



Social identification and investment decisions

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A B S T R A C T

This paper investigates the role of social identification in investment decisions. Social identity is an aspect of self-image based on in-group preferences and a perception of belonging to a social group. We collected survey data from retail clients of the only two banks in the Netherlands that exclusively offer socially responsible investment products and savings accounts. Our data show that almost half of the clients invest exclusively at these banks, whereas the other half also holds at least one conventional investment account. Clients vary widely in the extent to which they identify themselves with socially responsible investments (SRI). Investors with a strong social identification allocate substantially more of their wealth to these banks, both in terms of euros invested and in terms of percentage of their total portfolio invested. Social identification also mediates the effect of expected returns on SRI. Our results further show that social identification is stronger among highly educated, younger and low-wealth investors.

Keywords:

Socially responsible investments (SRI)
Social identification
Mutual funds
Risk perceptions

1. Introduction

Investors possibly gain non-financial utility from investments and savings at a bank that shares their personal values and thus enables them to identify with the bank. An important example is socially responsible investments (SRI) that could be driven by an individuals' social identity of being a responsible person. SRI is growing significantly in the United States (US SIF, 2014) and in Europe (EUROSIF, 2014). In the United States alone, \$6.57 trillion of professional assets under management were SRI at the start of 2014 (US SIF, 2014). SRI mutual funds not only select companies on the basis of risk–return trade-offs, but also consider factors such as environmental policies and human rights. They often exclude investments in companies that deal with weapons, alcohol, tobacco, and gambling. Another example of how social identification could matter in financial markets is Islamic finance. Here, investors with a strong religious identity likely look for investments that fit their social values. Our paper focuses on SRI, but its conclusions might have broader implications for how social identity matters in financial markets. For instance, Islamic mutual funds pay close attention to social responsibility (e.g., Abdelsalam et al., 2014).

According to traditional models in finance, investors would only hold SRI funds if they provide at least the same risk–return trade-off as other investments. The papers of Derwall et al. (2005), Kempf and Osthoff (2007), and Edmans (2011) document that companies that score well on social-responsibility criteria such as eco-efficiency and employee satisfaction can

financially outperform other companies. Investors might therefore be attracted to socially responsible banks because of financial reasons.

However, [Riedl and Smeets \(2014\)](#) show that many investors hold socially responsible mutual funds even if they expect returns to be lower and risk to be the same compared to conventional investments. The willingness of investors to hold SRI funds from which they expect lower returns can be ascribed to their social preferences. Other papers also show that investors do not just focus on returns and risk of their investments. [Hong and Kostovetsky \(2012\)](#) show that mutual fund managers who donate to the Democratic Party select stocks that score higher on social responsibility than the stocks that fund managers who support the Republicans select. [Hong and Kacperczyk \(2009\)](#) find that many institutional investors shy away from investments in so-called “sin” stocks, although these stocks actually provide positive abnormal returns.

This paper hypothesizes that social identification plays an important role in investment decisions of retail investors. Social identity is the portion of an individual’s self-concept derived from perceived membership in a relevant social group ([Tajfel and Turner, 1979](#)). Social identification affects many economic decisions and outcomes such as gender discrimination in the workplace, social exclusion, and poverty ([Akerlof and Kranton, 2000, 2005](#)). To our knowledge, this paper is the first to investigate the role of social identification in investment decisions.

To this end, we administered a survey with retail investors of two socially responsible banks. The special nature of the banks creates an opportunity to study the effects of social identification. We measure clients’ social identification and risk and return expectations, and we collect information on their overall investment portfolio. Both banks have been socially responsible from the start and provide two main types of services to retail investors. They offer in-house-developed SRI mutual funds based on criteria such as environmental performance, human rights, and employee satisfaction. Second, clients of these banks can open socially responsible savings accounts. These accounts differ from conventional savings accounts to the extent that the majority of the savings should be lent to companies that meet certain social-responsibility criteria. Because of this explicit focus on social responsibility, investors with strong social preferences likely see a fit between their own social values and the values at the banks.

Because we only have data on socially responsible investors, this paper cannot investigate the decision to open an investment or savings account at a socially responsible bank. Rather, we investigate whether social identification matters once an individual already is a client at a socially responsible bank. Our survey data show that clients differ substantially in terms of social identification and in terms of expectations on the performance and risk of mutual funds of these banks. As a result, clients allocate different fractions of their wealth to the socially responsible banks.

Our main result is that social identification plays a large role in investment decisions. First, we document an economically and statistically significant positive relation between social identification and the percentage of a client’s total portfolio invested at the socially responsible bank. Second, social identification is also positively related to the absolute amount invested. Third, we find that investors with strong social identification hold a smaller number of investment accounts and savings accounts at competing banks or brokers. Moreover, we find that social identification mediates the effect of return expectations on allocations to the socially responsible banks in our sample.

Our paper mainly contributes to two streams of literature. First, we contribute to the literature on SRI. Several papers have conducted experiments or surveys on SRI with students, and find that non-financial considerations influence investment decisions ([Pasewark and Riley, 2010](#); [Glac, 2009](#); [Barreda-Tarrazona et al., 2011](#)). Surveys conducted among investors also confirm the importance of social factors in investments ([Webley et al., 2001](#); [Nilsson, 2008](#); [Heimann et al., 2011](#)). Others use administrative data and find that political or social preferences influence investment decisions ([Bollen, 2007](#); [Riedl and Smeets, 2014](#); [Hood et al., 2014](#); [Di Giuli and Kostovetsky, 2014](#)). The current paper contributes to this literature by studying the clientele of two explicitly socially responsible banks and by showing that social identification is an important factor explaining the prevalence of SRI.

Second, previous work shows that social identity affects economic outcomes (e.g., [Akerlof and Kranton, 2000, 2005](#); [Bénabou and Tirole, 2011](#)), but its relation to investments has received little attention. Our paper differs from previous studies by showing that social identity influences investment decisions. Social identification likely also influences investment decisions in contexts other than SRI. For instance, [Pool et al. \(2012\)](#) find that mutual fund managers are more likely to invest in their home states. [Cohen \(2009\)](#) shows that employees often invest a large fraction of their wealth in their employer’s stock. Social identification might be an important driver of these and other observed investment patterns.

