world)	3.2642	9.2989	0.0000	0.0009	0.0423	0.0019	0.0045
A–S (UK and US)	3.1062	10.2434	0.0000	0.0006	0.1364	0.0340	0.0112

Source: own calculations and elaboration.

Table 7
ANOVA analysis – hypothesis H2

SIB bond repayment date	Average repayment date		K–S	K–W	B–F	Levene	F
	activation objective	social objective					
	in months		p-values				
A–S (world)	46	52	0.0004	0.2658	0.3106	0.3867	0.3341
A–S (UK and US)	47	50	0.0000	0.3263	0.5102	0.7628	0.7145

Source: own calculations and elaboration.

Table 8
Issues of Social Impact Bonds in 2010–2016

No.	Location	Country	Issue date	Period (in months)	The field of intervention	The purpose of intervention*	Number of beneficiaries	Capital raised/ person (USD)	Capital raised (USD million)
1	Peterborough, East of England, England	UK	2010	96	Recidivism among prisoners	A	3 000	2 536.67	7.61
2	Greater Merseyside, North West England, England	UK	2012	36	Unemployment	A	3 900	615.38	around 2.4
3	Tower Hamlets, Islington, and Hackney, Greater London, England	UK	2012	36	Unemployment	A	1 050	1 333.33	1.40
4	Stratford, Canning Town, Royal Docks and Cathall, Greater London, England	UK	2012	36	Unemployment	A	740	600.00	0.44
5	Birmingham and Solihull, West Midlands, England	UK	2012	36	Unemployment	A	2 897	1 656.89	4.80
6	Nottingham, East Midlands, England	UK	2012	36	Unemployment	A	3 000	906.67	approx. 2.72
7	Perth and Kinross, Central Scotland and Fife, Scotland	UK	2012	36	Unemployment	A	300	lack of information	lack of information

Table 8, cont'd

No.	Location	Country	Issue date	Period (in months)	The field of intervention	The purpose of intervention*	Number of beneficiaries	Capital raised/ person (USD)	Capital raised (USD million)
8	Greater Manchester, North West England, England	UK	2012	36	Unemployment	A	1 152	1 111.11	1.28
9	Cardiff and Newport, South Wales, Wales	UK	2012	36	Unemployment	A	720	938.89	0.68
10	Thames Valley, South East England, England	UK	2012	36	Unemployment	A	1 500–2 000	966.67	1.45
11	West London, Greater London, England	UK	2012	36	Unemployment	A	lack of information	lack of information	lack of information
12	London, Greater London, England	UK	2012	36	Unemployment	A	416	3 437.50	1.43
13	London, Greater London, England	UK	2012	36	Homelessness	S	415	lack of information	lack of information
14	Essex County, East of England, England	UK	2012	96	Children at risk of abandonment	S	380	13 131.58	4.99
15	Country--wide (United Kingdom)	UK	2013	120	Lifting barriers to the adoption of children	S	650	4 769.23	3.10

Table 8, cont'd

No.	Location	Country	Issue date	Period (in months)	The field of intervention	The purpose of intervention*	Number of beneficiaries	Capital raised/ person (USD)	Capital raised (USD million)
16	Liverpool and Knowsley, North West England, England	UK	2014	36	Homelessness among children	S	130	6 615.38	0.86
17	Manchester, Oldham and Rochdale, North West England and Greenwich, Greater London, England	UK	2014	36	Homelessness among children and young people	S	180	5 388.89	0.97
18	Newcastle, Northumberland, South Tyneside, North Tyneside, Gateshead, Durham and Sunderland, North East England, England	UK	2014	36	Homelessness among children and young people	S	230	3 386.96	0.78
19	Kirklees, Calderdale and Wakefield, Yorkshire and the Humber, England	UK	2014	36	Homelessness among children and young people	S	261	5 632.18	1.47

