sciendo Economics and Business Review https://www.ebr.edu.pl Vol. 10 (4), 2024: 00–00 https://doi.org/10.18559/ebr.2024.4.1225

Religious service attendance and consumer financial outcomes: Evidence from a longitudinal survey

Andrzej Cwynar[1] Tomasz Potocki[2]
Piotr Białowolski[3] Dorota Węziak-Białowolska[4]

Abstract

Previous literature has pointed to strong links between religion and economic outcomes. However, little is known about how individual consumers' religiosity is related to their financial management outcomes. Using longitudinal data from a national representative survey of households in Poland (more than 90% of believers declaring Roman Catholic religious denomination), we examine the associations between religious service attendance (RSA) and three subsequent consumer financial outcomes: savings, debt, and financial satisfaction. Social contacts, general trust, and risk tolerance have been tested to mediate these associations. The results indicate that RSA is prospectively associated with all three consumer financial outcomes: savings (positive), debt (negative), and financial satisfaction (positive). Only one mediation effect was found: the association between RSA and savings is mediated by social contacts. This implies that religiosity, as measured by RSA,

Keywords

- religious service attendance
- savings
- debt
- financial satisfaction
- social contacts

[1] Institute for Public Administration and Business, WSEI University, Lublin, Poland WSEI University, ul. Projektowa 4, 20-209 Lublin, Poland, corresponding author: andrzej.cwynar@wsei.lublin.pl, https://orcid.org/0000-0003-2702-0397.

[2] Institute of Economics and Finance, University of Rzeszów, 35-310 Rzeszów, Poland, tpotocki@ur.edu.pl, https://orcid.org/0000-0001-7309-7892.

[3] Department of Economics, Kozminski University, 03-301 Warsaw, Poland, Human Flourishing Program, Harvard University, Cambridge, MA, United States, pbialowolski@kozminski.edu.pl, https://orcid.org/0000-0003-4102-0107.

[4] Human Flourishing Program, Harvard University, Cambridge, MA, United States, Department of Quantitative Methods and Applications of Computer Science, Kozminski University, 03-301 Warsaw, Poland, dbialowolska@kozminski.edu.pl, https://orcid.org/0000-0003-2711-2283.

is prospectively associated with financial outcomes, and social contacts have some potential to mediate the process. The channels through which religion influences financial conditions require additional research.

JEL codes: D12, D14, Z12

Article received 17 March 2024, accepted 7 October 2024.

Suggested citation: Cwynar, A., Potocki, T., Białowolski, P., & Węziak-Białowolska, D. (2024). Religious service attendance and consumer financial outcomes: Evidence from a longitudinal survey. *Economics and Business Review*, *10*(4), 0–0. https://doi.org/10.18559/ebr.2024.4.1225

Introduction

Wealth and its distribution within the population is among the most important issues studied in the social sciences. The range of socioeconomic problems related to this issue is wide and includes such serious challenges as poverty and economic inequality. In this article, we empirically examine whether the key factors of wealth accumulation—savings (positively related to wealth) and debt (negatively related to wealth)—are prospectively associated with the religious trait that is one of the most important in common religions, religious service attendance (RSA). Given that accumulated wealth—through saving and borrowing—is an important factor in well-being measures (S. Brown & Gray, 2016; Hansen et al., 2008; Plagnol, 2011), we also examine whether RSA is linked to consumer-reported financial satisfaction.

For centuries, economic and religious thinking have been interdependent, sometimes chaotic, but always complex forces that have co-shaped civilisations (Friedman, 2011; Iyer, 2016). At present, about 85% of the world's population still declares membership of a religious denomination. This number is expected to increase by 2050 (Pew Research Center, 2022). Religious beliefs, and the related social norms and values (e.g., the Decalogue in Christianity), shape a person's sense of self (Akerlof & Kranton, 2000; Blaine et al., 1998). These norms and values define and crystallise a set of acceptable and unacceptable behaviours (Iannaccone, 1998). Adherence to these is often associated with a system of rewards and/or sanctions (Keister, 2007). Consequently, religions create incentives to undertake certain behaviours that may lead to particular outcomes. This also applies to the sphere of consumer finance.

As stated by Keister (2003, p. 178), "(…) people draw on the tools they learn from religion to develop consistent strategies (…) for making decisions such as savings, investment, and consumption".