2. Background

[Statman \(2004\)](#) argues that investors want more than just a good return and low risk; they look for expressive benefits. We argue that investors get non-financial utility if investments fit their (desired) social identity. Social identity is an important concept in social psychology and organization ([Tajfel and Turner, 1979](#); [Mael and Ashfort, 1992](#)), in marketing ([Homburg et al., 2009](#)), and plays a role in many economic decisions. [Akerlof and Kranton \(2000, 2005\)](#) develop a model in which identification enters directly into the utility function. People draw benefits from a behavior that contributes to a positive identity. [Charness et al. \(2007\)](#) argue that people “consult” their identity when making decisions. Identity can also be culturally determined. [Khamis et al. \(2012\)](#) find that disadvantaged caste groups in India spend more on visible consumption goods than the social groups with a higher status.

In many cases, people also choose their identity ([Akerlof and Kranton, 2000, 2005](#)). For example, they choose memberships of specific clubs and universities. Similarly, people can create a prosocial identity by investing in a socially responsible way.

Yet people can also discover their identity through their behavior. [Bénabou and Tirole \(2011\)](#) show that prosocial behavior can create or enhance people's feelings of a positive social identity; for example, socially responsible banks can actively try to enhance the identification of their clients with their products. In this respect, [Akerlof and Kranton \(2000\)](#) argue that advertising might be an effective way to create or manipulate identities.

[Homburg et al. \(2009\)](#) show that travel agencies can increase their financial performance by enhancing their customers' social identification. Social identification increases consumers' willingness to pay and their loyalty intentions toward the travel agencies. They measure social identification through a psychometric survey scale, which they validate. We use the same scale adjusted to our context.

We study the role of social identification in investment decisions in the context of SRI. Individuals with strong social preferences are likely to have a social identity they like others to see, and they see themselves as prosocial individuals. As a consequence, they might as well look for a bank that shares their values.

3. Research design and socially responsible investments

Our data and research design allow us to study and analyze the behavior of retail investors that make actual investment decisions. We collected survey data on the clientele of the only two banks in the Netherlands that exclusively offer SRI and savings accounts. Other Dutch banks also offer SRI products alongside conventional investment products, but the two banks in our sample are the only two Dutch banks that specialize solely in SRI. The Netherlands is the third-largest market for SRI in Europe, following the UK and France, which have all been growing ([EUROSIF, 2014](#)). The banks on which we focus offer savings accounts and in-house SRI mutual funds and thereby also act as a mutual fund family. In total, the two banks had approximately 650,000 clients in July 2009. These banks offer two kinds of socially responsible mutual funds. The first type consists of SRI funds without tax benefits. These funds are comparable to SRI funds offered in the United States ([US SIF, 2014](#)) and the rest of Europe ([EUROSIF, 2014](#)). The second type offers tax benefits and primarily consists of bond funds. In 2009, when we conducted the survey, the Dutch government offered a tax incentive that could reach a maximum of 2.5% of the amount invested. Politics can explain the reason for the tax benefits for the second type and no tax benefits for the first type. For example, the Dutch government wants to subsidize investments in specific companies or projects, such as producers of windmills and organic farmers.

We also excluded all investors who were younger than 18 years, because their accounts are managed by their parents. We randomly selected 10,000 investors at the first bank and 8500 investors at the second bank. The selected investors received an email with a request to participate in research on investment decisions. We purposely did not mention that our main research interest was socially responsible investing. The email contained a link that provided access to the online survey. The full survey took participants about 20–25 min to complete. It was sent out in July 2009 and was completed by 3187 individuals, which implies a response rate of 17%.²

To measure the extent to which investors identify with SRI, we use a validated scale ([Mael and Ashfort, 1992; Homburg et al., 2009](#)) in which investors rate their agreement with four statements on a 1–7 scale. We adjusted the statements so that they fit the context of our study. For example, “I feel good about owning socially responsible mutual funds” and “I can identify myself well with socially responsible investments.” All statements can be found in [Table 1](#). The value of 0.916 for Cronbach's alpha indicates the scale is reliable ([Hair et al., 2006](#)). Moreover, organizational psychology and marketing widely use the social identification scale.

[Table 1](#) presents the definitions of all variables used in this paper. Investors indicated the returns they expected and the risk they perceived on SRI compared to conventional investments. The options varied from “much lower” to “much higher.”

To investigate allocations to socially responsible banks, we use four different measures in our main analysis. First, we asked investors what percentage of their investment portfolio they invested at the socially responsible bank. Second, we calculated the total amount invested at the bank in absolute terms by multiplying the percentage invested at the bank by the total portfolio value. Third, we calculated the number of investment accounts a client held at a conventional bank or broker. We performed this measure by asking how many investment accounts they had in total, including the one at the bank sending out the survey. In another survey question, we asked investors which socially responsible funds they held. If an investor at bank one indicated she held an SRI fund at bank two or vice versa, we could assume the investor also had an investment account at the other socially responsible bank. Recall that the Netherlands has only two socially responsible banks. The number of conventional investment accounts is therefore equal to the total number of investment accounts minus the account at the socially responsible bank that sent out the survey minus the potential account at the other socially responsible bank. Fourth, investors indicated how many savings accounts they had at different banks or brokers. We have no information on their potential savings at the other socially responsible bank, so we cannot calculate the number of conventional savings accounts.

As control variables, we used the self-rated investment knowledge, education, risk preferences, gender, age, wealth, and income. We measured subjective investment knowledge by asking investors to rate their level of investment knowledge from being very poor (1) to very good (5). [Dorn and Huberman \(2005\)](#), [Graham et al. \(2009\)](#), and [Van Rooij et al. \(2011\)](#) show

² Some questions only appear in the survey of one of the two banks. Therefore, the number of observations in the regressions is sometimes lower than the total response.

Table 1
Variable overview.