Table 8, cont'd

No.	Location	Country	Issue date	Period (in months)	The field of intervention	The purpose of intervention*	Number of beneficiaries	Capital raised/ person (USD)	Capital raised (USD million)
20	Leicestershire and Derbyshire, East Midlands, England	UK	2014	36	Homelessness among children	S	340	2 758.82	0.94
21	Gloucestershire, South West England, England	UK	2014	36	Homelessness among children	S	150	3 226.67	0.48
22	Birmingham, Coventry, Solihull, Walsall, and Wyre Forest, West Midlands, England	UK	2014	36	Homelessness among children	S	300	5 366.67	1.61
23	Manchester, North West England, England	UK	2014	60	Family reunification or long-term prevention of child placement in foster care	S	95	21 157.89	2.01
24	Birmingham, West Midlands, England	UK	2014	48	Lifting barriers to the adoption of children	S	150	11 266.67	1.69
25	New York City, New York	USA	2012	36	Recidivism among prisoners	A	11 000	1 527.27	9.60

Table 8, cont'd

No.	Location	Country	Issue date	Period (in months)	The field of intervention	The purpose of intervention*	Number of beneficiaries	Capital raised/ person (USD)	Capital raised (USD million)
26	State of Utah (Salt Lake City and surrounding areas)	USA	2013	60	Limited access to early school education	S	3 500	2 000.00	7.00
27	Rochester and New York City, New York	USA	2013	66	Recidivism among prisoners	A	2 000	7 410.00	14.82
28	Commonwealth of Massachusetts (Chelsea, Boston and Springfield areas)	USA	2013	84	Recidivism among prisoners	A	929	17 341.23	16.10
29	Chicago, Illinois	USA	2014	48	Limited access to pre-school education	S	2 600	6 500.00	16.90
30	Cuyahoga County, Ohio	USA	2014	60	Homelessness among families and childcare	S	135 (families), including 270 children)	14 814.81	4.00
31	Commonwealth of Massachusetts (state-wide)	USA	2014	72	Homelessness	S	800	30 625.00	24.50
32	Santa Clara County, CA (The USA)	USA	2015	72	Homelessness	S	200	34 500.00	6.90

Table 8, cont'd

No.	Location	Country	Issue date	Period (in months)	The field of intervention	The purpose of intervention*	Number of beneficiaries	Capital raised/ person (USD)	Capital raised (USD million)
33	South Carolina (The USA)	USA	2016	48	Support for poor young mothers	S	3 200	9 375.00	30.00
34	Denver, C (The USA)	USA	2016	60	Homelessness	S	2 250	3 866.67	8.70
35	State of New South Wales	Australia	2013	87	A family environment for children	S	700 (families), including 1400 children)	4 807.14	6.73
36	State of New South Wales	Australia	2013	60	Support for the well-being of children	S	400 (families), including 636 children)	14 654.09	9.32
37	Upper	Australia	2015	lack of information	Combating violence against women	A	75	14 666.66	1.10
38	Rotterdam, South Holland	Netherlands	2013	50	Unemployment	A	160	5 775.00	0.92
39	Rotterdam	Netherlands	2015	50	Unemployment	A	750	4 400.00	3.30
40	Utrecht	Netherlands	2015	50	Unemployment	A	252	3 174.60	0.80
41	Utrecht	Netherlands	2015	50	Unemployment	A	540	4 259.26	2.30
42	Augsburg, Bavaria	Germany	2013	28	Unemployment	A	100	3 000.00	0.30
43	Brussels-Capital Region	Belgium	2014	24	Unemployment	A	180	1 794.44	0.32
44	Saskatoon, Saskatchewan	Canada	2014	60	Support for children of single mothers in a difficult life situation	A	2 200	409.09	0.90

