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REWARD BASED CROWDFUNDING: ANALYSIS ON ALTRUISM AND HOME BIAS EFFECT

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Reward Based Crowdfunding: analysis on altruism and home bias effect

Abstract

Reward-based crowdfunding constitutes a new way of financing entrepreneurs and their projects. The use of internet platforms as tools to reach and inform investors that may be in any geographic location should mitigate the influence of distance to the success of funding. In this study we examine the effects of home bias and local altruism on the success of the reward-based crowdfunding campaigns and how they interplay on the success. Employing Probit and OLS models for a sample of 285,701 projects launched on Kickstarter, from 2009-20 on 76 countries, we show that Home Bias and altruism acts as substitutes when positively contributing to the success of reward-based crowdfunding campaigns. These results are in line with prior research. However, we found evidence of non-linear effects. In fact, we found evidence of inverse U-shaped effects of Home Bias and Local altruisms on the success of the reward-based crowdfunding campaigns. These results open a new avenue for further research on the topic.

Keywords: crowdfunding, reward-based crowdfunding, altruism, home bias, non-linearity

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1. Introduction

Crowdfunding constitutes a financing alternative to traditional equity and debt financing markets, along with other instruments of entrepreneurial finance such as angel investment and corporate venture capital (Block et al., 2018). Crowdfunding is a decentralized mean for early-stage firms to raise funds from a large pool of investors from the crowd usually applied to start and run new ventures (European Commission, n.d.-a). Crowdfunding operations do not rely on traditional financial institutions, namely on their traditional role as intermediary between entrepreneurs and investors. Instead, crowdfunding operations rely on online platforms that act as decentralized brokers, connecting project proponents and backers. In this way, crowdfunding democratizes access to finance since it is an alternative option for entrepreneurs that can't access traditional funding easily and provides to the crowd the opportunity to invest in companies or projects that are usually available only to institutional or accredited investors (Kim & Hann, 2013).

Alternative financing methods are gaining importance, namely for enterprises that are small or in early stages. The gap between internal and external capital costs is influenced by agency problems arising from asymmetric information between entrepreneurs and investors. This is particularly noticeable in R&D-intensive industries and helps to explain the increasing interest in alternative financing methods (Hall & Lerner, 2010). Shocks on the supply side of capital, as in the 2008/2009 global financial crisis and subsequent tightening lending rules (e.g., as Basel II and III), entrepreneurs preference to retain the ownership and control of their companies rather than ceding it external investors, as in the case of venture capital (Drover et al., 2017), and the use of crowdfunding as a mean to promote the company or their projects (Camilleri & Bresciani, 2022) highlight the relevance of crowdfunding nowadays.

The modern crowdfunding campaign model was introduced by the British rock band Marillion, when its members created an online campaign for fans to fund a US tour (Kalio & Vuola, 2020). However, the roots of crowdfunding can be traced back to centuries earlier, inspired by alternative mechanisms that financed the construction of cathedrals (SpaceTec Capital Partners, 2014), Mozart's compositions (Hemer, 2011), or the pedestal of the Statue of Liberty (Short et al., 2016).

In 2020, the Cambridge Centre for Alternative Finance estimated that the total volume of funds channeled through crowdfunding reached $65.9 Billion, according to the 2nd Global

Alternative Finance Market Benchmarking Report (*in* Ziegler et al., 2021). But the distribution of crowdfunding operations by region is uneven. As per the same report, the United States accounted for around 60% ($40B) of the crowdfunding market, followed by the UK (17%, $11B) and Europe (11%, $7B). By type, peer-to-peer (P2P) lending was by far the most representative, capturing 81% ($53B) of the market, while donation-based crowdfunding took 11% ($7B) of the funds and equity-based and reward-based crowdfunding collected 2% each ($1.5B and $1.3B respectively). Despite its reduced share in the crowdfunding landscape, the equity-based crowdfunding was responsible for creating more than 226,000 jobs in the US alone in 2022 (Neiss, 2023). Consequently, crowdfunding acts as an important instrument to foster entrepreneurship, innovation, employment, and economic growth. Therefore, the success of crowdfunding campaigns is crucial to boost this development path.

A crowdfunding may be one of two different variants considering the incentives and compensations for investors: investment or non-investment-based crowdfunding. The P2P lending (also known as crowdlending) and the equity crowdfunding constitute the two investment-based types of crowdfunding. The former can be viewed both as an alternative (in case of a market shock on the supply of credit from banks) and a complement to banking loans, namely in the small loans segment (Tang, 2019). This happens due to a potential less stringent criteria in place in such platforms by multiple lenders, that may take higher risk or provide lower interest rates than banks (Milne & Parboteeah, 2016). The latter type of crowdfunding consists of selling a stake in the proponent's business but, unlike more conventional ways of raising capital in an early stage, to a larger population of investors. In both types, the backers expect monetary compensation for their investment.

The reward-based crowdfunding and the donation-based crowdfunding fall under the non-investment segment of crowdfunding since no financial compensation from the project's proponent to the project's backers is expected in exchange for monetary support (European Commission, n.d.-b). Whether in the case of donation-based crowdfunding the backers support the entrepreneur without expecting a direct retribution under the expectation of being a future consumer or take benefits at a community level (Belleflamme et al., 2014), in the reward-based crowdfunding the backer expects the delivery of a product or service - the reward - many times in exclusivity, with an earlier access or at a discounted price (Mollick, 2014). The pioneering campaign launched by Marillion configured a reward-based crowdfunding since the fans would get a live CD in exchange

for a contribution (Wilding, 2022). Block et al. (2018) link the reward-based crowdfunding to financial bootstrapping, since the prefunding provided by the backers enables the entrepreneurs to start the project with a smaller amount of capital or assets. In this type of crowdfunding the role of the backer can be viewed as both a consumer and an investor (Ordanini et al., 2011).

The research field on both crowdfunding in general and reward-based crowdfunding in particular has been increasing over the last decades, following the growth of relevance both in volumes and public attention, of this financing sector (Deng et al., 2022). Although research topics on this sector may be widely different, a large strand of research on crowdfunding campaign' success focuses more on characteristics of the individual projects or campaigns, varying from the nature of the entrepreneurs' projects, such as how reward-based crowdfunding may be better to support artists or creators instead of start-ups and small businesses (e.g., Cox & Nguyen, 2017). Other studies look at the linguistic style of the campaigns and how it may affect their success (e.g., Parhankangas & Renko, 2017).

Despite the extensive literature on the success factors of reward-based crowdfunding, some studies rely on a reduced sample of data (i.e., number of projects) leading conflicting results. Few studies examined how does the context of the projects, like the geography of funders and fundraisers (e.g., Agrawal et al., 2015; Guo et al. 2018), and personal characteristics of the individuals impact the success of reward-based crowdfunding campaigns, despite the evidence that geography appears to be linked to the success rates of projects (Mollick, 2014). This research aims to contribute to extend this field of knowledge grounding on altruism and home bias effects on reward-based crowdfunding campaigns.

Home bias, or in an intra national equivalent, local bias, refers to a tendency noticeable in financial markets for investors to divert their funds to opportunities that are geographically closer to them (Hornuf et al. 2022, Coval & Moskowitz 1999). While Chen et al. (2010) find that geography is a constraint in traditionally funded entrepreneurial ventures due to the preference for proximity from investors to better monitor their investments, Agrawal et al. (2015) examined reward-based crowdfunding campaigns in a platform for unsigned musicians, concluding that geographic distance between entrepreneurs and backers and investment patterns are independent. However, and as highlighted by the authors, their study only focuses on a single platform that promotes only one category of campaigns (music) which limits any possible generalization of the results.

Studies investigating home bias effect are mostly applied to equity-based crowdfunding (Hornuf et al. 2022, Bade & Walther 2021, Wang & Prokop 2023, Guenther et al. 2018) and P2P lending (Lin & Viswanathan 2016, Li et al. 2023). Since investor behavior may differ from equity to reward-based crowdfunding, as they have diverse objectives and they regard the information on venture quality differently, it is not possible to bridge findings from one crowdfunding segment to another (Bade & Walther, 2021). Furthermore, the existing articles that deal with home bias and reward-based crowdfunding show evidence of the home bias existence, while not being conclusive about how significant it is. Using data from the US based platform Kickstarter, Guo et al. (2018) verify the existence of home bias, with different intensities according to projects' category and duration. Vigneron (2023) also confirms the home bias behavior in the Ulule platform from France, adding that the success can be guaranteed if the campaign is able to go beyond proximity. Filatov (2022) analyzes a further enriched Kickstarter database and compares with Guo et al. (2018) results, concluding that while a home bias exists, it has a relatively small relevance.