Variable	Measurement
Percentage at the bank	<p>"What percentage of portfolio is invested at bank x?"</p> <ul style="list-style-type: none"> • Less than 25% • 26–50% • 51–75% • 76–99% • 100% • I don't want to tell
Number of investment accounts	<p>"At how many different banks do you hold one or more investment accounts?"</p> <ul style="list-style-type: none"> • One • Two • Three • Four • More than four (counted as 5 in the calculations) • I don't know • I don't want to tell
Number of savings accounts	<p>"At how many different banks do you hold one or more savings accounts?"</p> <ul style="list-style-type: none"> • One • Two • Three • Four • More than four (counted as 5 in the calculations) • I don't know • I don't want to tell
Social identification (4-item scale)	<p>"I can identify myself well with socially responsible investments" (1–7) "I feel good about owning socially responsible mutual funds" "Socially responsible investments fit well to me" "I feel attached to socially responsible investments" Scale adapted from Mael and Ashfort (1992) and Homburg et al. (2009) <i>Cronbach's alpha = 0.916</i></p>
Talk about SRI	<p>"I like to talk about socially responsible investments to others" (1–7)</p>
Expected returns SRI	<p>"I expect that the long run returns on SRI equity funds compared to conventional equity funds are:</p> <ul style="list-style-type: none"> • Much lower • A bit lower • The same • A bit higher • Much higher • I don't know
Perceived risk SRI	<p>"I expect that the long run risk on SRI equity funds compared to conventional equity funds is:"</p> <ul style="list-style-type: none"> • Much lower • A bit lower • The same • A bit higher • Much higher • I don't know
Self-rated investment knowledge	<p>"How would you rate your investment knowledge?"</p> <ul style="list-style-type: none"> • Very poor • Poor • Average • Good • Very good
Risk preferences	<p>"How would you describe your attitude toward risk in financial matters?" (1 = <i>very risk averse</i>, 7 = <i>very risk tolerant</i>)</p>
Low wealth	€0–€49,999
Median wealth	€50,000–€124,999
High wealth	More than €125,000
Low income	€0–€49,999
Median income	€50,000–€129,999
High income	More than €130,000
Calculated variables	
Number of conventional investment accounts	<p>To calculate this number, we use the self-reported number of investment accounts. In another survey question, we asked investors which socially responsible funds they held. If an investor at bank one indicated holding an SRI fund at bank two or vice versa, we can assume the investor also had an investment account at the other socially responsible bank. Recall that the Netherlands has only two socially responsible banks. We subtract the number of socially responsible investment accounts from the total number of investment accounts reported.</p>
Amount invested at the bank	Percentage invested at the bank x total portfolio value
Total portfolio value	<p>We asked investors what percentage of their wealth was invested in equity, bonds, cash and other. We multiply the percentage of equity and bonds with their level of wealth to end up with their total portfolio value.</p>

Table 2
Number of investment and savings accounts held at different banks.

	Bank 1			Bank 2		
	No. of investment accounts	No. of conventional investment accounts (total – SRI)	No. of savings accounts	No. of investment accounts	No. of conventional investment accounts (total – SRI)	No. of savings accounts
None	3.0	45.8	0.7	0.9	46.0	0.3
1 Bank	29.5	36.7	13.5	37.0	34.3	16.6
2 Banks	40.6	13.1	32.2	35.7	14.6	30.8
3 Banks	19.3	3.6	27.1	17.9	3.6	25.0
4 Banks	5.2	0.7	13.0	6.6	1.5	12.8
More than 4 banks	2.51	–	13.39	1.92	–	14.5

This table presents the distribution of investors' number of investment accounts, conventional investment accounts, and savings accounts. They are shown for both banks separately. The banks are the only two exclusively socially responsible banks in the Netherlands that offer only SRI mutual funds and socially responsible savings accounts. They are independent from each other. The variables are defined in [Table 1](#).

this measure of self-reported investment knowledge is a good predictor of investor behavior. Moreover, [Dorn and Huberman \(2005\)](#) and [Van Rooij et al. \(2011\)](#) validate this survey question by demonstrating a significant correlation with an objective finance quiz. For education, we used a dummy variable that indicates whether an investor had a university degree.

We elicited risk preferences by asking investors to rate their agreement with the following statement: “How would you describe your attitude towards risk in financial matters?” (1 = *very risk averse*, 7 = *very risk tolerant*). [Dorn and Huberman \(2005\)](#) and [Dohmen et al. \(2011\)](#) have validated this measure.

Well-known problems with responses to survey questions exist. For example, investors might exaggerate their social identification with SRI. Yet we are interested in the heterogeneity of social identification and not in its level. Regarding the questions about portfolios, investors might have difficulty reporting exact amounts invested in different funds and stocks. Thus, we asked basic questions such as the number of investment accounts and savings accounts held at different banks, which should have been easier to recall. Moreover, many studies have shown that survey responses correlate well with actual investment decisions (e.g., [Dorn and Huberman, 2005](#); [Van Rooij et al., 2011](#); [Riedl and Smeets, 2014](#)).

4. Empirical results

4.1. Summary statistics

[Table 2](#) reports, for both banks separately, the distribution of the number of investment and savings accounts that investors held at different banks or with different brokers. The table excludes investors who answered, “I do not know” (0.09%) and “I do not want to tell” (0.16%). At bank one, 29.5% of the investors only had an investment account at bank one and 37% at bank two only had one investment account. The majority of the clients had two investment accounts.³ Almost half of the clients (46%) invested exclusively via socially responsible banks, whereas the other half also held at least one conventional investment account.

We present the remaining summary statistics in [Table 3](#). The average amount invested at bank one is 14,994 euro, which corresponds to 35% of the total portfolio value and indicates the investment accounts held at the socially responsible bank make up a substantial share of investors' overall portfolios.⁴

For our measure of social identification, investors rated their agreement with four statements on a 1–7 scale. For the summary statistics and the upcoming analyses, we averaged the scores over the four statements. The average score on social identification is high (5.83) and suggests investors generally saw a fit between their social values and the bank's values. At the same time, the standard deviation of 1.02 shows heterogeneity also existed in the degree of social identification, which can drive asset allocations.

4.2. Expected returns and perceived risk on SRI

According to traditional portfolio theory, investors select investments purely on the basis of risk and return. We therefore start by investigating the return expectations and risk perceptions of investors at the banks in our sample.

[Fig. 1](#) shows that 43.6% of respondents at bank one and 47.8% at bank two expected higher returns on SRI equity funds compared to conventional equity funds. With the same measure, [Riedl and Smeets \(2014\)](#) elicited the expected returns on SRI funds of retail investors at a Dutch provider of both conventional and SRI mutual funds. Interestingly, they find that the

³ Note that 2.95% of the investors at bank one and 0.87% of the investors at bank two reported having no investment accounts. This finding is most likely due to the fact that a couple of months had passed between the client selection and the survey participation. In this period, a small minority might have stopped investing.