Table 8, cont'd

No.	Location	Country	Issue date	Period (in months)	The field of intervention	The purpose of intervention*	Number of beneficiaries	Capital raised/ person (USD)	Capital raised (USD million)
45	Lisbon	Portugal	2015	20	Preventing class repetition and interruption of children's education at primary school	S	65	2 276.92	0.15
46	Haifa and Tel Aviv	Israel	2015	96	Support of poor students	S	600	3 500.00	2.10
47	International reach	Israel	2016	36	Support for people at risk of diabetes	S	2 250	2 444.44	5.50
48	Rajasthan	India	2015	36	Support of young women	S	15 000	20.00	0.30
49	Helsinki	Finland	2015	lack of information	Support of public sector employees	E	1 300	538.46	0.70
50	Norrköping	Sweden	2016	48	Support of young people	S	60	20 000.00	1.20
51	Bern	Switzerland	2015	60	Unemployment	A	120	2 500.00	0.30

* S – social; A – activation; E – educational.
Source: own elaboration and analysis on the basis of Social Impact Bond Global Database selected documents published by foundation consultants and internal materials from financial services companies as well as memoranda and information documents for investors on government websites of the countries initiating the intervention.

Analiza porównawcza obligacji społecznych – kapitał przypadający na beneficjenta i czas trwania programu

Streszczenie

W obliczu rosnących potrzeb społecznych, niewystarczających wydatków na rozwiązywanie problemów społecznych i coraz większej liczby organizacji społecznych konkurujących o wsparcie publiczne kluczowa wydaje się większa parametryzacja emisji obligacji społecznych (Social Impact Bonds, SIB). Jednocześnie w dyskusji na temat obligacji społecznych podkreśla się brak wystarczającej wiedzy o możliwościach generowania oszczędności w budżecie państwa i jednostkach samorządu terytorialnego dzięki wykorzystaniu SIB (np. Lowe 2020; Tan et al. 2019; Crowley 2014). Dlatego celem artykułu jest zbadanie, czy w krajach, gdzie emituje się SIB, cele emisji – socjalne, aktywizacyjne i edukacyjne – wpływają na wielkość kapitału przeznaczanego na jednego beneficjenta oraz na termin wykupu obligacji. Ze względu na to, że najwięcej przedsięwzięć z wykorzystaniem SIB realizuje się w krajach anglosaskich (jak USA i Wielka Brytania), analiza ANOVA została zrealizowana odrębnie dla tych państw oraz dla pozostałych krajów, które emitowały obligacje społeczne.

Badaniem objęto 51 emisji obligacji społecznych przeprowadzonych w 13 krajach Azji, Europy, Australii i Ameryki Północnej.

W artykule przedstawiono dwie hipotezy badawcze. Pierwsza hipoteza (H1) zakłada, że emisje SIB związane z celami społecznymi charakteryzują się wyższą średnią wartością kapitału przypadającego na beneficjenta. Druga hipoteza (H2) zakłada, że termin wykupu zależy od celu emisji SIB.

Aby zrealizować cel pracy i zweryfikować hipotezy, przeanalizowano strukturę emisji SIB oraz przeprowadzono jednoczynnikową analizę ANOVA. Statystyka opisowa pozwala lepiej poznać skalę i zakres wykorzystania SIB w różnych krajach Europy i świata. Z kolei analiza ANOVA umożliwiła weryfikację hipotez i wykazanie istotnych statystyczne różnic między poszczególnymi kierunkami wsparcia pod względem wielkości kapitału przeznaczanego na jednego beneficjenta SIB, a także okresu trwania programu. Na pierwszym etapie analizy przeprowadzono badanie normalności rozkładu za pomocą testu Kołmogorowa-Smirnowa. Wobec zmiennych, które nie spełniały założenia normalności rozkładu, zastosowano nieparametryczny test Kruskala-Wallisa. W celu sprawdzenia założenia homogeniczności wariancji wykonano test Browna-Forsythe'a. W przypadkach, gdy kryterium jednorodności wariancji było spełnione, przeprowadzono test F, aby ocenić różnice. W pozostałych przypadkach do oceny średnich zastosowano test Welcha. Weryfikację hipotez podzielono na dwie części, odrębnie dla świata oraz dla Wielkiej Brytanii i USA. Wyodrębnienie w analizie USA i Wielkiej Brytanii było podyktowane faktem, że w tych krajach wyemitowano najwięcej obligacji społecznych, zarówno pod względem ilościowym, jak i wartościowym.