The gap on reward-based crowdfunding and home bias relates to the volume of data available and to the quality of this data. Given the growing relevance of reward-based crowdfunding as an alternative financing instrument and the continuous expansion of platforms both in volumes and geographically (e.g., Kickstarter that started as an US only reward-based crowdfunding and it's now one of the biggest international platforms), there is additional information to be considered. This data may either strengthen or, conversely, diminish the evidence supporting the existence of home bias in crowdfunding, particularly regarding the geographical information of investors and proponents. As suggested by Guenther et al. (2018), the geographic distance becomes less important once the "foreign" investors become more persistent. This study attempts to provide a deeper understanding of the home bias effect, by dealing with a sample of 285,701 campaigns, located in 76 countries, from Kickstarter, one of the biggest reward-based crowdfunding platforms in the world.

Local altruism is another relevant topic when assessing the success of project funding, particularly in early stages (Ryu et al., 2020). Giudici et al. (2018) conducted the first study on local altruism and its application to reward-based crowdfunding, which remains the most relevant research on this topic. They define local altruism as the magnitude of altruism from the people residing in the same geographical area as the project's creator, using the mechanism of donation of 0.5% of income tax in Italy as the metric for altruism. However, this metric is hardly scalable

due to different taxation and tax-donation frameworks across countries. Moreover, the limited number of studied campaigns and the focus of existing research in a single country constitutes a research gap for knowledge generalization. Our research is inspired by the opportunity to expand the knowledge on local altruism to a more global level by examining this effect more broadly with a multi-country sample. Additionally, we explore the interplay effects between home bias and local altruism on the reward-based crowdfunding campaign' success, which has not been studied yet. Being both behaviors characterized by a local perspective – the propensity for altruism from the project location and the propensity to contribute in an imbalanced way to local projects – we posit that it is relevant to determine if the relationship between them is transversal across different countries and regions. By doing so, this study answers to the research call to examine how crowdfunding platforms help entrepreneurs to raise capital across geographic and country barriers (Pollack et al., 2021), by both replicating previous studies on home bias and increasing the scope of geographical context of local altruism.

Based on data collected from Kickstarter campaigns and the Global Preferences Survey and following home bias and local altruism metrics adopted by Falk et al. (2018), our results show that both home bias and altruism have positive and statistically significative effects on the success of reward-based crowdfunding campaigns. These effects aren't, nevertheless, linear. We have also found evidence that both phenomena act as substitutes, which we called a *negative home altruism effect*. The cross effects as well as the non-linearity effects we found of home bias and altruism on the crowdfunding success constitute the main novelty of this research.

This paper proceeds as follows. Section 2 describes the theoretical background on home bias and local altruism and formulates the research hypotheses, making the necessary characterization of the literature on crowdfunding in general, and on reward-based crowdfunding in particular. Section 3 presents the data, variables and method. Section 4 reports the findings discussed in Section 5. Finally, Section 6 concludes by summarizing the findings, research contributions and limitations, while presenting open avenues for future research.

2. Background and hypotheses development

In this section, key concepts as home bias and local altruism are introduced, first from a broader economic and financial perspective and then linked to crowdfunding, along with relevant articles and writings on these topics. Subsequently, we proceed with the examination of related studies on the subject and finally present our theorical framework with the hypotheses to be tested.

2.1.Home Bias

The general notion of home bias refers to a preference by individuals or agents to interact with others are physically closer. The concept of home bias in finance was firstly introduced in an academic context by French and Poterba (1991). The home bias phenomenon, as described by French and Poterba, was primarily focused on the equity market. In their working paper, the authors discuss the concentration of investors' wealth in domestic assets, concluding that there is a lack of diversification (geographically wise) namely in the US, Japan, and Great Britain. At that time, investments in domestic equity accounted for 94%, 98%, and 82% of total investments in these countries, respectively. The authors suggest that besides the potential institutional factors that may constrain the investment in foreign stocks, the overrepresentation of domestic assets in the portfolios is the result of investor choices or biases. They also noted also that the expected returns by investors in the respective domestic markets were consistently higher than in foreign markets. The results from French and Poterba (1991) shown conflicting evidence to the notion of portfolio optimization developed by Markowitz (1952) and the foundation of the Modern Portfolio Theory (MPT): the risk of a portfolio can be minimized by increasing the diversification. In this way, diversification through foreign investment would be a factor to have into account to reduce the risk of the portfolio and therefore an aid to achieve an optimized portfolio.

Tesar and Werner (1995) built upon the concept of equity home bias from French and Poterba (1991). Utilizing data from five OECD countries (USA, Canada, Japan, Germany, and United Kingdom), concluded that even if the international diversification of an equity portfolio provides an apparent risk reduction there is a bias towards domestic equities. In the cases on which foreign investment occurs from the US and Canadian investors, it doesn't seem motivated by diversification motives. Lastly, when examining the frequency of adjustments in composition and

size in the foreign components of the portfolios, the authors ruled out the potential high transaction costs as a possibility for the prevalence of home bias.

Over the years, more studies have been conducted on the topic of home bias and equity investment and portfolio management (Ahearne et al. 2004, Graham et al. 2009, Karlsson & Norden 2004, Kho et al. 2009, Kilka & Weber 2000). Lewis (1999) goes as far as distinguish home bias into two different concepts: "equity home bias" in what concerns the finance literature and "consumption home bias" for the macroeconomic literature. Concerning the former, the author explores three hypothesis for the existence of a home bias: 1) domestic equities may allow a better hedge for country specific risks (such as inflation, wealth not in present in capital markets i.e. human capital and the existence of hedges from foreign markets in companies with overseas operations); 2) the gains of abroad diversification are surpassed by the costs involved; 3) there is an empirical mismeasurement of home bias.

In fact, the home bias as a research subject soon ceased to be relative only to equity investments, expanding to other economic fields. For example, in 2000, from their "Six Major Puzzles in International Macroeconomics", Obstfeld and Rogoff (2000) listed two items concerning home bias: the "home-bias-in trade puzzle", very similar to the "consumption home bias" proposed by Lewis (1999) and the "home-bias portfolio puzzle", concerning the equity home bias. In their meta-analysis on 1,467 distance effects over 103 research articles, Disdier and Head (2008) observe that not only a negative impact of distance over trade persists, as it keeps high levels since the mid-20th century. Home bias has even been linked to sport betting (Staněk 2017, Andrikogiannopoulou & Papakonstantinou 2021).

A recurrent scope of analysis on home bias concerns information. A frequently used subject of research is information asymmetry, which describes a context where two interacting parts have different quantity or quality of information. In its seminal article, Akerlof (1970) introduces the topic by describing the used car market in the US and how the sellers have better information about the car than the buyer, namely about the true state of the car and the respective fair price. The fact that the information about the product is mostly owned by the sale side would heighten the possibility of adverse selection, meaning that the market agent with better access to information could take advantage of the counterpart. In financial markets, home bias can then be a consequence of information asymmetry: by leveraging in a small initial information advantage in the domestic

market and further improving it instead of learning about foreign portfolios, the investor will choose to reinforce the information asymmetry (Van Nieuwerburgh & Veldkamp, 2009).

The internet has provided a new dynamic to trade by reducing screening costs associated with search, reproduction, transportation, tracking and verification of information (Goldfarb & Tucker, 2019), while also stimulating the debate on how distance may affect it. While some research points to a proximity-biased growth of transactions (Freund & Weinhold, 2004), other studies point in the opposite direction. For example, Hortaçsu et al. (2009), by studying transaction data from eBay and Mercado Libre, find that distant buyers are less likely to trade than the ones closer to the seller, although this effect isn't as robust as for non-internet commerce. Lendle et al. (2016) arrive at a similar conclusion, estimating that the distance effect is 65% smaller on eBay than in total international trade. Blum and Goldfarb (2006) suggest that the physical distance and trade have an inverse relation even if there are no trade related costs, although this connection only stands in the case of taste-dependent digital products (e.g., music and games).