⁴ We only have data on the percentage and absolute amount invested at bank one, and do not have these data for bank two. Regressions that use these dependent variables are thus only for bank one, and other regressions are pooled for both banks.

Table 3
Summary statistics for both banks.

	Bank 1			Bank 2		
	Mean	St. Dev.	N	Mean	St. Dev.	N
Allocations to the banks						
Percentage at the bank	35%	25.77	1333	–	–	–
No. of investment accounts	2.04	1.06	2044	1.98	1.01	1143
No. of conventional investment accounts	1.71	0.94	2036	1.78	0.95	1143
No. of savings accounts	2.80	1.26	2044	2.77	1.29	1143
Amount invested at the bank (€)	14,994	25,738	927	–	–	–
Portfolio value (€)	81,332	116,241	1509	61,621	92,847	859
Main explanatory variables						
Social identification – 4-item scale (1–7)	5.83	1.02	2044	5.60	1.15	1143
Talk about SRI	4.07	1.62	2044	3.77	1.60	1143
Investment knowledge						
Self-rated investment knowledge (1–5)	2.64	0.81	2044	2.70	0.75	1143
University	49%		2027	46%		1132
Demographics						
Female	33%		2028	28%		1135
Age	57.12	12.09	1971	54.22	11.12	1105
Low wealth (€0–€49,999)	38%		1788	41%		1028
Medium wealth (€50,000–€124,999)	32%		1788	33%		1028
High wealth (more than €125,000)	31%		1788	26%		1028
Low income (€0–€49,999)	42%		1794	39%		1039
Medium income (€50,000–€129,999)	52%		1794	54%		1039
High income (more than €130,000)	6%		1794	7%		1039
Risk preferences (1 = risk averse, 7 = risk tolerant)	3.52	1.40	2044	3.69	1.31	1143

This table presents the summary statistics for both banks separately. All variables are defined in Table 1.

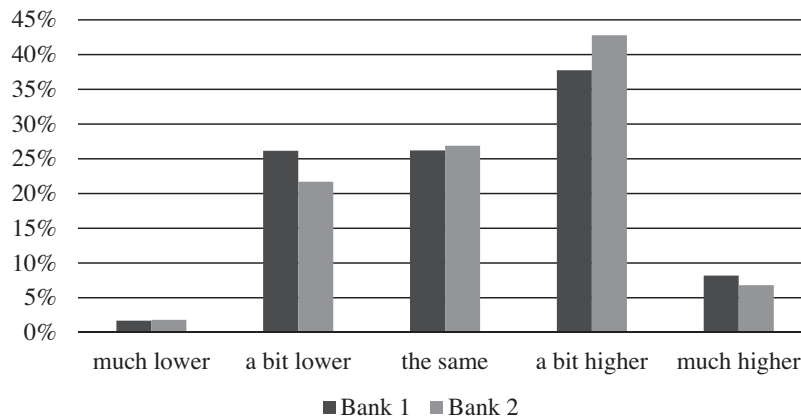


Fig. 1. Expected returns on SRI funds compared to conventional funds. Investors answered the following question: “I expect that the long run returns on SRI equity funds compared to conventional equity funds are: Much lower; A bit lower; The same; A bit higher; Much higher; I don’t know”. The figure excludes the 3.7% of investors who answered, “I don’t know.”

majority of socially responsible investors expect SRI funds to underperform compared to conventional funds. By contrast, we found that only 26.4% of our respondents expected to earn lower returns at bank one, and only 22.7% expected lower returns at bank two.⁵ This finding suggests that clients of purely socially responsible banks are more optimistic about the returns of SRI funds than clients at conventional providers.⁶

Evidence on the actual returns of socially responsible investments is mixed. [Derwall et al. \(2005\)](#), [Kempf and Osthoff \(2007\)](#), and [Edmans \(2011\)](#) find that companies with high scores on social responsibility achieve higher returns than less socially responsible companies. [Hong and Kacperczyk \(2009\)](#) find that divesting from sin stocks – weapons, alcohol, tobacco, and gambling – hurts financial performance. [Bauer et al. \(2005\)](#) find that SRI mutual funds perform as well as conventional mutual funds.

⁵ We also asked for the expectations regarding short-run returns on SRI funds, which are substantially more pessimistic than long-run return expectations.

⁶ Note that the survey of [Riedl and Smeets \(2014\)](#) took place in the summer of 2011, whereas our survey took place in the summer of 2009.

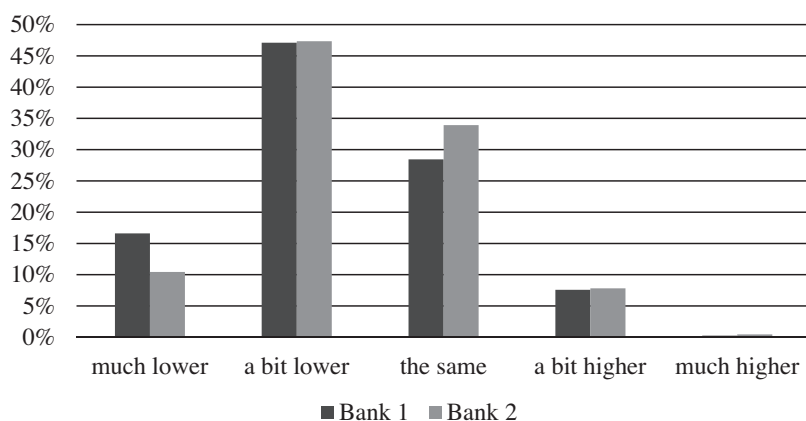


Fig. 2. Perceived risk on SRI funds compared to conventional funds. Investors answered the following question: “I expect that the long run risk on SRI equity funds compared to conventional equity funds is: Much lower; A bit lower; The same; A bit higher; Much higher; I don’t know”. The figure excludes the 2.8% of investors who answered, “I don’t know.”

Table 4
Investment knowledge, return expectations, and risk perceptions.

