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Altruistic Investment Decision Behavior in Early Stage Ventures

ABSTRACT

In this study, we develop and test a gendered social capital model of altruistic investment behavior that explains why some informal investors expect high returns on their investments while others expect no payback at all. Prior literature predominantly assumes that informal investors engage in investment activities with a return on investment and profit in mind; however, other non-financial objectives for informal investment – e.g. altruistic informal investment – have also been suggested although their antecedents unexplored. We suggest altruistic investment behavior depends on life circumstances determined by social capital, gender, and their combination. Our empirical evidence supports these propositions.

Keywords: altruism, informal investment, social capital, gender

Classification code: M13

1. Introduction

Why do some informal investors expect high returns on their investments while others expect no payback at all? This is a controversial question that is rarely addressed in the literature dominated by the logic of finance logic that focuses mainly on profit maximization and return on investment (Cassar 2004; Kaplan and Stromberg 2004).

Informal investment is typically funded by individuals such as business angels, friends, and family members (Bygrave et al. 2003; Erikson et al. 2003). They provide a much larger percentage of private equity investment than venture capitalists (Bygrave et al. 2003; EY 2014) which is essential for developing healthy and vibrant economies (Mason and Harrison 2002a). Although prior literature on informal investment has suggested non-economic aspects of investment behavior (Sullivan and Miller 1996; Steier 2003; Paul et al. 2003; Maula et al. 2005; Szerb, Rappai, Makra & Terjesen 2007), the predominant assumption is that informal investors (particularly those investing in people who are not known to them prior to the investment investigation) mainly engage in investment activities with return on investment and profit in mind (Mason and Harrison 1995). In this regard, it is assumed that informal investors use objective and rational criteria to avoid bad investments in order to achieve a financial payback/return (Mason and Harrison 2002b).

Informal investors, however, do from time to time engage in investments with expected outcomes of negative payback or no payback at all for reasons including, but not limited to, fun with money, desire to help, rumor, and status (Sullivan and Miller 1996; Steier 2003; Paul et al. 2003; Maula et al. 2005). Such informal investments are illogical according to traditional finance logic (e.g. Cassar 2004; Kaplan and Stromberg 2004) but nevertheless happen. We conceptualize such informal investment behavior as altruistic because individuals receive no return on their investment of time, resources, or efforts beyond their feeling of personal reward of having

contributed value to their society or other people (Piliavin and Charng 1990) including entrepreneurs who obtained the investment.

Although we know that some informal investors engage in investments for reasons other than financial profit, we know very little about what explains this alternative behavior. Understanding this is important because research conducted by Bygrave et al. (2003), and more recently by Bygrave and Bosma (2011), concluded that the size of informal investment from close family members, friends, and neighbors of entrepreneurs was as much as 1.1% of GDP worldwide. On average, 3.4% of the adult population was involved in informal investment with someone they knew. Although Bygrave et al. (2003) reveal that informal investment with someone the investor knows is frequent, their study provides no insights on the financial payback expectations and whether such investments are to be finally characterized as altruistic investment behavior.

In continuation hereof, we do not know if altruistic behavior is situated in personality traits or socialized guided behavior. And, if it is socialized behavior, we do not know which situational factors drive this behavior and/or what are the life events or circumstances that make individuals act altruistically in their investment decisions. Understanding these questions regarding the background of altruistic investment behavior is important for several reasons. First, in order to theorize appropriately about informal investments, we need to incorporate the various investment logics in play. Second, understanding the background of altruistic investment behavior helps us to better evaluate and assess such investment decisions in practice. For these reasons, it is therefore crucial to understand the underlying mechanisms and antecedents of altruistic investment behavior.

In this study, we take a first step in addressing the tension between economic reasoning and altruistic reasoning among informal investors. Specifically, we investigate how the social capital of informal investors impacts their tendency to engage in altruistic investment behavior. In this way,

we approach altruistic investment behavior as socialized behavior that depends on life circumstances determined by social capital. By altruistic investment behavior, we mean an investment where an investor provides funding to an entrepreneur without getting a positive financial payback (Piliavin and Charng 1990; Bar-Tal 1986).

We develop a gendered social capital model of altruistic investment behavior that explains when informal investors are likely to engage in altruistic investments depending on their relational social capital. Specifically, we argue that informal investors closely related to investees are more likely to provide altruistic investments due to the socialized norms and obligations prevailing in strong relationships (Sandefur and Laumann 1998). We further argue that the influence from relational social capital depends on investor gender (Ibarra 1992; Eagly 2009). There are different societal norms and expectations about how men and women act appropriately, and these norms and expectations contribute toward informal investors acting differently in similar situations depending on their gender (Powell and Ansic 1997).

Our study makes two important contributions to the literature on informal investment. First, we propose an alternative to the dominant focus of financial profit as the only criterion for informal investors. Second, we develop a theoretical model that emphasizes altruistic investment behavior as a predominantly socialized behavior and we explain under what circumstances informal investors are most likely to engage in altruistic investment behavior. We test our theoretical model on a pooled sample from four western industrialized countries (US, France, Spain & United Kingdom) collected from 2004 to 2008.

2. Theoretical background

2.1 Theory of altruism

In contrast and as a reaction to rational economic reasoning where the concept of exchange and the welfare of the self is the primary principle motivator (Kohli and Künemund 2003), the theory of altruistic behavior has materialized and is discussed in various disciplines including economics (Andreoni 2006), psychology (Bar-Tal 1986), sociology (Piliavin and Charng 1990), and management (Bekkers and Wiepking 2010; Gautier and Pache 2013).

Auguste Comte (1865) suggested that altruism involves behavior that is concerned with other's welfare at the cost of self-interest. Since then, a range of different definitions has emerged. To some extent, "that virtue is its own reward" is the key to altruism. It is behavior that does not rely on exchange and it has no expectation of payback but rather demonstrates a desire to make the world better for others (Simon 1993; Gierveld and Dykstra 2008). Individuals who act altruistically do things that provide no return on their investment of time, resources, or effort beyond their feeling of personal reward of having contributed value to their society or other people (Piliavin and Charng 1990). We adapt a broad understanding of altruism. Specifically, we judge altruism based on the behavioral outcome in which the helper experiences costs while the recipient experience benefits regardless of whether this behavior is performed "… *unintentionally, involuntarily, or as consequences of different motives such as compensation desires, indebtedness, expectation of future rewards, etc*" (Bar-Tal 1986: 5).