Crowdfunding is not immune to the problem of information asymmetry. For that reason, the study of home bias phenomena has also been extended to this area in the last decade. As an increasingly relevant alternative financing option, the success of crowdfunding (among all its different types) campaigns has been studied through different perspectives. Focusing on reward-based crowdfunding, there is a wide literature about the impact on funding success of factors such as information about campaign's creators (Gafni et al., 2018), rewards' characteristics (Wheat et al. 2013, Colombo et al. 2015), goal's characteristics (Frydrych et al. 2014, Mollick 2014, Krishnan et al. 2017), emotions and social network (Kuppuswamy & Bayus, 2014) or the role of projects' updates (Kuppuswamy & Bayus 2014, Mollick 2014, Xu et al. 2014). One other factor is the home bias.

The existence of home bias in crowdfunding campaigns has been the target of some research, not only in reward-based crowdfunding (e.g., Agrawal et al. 2011, Mollick 2013, Mendes-Da-Silva et al. 2015) but also on equity crowdfunding (e.g., Hornuf et al. 2022, Bade & Walther 2021, Wang & Prokop 2023, Guenther et al. 2018) and P2P lending (e.g., Lin & Viswanathan 2016, Li et al. 2023). Agrawal et al. (2011) were the first to study the link between home bias and the success of reward-based crowdfunding, by using data from Sellaband, a crowdfunding website to raise funds for music bands. The authors concluded that even if the platform provides solutions to surpass some barriers that usually arise with distance, like screening

and monitoring processes, there is still an observable home bias. This home bias is more noticeable in the early stages of the campaigns, since local backers (like friends and family) tend to be expedited to contribute to projects due to offline social networking. This distinction among backers according to their purposes was also described by Ordanini et al. (2011).

In the aforementioned research from Agrawal et al. (2011), once the variable for the entrepreneur's offline social network is controlled, the investment decision seems to be independent from distance. The fact that there is initial funding provided by local contributors to the projects may act as a signal for further funding (namely from non-local investors). By analyzing the funders' behaviors, segmented as local and distant, the same authors reinforce their previous conclusion thus highlighting that the segments' different investing patterns are not resulting of the distance per se, but because of distance which acts as a proxy for social relationships (Agrawal et al., 2015). It should be noted that the studies here mentioned rely mostly on Sellaband platform, which limits the content scope of the campaigns to musical projects.

Empirical evidence on the intensity of home bias across reward-based crowdfunding vis-à-vis traditional financial markets is mixed. For example, Mollick (2013) takes data from Kickstarter, a richer platform in terms of campaigns' categorization, and verifies that there is less geographical concentration in the crowdfunding projects than in venture capital funding. Examining data from campaigns promoted in the same platform in US and Canada, Breznitz and Noonan (2020) also conclude that even if crowdfunding reduces the home bias level, it still exists. In other hand, Agrawal et al., (2014) show that the home bias effect in reward-based crowdfunding can be similar to more traditional funding. Mendes-Da-Silva et al. (2015) confirm that most funds were contributed by backers whose location was within 5 km from the campaigns' proponents, by taking data from a limited set of crowdfunding for music related projects from Brazil.

Using a bigger dataset, both in quality and quantity, the first goal of this research is to conciliate the literature by examining if the aforementioned home bias effect is noteworthy when explaining the success of reward-based campaigns in a multi-country-sector setting. Hence, we formally test the following hypothesis:

Hypothesis H1: There is a home bias in reward-based crowdfunding *positively* affecting the success of the campaigns.

2.2.Local Altruism

Altruism can be defined as a prosocial behavior motivated by a desire to increase another's welfare, that is not performed depending on any potential punishment or reward (Pfattheicher et al., 2022). When applied to an economic context, altruism implies that employees and investors may accept lower wages and returns in exchange for altruistic utility, respectively (Henderson & Malani, 2009).

Local altruism can be described as the general altruism level of the residents from a delimited area (Giudici et al., 2018). Falk et al (2016, 2018), in their Global Preferences Survey, clustered altruism by country using data from the 2012 Gallup World Poll. The authors questioned the willingness to give away to good causes without expecting any return, and whether (and how much) the subject of the experiment would donate if he would unexpectedly receive 1,000 euros. The results from the survey are used to measure the altruism level of the respondents, being normalized at a global level, with the average answers from each country being compared to the world average.

The literature linking altruism and crowdfunding is mostly limited to peer-to-peer lending (e.g., Chen et al. 2019, Zhou et al. 2020, Berentsen and Markheim 2020). Chen et al. (2019) suggest that the enticement of feelings like altruism may increase value by raising the effective return of investment. In their research about crowdfunding of farmers in China, Zhou et al. (2020) conclude that the altruism intensity and proportion of altruistic consumers has a positive impact on the decision of farmers to choose endeavoring in crowdfunding campaigns against borrowing from banks and government. Berentsen and Markheim (2020) found that the borrowing rates obtained closer to altruistic investors are lower than the ones provided by self-interested investors, being the latter investors even willing to borrow at a loss in extreme cases. In a different context, Faust et al. (2022) study the interaction between altruism and crowdfunding applied to Initial Coin Offerings (ICOs), observing that the altruism and ICO firm valuation are negatively related. This negative relation seems to be fueled by the quality of the entrepreneurs, since there actually is a marginal positive effect of altruism on high-quality entrepreneurs' projects and information.

Local altruism may also have an impact on the success of campaigns, by making stronger interpersonal connections (Gerber & Hui, 2013). Backers are drawn towards empathic issues in projects namely empathic narratives and rhetoric (Nakagawa & Kosaka, 2022). Therefore, campaigns should target potential backers that have higher levels of altruism, since altruism

enhances trust, which is a relevant factor to take the decision to contribute (Rodriguez-Ricardo et al. 2019, Shneor et al. 2021). Ryu et al. (2020) also find that altruism impacts the funding behavior in creative projects launched in Asian reward-based crowdfunding platforms, especially on the early stages which is similar to the evidence on marked home bias effects on early stages reported by Agrawal et al. (2011). Steigenberger (2017) categorizes a section of the backers as "involved", pointing out that altruistic motives are of considerable importance for this group of projects' supporters. Finally, Giudici et al. (2018) show that locals with higher altruism level may benefit its proponents in terms of attraction of local backers.

Despite the advances in this field, the research on local altruism on reward-based crowdfunding is very scarce and limited, as it is mainly focused on single geographic markets (i.e., Gerber & Hui 2013 – US, Giudici et al. 2018 – Italy, Rodriguez-Ricardo et al. 2019 – Spain, Nakagawa & Kosaka 2022 – Japan), on a single activity sector (i.e., Steigenberger 2017, Ryu et al. 2020) and are based on non-granular data from interviews (i.e., Gerber & Hui, 2013) and surveys (i.e., Rodriguez-Ricardo et al. 2019, Nakagawa & Kosaka 2022, Steigenberger 2017) therefore ignoring idiosyncrasies arising between different markets and sectors. We fill this gap by using data from a large reward-based platform on (successful and non-successful) campaigns, with full coverage both geographically and by activity sectors (i.e., category). To do so, we rely on Falk et al. (2018)'s metrics of local altruism for a large set of countries.

We formally test the following hypothesis:

Hypothesis H2: Local altruism has a *positive* effect on the success of reward-based crowdfunding campaigns.

Moreover, we might expect that the intensity of home bias effect on campaigns success be greater for higher level of local altruism — *home altruism effect.* Local altruism and home bias concepts relate to a geographic clustering of individuals and preferences. Hence, in one hand, one can posit that home bias and local altruism may manifest in a complementary way. If so, we might expect that the intensity of home bias effect on campaigns success be greater for higher level of local altruism— *the positive home altruism effect*. On the other hand, local altruism and home bias can act in a similar way thus acting as substitutes. If so, we might expect that the local altruism exerts a negative interplay on home bias effect — *the negative home altruism effect*. Interestingly,

there is no literature about how these two phenomena interplay. Hence, we formulate the following hypothesis:

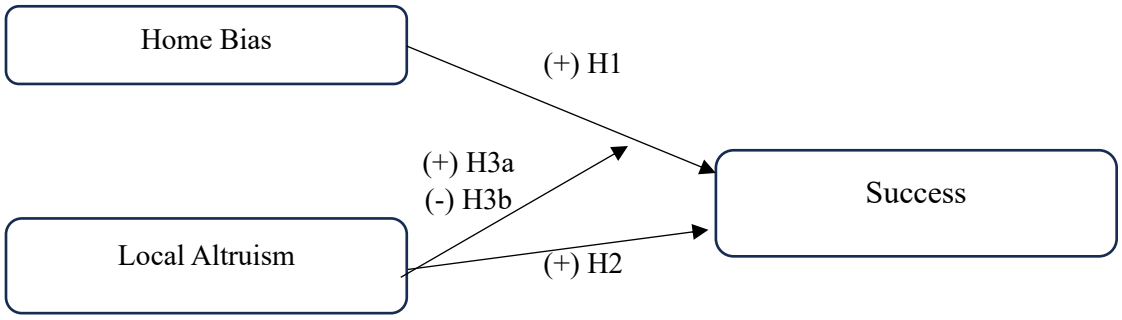
Hypothesis H3: The altruism exerts a:

H3a: *positive* moderating effect on the relationship between home bias and the success of reward-based crowdfunding campaigns (i.e., *the positive home altruism effect*).