Investment knowledge	% of investors	Expect higher returns	Expect lower returns	Expect higher risk	Expect lower risk	Expect higher return and lower risk
1	6.9%	45.2%	20.4%	5.0%	57.0%	36.8%
2	32.1%	44.5%	24.9%	7.6%	56.2%	31.5%
3	50.3%	44.3%	26.4%	8.4%	61.2%	32.7%
4	9.6%	51.8%	23.3%	5.2%	61.0%	36.1%
5	1.1%	38.9%	16.7%	16.7%	50.0%	22.9%
1 to 3 → (1)	89.3%	44.4%	25.4%	7.8%	59.1%	32.6%
4 to 5 → (2)	10.7%	50.4%	22.6%	6.5%	59.8%	34.7%
(1) – (2)	<i>p</i> -value	0.0356	0.2617	0.3648	0.7878	0.4337

This table shows the expected returns and risk perceptions of investors on socially responsible funds compared to conventional funds for different levels of investment knowledge. Investors rated their own investment knowledge on a 5-point scale (1 = very poor, 5 = very good). We also split investors into those rating their knowledge above average (4–5) compared to those with average or below-average investment knowledge (1–3). The lower row presents *p*-values for significance tests between these two groups.

Next, consider Fig. 2. Note that 60.8% of the investors at bank one and 56.2% of those at bank two perceived the risk of SRI funds to be lower than that of conventional funds. These risk perceptions are in line with empirical evidence showing that investments in firms with good corporate social responsibility often carry less risk than investments in firms with lower CSR scores (Luo and Bhattacharya, 2006; Godfrey et al., 2009; Oikonomou et al., 2012; Nofsinger and Varma, 2014).

We present the correlations between the most important variables in the appendix, Table A1. The correlation between higher expected returns and lower perceived risk (0.167) is of special interest and could imply investors expect socially responsible funds to be mispriced so that they generate a higher return and at the same time exhibit lower risk. Alternatively, investors might have a poor understanding of the relation between risk and return on securities, or they could be overconfident that SRI provides both higher returns and lower risk.

Table 4 investigates the relation between investment knowledge and return expectations and risk perceptions. The table excludes investors who answered “I don’t know” for expected returns (3.7%) and risk perceptions (2.8%).⁷ The table shows that 50.4% of the investors with above-average investment knowledge expected SRI funds to yield higher returns, whereas 44.4% of investors with average or below-average investment knowledge expected higher returns (*p* = 0.036). We did not find such a significant difference for risk perceptions.

The last column presents the percentage of investors that both expected higher returns on SRI and perceived its risk to be lower. This percentage is arguably a category of investors that were overconfident about the performance of the SRI funds they held, or that did not understand the risk–return relation. However, no relation existed between investment knowledge and expecting higher returns in combination with perceiving lower risk. Only investors who rated their investment knowledge highest (5) were less likely to expect higher returns and lower risk. Yet only 1.1% of the investors claimed the highest level of investment knowledge.

Table A1 further shows that social identification is positively correlated with expecting higher returns on SRI funds (0.198) and with expecting lower risk on SRI funds (0.203). Social identification is negatively correlated with perceiving lower returns (–0.129). One interpretation of these correlations is that the identification with SRI makes investors more optimistic about

⁷ For brevity, the table displays neither the survey answer expecting “similar returns” nor “similar risk” of SRI funds compared to conventional funds.

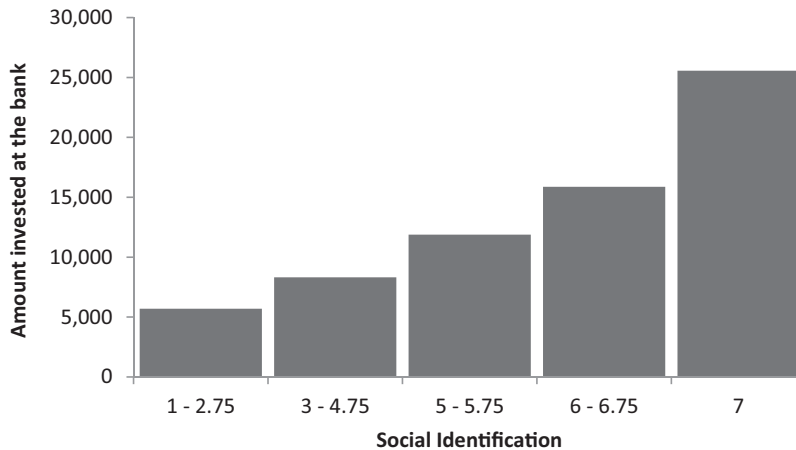


Fig. 3. Social identification and amount invested at the socially responsible bank. This figure illustrates the relation between social identification and the amount an individual invested in in-house SRI mutual funds at bank one. The variables are defined in Table 1. The partitioning into five groups based on social identification has larger intervals for low social-identity scores than for high scores, because fewer investors had a low level of social identification. The euro/dollar exchange rate was about 1.45/1 at the time of our study (July 2009).

the returns and risks of these investments. Alternatively, optimistic return expectations or lower risk perceptions could strengthen social identification.

Most importantly, the sizes of the correlations between social identification return expectations, and risk perceptions are relatively low, thereby allowing us to study the relation between these measures and the allocations to socially responsible banks in a multivariate setting, which we do in the next section.

4.3. Social identification and allocations to socially responsible banks

Fig. 3 shows that retail investors with the highest score on social identification invested on average five times more (in euros) at the socially responsible bank than investors with the lowest score on social identification. We test this relation formally in Table 5. We control for return expectations, risk perceptions, self-rated investment knowledge, university degree, risk preferences, gender, age, wealth, and income and use robust standard errors. We define these variables in Table 1.

The dependent variable in the first specification is the percentage of the total portfolio (including investments outside the socially responsible bank) invested at the bank of interest. We report OLS regressions in which we take the midpoint of the range reported by investors for ease of interpretation, that is, we assigned a value of 37.5% to an investor who indicated she held between 25% and 50% of the investment portfolio at the bank. We also ran unreported ordered probit regressions with a categorical variable, yielding similar results. To test the effects of return expectations and risk perceptions, we created a dummy variable “lower perceived risk SRI” that has a value of 1 if an investor indicated an expectation of lower risk on SRI equity funds compared to conventional equity funds, and 0 otherwise. We similarly constructed the dummies for higher perceived risk and for return expectations.