Although there are some indications that altruism emerges out of reflexive reaction being motivated by human drift, in general, altruism is perceived as socialized behavior that involves a high degree of moral value and judgment (Piliavin and Charng 1990; Konow 2010). From this

perspective, it is important to understand the circumstances and situational factors that motivate individuals to behave altruistically.

2.2 Altruism, management, and entrepreneurship

To date, altruism has only played a limited role in entrepreneurship, management, and informal investment research. This lack of focus on altruism is not surprising given the literature's emphasis on economic reasoning and profit maximization.

In philanthropy and corporate philanthropy, however, altruism has played a major role in explaining why individuals or corporations provide charity for public purposes (Bekkers and Wiepking 2010; Gautier and Pache 2013). In family business research, Schulze et al. (2003) used altruism to explain performance-based incentive payments while Steier (2003) argued that altruism is mixed with economic rationalities in family business investment and governance of family businesses. In behavioral economics, Weitzel, Urbig, Desai, Sanders, and Acs (2010) show how various type of entrepreneurial talent impacts selfish behavior that may allocate into unproductive or destructive activities. And recently, in the developing field of social entrepreneurship, altruism has also played a strong role in explaining the purpose and organizing principles of social ventures (Miller et al. 2012; Tan et al. 2005).

Altruism has also been discussed in the periphery of the financial investment literature. Sullivan and Miller (1996) introduced the idea of heterogeneity in rationalities among investors and proposed that altruistic investors add a moral dimension to their investment criteria as an important motivation for their economic behavior. Cumming and Johan (2007) showed how altruism and social responsibility play an important role in institutional investment in private equity.

Finally, although more implicit than explicit, researchers have referred to mechanisms similar or related to altruism in research on informal investment. Maula et al. (2005), for example, found that

investors who are familiar with entrepreneurs are more likely to invest than those who do not have such connections. Bygrave et al. (2003) showed that, respectively, 40 percent and 8 percent of all informal investments are made in family and other relations' situations. This is consistent with Zwick and Fletcher's (2014) concept of kin-altruism. In line with this reasoning, Fairchild (2011) emphasizes that investments in entrepreneurial activities are based more on empathy (and trust) rather than on market knowledge and business connections. Buchanan (2012) shows that women of all ages are more altruistic and support entrepreneurship to make a difference while men only do so at an older age. Finally, Paul et al. (2003) found that among the reasons to become an informal investor was "to give something back" and "enjoyment and satisfaction" – both reasons that can be associated with altruism.

Thus, inspired by Bar-Tal's (1986) discussion of definitions of altruistic behavior, we define altruistic informal investment behavior as investments in new ventures from which investors receives no positive financial payback.

3. Hypotheses development

Figure 1 provides an overview of the gendered social capital model of altruistic investment behavior examined in this research.

Insert Figure 1

We argue that altruistic investment behavior is influenced by investors' social capital. We are particularly interested in how relational social capital (Tsai and Ghoshal 1998) in the form of the

strength of tie between the investor and investee (Granovetter 1973) impacts investment behavior, and further how this relationship is gendered.

3.1 Social capital theory

Social capital theory is widely used and accepted in social science, including in management (for a review see Borgatti and Foster 2003) and in entrepreneurship (for a review see Gedajlovic, Honig, Moore, Payne 2013).

According to Adler and Kwon (2002), ”… *social capital is the resource available to actors as a function of their location in the structure of their social relations*” (p18). Specifically, they argue that, particularly, social relations in contrast to hierarchical and market relations influence individuals’ ability to create value through various mechanisms (e.g. opportunities, motivation, and abilities). Three characteristics of the literature are particularly important to emphasize for this study.

First, social capital has been divided into three dimensions: the structural dimension, the relational dimension, and the cognitive dimension (Nahapiet and Ghoshal 1998). While the structural dimension is concerned with the pattern of ties among actors, the relational dimension is concerned with the norms, obligations and social solidarity among actors, and finally the cognitive dimension is concerned with common interpretation and sensemaking among actors. In this study, we are interested in the relational dimension concerning obligations and social solidarity among actors generated structurally as a consequence of tie strength among them.

Second, in addition to understanding relational social capital according to tie strength and the generated social solidarity, such dyadic relationships are gendered (e.g. Ibarra 1992; Moore 2000; Erickson 2004) implying that men and women are expected to react differently in similar investor—investee relationships. Particularly, it may be expected that investor’s sex may impact what is perceived as norms of appropriate investment behavior (e.g. what is culturally appropriate to do).

Finally, Sandefur and Laumann (1998) move discussions of social capital from forms (e.g. bridging social capital or bonding social capital) to benefits and emphasize that a given form of social capital can provide one or more benefits, may add to one or several goals, and finally that it can also confer liabilities. They discuss how social capital may provide benefits (or liabilities) in the form of information, influence and control, and social solidarity.

The social solidarity emerging out of relational social capital as a consequence of tie strength and its gendered nature is of particular interest in this study. Later, we argue how tie strength generates different levels of social solidarity in the relationship between investor and investee, how this is gendered, and finally how these characteristics impact altruistic investment behavior.

3.2 Main Effects

3.2.1 Social capital: Strength of relationship between investor and investee

There is a long tradition in understanding how the strength of ties among individuals impact the behavior of those individuals (e.g., Granovettor 1973; Shane and Cable 2002; Evald et al. 2006). We draw on this literature to argue that the strength of tie between a potential investor and investee will impact the likelihood of altruistic investment behavior. Essentially, we argue that the stronger the tie, the more likely investors will act altruistically. Three reasons support our argument, two of which represent external pressures to act appropriately and the third reason is based on an internal motivation to act according to empathy. A discussion of these reasons follows.

First, when individuals interact on a regular basis over time, social solidarity emerges as trust and mutual obligations accumulate (Sandefur and Laumann 1998). Social solidarity generates mutual trust and commitment among the parties independent of any specific transactions and makes the parties inclined to serve the relationship and its continuance (Portes and Sensenbrenner 1993; Sandefur and Laumann 1998). Thus, social solidarity prevails when "*a helpful act is performed, not in response to any specific benefit received, but in honor of the social exchange relation itself*" (Emerson 1981: 33). An increased social solidarity between investor and investee will increase the peer pressure to act in service of the relationship itself, and thus to act altruistically in the investment decision. Therefore, as the strength of the relationship increases, the social solidarity also increases, and we therefore expect that stronger relationships between investors and investees increase the likelihood of altruistic investment behavior.