H3b: *negative* moderating effect on the relationship between home bias and the success of reward-based crowdfunding campaigns (i.e., *the negative home altruism effect*)

Below, Figure 1 displays the conceptual framework of this research.

Figure 1. Conceptual Framework



3. Data, variables, and method

3.1.Data

To test the hypotheses above, data from three sources was retrieved: two concerning the Kickstarter platform and one concerning altruism data.

Kickstarter is a global reward-based crowdfunding platform launched in 2009 and based in the United States. Since its inception and until August 2023, this platform was used to raise more than $7.5 Billion on more than 245 thousand successful projects[1]. This platform allows creators from different categories of projects, ranging from music to comics, to launch reward-based crowdfunding campaigns in order to raise funding for their projects, connecting them with potential backers. The projects' proponents establish a funding goal as well as a deadline up to 90 (until June 2011) or 60 (from June 2011) days[2], being able to provide further information about the projects and about themselves, such as location, social networks, purpose of the project or give regular updates to the public. The potential backers of projects can also see whether a given creator has already launched any campaigns before and whether those campaigns have been successful.

Kickstarter uses an "*All-or-Nothing*" model, meaning that the fundraisers will have access to the money raised *if and only if* the project is fully funded. In the cases in which the investment provided by the funders is below the target initially set by the entrepreneurs, the funds are returned to the investors. The information about the campaigns' number of backers and pledged funds is provided on a live basis on the website, as well as the statistics about the type of current backers: if they are new backers or returning backers, and the top regions and countries by number of backers. Kickstarter also has a specific feature named "Projects we love", or "Staff Pick", that signals projects that a Kickstarter's team considers exceptional[3].

Most of the data concerning Kickstarter was retrieved from Inter-university Consortium for Political and Social Research[4] (ICPSR) (Leland, 2022). The data from this source ranges from 2009 to 2020 and is divided into two publicly available separated databases: one concerning the main information of each project (DS1) and another displaying backers' information (DS3). DS1 contains data on 506,199 projects, providing the project's ID, category, location, launch date,

[1] https://www.kickstarter.com/help/stats (Accessed September 08, 2023).
[2] https://www.kickstarter.com/blog/shortening-the-maximum-project-length (Accessed September 08, 2023).
[3] https://www.kickstarter.com/blog/introducing-projects-we-love-badges (Accessed September 08, 2023).
[4] https://www.icpsr.umich.edu/web/NADAC/studies/38050 (Accessed September 08, 2023).

deadline date, goal and pledged amount, number of backers, creator's ID, and the final status of the campaigns. DS3 clusters the number of backers and pledged amount of each project by backers' location. DS1 and DS3 were then merged using as key the projects' ID. Though this database was quite rich, there was some data missing about the location of projects.

A second data source for Kickstarter called werobots[5] was used to further enrich our database. Werobots is a webpage that provides regular snapshots through web scraping of Kickstarter's projects whose content includes project location and "Staff Pick". A total of 72 individual excel files were manually concatenated to a single one, which gathered information about 573,367 campaigns from 2009 to 2021. This file included the same project ID identifier used in our database, enabling us to fill missing data on projects' location and enrich the database with "Staff Pick".

Concerning local altruism, the indicator used in this study is included in the Global Preferences Survey[6], using data collected within the context of the 2012 Gallup World Poll. Different preferences were ranked by Falk et al. (2016, 2018), with altruism among them. Altruism was measured by combining of 2 questions related to donations to more than 80,000 participants from 76 countries. Data regarding altruism was normalized to have a mean of 0 (equivalent to the world's average) and a standard deviation of 1. In this way, the figure of local altruism for each country corresponds to how the country's average altruism level compares to the world's average altruism level.

3.2. Sample

As previously mentioned, the data collected refers to 506,199 campaigns launched on the Kickstarter platform. Before the univariate and multivariate analysis, we conducted a data cleaning process, thus ensuring that the results are not biased by sample issues, namely outliers. First, we eliminated 10 campaigns that report unusual observations. Second, we eliminated observations lower than 1st percentile and higher than the 99th percentile of the dependent variables *PLEDGED_GOAL* and *BACKERS* and the control variable *TARGET_GOAL*. This process reduced 55,240 observations taken as outliers. We have also discarded campaigns with an abnormal duration (*DURATION* > 90 days) according to Kickstarter rules. The sample was also limited by

[5] https://webrobots.io/kickstarter-datasets/ (Accessed September 08, 2023).
[6] https://www.briq-institute.org/global-preferences/rankings#16-0-0 (Accessed September 08, 2023).

the availability of the data referring to *ALTRUISM* to projects from the 76 countries that were in the scope of Falk et al. (2018) work. Finally, all campaigns that reported missing information for each independent and control variable were eliminated. This process resulted in a sample with 285,701 campaigns in 15 different sectors launched between 2009-20 in 76 different countries (see Table A1 in appendix).

3.3.Variables

Table 1 report variables definition.

3.3.1. Dependent variables

We use three proxies for reward-based crowdfunding success outcomes of campaign. *FUNDED* is a binary variable that takes the value 1 if the campaign was fully funded, and 0 otherwise (e.g., Colombo et al. 2015, Parhankangas & Renko 2017). Because Kickstarter operates in an "All-or-Nothing" model this variable provides an absolute success indicator according to the initial goal set by the creators. *PLEDGED_GOAL* is the ratio of total funding pledged over the target amount at the end of each campaign (e.g., Giudici et al. 2018, Cappa et al. 2020, Shneor et al. 2021), providing a measure for the relative success of the campaign. In case this ratio is equal or higher than one to a given campaign, it means that this campaign has been funded. *BACKERS* is the number of investors on the campaign (e.g., Anglin et al. 2018, Breznitz & Noonan 2020, Duan et al. 2020), which can be used as proxy of the popularity of the campaign (Chan et al., 2021). These three dependent variables are among the eight methods listed as the main ones to measure success by Deng et al. (2022).

Table 1. Variables Definition

Variables	Measure	Definition	Source
Dependent variables			
Funded	Binary (1/0)	Takes the value 1 if the campaign is successful, meaning that the campaign was fully funded, and 0 if the pledged amount is below the campaign's goal.	ICPSR (DS1)
Pledge Goal	Ratio (decimals)	Ratio of total pledged funding over the campaign's target goal of funding.	ICPSR (DS1)
Backers	Number	Total number of backers of the campaign.	ICPSR (DS1)
Independent variables			
Country backers	Ratio (decimals)	Ratio of the sum of backers from the same country as the projetct over the total number of backers of the project.	ICPSR (DS1) ICPSR (DS3) werobots
Country contribution	Ratio (decimals)	Ratio of the amount pledged by backers from the same country as the projetct over the total pledged amount.	ICPSR (DS1) ICPSR (DS3) werobots
Altruism	Range]-1;1[	Standard deviation from the world's mean regarding the altruism preferences of the country of origin of each campaign.	Falk et al., 2018
Controls			
Target goal	in USD	Target goal of funding of a campaign.	ICPSR (DS1)
Duration	Days	Duration of the campaign in days	ICPSR (DS1)
Picked	Binary (1/0)	Takes the value 1 if the campaign deemed as exceptional by a Kickstarter team, and 0 otherwise	werobots
Experience			
"No prior experience"	Binary (1/0)	Takes the value 1 if the promoter of the campaigns does not has prior experience on Kickstarter, and 0 if has prior experience (sucessful or nonsucceful).	ICPSR (DS1)
"Non-successful"	Binary (1/0)	Takes the value 1 if the promoter of the campaigns has prior nonsuccessful experience on Kickstarter, and 0 otherwise (i.e., if typed as no prior experience or successful experience).	ICPSR (DS1)
"Successful"	Binary (1/0)	Takes the value 1 if the promoter of the campaigns has prior successful experience on Kickstarter, and 0 otherwise (i.e., if typed as no prior experience or unsuccessful experience).	ICPSR (DS1)

3.3.2. Independent variables

We use two proxies for home bias. *COUNTRY_BACKERS* is the ratio at the end of the campaign of the number of investors from the same country as the projects' proponents over the total number

of investors (Jiang et al. 2022). *COUNTRY_CONTRIBUTION* is the ratio of the funding provided by backers from the same country as the projects' proponents over the total funding of the same project. The usage this kind of ratios to assess the home bias effect constitute a rarity in the literature, which usually uses the actual distance between backers and proponents (Guo et al. 2018, Mollick 2014, Jiang et al. 2022).