The first specification shows that social identification is positively related to the percentage invested at the socially responsible bank. A one-point increase on the social identification scale (1–7) is associated with a 4.8-percentage-point increase in the total share of the investment portfolio invested at the socially responsible bank. In absolute terms, a one-point increase in social identification is related to a 63.5% larger portfolio size at the bank, as shown by specification two.⁸ Similarly, a one-point increase on the social identification scale results in holding 0.128 fewer conventional investment accounts (specification three) and 0.177 fewer savings accounts at competitors (specification four).⁹

The coefficients on the control variables are as expected. For instance, investors with lower wealth invested a smaller absolute amount at the bank and held a smaller number of investment accounts at competitors than did investors with an intermediate or high level of wealth. Risk-tolerant investors and investors with good investment knowledge had more investment accounts at competitors.

The effects of return expectations and risk perceptions on allocations to the socially responsible banks are mixed. The measure of lower expected returns is only significant in the second specification. Investors who expected lower returns on

⁸ The number of observations differs per specification, because the first two specifications are only for bank one, because data for bank two are not available. The third and fourth specifications are for both banks. Moreover, for some investors, we lack information on the total portfolio size, which is why the number of observations between specification one and two is different.

⁹ Because of measurement error, the effect sizes of the variables might be attenuated. In appendix Table A2, we therefore also conduct error-in-variables analyses. Because the effect sizes of social identification become even stronger in these analyses, we report the more conservative OLS results in the main text.

Table 5
Social identification and allocations to the socially responsible banks.

	(1) Percentage at the bank	(2) Amount invested at the bank (log)	(3) No. of conventional investment accounts (non-SRI)	(4) No. of savings accounts
Social identification	4.829*** [0.819]	0.635*** [0.07]	-0.128*** [0.017]	-0.177*** [0.022]
Lower expected returns SRI	-2.98 [1.975]	-0.424*** [0.157]	0.004 [0.047]	0.083 [0.064]
Higher expected returns SRI	0.181 [1.908]	-0.02 [0.142]	-0.039 [0.043]	-0.134** [0.056]
Not know returns expected	-9.691 [6.055]	-0.097 [0.616]	0.008 [0.099]	0.149 [0.166]
Lower perceived risk SRI	3.314* [1.702]	0.083 [0.138]	0.047 [0.039]	-0.015 [0.052]
Higher perceived risk SRI	1.866 [2.912]	0.156 [0.239]	0.02 [0.063]	0.027 [0.087]
Not know risk perceptions	7.851 [6.668]	-0.418 [0.762]	-0.054 [0.107]	-0.157 [0.175]
Self-rated knowledge	-1.822 [1.178]	-0.058 [0.106]	0.176*** [0.024]	0.218*** [0.032]
University	-0.589 [1.5]	0.215* [0.12]	-0.009 [0.034]	-0.109** [0.047]
Risk preferences	-2.5*** [0.586]	-0.098** [0.047]	0.126*** [0.012]	-0.02 [0.018]
Gender (female)	2.672 [1.788]	0.231* [0.129]	-0.016 [0.036]	-0.094 [0.05]
Age	-0.131* [0.068]	0.002 [0.006]	-0.002 [0.001]	-0.012*** [0.002]
Low wealth	3.703*** [0.989]	-0.833*** [0.166]	-0.242*** [0.023]	-0.45*** [0.031]
High wealth	-3.726*** [0.991]	1.188*** [0.126]	0.241*** [0.023]	0.455*** [0.031]
Low income	-0.664 [1.64]	0.35*** [0.127]	0.012 [0.035]	-0.061 [0.049]
High income	2.401 [3.062]	-0.215 [0.221]	0.048 [0.071]	-0.057 [0.095]
Constant	28.449*** [7.849]	4.517*** [0.682]	1.645*** [0.156]	4.084*** [0.213]
Adjusted R ²	0.095	0.272	0.175	0.168
n obs.	1157	895	2763	2766

This table reports OLS regressions for four different investment decisions defined in Table 1. The regressions on the number of investment and savings accounts held at competitors comprise the data of both banks, and the two other specifications are only for bank one, because the data are not available for bank two.

* 10% significance level.

** 5% significance level.

*** 1% significance level.

Robust standard errors in parentheses.

SRI funds invested 42.4% less at the socially responsible bank in an absolute sense, compared to investors who expected the returns to be the same.¹⁰ Investors who expected higher returns on SRI funds were less likely to hold savings accounts at other banks. The coefficient on lower perceived risk is marginally significant in the first specification and implies that clients who expected the risk on SRI funds to be lower than that of conventional funds invested 3.31% more of their total portfolio at the socially responsible bank. In all other cases, the coefficients on return expectations and risk perceptions are insignificant.

Social identification could remove the effect of return expectations and risk perceptions on allocations to socially responsible banks. Therefore, we also test for the direct effect of return expectations and risk perceptions without any control variables. Table 6 shows that, in this case, lower perceived risk is positively related to the percentage and the absolute amount invested at the socially responsible bank. Higher expected returns on SRI are associated with holding fewer investment accounts at conventional banks or mutual fund companies and with holding fewer savings accounts. These results show that return expectations and risk perceptions do matter for socially responsible investors, but that social identification has a stronger effect on allocations to socially responsible banks and removes the effect of return expectations and risk perceptions in the regressions in Table 5.¹¹

To test whether social identification removes the effects of return expectations and risk perceptions more formally, we investigate whether social identification mediates the effects of return expectations and risk perceptions on allocations to the socially responsible banks. Mediation occurs if the effect of the independent variable on the dependent variable goes

¹⁰ Note that all coefficients for the return-expectation and risk-perception dummies should be interpreted relative to the omitted categories "Same Return Expectations" and "Same Risk Perception."

¹¹ We have shown a clear relation between social identification and allocations to a socially responsible bank. Whether this relation is causal is unclear. Ideally, one would like to exogenously manipulate the social identification of investors, but doing so was not possible in our research design. We still think the direction of the correlation runs at least partly from social identification to allocations to the banks. Allocations to the banks are unlikely to change social identity so strongly (as shown in Fig. 1), and hence that the whole story is reverse causality. Typically, preferences and identities do change, but rather slowly. However, future research is needed to provide stronger evidence on the causality of this relation.

Table 6

The effect of return expectations and risk perceptions on allocations to the socially responsible banks.