Second, those mechanisms affiliated with social solidarity not only operate at the peer and relational levels, but also at a societal level. Over time, culturally, social norms and expectations develop about what is appropriate behavior for individuals in certain roles (Biddle 1986; Suchman 1995) and specifically what is appropriate behavior in situations of social solidarity. Individuals strive to live up to those social norms and expectations; otherwise, they might experience various forms of sanctions from other society members. These sanctions might include a deflated reputation, isolation, or punishment. Thus, the pressure to serve a relationship in a situation where social solidarity exists not only comes from counterparts in the relationship but also from developed norms and expectations in the society. Therefore, we expect that stronger relationships between investors and investees provide cultural pressures to act according to norms and expectation of social solidary and therefore to invest altruistically.

Third, we argue that investors who are strongly related to investees are more likely to develop empathy for those investees and will, therefore, be influenced to invest altruistically. When individuals interact on a regular basis, either empathy between them exists or it will likely develop. This is reflected in the notion of the term, “birds of a feather”, where individuals self-select into social networks of individuals similar to themselves with individuals that they have empathy with (McPherson et al. 2001). Since empathy increases the probability of providing support and help (Paciello et al. 2013), we argue that strong empathetic relations between investors and investees contribute toward investors more likely engaging in altruistic investments with investees they know.

For these reasons, we argue that when relationships are strong between investors and investees, investors are more likely to invest altruistically. Thus,

> *Hypothesis 1: The strength of ties between investor and investee increases the likelihood of altruistic investment behavior.*

3.2.2 Gender

Gender issues, especially those that explain gender differences in behavior, have been a major interest in the social sciences for decades including psychology (Hyde 2014) and entrepreneurship (Jennings and Brush 2013). We draw upon aspects of the psychological literature to argue why we expect women informal investors to behave more altruistically than their men counterparts.

Individuals, including informal investors, are embedded in societal-developed gender role beliefs. Gender role beliefs are shared beliefs about what is expected of individuals including those relating to their sex (Eagly 2009; 2013). Those gender role beliefs define what appropriate behavior is and what men and women should do to be admirable for their sex, including how they should relate and interact with others.

Due to gender role beliefs, women and men are not equally likely to engage in helping, prosocial, or altruistic behaviors (Hyde 2014; Eagly 2009). An early meta-analysis by Eagly and Crowley (1986) reveals that men overall are more likely to help others, but also that the helping behavior of men and women depends heavily on what type of help is required.

Building upon Bakan's (1966) research, Eagly (2009) argues that gender role beliefs imply that women are believed to be more communal (e.g., more friendly, unselfish, concerned with others, and emotional), while men are believed to be agentic (e.g., more masterful, assertive, competitive, and dominant). These beliefs are both descriptive as well as prescriptive. Accordingly, men are more likely to help and to be altruistic when the help or altruistic act has an agentic focus (e.g., involving danger), while women are more likely to help or behave altruistically when the act has a communal focus (e.g., helping a distressed child - Eagly 2009). It has also been shown that men are more likely to engage in such behavior when it is observable; that is, when other people will notice (Hyde 2014).

Altruistic investment behavior is more communal than agentic because it relates to unselfish behavior concerned with others in which investors experience costs in the form of lost investments while the investee experiences benefits in the form of capital not to be repaid. Often, such investment behavior is invisible and happens backstage to the public eye – no one in the public will be aware of such investments unless explicitly told. Accordingly, since altruistic investment behavior can be characterized as being more communal than agentic and since such behavior often will be unnoticed by others, we expect that women are more likely to engage in altruistic investment behavior.

Hypothesis 2: Women are more likely to engage in altruistic investment behavior than men.

3.3 Moderation Effect: Social capital and gender

There is a range of research that suggests that women and men relate differently to each other and have different social networks (e.g., Moore 1990; Ibarra 1992; Greve and Salaff 2003; Klyver and Terjesen 2007; Ahl, Nelson & Foss 2010). Although, this research suggests that women more than men build social networks with stronger kin ties (Greve and Salaff 2003; Klyver 2011), we suggest that women informal investors are less likely than men to invest altruistically when the tie strength is strong. Two observations guide our argument.

First, since women build social networks with stronger ties does not discount the possibility that they may still have weak ties with strangers in their networks. In fact, evidence clearly shows women have both strong and weak ties in their networks – the gender difference is only that the relative balance in frequency between the weak and strong ties varies (Moore 1990; Klyver and Terjsen 2007).

Second, as already explained in Hypothesis 2, women are more likely to be non-selfish and altruistic than men (Eagly 2009). This suggests that women's informal altruistic investments will be

less influenced by how strongly related they are to their investees. Investing in someone closely related might be interpreted as a more "selfish" motivation than investing in a stranger (Zwick and Fletcher 2014).

Accordingly, we argue that women's altruistic investment behavior is more universal and independent of tie strength, while men's investment behavior is more heavily contingent on tie strength. Therefore, we expect the tendency to invest altruistically in strong ties is more prevalent among men than among women.

> *Hypothesis 3: The positive association between strength of ties and altruistic investment behavior is weaker for women than for men.*

4. METHOD

4.1 Data[1]

Informal investors are difficult to locate (Mason and Harrison, 2002a) and difficulties exist in obtaining a representative and unbiased sample of the informal investor population (Mason and Harrison 2002a; 2002b). Some of the more professional and syndicate-oriented informal investors join angel or other investment associations – although most do not (Lindsay 2004). Informal investors who are altruistic can be even harder to identify as most do not consider themselves "investors" in the economic sense of the word.

To overcome the problem of identifying and randomly selecting informal investors, we used data collected in four western industrialized countries via the Global Entrepreneurship Monitor (GEM)

[1] By nature, empirical studies relying on public available datasets are a kind of data—theory wrestling (Davidsson 2016) as the research is probably not only limited by the data available but also inspired by this. Our study is no exception although we did formulate hypotheses before empirical tests were completed.

research project from 2004 to 2008[2]. There were 3,485 usable respondents from informal investors surveyed across the five years in the four countries. The GEM international research project (www.gemconsortium.org) examines how entrepreneurial activity varies across countries, what makes a country entrepreneurial, and how entrepreneurial activity affects a country's rate of economic growth and prosperity. The GEM project was launched in 1999 with 10 countries participating. Since then, new countries have joined the project each year and in 2015 more than 100 countries participate or have participated. The project has generated an extensive database on a wide range of issues and factors germane to entrepreneurship worldwide. To obtain an overview of the project and the studies that have been using GEM data, we refer to Reynolds et al. (2005), Klyver (2008), and Acs et al. (2009).