ALTRUISM is the distance regarding the average altruism preference of the country of origin of each campaign to the mean of worldwide altruism average (Falk et al., 2018). As explained by the Falk et al. (2018) for the sake of easing interpretation this indicator has a mean of zero and a standard deviation of one for the world sample.

3.3.3. Control variables

TARGET_GOAL is the amount of funding needs that projects' creators set at the beginning of the campaign (e.g., Colombo et al. 2015, Cox & Nguyen 2017, Giudici et al. 2018) in USD. *DURATION* is the length of the campaign in days (e.g., Mollick 2013, Colombo et al. 2015, Nakagawa & Kosaka 2022). *PICKED* is a dummy variable that takes the value 1 in case a campaign is flagged as "Staff Pick" or subsequently "Projects We Love" (since 2016) by a Kickstarter team, providing a signal to the potential investors about the quality of the project (e.g., Wessel et al. 2015, Dai & Zhang 2019, Gafni et al. 2020). *EXPERIENCE* is in respect to the information about past experience of projects' proponents in Kickstarter, and is segmented into three different dummy variables: *NO_PRIOR_EXPERIENCE*, *NON_SUCCESSFUL* and *SUCCESSFUL* that take the variable 1 if the creator has no previous experience in Kickstarter, if the creator had previous experiences in Kickstarter but none was successful, and if the creator had experience in Kickstarter previously and was at least once successful, respectively (and 0 otherwise). The usage of variables concerning prior experience is quite common in the literature (e.g., Courtney et al. 2016, Oo et al. 2019).

3.4.Descriptive Statistics

Table 2 displays the descriptive statistics. The mean of the variable *FUNDED* shows that roughly 45% of the campaigns considered in the sample met the funding goal. The *PLEDGED_GOAL*

ranges from 0 (projects that got no money pledged at all) to 3.8, meaning that the project with the higher *PLEDGED_GOAL* collected 3.8 more times money than the original target. The mean value is 67.6% which is substantially higher than the mean of the *FUNDED* which is an expected result, since the former takes into consideration the funds pledged to failed campaigns and the excessive funds pledged to overly successful campaigns. The number of *BACKERS* ranges between 1 and 284 with a mean of 44. *COUNTRY_BACKERS* and *COUNTRY_CONTRIBUTION* have similar values (66.8% and 71.4% respectively), with a very similar standard deviation. The *ALTRUISM* ranges from -1 to 1, meaning that a negative value corresponds to a relative negative value of altruism vis-à-vis to the worldwide mean, while a positive value corresponds to a relative positive value of altruism. In our sample the mean of the *ALTRUISM* variable is positive: 0.292. A positive value is expected, since 71.73% of the projects are from the USA, which has a value of 0.406 in Falk et al. (2018) scale. To simplify the analysis of the altruism cross-effect (hypothesis H3), hereafter we use *ALTRUISM* plus one; therefore, values for *ALTRUISM* plus one between zero and one will indicate a negative altruism whereas value above one indicates positive altruism. Regarding control variables, *TARGET_GOAL* ranges from 75$ and 300,000$, with a mean 27,874$. The *DURATION* has a maximum value of 90 days, as previously discussed, and a minimum of 12 days, while the mean stays at 34 days. *PICKED* has a mean of 0.088, meaning that only 8.8% of the campaigns were highlighted by Kickstarter's staff. It should be noted that 80% of the campaigns were created by proponents without any previous experience in Kickstarter, while 11.6% had at least one previously successful campaign.

Table 3 reports the correlation matrix between independent and control variables. We did not find high correlation' coefficients thus indicating that collinearity is not an issue.

Table 2. Descriptive Statistics

Variables	Measure	# Obs	Mean	Std. Dev.	Min.	Max
Dependent variables						
Funded	Binary (1/0)	285,701	0.447	0.497	0	1
Pledge Goal	Ratio (decimals)	285,701	0.676	0.731	0	3.815
Backers	Number	285,701	44.233	57.809	1	284
Independent variables						
Country backers	Ratio (decimals)	285,701	0.668	0.335	0	1
Country contribution	Ratio (decimals)	285,701	0.714	0.339	0	1
Altruism	Range]-1;1[	285,701	0.292	0.226	-0.940	0.906
Controls						
Target goal	in USD	285,701	13,476.62	27,870.34	75	300,000
Duration	Days	285,701	33.977	12	1	90
Picked	Binary (1/0)	285,701	0.088	0.284	0	1
Experience						
"No prior experience"	Binary (1/0)	285,701	0.8	0.4	0	1
"Non-successful"	Binary (1/0)	285,701	0.083	0.276	0	1
"Successful"	Binary (1/0)	285,701	0.116	0.321	0	1

Table 3. Correlation Matrix (Independent and Control Variables)

Variables		1	2	3	4	5	6	7	8
Independent variables									
Country backers	1	1							
Country contribution	2	0.8539*	1						
Altruism	3	0.4374*	0.4210*	1					
Controls									
Target goal	4	-0.0423*	-0.0255*	0.0182*	1				
Duration	5	-0.0459*	-0.0513*	-0.0131*	0.1964*	1			
Picked	6	0.0085*	0.0195*	-0.0210*	0.0634*	-0.0306*	1		
Experience (Baseoutcome: "No prior experience")									
"Non-successful"	7	-0.0337*	-0.0388*	0.0061*	-0.0568*	0.0081*	-0.0463*	1	
"Successful"	8	-0.0066*	-0.0096*	0.0207*	-0.1715*	-0.1415*	0.0558*	-0.1094*	1

* p-value<0.05

3.5.Method

To test our research hypotheses, in which we predict that home bias and local altruism prevails in reward-based crowdfunding (thus positively influencing the success of those campaigns), and that both biases may play a complementary or a substitute effect on the success, we estimate the following equation:

$$Success_i = \beta_0 + \beta_1 HomeBias_i + \beta_2 LocalAltruism_i + \beta_3 (HomeBias*LocalAltruism)_i$$

$$+ \gamma_k Controls_{ki} + \varepsilon_i \qquad (3.1)$$

Where:

- β_0 is the intercept.
- β_1 and β_2 measure the effects of the Home Bias (H1) and Local Altruism (H2) on the success of the i^{th} campaign.
- β_3 measures the cross effect of Home Bias and Local Altruism on the success (H3).
- γ_k measures the effect k control variables.
- ε is the error term.

As mentioned in section 3.3., we use three proxies for success. *FUNDED* is a binary variable. Therefore, to test the likelihood of a campaign being fully funded we employ a Probit model (Table 4). To regress the *PLEDGED_GOAL* and *BACKERS*, both continuous variables, we employ for OLS model (Table 5 and Table 6, respectively). In each of these multiple regressions we insert category- and time-fixed effects thus controlling for idiosyncrasies of activity sector and years.

4. Findings

4.1.Results

4.1.1. Funded likelihood

Table 4 reports the Probit estimations for the *FUNDED* likelihood. Panel A reports the baseline results for the home bias and local altruism effects. Column A.I. reports the *FUNDED* likelihood on control variables. Columns A.II report the results for the home bias effect measured by *COUNTRY_BACKERS* (A.II.1) and *COUNTRY_CONTRIBUTION* (A.II.2). Column A.III reports the effects of local altruism on funded likelihood. Finally, Panel B shows the estimations for the cross effects between home bias (B.1) and local altruism (B.2).