	Percentage at the bank		
	Only return expectations	Only risk perceptions	Combined
Lower expected returns SRI	-2.436 [1.934]		-3.103 [1.953]
Higher expected returns SRI	3.670** [1.763]		2.646 [1.806]
Not know return expected	-1.062 [3.648]		-2.394 [4.994]
Lower perceived risk SRI		4.798*** [1.621]	4.336*** [1.656]
Higher perceived risk SRI		3.478 [2.816]	3.240 [2.842]
Not know risk perceptions		1.619 [3.912]	3.570 [5.397]
Constant	34.467*** [1.396]	32.055*** [1.346]	32.114*** [1.662]
Adjusted R ²	0.008	0.005	0.011
n obs.	1333	1333	1333
	Amount invested at the bank (log)		
	Only return expectations	Only risk perceptions	Combined
Lower expected returns SRI	-0.329* [0.173]		-0.384** [0.175]
Higher expected returns SRI	0.175 [0.161]		0.084 [0.165]
Not know returns expected	-0.046 [0.391]		0.19 [0.542]
Lower perceived risk SRI		0.403*** [0.149]	0.394** [0.152]
Higher perceived risk SRI		0.047 [0.253]	0.087 [0.257]
Not know risk perceptions		-0.023 [0.411]	-0.222 [0.575]
Constant	8.350*** [0.126]	8.070*** [0.124]	8.152*** [0.151]
Adjusted R ²	0.008	0.006	0.014
n obs.	927	927	927
	Number of conventional investments (total – SRI)		
	Only return expectations	Only risk perceptions	Combined
Lower expected returns SRI	0.037 [0.048]		0.036 [0.048]
Higher expected returns SRI	-0.118*** [0.042]		-0.118*** [0.043]
Not know returns expected	-0.176** [0.083]		-0.069 [0.114]
Lower perceived risk SRI		-0.029 [0.038]	-0.004 [0.039]
Higher perceived risk SRI		0.004 [0.064]	0.024 [0.064]
Not know risk perceptions		-0.192** [0.085]	-0.157 [0.118]
Constant	1.787*** [0.035]	1.760*** [0.031]	1.789*** [0.040]
Adjusted R ²	0.005	0.001	0.005
n obs.	3179	3179	3197
	Number of savings accounts		
	Only return expectations	Only risk perceptions	Combined
Lower expected returns SRI	0.126** [0.063]		0.135** [0.064]
Higher expected returns SRI	-0.251*** [0.055]		-0.234*** [0.057]
Not know returns expected	-0.103 [0.113]		0.087 [0.160]
Lower perceived risk SRI		-0.125** [0.051]	-0.077 [0.052]
Higher perceived risk SRI		-0.02 [0.091]	0.017 [0.091]
Not know risk perceptions		-0.213* [0.121]	-0.308* [0.172]
Constant	2.872*** [0.044]	2.869*** [0.042]	2.909*** [0.052]
Adjusted R ²	0.015	0.002	0.016
n obs.	3187	3187	3187

This table reports OLS regressions for four different investment decisions defined in Table 1. The regressions on the number of investment and savings accounts held at competitors comprise the data of both banks, and the two other specifications are only for bank one, because the data are not available for bank two.

* 10% significance level.

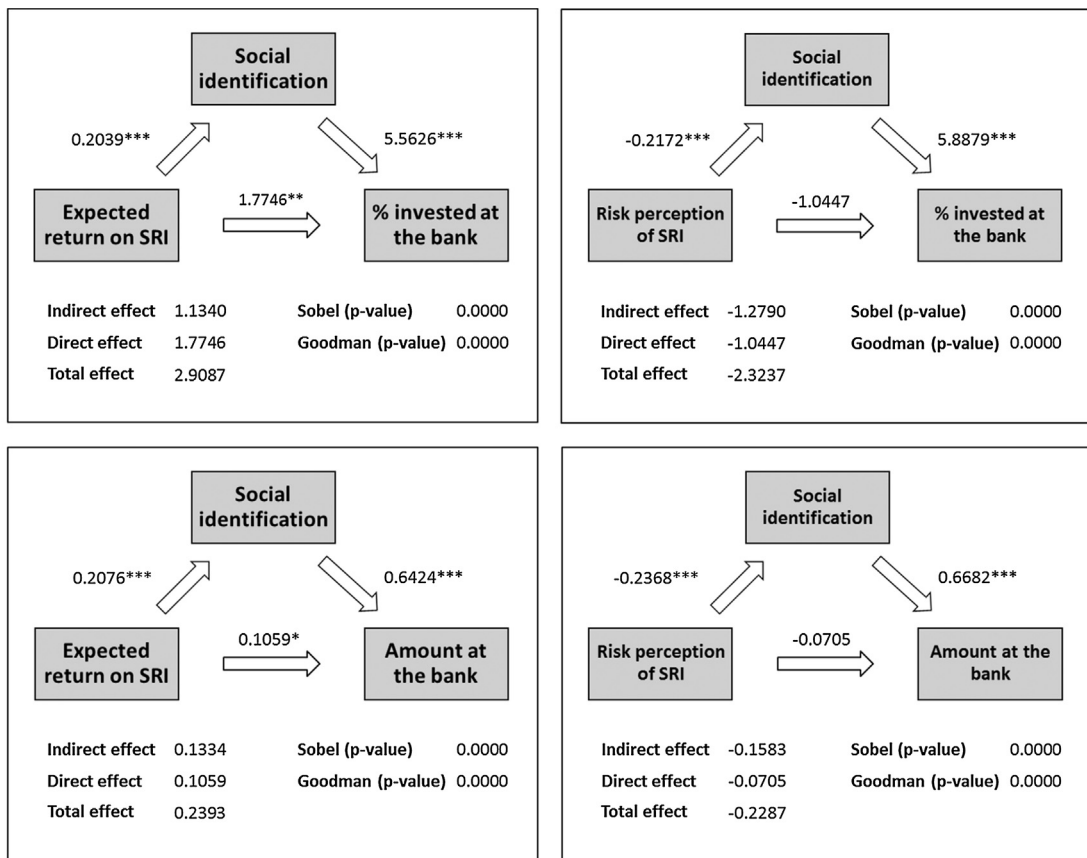
** 5% significance level.

*** 1% significance level.

Robust standard errors in parentheses.

through another variable (Baron and Kenny, 1986). In this case, return expectations and risk perceptions influence allocations to the socially responsible banks through social identification.