Every calendar year, each participating nation completes a GEM National Population Survey embracing a minimum of 2,000 randomly selected adult respondents from the population who are asked a variety of questions regarding their engagement and attitude toward entrepreneurship. Among these questions is a question that can be used to identify informal investors: "Have you, in the past three years, personally provided funds for a new business started by someone else, excluding any purchases of stocks and mutual funds". This question provided the base for identifying our sample. Although, our unit of observation is the investor, our unit of analysis is investment made during the period from 2001 to 2008. A similar approach was used by Bygrave et al. (2003) and Maula et al. (2005). In order to obtain appropriate sample sizes, we only included western industrialized countries that, over the five years, had obtained at least 300 useable respondents. This limited our sample to only four countries (United States, France, Spain, and

[2] The dependent variable in the model was only measured in GEM from 2004 to 2008. It was not available before or after this period; hence, our analyses are restricted to this period. Including or excluding 2004 – where only France had available data – did not matter for the results. Several robustness tests reveal that 2004 is not any different from the remaining years in France. Therefore, in order to avoid eliminating reliable data and reducing variation, we included 2004.

United Kingdom). The number of observations across years and countries are shown in Table 1. We tested our hypotheses both on the pooled data and on each separate country. Countries that were close to the cut-off point included Switzerland (n=205), Germany (n=210), and Iceland (n=258)[3].

Insert Table 1

4.2 Variables

4.2.1 Dependent variable

We measure the dependent variable, *Altruistic Informal Investment Behavior*, based on the following question asked of informal investors: "In the next ten years, what payback do you expect to get on the money you put into this start-up?" The informal investor had several possible response categories: 20 times, 10 times, 5 times, twice, one and half, about as much, half, and none. Since we are interested in investment behavior that is altruistic, we coded all positive returns as "0" while we coded 'about as much', 'half' and 'none' as "1".

There might be several reasons for such altruistic informal investment behavior; e.g., help new entrepreneurs, have fun with money, spend money otherwise taxed, etc. The reasons expressed by respondents might even change over time. For example, respondents were asked in 2004 whether the investments they made between 2001 and 2004 had positive expected payback. It is possible that respondents originally at the time of the investments expected positive payback but later changed their expectations due to the financial crisis during these years. However, with our broad behavioral understanding of altruistic investment behavior, what matters is whether there is positive

[3] While neither the main effects nor the interaction effect are significant in the Iceland sample, the results are relatively robust on the samples from both Switzerland and Germany.

payback or not, not whether this was intentional or how this was motivated (Bar-Tal 1986; Piliavin and Charng 1990). Accordingly, we can claim that regardless of whether the lack of positive payback was planned and what the possible reasons behind were, no expected positive payback is aligned with our conceptualization of altruistic informal investment behavior.

4.2.2 Independent variables

Strength of Relationship was measured using the survey question: "What was the relationship with the person that received your most recent personal investment?" We created a scale variable based on the following response categories: A close family member such as a spouse, brother, child, parent, or grandchild (coded "5"); some other relative, kin, or blood relation (coded "4"); a friend or neighbor (coded "3"); a work colleague (coded "2"); or a stranger with a good business idea (coded "1")

We measure *Gender* dichotomously with a "0" for men and a "1" for women.

4.2.3 Control variables

In order to eliminate possible confounding explanations, we controlled for human capital (business owner and education), household income, age, survey year, and country. Human capital may influence the logic and rationale of the investment decision (see Becker 1988, 1962). We measure experience in terms of an investor simultaneously being a *Business Owner* through the following survey question: "Are you, alone or with others, currently the owner of a business you help manage, self-employ, or sell any goods or services to others?" "No" was coded "0" while "Yes" was coded "1".

We measure *Education Level* using four categories: Some secondary experience, secondary degree, post-secondary degree, and some graduate experience. We created three dummy variables with reference to "some secondary degree". Prior literature further suggests that individuals'

financial capital impacts their investment behavior (Hallahan et al. 2003; Shum and Faig 2006). We therefore controlled for *Household Income* measured based on the following survey question: "What is your household's gross income, before tax?" In each country, the household income is calculated so that respondents can be divided into those belonging to the lowest 33 percentile, those belonging to the middle 33 percentile, and those belonging to the highest 33 percentile. Based on these percentiles, we created dummy variables with reference to "top third", "bottom third", and "middle third".

Informal investor age is expected to correlate with the investment decision in such a way that older investors are more likely to engage in more altruistic investment behavior (Summers et al. 2006; Buchanan 2012). We therefore controlled for investor *Age*. A respondent's age was coded using two indicator variables – one for the age group "between 15 and 29 years old" and another for the age group "between 30 and 49 years old". A reference group of "at least 50 years old" also was created. Finally, using dummy variables, we also controlled for Country and Survey Year.

4.3 Analytical Strategy

Because of the binary nature of our dependent variable, logistic regression was the most appropriate technique to use (Hosmer & Lemeshow, 2000). Logistic regression analysis has a relaxed assumption about linearity and estimates the relationship between a binary dependent variable and independent variables. We used a hierarchical logistic regression approach, first introducing the control variables, followed by models including the main effects, before we finally introduce models with interaction effects. We also conducted several robustness tests of the results.

5. EMPIRICAL ANALYSIS

5.1 Descriptive statistics

Table 2 shows the distribution of the dependent variable. It reveals that 67 % of informal investments were altruistic expecting “about as much”, “half”, and “none” payback from their investments. It also shows that this frequency varies across country with only 51 % of the informal investments being altruistic in the United State compared to 72 % in the United Kingdom.

Insert table 2

Table 3 shows the means, standard deviations, and Spearman’s rho correlations for the dependent, independent, and control variables. It reveals that *Altruistic Investment Behavior* is significantly correlated with *Strength of Tie* (r = .15) and *Gender* (women) (r = .10).