Badanie pokazuje, że programy określone jako prospołeczne mają średnio wyższy kapitał przypadający na beneficjenta w porównaniu z programami służącymi aktywizacji. W obu przypadkach czas trwania programu jest zbliżony. Potwierdza się to zarówno w przypadku SIB emitowanych na całym świecie, jak i emitowanych w Wielkiej Brytanii i USA. Pomimo braku istotnych statystycznie różnic pod względem wpływu celu programu na okres wykupu obligacji SIB analiza wskazuje na dłuższy okres wykupu w przypadku celów prospołecznych.

Ze względu na uzyskane wyniki artykuł stanowi istotny wkład w debatę teoretyczną na temat obligacji społecznych. Wzbogaca obecny stan literatury naukowej o badanie ilościowe. Wykazało ono, że w skali globalnej cele emisji wpływają na średnią wartość kapitału przeznaczonego na beneficjenta i średni okres trwania programu. Weryfikacja hipotez w niniejszym badaniu w pewnym stopniu zmniejsza asymetrię informacji w dotychczas omawianych przez różnych badaczy modelach korzyści z obligacji społecznych. Tym samym odpowiada na zgłaszane przez autorów postulaty zwiększenia parametryzacji SIB i prowadzenia badań ilościowych (zob. np. Tortorice 2020; Pauly, Swanson 2017; Maier, Barbetta, Godina 2018). Wyniki badania dostarczają nowej wiedzy, która umożliwi rozwój kolejnych modeli prezentujących korzyści z SIB, przy uwzględnieniu wyników wskazanych w niniejszym badaniu.

Badanie dostarcza również informacje istotne dla prywatnych inwestorów społecznych, którzy odgrywają krytyczną rolę w przygotowywaniu programów przez decydentów publicznych. Ich nadal niewystarczające zaangażowanie jest dużym ograniczeniem dla szerszego wykorzystania SIB w Europie kontynentalnej, głównie w krajach Europy Środkowo-Wschodniej, i wymaga jasnych wskazówek, które nie będą wynikać jedynie z analiz pojedynczych przypadków, dominujących obecnie w literaturze.

Jak pokazują badacze, koszty transakcyjne związane z opracowaniem umów SIB są wysokie, ponieważ obejmują obecnie nie tylko określenie celu, usługodawcy i sposobu oceny, lecz także pozyskanie specjalistów z zakresu finansowania rynkowego i strukturyzację systemów spłaty inwestycji, które zazwyczaj są bardzo złożone. Wyniki niniejszego badania dostarczają dodatkowych danych do badania korzyści z emisji SIB, porównujących ten sposób pozyskiwania środków na realizację celów społecznych z tradycyjnymi obligacjami Skarbu Państwa (zob. np. Tortorice i in. 2020; Paly, Swanson 2017).

Autor ma świadomość, że badane parametry ilościowe nie są jedynymi oraz że podlegają ewolucji. Niezbędne są dalsze analizy istotnych aspektów technicznych emisji SIB.

Kierunki kolejnych badań empirycznych powinny dotyczyć przede wszystkim przyczyn braku lub słabego zaangażowania niektórych krajów w emisję obligacji społecznych. Odnosi się to głównie do krajów wschodzących i krajów słabo rozwiniętych. Dalsze badania powinny się także skupiać na poznaniu możliwości emitowania obligacji przez inwestorów społecznych, realnych oszczędnościach dla podmiotów publicznych dzięki emisjom obligacji społecznych czy czynnikach wpływających na wykazane w artykule zróżnicowanie poziomu kapitału przypadającego na beneficjenta i okresu zwrotu – zarówno na poziomie projektu, jak i kraju.

Słowa kluczowe: obligacje społeczne, termin wykupu obligacji, kapitał jednostkowy obligacji, polityka społeczna, czas trwania interwencji