Fig. 4 shows a mediation analysis for the percentage of the total portfolio invested at the bank and the (log) of the total amount invested at the bank. The mediation analysis for the other two outcome variables can be found in the appendix Fig. A1. For the mediation analysis, we use responses to the full 1–5 scale for return expectations and risk perceptions, where



*** 1%, ** 5%, * 10% significance levels.

Fig. 4. Mediation analysis. These figures report the results of mediation analyses (Baron and Kenny, 1986). The dependent variable is either the percentage of the total portfolio invested at the socially responsible bank, or the (log) of the amount invested at the bank. The independent variable is either return expectations on SRI funds or risk perceptions on SRI funds, and the mediation variable is social identification. The direct effect refers to the effect of the independent variable on the outcome variable, and the indirect effect refers to the effect of the independent variable on the dependent variable that goes through the mediating variable (social identification). The Sobel and Goodman tests indicate whether the mediation effect of social identification is significant. ***1%, **5%, and *10% significance levels.

1 means the return (risk) of SRI funds is much lower than that of conventional funds and 5 means the return (risk) of SRI funds is much higher than that of conventional funds.

The results show that social identification indeed mediated the effects of return expectations and risk perceptions on investments at the bank, as indicated by the highly significant Sobel test and Goodman test ($p=0.000$). The direct effect of return expectations (left panels) on the percentage invested at the bank is 1.77 and the indirect effect that goes through social identification is 1.13. An investor who moved up one point on the scale for return expectations invested an additional 2.90 percentage points at the socially responsible bank, of which 1.77 percentage points resulted directly from expecting higher returns, and 1.13 percentage points resulted from higher social identification.

Risk perceptions are related to social identification (right panels) but have no direct effect on the percentage and the absolute amount invested at the socially responsible bank. For instance, an investor who perceived the risk to be higher by one point on the 1–5 scale scored 0.22 points significantly lower on the social identification scale. Yet the direct effect of risk perceptions on the percentage invested at the bank is insignificant. The indirect effect of risk perceptions on the percentage invested at the bank is -1.28 , which implies that investors who perceived the risk of SRI funds to be higher invested a smaller fraction of their portfolio at the bank as a result of lower social identification.

Fig. 4 shows similar results for the effects of return expectations and risk perceptions on the absolute amount invested (lower panels). Fig. A1 shows that social identification also significantly mediated the effect of return expectations and risk perceptions on the number of conventional investment accounts and the number of savings accounts.

We have shown that social identification is related to investment decisions. Riedl and Smeets (2014) show that investors also hold socially responsible mutual funds for reasons of social signaling. Investors who talk about their investments with others can get reputation benefits from their socially responsible investments. They find that socially responsible investors

Table 7
Characteristics related to social identification.

	Social identification
Self-rated knowledge	0.023 [0.031]
University	0.103** [0.041]
Risk preferences	-0.023 [0.016]
Gender (female)	0.337*** [0.044]
Age	-0.006*** [0.002]
Low wealth	0.058** [0.026]
High wealth	-0.059** [0.026]
Low income	0.074* [0.042]
High income	-0.097 [0.082]
Constant	5.978*** [0.153]
Adjusted R ²	0.035
n obs.	2766

The table shows an OLS regression of social identification on investor characteristics. The variables are defined in Table 1.

* 10% significance level.

** 5% significance level.

*** 1% significance level.

Robust standard errors in parentheses.

talk more about investments than conventional investments. Investors in our sample indicated their agreement to the following statement: "I like to talk about socially responsible investments to others."

Table A3 repeats the regressions from Table 5 with *Talk about SRI* as an additional independent variable. The results show that allocations to socially responsible banks have no relation to talking about SRI. This result can differ from the findings of Riedl and Smeets for two main reasons. First, the clientele of socially responsible banks care less about social signaling than do socially responsible investors at a mainstream provider, that is, the sample of Riedl and Smeets. Second, the question used by Riedl and Smeets is slightly different: "I often talk about SRI with others." Most importantly, social identification remains significant in all specifications when we add *Talk about SRI*.

Next, we test which investor characteristics correlate with social identification. Table 7 shows a regression of social identification on different investor characteristics. Having a university degree and being female is positively related to social identification, but older investors identify less with SRI funds. Interestingly, having low wealth and low income is positively related to social identification. This finding points toward identity as a socially responsible investor not being a luxury good for rich investors. Investment knowledge is unrelated to social identification, which shows that social identification affects a broad range of investors and not only those with limited investment knowledge.

5. Conclusion

This paper investigates the investment decisions of investors at specialized, socially responsible banks. The clientele of these socially responsible banks are interesting, because the banks' business model starkly deviates from that of banks that offer conventional investment products. According to traditional financial theory, investors only select investments based on a risk–return trade-off, and they would not restrict their investment set based on social-responsibility criteria. The business model of the two banks is to exclusively offer socially responsible investment and savings accounts to their clients. Research has thus far given us little information about the clients of such banks. What do their portfolios look like? What returns and risk do they expect on SRI funds? Do they invest at these banks for risk- and return-related reasons or also because doing so fits their social identity?

Our survey data show that about half of the clients of the socially responsible banks in our sample invested exclusively at one or both socially responsible banks, whereas the other half also held conventional investment accounts. Our results show that a majority of the investors expect SRI funds to give higher returns, yet these return expectations are not the major driver of allocations to the socially responsible banks. Rather, social identification plays an important role in the allocations to socially responsible banks. Social identification also mediates the effect of return expectations and risk perceptions on the absolute and relative amount invested at the banks.

Our findings have important implications for the product development and marketing of banks. Bénabou and Tirole (2011) show that prosocial behavior can create or enhance people's feelings of a positive social identity. For example, socially responsible banks can actively try to enhance their clients' identification with their products. In this respect, Akerlof and Kranton (2000) argue that advertisements might be an effective way to create or manipulate identities. The two banks in this study publish a monthly magazine that shows the social impact of their socially responsible banking. The slogan of one bank is "Make money, make a difference," and the slogan of the other bank is "For the world of tomorrow." These and other forms of communication potentially strengthen the social identity of clients.

The findings of this paper could also have implications for other types of financial services, such as Islamic finance (e.g., Abdelsalam et al., 2014; Belal et al., 2014; Mallin et al., 2014; Shaban et al., 2014). Investors with a strong religious identity are likely to also seek financial products that are consistent with their identity. They might be willing to sacrifice expected returns to invest in accordance with their values, similar to a subset of responsible investors in our sample. We see investments that are in accordance with one's identity as a fruitful avenue for future research.

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Appendix A. Supplementary data

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