Altruistic Informal Investment Behavior correlates negatively significant with *Education Level Graduate Experience* (r =-.07), *Business Owner* (r = -.17) and *Age* (Age 30-49 years old: r = -.05) while it correlates positively significant with *Household Income (Bottom)* (r = .09).

The highest correlation among variables (r = -.46) is between *Household Income (Bottom)* and *Household Income (Middle)*, indicating that there is no risk of multicollinearity (Knoke et al., 2002).

Insert table 3

5.2 Multivariate statistics

We first test our hypotheses on a pooled sample of observations from the four countries over the five years. Subsequently, we test the hypotheses separately for each country and check whether the results are comparable with the pooled sample results.

In order to test the hypotheses, we completed logistic regressions stepwise by introducing variables into the models (Table 4). First, in Model 1, we introduced the control variables revealing a significant negative association between *Age Young* and *Age Middle* and *Altruistic Informal Investment Behavior* compared to *Age Old* and *Altruistic Investment Behavior* (Age Young: β=-.54; p<.001; β=-.42; p<.001), a significant negative association between *Business Owner* and *Altruistic Informal Investment Behavior* (β=-.70; p<.001), a significant negative association between *Graduate Experience* and *Altruistic Investment Behavior* compared to *Some Secondary* and *Altruistic Informal Investment Behavior* (β=-.18; p<.10), and significant positive association between *Household Income (Bottom)* and *Household Income (Middle)* and *Altruistic Informal Investment Behavior* compared to *Household Income (Top)* (Bottom: β=.50; p<.001; Middle: β=.38; p<.001).

In Model 2, we introduced the independent variables. Model 2 reveals a significant positive association between *Strength of Tie* and *Altruistic Informal Investment Behavior* (β=.16; p<0.001). This implies that investors are more likely to engage in altruistic informal investment behavior the closer the investor and investee are connected. This provides support for Hypothesis 1. In order to estimate the effect size, we used dummy variables for each relationship category and compared the effects with the effect of a stranger relationship (Table 5). It reveals that, compared to a relationship with a *Stranger*, informal investors are approximately 2 time more likely to engage in altruistic informal investment behavior if the relationship is *Family Member* (β=.75; p<.001), *Other Relative* (β=.73; p<.001) or a *Friend or Neighbor* (β=.70; p<0.001).

Hypothesis 2 is also tested in Model 2 in Table 4. Here, it is revealed that women are 1.3 times more likely to engage in altruistic informal investment behavior compared to men (β=.30; p<.001) supporting Hypothesis 2.

Insert table 4 & 5

In Model 3 (Table 4), we test the interaction effect hypothesis. We examine whether the association between *Strength of Tie* and *Altruistic Informal Investment Behavior* depends on *Gender*. We find a negative interaction effect as expected (β=-.09; p<0.10) indicating that the positive association between strength of ties and altruistic investment behavior is weaker for women than for men. This provides support for Hypothesis 3. Figure 2 illustrates the interaction effects. It shows that men and women are both more likely to engage in altruistic investment behavior when ties are strong but men are even more likely to do so. It also shows that women are more likely altruistic in their investments compared to men regardless of the strength of ties.

Insert Figure 2

5.3 Cross country validation: Test on four separate samples

It has previously been shown that the effects of gender (Klyver, Nielsen, and Evald 2013) and social capital (Kwon and Arenius 2010) depend on country or the culture in which the individuals are embedded. It has also been shown that investment behavior depends heavily on the country specific institutional context (Cumming, Schmidt, and Walz 2010). We therefore test whether our results are robust across our pooled countries and we ran our models on a country split sample. Overall, the

results are stable and robust across our four countries, especially for the main effects. The results are reported in Table 6.

Insert table 6

The main effect of *Strength of Tie* is supported with significant results in France, Spain, and the United Kingdom and with an insignificant coefficient in the correct direction for the United States. We found no coefficients in the wrong direction. Thus, the results are rather robust across countries.

The main effect of *Household Income* is also robust across countries. No country had a coefficient in the wrong direction and significant coefficients in the correct direction were identified for the United States, France, and Spain.

The main effect of *Gender* is supported with significant results in the United States, France, and Spain, and with insignificant coefficients in the correct direction in the United Kingdom. We found no insignificant coefficients in the wrong direction. Overall, this provides support for the results cross-nationally.

The *Strength of Tie* times *Gender* interaction was supported with significant results in France and the United Kingdom, and with Spain having an insignificant result but in the right direction. The United States resulted in a small coefficient in the wrong direction but insignificant. Overall, this provides some robustness to the results while also suggesting some country variations.

Thus, overall, we are confident that there is some robustness to the results while also suggesting some country variations.

5.4 Robustness tests

We conducted several tests to check the robustness of our results. Specifically, we conducted robustness tests on an alternative measure of tie strength, on altruistic investment behavior as an ordinal dependent variable, and finally a robustness test controlling for investment size. We elaborate on these tests below.

5.4.1 Alternative tie strength measure

We have already reported the main effects of the alternative tie strength measure. It reveals robust results in that, compared to strangers, family members are more likely to engage in altruistic investment behavior, followed by other relatives and friends & neighbors respectively. There was no statistical difference between strangers and work colleagues.

For the interaction hypothesis, the alternative measure of tie strength shows that the difference in the association between tie strength and altruistic investment behavior for men and women is driven by a difference in the association between a family tie and stranger tie for men and women and by a difference in the association between a friends & neighbors and strangers for men and women. No differences were found for the other relatives or work colleagues between men and women.

5.4.2 Ordinal dependent variable

Since our dependent variable could also be perceived as an ordinal variable measuring how much return on investment is expected, we conducted a robustness test using an ordinal regression (McCullagh and Nelder 1989) with our dependent variable coded in the following way: 20 times (coded “1”); 10 times (coded “2”); 5 times (coded “3”); twice (coded “4”); one and half (coded “5”); about as much (coded “6”); half (coded “7”); and none (coded “8”). In ordinal regression analysis, each ordinal value is treated as if it was a variable itself. It is assumed that the effect of each independent variable is similar for each level of the dependent variable. Both the main effects and the interaction effect are confirmed with the alternative dependent variable.

5.4.3 Investment size

It may be expected that the size of an investment influences whether an investor engages in altruistic investment behavior or not. However, we did not include investment size as a control variable because there were many missing values for this variable in the data set (409 of the 3,485 respondents (12 %) did not answer this question).