Table 4. Probit estimations for *FUNDED* likelihood

			Panel A. Baseline				**Panel B.** Interplay	
	Measure	**Expected Sign**	Controls	Home Bias		Altruism		
Variables			**A.I**	**A.II.1**	**A.II.2**	**A.III**	**B.1**	**B.2**
Independent variables								
Country backers	Ratio (decimals)	+ (H1)		0.320*** (0.008)			1.443*** (0.047)	
Country contribution	Ratio (decimals)	+ (H1)			0.432*** (0.008)			0.906*** (0.041)
Altruism	]0;2[	+ (H2)				0.173*** (0.012)	0.373*** (0.021)	0.079*** (0.021)
Interactions								
Altruism x Country backers		+ (H3a) - (H3b)					-0.879*** (0.036)	
Altruism x Country contribution		+ (H3a) - (H3b)						-0.358*** (0.032)
Controls								
Target goal	ln(in USD)		-0.275*** (0.002)	-0.276*** (0.002)	-0.278*** (0.002)	-0.277*** (0.002)	-0.275*** (0.002)	-0.277*** (0.002)
Duration	Days		-0.013*** (0.001)	-0.013*** (0.001)	-0.013*** (0.001)	-0.013*** (0.001)	-0.013*** (0.001)	-0.013*** (0.001)
Picked	Binary (1/0)		1.115*** (0.010)	1.125*** (0.010)	1.123*** (0.010)	1.124*** (0.010)	1.121*** (0.010)	1.118*** (0.010)
Experience (*Baseoutcome: "No prior experience"*)								
"Non-successful"	Binary (1/0)		-0.236*** (0.010)	-0.229*** (0.010)	-0.224*** (0.010)	-0.239*** (0.010)	-0.223*** (0.010)	-0.219*** (0.010)
"Successful"	Binary (1/0)		0.716*** (0.009)	0.718*** (0.009)	0.724*** (0.009)	0.709*** (0.009)	0.724*** (0.009)	0.731*** (0.009)
Fixed Effects (category, year)	Binary Set		*Included*	*Included*	*Included*	*Included*	*Included*	*Included*
Constant			3.041*** (0.066)	2.879*** (0.067)	2.845*** (0.067)	2.811*** (0.068)	2.422*** (0.072)	2.747*** (0.072)
Observations			285,701	285,701	285,701	285,701	285,701	285,701
Pseudo R-squared			0.212	0.216	0.219	0.212	0.217	0.219

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The estimations reported in Panel A show a statistically significant positive coefficient of *COUNTRY_BACKERS* (Column A.II.1, p-value<0.01) and *COUNTRY_CONTRIBUTIONS* (Column A.II.2, p-value<0.01) thus suggesting that there is a home bias effect in reward-crowdfunded campaigns that increase the likelihood of a campaign being fully funded. This result is in line with Hypothesis H1. The coefficient of *ALTRUISM* is also positive and statistically significant (Column A.III, p-value<0.01). This evidence suggests that local altruism also plays a positive effect on funded likelihood in line with Hypothesis H2. Panel B displays the estimations for the interplay effect of local altruism and home bias. The constitute terms of the interaction are positive and statistically significant (Column B.1: *COUNTRY_BACKERS,* p-value<0.01*; ALTRUISM,* p-value<0.01; Column B.2: *COUNTRY_CONTRIBUTIONS,* p-value<0.01*; ALTRUISM,* p-value<0.01) in line with the results reported in Panel A. The estimation shows that the coefficients *ALTRUISM*x*COUNTRY_BACKERS* (Column B.1) and *ALTRUISM*x*COUNTRY_CONTRIBUTIONS* (Column B.2) are negative and statistically significant (p-value<0.01). These results suggest that home bias and local altruism act as substitutes when influencing the likelihood of a campaign being fully funded — *the negative home altruism effect*. This aligns with Hypothesis H3b.

With respect to control variables, the estimations suggests that the probability of the project being funded is negatively related to the *TARGET GOAL* of the project and to an experienced *NONSUCCESSFUL* creator, while is positively related to the project being *PICKED* or created by an experienced *SUCCESSFUL* proponent (Column A.I, p-value<0.01).

4.1.2. Pledged Goal

Table 5 reports the OLS estimations for the *PLEDGED GOAL.* The estimations reported in Panel A show a statistically significant positive coefficient of *COUNTRY_BACKERS* (Column A.II.1, p-value<0.01) and *COUNTRY_CONTRIBUTIONS* (Column A.II.2, p-value<0.01). These findings are aligned with results reported in subsection 4.1.1 thus suggesting that there is a home bias increasing the pledged over goal ratio. This result is in line with Hypothesis H1. The coefficient of *ALTRUISM* is also positive and statistically significant (Column A.III, p-value<0.01) in line with Hypothesis H2. Panel B displays the estimations for the interplay effect of local altruism and home bias. The results are similar to those previously reported for funded likelihood, thus

confirming a *the negative* (cross) *home altruism effect* in line with Hypothesis H3b. The estimated effect of control variables also aligns with evidence reported in Table 4.

Table 5. OLS estimations for *PLEDGED_GOAL*

Variables	Measure	Expected Sign	Panel A. Baseline Controls	Panel A. Baseline Home Bias		Panel A. Baseline Altruism	Panel B. Interplay	
			A.I	**A.II.1**	**A.II.2**	**A.III**	**B.1**	**B.2**
Independent variables								
Country backers	Ratio (decimals)	+ (H1)		0.077***			0.518***	
				(0.004)			(0.019)	
Country contribution	Ratio (decimals)	+ (H1)			0.101***			0.296***
					(0.004)			(0.017)
Altruism	]0;2[	+ (H2)				0.085***	0.203***	0.109***
						(0.005)	(0.009)	(0.009)
Interactions								
Altruism x Country backers		+ (H3a) - (H3b)					-0.358***	
							(0.015)	
Altruism x Country contribution		+ (H3a) - (H3b)						-0.163***
								(0.013)
Controls								
Target goal	ln(in USD)		-0.164***	-0.163***	-0.164***	-0.164***	-0.163***	-0.164***
			(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Duration	Days		-0.006***	-0.006***	-0.006***	-0.006***	-0.006***	-0.006***
			(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Picked	Binary (1/0)		0.490***	0.490***	0.489***	0.493***	0.490***	0.490***
			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Experience *(Baseoutcome: "No prior experience")*								
"Non-successful"	Binary (1/0)		-0.080***	-0.078***	-0.077***	-0.082***	-0.077***	-0.077***
			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
"Successful"	Binary (1/0)		0.457***	0.456***	0.457***	0.453***	0.456***	0.457***
			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Fixed Effects (category, year)	Binary Set		*Included*	*Included*	*Included*	*Included*	*Included*	*Included*
Constant			2.349***	2.307***	2.297***	2.235***	2.059***	2.164***
			(0.026)	(0.026)	(0.026)	(0.027)	(0.028)	(0.028)
Observations			285,701	285,701	285,701	285,701	285,701	285,701
R-squared			0.276	0.277	0.278	0.277	0.279	0.279

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4.1.3. Number of Backers

Table 6 reports the OLS estimations for the number of *BACKERS.* The estimations reported in Panel A show a statistically significant positive coefficient of *COUNTRY_BACKERS* (Column A.II.1, p-value<0.01) and *COUNTRY_CONTRIBUTIONS* (Column A.II.2, p-value<0.01) thus showing that the home bias also influences the engagement of backers, and thus, the crowdfunding success. In line with evidence reported in Tables 4 and 5, the coefficient of *ALTRUISM* is positive and statistically significant (Column A.III, p-value<0.01) thus revealing that local altruism also plays a positive effect on the number of engaged backers. Table 6 also report a negative cross-

effect of altruism on the relationship between home bias and the number of backers in line with Hypothesis H3b. With respect to control variables, the model suggests that the probability of the project being funded is negatively related to the *DURATION* of the project and to an experienced *NONSUCCESSFUL* creator, while is positively related to the *TARGET GOAL*, the project being *PICKED* or created by an experienced *SUCCESSFUL* proponent (Column A.I, p-value<0.01).