Despite these potential biases, we controlled for investment size in a robustness test. We found that investment size did not impact the likelihood of altruistic investment behavior and can therefore conclude that investors with larger investments are equally likely to engage in altruistic investment behavior. Further, controlling for investment size did not influence our results regarding main effects or interaction effects and we can conclude our results are robust with regards to investment size. This is in contrast to results from Burke et al. (2014) who also applied GEM data. They found that positive payback increases with investment size. The conflict between the results of the two studies may be explained by the fact that our study includes fewer countries and thereby fewer respondents and the fact that Burke et al. (2014) included missing values as 'unknown' in their model.

6. DISCUSSION

6.1 Summary of results

In this research, we approach altruism as a behavioral phenomenon that is socialized and learned and argue that altruistic investment behavior depends on life circumstances determined by relational social capital and gender. Within this context, we develop and test a gendered social capital model of altruistic investment behavior that involves investment in new ventures from which investors expect no positive payback regardless of their motivation. Overall, we found strong empirical support for our model.

Specifically, we found that relational social capital, in the form of the strength of the tie between investor and investee, impacts altruistic investment in such a way that stronger ties increase the likelihood of altruistic investment. We claim that this is caused by peer and societal pressures to conform to norms of social solidarity and a personal motivation to act altruistically according to empathy.

We also found that women are more likely to engage in altruistic investment behavior compared to men. Women place more concern on caring, nurturing, and societal obligations. One way of their accomplishing this is through altruistic investment behavior. Further, we found support for a combined effect of relational social capital and gender. The positive impact of relational social capital in the form of tie-strength on altruistic investment behavior was stronger for men than for women. We argue that since women are more inclined to be caring and altruistic by nature, their altruistic investment behavior is less likely to be driven by tie-strength. Men, on the other hand, who tend to be less caring, base their altruistic investments much more on tie strengths; hence, the impact of tie strength on investing altruistically is stronger for men compared to women.

We tested our hypotheses first on a pooled sample and afterwards on separate samples in four different industrialized countries: US, France, Spain, and United Kingdom. Our results were consistent across these countries with a few country variations. We also performed a range of robustness tests to check the boundaries and robustness of our results. Overall, our results were robust in all the tests we performed.

6.2 Contributions

Our study contributes to our understanding of informal investment behavior in two ways. First, although, intuitively, it is expected that motives other than return on investment might motivate informal investment, few studies have explored this. In fact, much of the prior literature has relied

on the dominating assumptions that return on investment and profit maximization are the main drivers of informal investment. We add to those few studies that have indicated other non-financial motives for investment (e.g., Paul et al. 2003; Bygrave et al. 2003; Maula et al. 2005) by emphasizing how common place this phenomenon is with 67 % of informal investments being altruistic. It is important to keep in mind that we have treated altruism in informal investment as a behavioral outcome that does not eliminate rationality or bounded rationality. In fact, including altruism in a bounded rationality understanding is well established (Simon 1993) and only makes altruism an investment criterion similar to return on investment.

Second this study, building on a behavioral understanding of altruism (Bar-Tal 1986; Piliavin and Charng 1990), develops and tests explicitly a gendered social capital model of altruistic investment behavior in which life circumstances related to social capital (e.g. Adler & Kwon 2002; Nahapiet and Ghoshal 1998; Sandefur and Laumann 1998) and its gendered nature (Moore 1990; Ibarra 1992) explain the tendency to engage in altruistic informal investment behavior. By developing a model that is subsequently empirically tested, we move research forward from more descriptive understandings of "the other" motives of informal investment. In this way, we are able to understand how social capital and changes in social capital might drive altruism in informal investment behavior and to what extend this is gendered. Thus, although this obviously is not comprehensive, it does represent a first attempt to explain antecedents in the form of socializing factors of altruistic informal investment behavior. Clearly, it is a task for future research to explore other relevant antecedents.

In comparison to previous studies (e.g. Bygrave et al. 2003; Maula et al. 2005), we characterize our study as a conceptual extension of our understanding of informal investment behavior (Tsang and Kwan 1999) and as an expander (Colquitt and Zapata-Phelan 2007).

6.3 Limitations

The current study benefits from the use of representative sampling and therefore overcomes the bias previously seen in many other informal investment studies (e.g., Paul et al. 2003; Williams and Nadin, 2011; Avdeitchikova, 2009). However, we acknowledge a number of limitations.

First, although we used data collected over five years from 2004 to 2008 covering investments made over the period from 2001 to 2008, our analysis is still cross sectional which essentially makes us unable to claim any causality. We cannot statistically eliminate the argument that it is the altruistic investment behavior that is causing changes in social capital, and not, as we claim, that it is changes in social capital that drives altruistic investment behavior. We are, however, less concerned about reverse causality since our dependent variable is recent behavior while our independent variable, relational social capital, is a result of long term behavior. We admit it is possible that no positive payback will develop and strengthen a relationship – at least from the perspective of the investee. However, although this may impact tie strength, it only has a limited possibility to impact whether people will be categorized into role-relations as family, other relatives, friends or neighbors, work colleagues, or strangers. Finally, altruistic behavior cannot cause gender. Thus, we are not concerned about reverse causality.

Second, since we only included western industrialized countries with at least 300 useable respondents over the five years, we were limited to data from four countries. Although, we did conduct tests on our model for each separate country as well as on a pooled sample, these country variation validations were concerned with the direction of impact, not the size of impact. Thus, even though we find relative robust results across countries, this does not eliminate the fact that the effect sizes may vary across countries. Accordingly, since there are other studies that suggest informal investment behavior may vary across countries (e.g., Ding, Au, and Chiang 2014), there is a need for future research to investigate more thoroughly if and how altruistic investment behavior varies

across countries. Such research should also address what explains these differences including potential explanations related to national culture (Hofstede 1980), economic development (Wennekers et al. 2005), and trust (Ding et al. 2015). In addition to this, it should be noted that we only investigated industrialized countries. It is likely that what constitutes altruism is different in a less developed country with fewer resources in general. This is also something for future research to pursue.

Third, due to the limited availability of measures in the applied public dataset, we have been restricted to a rather narrow understanding of social capital only measuring tie strength. We encourage future research to explore other social capital dimensions and their impact on altruistic informal investment behavior. The available dataset also limits our time frame for the investments to 10 years which obviously sets boundaries for the generalizability of our results.

Finally, our modelling of the empirical data is not unique. The same variables can be modelled in different ways explaining different outcomes with different antecedents. For instance, Burke et al. (2014), also using public available GEM data, applied payback expectations (our dependent variable) to explain investment size. They found that those expecting positive payback were more inclined to make larger informal investments compared to those expecting nothing in return. They also looked into how tie strength and gender impact investment size. Although, Burke et al. (2014) obviously modelled the data different from us, the results from the two studies are complementary rather than competing.

6.4 Implications for practice and future research

The practical implication of this study is rather untraditional. We are not predicting something that is either preferable or not - which is normally the case when studies explain what makes individuals obtain funding (e.g. Shane and Cable 2002) and what make individuals informal investors (Ding et

al. 2015). Instead, we are explaining a different motive to informal investment that might be preferred by some while not by others. The implications of this research are therefore not normative for informal investors or entrepreneurs. However, one important practical implication of our research is an acceptance that other (non-financial) investment criteria exist and these might not necessarily be irrational (Simon 1993). Thus, policy makers, investors, and entrepreneurs need to acknowledge that there can be non-financial investment motives. Formal investors should consider this when investing in ventures that have previously received informal investment; policy makers should have a better understanding of the nature of a significant proportion of investment activity in the market; and advisers can be better informed of the motivations of both entrepreneurs and their informal investors under these circumstances.

From a theoretical perspective, there are a number of implications for future studies. First, there is a need to adopt a more global perspective by including a wider range of countries to determine whether the tension between economic and altruistic reasoning of informal investors that was identified in this research is a global phenomenon. In this regard, cultural, political, and economic diversity needs to be examined. In this research, we ignored diversity. However, we might also be interested in how macro level characteristics impact altruistic investment behavior and how these macro characteristics interact with micro level characteristics of the investor, investee, and their relationship. Second, we only investigated a limited range of antecedents of altruistic informal investment behavior; obviously, there are other possible micro level explanations that need to be explored. Third, future research should explore other types of conceptualizations and operationalizations of altruistic informal investment behavior. We applied a rather broad behavioral understanding. Meanwhile, it would be interesting to explore whether a more narrow conceptualization that focuses on motivational understanding, where altruistic behavior is also intentional, would provide different or similar results.

7. CONCLUSION

We set out to differentiate this research by examining pertinent antecedents of informal investment behavior other than those that had a financial payback orientation. We found that there can be other criteria that are associated with informal investment behavior that do not focus on economic benefit but altruism, and that such altruistic investment behavior is explained by the availability of relational social capital and its gendered nature.

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FIGURES

FIGURE 1
A GENDERED SOCIAL CAPITAL MODEL OF ALTRUISTIC INFORMAL INVESTMENT BEHAVIOR

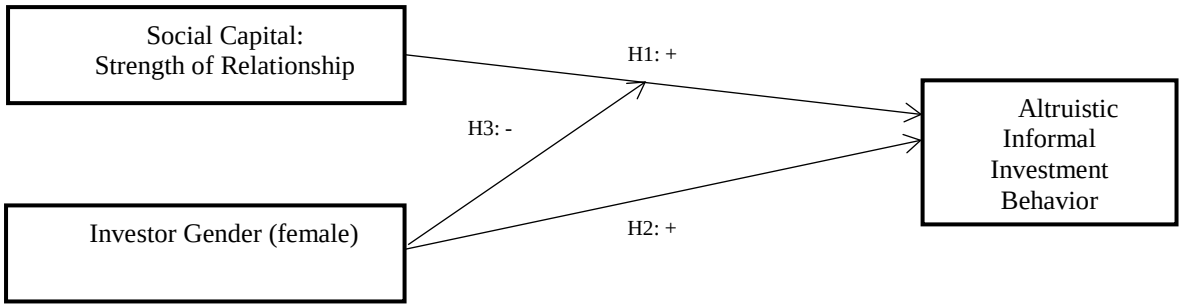
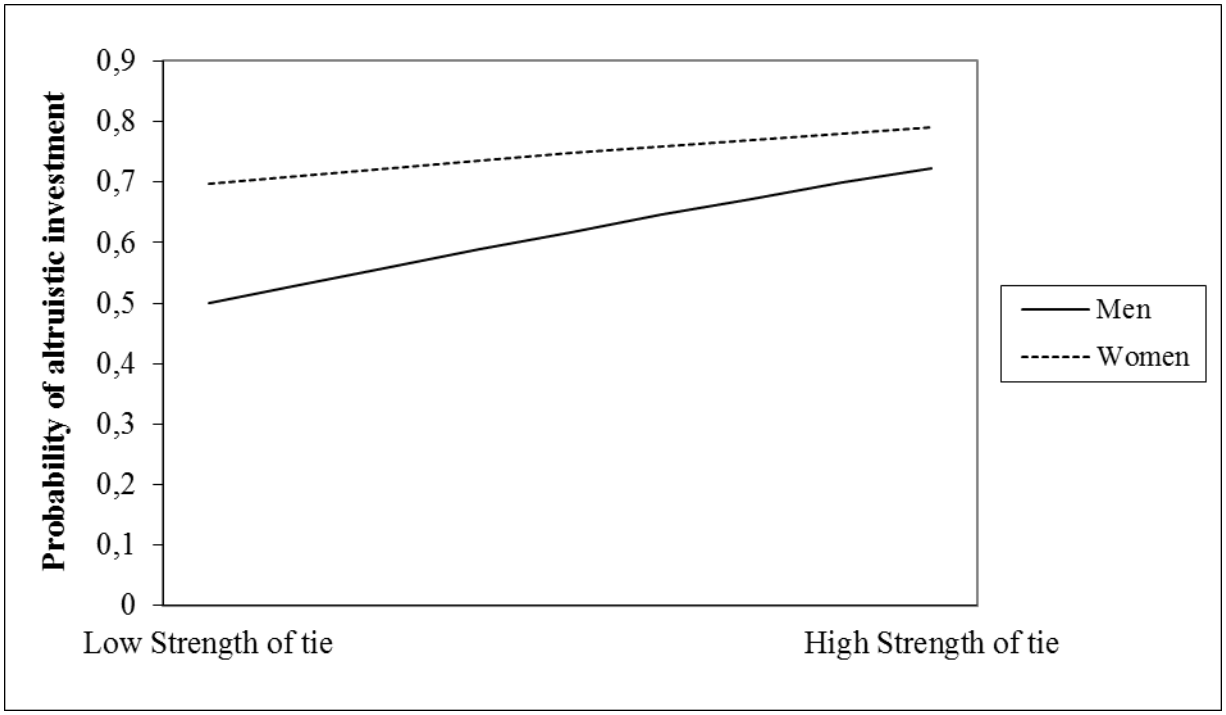