Table 6. OLS estimations for the number of *BACKERS*

			Panel A. Baseline				**Panel B.** Interplay	
	Measure	**Expected Sign**	Controls	Home Bias		Altruism		
Variables			**A.I**	**A.II.1**	**A.II.2**	**A.III**	**B.1**	**B.2**
Independent variables								
Country backers	Ratio (decimals)	+ (H1)		4.984*** (0.283)			33.076*** (1.401)	
Country contribution	Ratio (decimals)	+ (H1)			8.051*** (0.258)			18.317*** (1.210)
Altruism	]0;2[	+ (H2)				7.186*** (0.404)	15.232*** (0.661)	7.120*** (0.630)
Interactions								
Altruism x Country backers		+ (H3a) - (H3b)					-23.272*** (1.093)	
Altruism x Country contribution		+ (H3a) - (H3b)						-8.866*** (0.949)
Controls								
Target goal	ln(in USD)		8.639*** (0.068)	8.654*** (0.068)	8.640*** (0.068)	8.571*** (0.068)	8.628*** (0.068)	8.625*** (0.068)
Duration	Days		-0.358*** (0.007)	-0.355*** (0.007)	-0.353*** (0.007)	-0.354*** (0.007)	-0.353*** (0.007)	-0.352*** (0.007)
Picked	Binary (1/0)		61.676*** (0.446)	61.711*** (0.446)	61.621*** (0.446)	61.946*** (0.446)	61.772*** (0.446)	61.691*** (0.446)
Experience *(Baseoutcome: "No prior experience")*								
"Non-successful"	Binary (1/0)		-5.695*** (0.314)	-5.571*** (0.314)	-5.430*** (0.314)	-5.849*** (0.314)	-5.568*** (0.314)	-5.469*** (0.315)
"Successful"	Binary (1/0)		32.063*** (0.364)	32.041*** (0.365)	32.093*** (0.365)	31.742*** (0.365)	31.948*** (0.365)	32.025*** (0.365)
Fixed Effects (category, year)	Binary Set		*Included*	*Included*	*Included*	*Included*	*Included*	*Included*
Constant			-27.766*** (1.794)	-30.499*** (1.805)	-31.928*** (1.804)	-37.428*** (1.879)	-49.051*** (1.977)	-40.576*** (1.965)
Observations			285,701	285,701	285,701	285,701	285,701	285,701
R-squared			0.221	0.221	0.223	0.221	0.223	0.223

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4.2. Additional Analysis

Overall, our results confirm that home bias and local altruism exist on reward-based crowdfunding platforms positively influencing the campaign's success thus reinforcing evidence from prior research on home bias (e.g.,Mendes-Da-Silva et al. 2015, Guo et al. 2018) and altruism (e.g.,

Giudici et al. 2018, Rodriguez-Ricardo et al. 2019). In this subsection we extend the research by examining if such relations are in fact linear. Guo et al. (2018) suggest that in the investment time window, or campaign duration, the home bias may be dynamic, showing a different behavior in different stages of the campaign. After a given point, one can posit that high home bias might push some backers away, namely nonlocal ones, as it might send a signal to informal investors that campaigns promoted in such context are somewhat exclusive. Kickstarter displays information regarding the number of backers of each campaign but also statistics about the most representative backers' countries. That information gives to investors some clues about the concentration of backers and their contributions for each campaign therefore reflecting home bias to some extent. Based on that information, investors can feel less engaged with those campaigns as high home bias might increase the sense of outsiders to a niche of backers thus discouraging them to back such campaigns (Hypothesis H4).

In a similar vein, the relationship between local altruism and campaigns' success can be non-linear. Altruistic behavior implies that the utility function of investors is achieved by maximizing the utility's function of the campaign's proponent (Becker, 1976). If so, one can argue that the utility function of altruistic behavior of investors might decrease with investments on campaigns promoted in contexts with high local altruism. This is because, after that level, investors might feel they play lower marginal impacts on campaigns success and entrepreneurial development as the local players may exert per se high efforts in supporting local creators. Additionally, the existence of a reward may induce a crowding-out effect on higher levels of altruism since a creator's compensation for a backer's contribution can reduce the positive effect of the intrinsic motivation to invest from the latter (Cecere et al., 2017). Hence, for high levels of local altruism the engagement of backers can start to decrease (Hypothesis H5).

Below, we test these hypotheses on non-linear effects of home bias and local altruism. Table 7 reports the results. Panel A reports Probit estimations for the FUNDED likelihood. Panels B and C report OLS estimations for the *PLEDGED_GOAL* and number of *BACKERS*, respectively. Columns .I and .II report the estimation of non-linear effect of home bias and local altruism, respectively. For briefly the estimations for control variables are not reported but available upon request.

Table 7. Additional Analysis. Nonlinear effects

Variables	Measure	Expected Sign	Panel A. *FUNDED* Probit Home Bias A.I.1	Panel A. *FUNDED* Probit Home Bias A.I.2	Panel A. *FUNDED* Probit Altruism A.II	Panel B. *PLEDGED GOAL* OLS Home Bias B.I.1	Panel B. *PLEDGED GOAL* OLS Home Bias B.I.2	Panel B. *PLEDGED GOAL* OLS Altruism B.II	Panel C. *BACKERS* OLS Home Bias C.I.1	Panel C. *BACKERS* OLS Home Bias C.I.2	Panel C. *BACKERS* OLS Altruism C.II
Independent variables											
Country backers	Ratio (decimals)	+ (H4)	2.314***			1.130***			76.961***		
			(0.033)			(0.014)			(1.085)		
(Country backers)^2	(Country backers)^2	- (H4)	-1.868***			-1.001***			-68.413***		
			(0.030)			(0.013)			(0.990)		
Country contribution	Ratio (decimals)	+ (H4)		3.728***			1.759***			150.072***	
				(0.036)			(0.015)			(1.160)	
(Country contribution)^2		- (H4)		-3.049***			-1.567***			-134.291***	
				(0.033)			(0.014)			(1.100)	
Altruism	]0;2[	+ (H5)			0.895***			0.608***			27.552***
					(0.060)			(0.024)			(1.758)
(Altruism)^2		- (H5)			-0.357***			-0.259***			-10.104***
					(0.029)			(0.012)			(0.901)
Controls			*Included*	*Included*	*Included*	*Included*	*Included*	*Included*	*Included*	*Included*	*Included*
Fixed Effects (category, year)			*Included*	*Included*	*Included*	*Included*	*Included*	*Included*	*Included*	*Included*	*Included*
Constant			2.506***	2.262***	2.496***	2.086***	1.951***	2.008***	-45.618***	-61.534***	-46.278***
			(0.067)	(0.070)	(0.073)	(0.025)	(0.025)	(0.028)	(1.795)	(1.774)	(1.986)
Observations			285,701	285,701	285,701	285,701	285,701	285,701	285,701	285,701	285,701
Pseudo R-squared			0.2248	0.241	0.2127						
R-squared						0.291	0.310	0.278	0.232	0.260	0.222

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The estimations reported in Panel A (Column A.I.1) show a statistically significant positive effect of *COUNTRY_BACKERS* and a negative effect of $COUNTRY\_BACKERS^2$ on the FUNDED likelihood (p-value<0.01). Similarly, the positive effect of *COUNTRY_CONTRIBUTIONS* and the negative effect for $COUNTRY\_CONTRIBUTIONS^2$ are statistically significant (Column A.I.2, p-value<0.01). These results provide evidence of an inverse U-shaped home bias effect in reward-crowdfunded campaigns—i.e., the home bias increases the likelihood of a campaign being fully funded but until a certain limit, after which the home bias inhibits the success of the campaign. This result is in line with Hypothesis H4. The coefficient of *ALTRUISM* is positive and statistically significant (Column A.II, p-value<0.01) while the $ALTRUISM^2$ is negative. This evidence suggests that local altruism also plays an inverse U-shaped effect on funded in line with Hypothesis H5. The estimations reported in Panel B and C, for the *PLEDGEDGOAL* and number of *BACKERS* are in line with those reported in Panel A thus reinforcing the evidence of inverse U-shaped home bias and local altruisms effect on the success of reward-crowdfunded campaigns.

5. Discussion

Our findings clearly show that there is an overall positive and statistically significant effect of both home bias and local altruism on the success of reward-based crowdfunding campaigns. In fact, the two effects act as substitutes. After a certain point, these effects switch to negatively influence the campaigns success, meaning that home bias and local altruism act as a detriment of the campaigns' success.

The results from the three models displayed in the Tables 4, 5 and 6 consistently show that the two indicators of home bias used, namely the ratio of backers from the same country as the campaign and the ratio of monetary contribution from those backers, and the local altruism show a positive and statistically significant effect on the three measures of success studied, namely the campaign achieving the funding target, the pledged to goal ratio and the number of backers respectively. While the positive effect of home bias and local altruism on campaigns success is in line with the previous results reported from different authors (home bias: e.g., Breznitz & Noonan 2020, Jiang et al. 2022; local altruism: e.g., Giudici et al. 2018, Rodriguez-Ricardo et al. 2019), these evidences offer a contribution to the literature because they are grounded on a multi-country-sector setting therefore providing some comfort about the generalization of evidences reported by extant literature. The patterns' inflection shown in Table 7, indicating that the positive and statistically significant effect of home bias and local altruism becomes negative after a certain point, offers a fresh research avenue to the current literature.