FIGURE 2
INTERACTION PLOT OF GENDER AND STRENGTH OF TIE



TABLES

TABLE 1
SAMPLE DESCRIPTION

Year of Survey	United States	France	Spain	United Kingdom	Total
2004	0	53	0	0	53
2005	55	62	350	113	580
2006	107	59	467	384	1,017
2007	65	85	588	266	1,004
2008	140	46	579	66	831
Total	367	305	1,984	829	3,485

TABLE 2:
DISTRIBUTION OF EXPECTED PAYBACK & ALTRUSITIC INFORMAL INVESTMENT BEHAVIOR

		United States	France	Spain	United Kingdom	Total
	None	28,3%	29,5%	36,5%	45,6%	37,2%
	Half	6,5%	8,5%	8,2%	5,1%	7,3%
	About as much	15,8%	15,7%	26,0%	21,2%	22,9%
	Altruistic Informal Investment Behavior	**50,7%**	**53,8%**	**70,7%**	**71,9%**	**67,4%**
Expected payback	One and half	6,0%	6,9%	7,8%	6,3%	7,1%
	Twice	9,5%	11,8%	11,8%	8,6%	10,8%
	Five times	7,9%	11,1%	5,1%	7,1%	6,4%
	Ten times	12,3%	7,2%	2,7%	2,7%	4,1%
	Twenty times	13,6%	9,2%	1,9%	3,5%	4,2%
	Non-Altruistic Informal Investment Behavior	**49,3%**	**46,2%**	**29,3%**	**28,1%**	**32,6%**
		100 %	100 %	100 %	100 %	100 %

TABLE 3
DESCRIPTIVE STATISTICS: MEANS, STANDARD DEVIATIONS, AND SPEARMAN CORRELATIONS

	Mean	S.D	1	2	3	4	5	6	7	8	9	10	11
1. Altruistic Informal Investment Behavior	.67	.47	1										
2. Strength of tie	3.97	1.30	,15**	1									
3. Gender (female)	1.38	.49	,10**	,14**	1								
4. Age: 15-29 years old	.17	.37	-,03	-,03	-,04*	1							
5. Age: 30-49 years old	.48	.50	-,05**	-,02	,04**	-,43**	1						
6. Business owner	.28	.45	-,17**	-,09**	-,08**	-,07**	,04*	1**					
7. Education: Secondary	.25	.43	,01	,00	-,02	,06**	-,02	-,04*	1				
8. Education: Post-Secondary	.14	.35	,00	,00	,03	,01	,05**	-,00	-,24**	1			
9. Education: Graduate Experience	.37	.48	-,07**	-,07**	-,02	-,06**	,03	,06**	-,45**	-,31**	1		
10. Household income (Bottom)	.33	.47	,09**	,03*	,04*	,05**	-,03	-,07**	,05**	-,02	-,14**	1	
11. Household income (middle)	.30	.46	,03	,03	,03	-,00	,00	-,04*	,02	,05**	-,07**	-,46**	1

Note: * $p<0.05$; ** $p<0.01$

TABLE 4
LOGISTIC REGRESSION PREDICTING ALTRUISTIC INFORMAL INVESTMENT BEHAVIOR

	Model 1 B	Model 2 B	Model 3 B
Constant	1.18***	.14	-.33
MAIN EFFECTS			
Age (reference is above 50 years old)			
Young (15-29 years old)	-.54***	-.50***	-.49***
Mid (30-49 years old)	-.42***	-.40***	-.40***
Business Owner	-.70***	-.67***	-.65***
Education (reference is some secondary)			
Secondary degree	-.07	-.07	-.07
Post-secondary	.05	.03	.03
Graduate experience	-.18†	-.17	-.17
Household income (reference is 'top third')			
Bottom third	.50***	.47***	.47***
Middle third	.38***	.35***	.35***
Strength of tie		.16***	.28***
Gender (women)		.30***	.66**
INTERACTIONS EFFECTS			
Gender by Strength of ties			-.09 †
N respondents	3,485	3,485	3,485
PseudoR Square	.095	.114	.114

Note: † p<0.10; * p<0.05; ** p<0.01; *** p<0.001 (Significant levels are reported: One-tailed for independent variables and two-tailed for control variables). Coefficients for Country and Survey Year are included in all models but are not reported.

TABLE 5
LOGISTIC REGRESSION PREDICTING ALTRUISTIC INFORMAL INVESTMENT BEHAVIOR (ALTERNATIVE STRENGTH TIE MEASURE)

	Model 1 B	Model 2 B
MAIN EFFECTS		
Controls	Yes	Yes
Strength of relation (reference is stranger)		
Family member	.75***	1.53***
Other relatives	.73***	.82
Friends or neighbors	.70***	.159***
Work colleague	.02	.51
Gender (women)	.31***	.84**
INTERACTIONS EFFECTS		
Gender by family member		-.59*
Gender by Other relative		-.08
Gender by friend or neighbor		-.68*
Gender by Work colleague		-.36
N respondents	3,485	3,485
PseudoR Square	.120	.122

Note: * p<0.05; ** p<0.01; *** p<0.001 (Significant levels are reported: One-tailed for independent variables and two-tailed for control variables). Coefficients for Country and Survey Year are included in all Models but are not reported.

TABLE 6
ROBUSTNESS TESTS ACROSS COUNTRIES

	Main effects		Interaction effect
	Strength of ties	Gender	Strength of ties * Gender
Pooled sample	.16***	.30***	-.09[†]
United States	.10	.46*	(.00)
France	.11[†]	.41*	-.44*
Spain	.15***	.25**	-.05
United Kingdom	.28***	.22	-.24*

Note: (1) [†] p<0.10; * p<0.05; ** p<0.01; *** p<0.001 (Significant levels are reported: One-tailed for independent variables and two-tailed for control variables) 2). Brackets indicate the coefficients are in the opposite direction as hypothesized.