One possible explanation for the evidence of the inverse U-shaped home bias effect on crowdfunding success is that a too high level of home bias may deter foreign backers from investing. As pointed out in the proposition for the hypothesis H4, if potential investors from other areas can feel less involved in campaigns that more extreme thresholds of home bias and this fact inhibits them to invest in said campaigns, the pool of prospective backers decreases thus resulting in a threat to the successful funding of those projects. This may be especially prone to happen in cases where a stronger home bias effect in early stages of projects, as verified by Agrawal et al. (2011) and Guo et al. (2018), hinder non-nationals to invest.

The nonlinear effect of local altruism constitutes a novelty in the sense that altruism may in fact become detrimental to the financing of projects in cases where the local altruism level of the campaign's creators surpasses a certain threshold. The overall positive relationship between local altruism and funding success is expected, as proposed by in Hypothesis H2, with the

inflection point representing the limit after which the utility for investors tends to decrease due to their perception that their contribution has a lower marginal impact to the success of a given campaign.

Also, and as the main novelty of this work, the results from the interplay of altruism and home bias in the three tested models show that while both have a positive contribution to the success of the campaign, their interaction among themselves seems to be negative, meaning that the two effects may act as substitutes.

6. Conclusions

This research examines the effects of both home bias and local altruism in the success of reward based crowdfunding campaigns and how these two effects may interact. Based on the available literature and using data from Kickstarter, one of the most relevant reward-based crowdfunding platforms in the world, we firstly show that both effects contribute positively to the success of reward-based crowdfunding campaigns. For this, we have tested how the ratio of same country backers and same country funding (home bias) and altruism interact with three different indicators of campaigns success: completed funding, pledged funding to target funding ratio and number of backers. Secondly, we find that both effects may act as substitutes, constituting this the main contribution to the literature. Finally, we examine the linearity of home bias and local altruism effects. The results show that none of these effects act in a linear way on the campaigns' success. In fact, they both play an inverse U-shaped effect on the success.

In terms of its contribution to theory, this study confirms that both home bias and local altruism have an overall positive effect on the funding likelihood of reward-based crowdfunding campaigns. While each of these factors contribute to the successful funding of projects, the effect is not linear, exhibiting an inverse U-shaped effect on funding. This behavior of the effect hasn't yet been described in the theoretical framework. But the main improvement it provides to the literature concerns the verification that the interplay of home bias and local altruism shows that both act as substitutes.

The findings of this research may be of value for projects' proponents since it indicates that they can leverage on the home bias and local altruism in order to increase the funding perspectives. So, they should target backers from the same country or to countries where local altruism exhibits higher levels. Similar behavior should be adopted by platforms: they should enhance the connection of backers and proponents from the same country and link more altruistic projects with backers from more altruistic areas.

The main limitation of this work concerns the difficulty in analyzing in more detail the interactions of additional parameters with home bias and local altruism and their contribution to the success of campaigns. The data publicly available about concerning large sets of projects from Kickstarter is disperse and scarce, and we believe that additional information on campaigns, such as campaigns' rewards (if any) and campaigns' summaries; proponents, such as proponents' type (such as if individual or enterprises) and gender; and backers, such as backers' age, gender and

experience, would improve the understanding of the effects here studied. Also, it wasn't possible to study possible connections between backers and creators, and therefore establishing the relevance on the social networks and how it may interact with the home bias, as proposed by Agrawal et al. (2011).

A point of interest that wasn't studied in this research concerns the timing, or the funding pace, of the campaigns and how it interacts with home bias and altruism. A deep analysis of the funding pace will be crucial to validate the assumptions in which we ground the non-linear effects of home bias and local altruism. Lastly, it would be interesting to extend this study to other reward-based crowdfunding platforms, namely some that enable creators to keep the pledged funds even if the campaign doesn't get fully funded (e.g., Indiegogo).

Appendices

Appendix I – Table A1. Sample test composition

Country	# Observations	% Observations	Cumulative
United States	204,920	71.73	71.73
United Kingdom	29,443	10.31	82.03
Canada	12,622	4.42	86.45
Australia	6,448	2.26	88.71
Germany	4,914	1.72	90.43
Mexico	4,062	1.42	91.85
Italy	3,929	1.38	93.22
France	3,880	1.36	94.58
Spain	3,284	1.15	95.73
Netherlands	2,282	0.80	96.53
Sweden	1,906	0.67	97.20
Japan	1,025	0.36	97.55
Switzerland	968	0.34	97.89
Austria	713	0.25	98.14
China	401	0.14	98.28
India	277	0.10	98.38
Ukraine	265	0.09	98.47
Poland	232	0.08	98.55
South Korea	230	0.08	98.63
Thailand	218	0.08	98.71
Israel	182	0.06	98.77
Russia	179	0.06	98.84
South Africa	168	0.06	98.90
Colombia	162	0.06	98.95
Indonesia	157	0.05	99.01
Greece	155	0.05	99.06
Brazil	154	0.05	99.12
Czech Republic	146	0.05	99.17
Turkey	130	0.05	99.21
Hungary	129	0.05	99.26
Peru	121	0.04	99.30
Argentina	118	0.04	99.34
Kenya	103	0.04	99.38
Romania	102	0.04	99.41
Philippines	94	0.03	99.45
Portugal	84	0.03	99.48
Lithuania	83	0.03	99.50

Viet Nam	78	0.03	99.53
Finland	77	0.03	99.56
Costa Rica	76	0.03	99.59
Chile	74	0.03	99.61
Ghana	74	0.03	99.64
Guatemala	71	0.02	99.66
Uganda	66	0.02	99.69
Serbia	61	0.02	99.71
Haiti	59	0.02	99.73
Cambodia	54	0.02	99.75
Estonia	54	0.02	99.77
Egypt	52	0.02	99.78
Croatia	50	0.02	99.80
Nigeria	44	0.02	99.82
Tanzania	42	0.01	99.83
Nicaragua	41	0.01	99.85
United Arab Emirates	41	0.01	99.86
Bosnia and Herzegovina	36	0.01	99.87
Morocco	35	0.01	99.88
Bolivia	34	0.01	99.90
Afghanistan	33	0.01	99.91
Venezuela	32	0.01	99.92
Pakistan	27	0.01	99.93
Jordan	24	0.01	99.94
Rwanda	24	0.01	99.95
Georgia	23	0.01	99.95
Sri Lanka	21	0.01	99.96
Iraq	15	0.01	99.97
Malawi	15	0.01	99.97
Iran	13	0	99.98
Bangladesh	11	0	99.98
Zimbabwe	11	0	99.98
Cameroon	10	0	99.99
Moldova	10	0	99.99
Kazakhstan	9	0	99.99
Algeria	7	0	100.00
Botswana	5	0	100.00
Suriname	5	0	100.00
Saudi Arabia	1	0	100.00
Total	285,701		

Category	# Observations	% Observations	Cumulative
Film & Video	39,990	14.00	14.00
Music	37,995	13.30	27.30
Publishing	34,200	11.97	39.27
Games	27,828	9.74	49.01
Art	26,138	9.15	58.16
Technology	26,032	9.11	67.27
Fashion	19,251	6.74	74.01
Design	18,870	6.60	80.61
Food	16,686	5.84	86.45
Comics	11,138	3.90	90.35
Theater	7,412	2.59	92.94
Photography	6,602	2.31	95.25
Crafts	6,433	2.25	97.51
Journalism	3,878	1.36	98.86
Dance	3,248	1.14	100.00
Total	285,701		

Year	# Observations	% Observations	Cumulative
2009	571	0.20	0.20
2010	5389	1.89	2.09
2011	13834	4.84	6.93
2012	21668	7.58	14.51
2013	21307	7.46	21.97
2014	33240	11.63	33.60
2015	36797	12.88	46.48
2016	33466	11.71	58.20
2017	32535	11.39	69.59
2018	32165	11.26	80.84
2019	30879	10.81	91.65
2020	23850	8.35	100.00
Total	285,701		

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