Research using cross-country data confirms that religion has a significant impact on macro-scale economic and financial outcomes (Barro & McCleary, 2003; Guiso et al., 2003; Stulz & Williamson, 2003). There is also empirical literature available which scrutinises the role of religions in corporate financial choices (Chen et al., 2016; He & Hu, 2016; Hilary & Hui, 2009). However, as indicated by some authors (Kim et al., 2021; Renneboog & Spaenjers, 2012; Sarofim et al., 2020), limited evidence has been provided regarding the impact of religion on both consumer and household financial decisions, and, as a consequence, its impact on their financial outcomes.

Theoretical mechanisms through which religions affect economic and financial outcomes are indicated in the literature (Barro & McCleary, 2003; Guiso et al., 2003; Keister, 2003, 2008). Religion is part of culture, which—through the system of values and social norms derived from these values—shapes personal traits (integrity, willingness to commit and work hard, thrift, readiness to cooperate with others, etc.) and life choices (marriage, fertility, labour force participation) important for material outcomes (Keister, 2012; Stulz & Williamson, 2003). It is hypothesised that through a set of such individual characteristics considered to be conducive to economic growth and development religion influences consumer financial outcomes. However, the researchers have only begun to empirically verify these conceptual assumptions with regard to the mechanisms mediating between religion and financial outcomes, especially with respect to microeconomic data describing consumer finance. Our article aims to fill this research gap by examining the link between RSA and consumer financial outcomes as well as the likely process mechanisms between RSA and these outcomes.

The purpose of this article is to examine whether and how RSA—one of the most widely used measures of religiosity—is prospectively associated with consumers' financial outcomes. Our study relies on the conceptualization of the effects of religion on consumer financial outcomes proposed by Sarofim et al. (2020). To test this conceptual model empirically, we used longitudinal data from a national representative survey of the socioeconomic situation of households in Poland ('Social Diagnosis') and mediation analysis. Our aim is to present empirical evidence on how and through which process mechanisms RSA is associated with subsequent financial outcomes such as saving, borrowing, and financial satisfaction.

The contribution of our study is threefold. Firstly, this is the first study conducted in a *de facto* mono-religious tradition, Roman Catholicism (see the cross-country comparison in Arruñada (2010, Table 1, p. 896)). In Poland, Roman Catholics account for 98.38% of all religiously affiliated individuals (GUS, 2022). Most of the existing research concerning the relationship be-

tween religion and consumer financial outcomes originates from Western countries, where the religious affiliation is more dispersed among different denominations. In a mono-religious country, there is no need to control against the structure of the religion market (compare with Gruber, 2005). In addition, the effects of religion may be different in a mono-religious country compared to countries characterised by religious pluralism because of differences in the strong link between belonging to a particular religion and a sense of national identity (Pew Research Center, 2017).

Secondly, three potential mediators between RSA and consumer financial outcomes (identified based on prior, mostly theoretical, research) were empirically tested, including general trust, risk tolerance, and social contacts. Earlier work on the role of religion in shaping economic and financial outcomes, while theorising about the channels of influence, has rarely verified the accuracy of these theoretical predictions empirically (see notable exceptions in Benjamin et al. (2016) and Bryan et al. (2021), e.g.).

Moreover, most studies concerning the role of religion for financial outcomes are cross-sectional and thus are subject to the risk of reverse causality and provide little evidence referring to cause-and-effect relationships. Due to the longitudinal nature of our data, it was possible to reduce this risk and to make inferences about the associations between RSA and subsequent consumer financial outcomes.

1. Literature review

1.1. Religiosity and saving

Keister (2003) points out that thrifty living, which appeals to the religiously promoted virtues of moderation, foresight, and precaution, is almost universally valued by religions (positive effect hypothesis). On the one hand, empirical studies within the consumer consumption literature strand confirm that religion has a mitigating impact on consumerism and materialism (Minton et al., 2020), whereas, on the other, they show how religion contributes to high saving rates and favourable portfolio choices (Keister, 2007).

However, Barro and McCleary (2003) argue that religious service attendance may entail a transfer of resources from an individual to the community (the Church), which consequently limits the possibilities of accumulating private savings (negative effect hypothesis). This might be linked with the exhortation by many religions to solidarity, charity and the sharing of possessions with others (especially the poor) (Kose & Cinar, 2024). Hence, the relation-

ship between religion and the accumulation of savings does not necessarily have to be positive. Based on cross-country data, Guiso et al. (2003, p. 250) show that although overall "religiosity is associated with a higher emphasis on thrift", different measures of religiosity were correlated differently with this variable (religious upbringing—positively, while frequent attendance at religious services—negatively).

In this study, we have adopted the positive effect hypothesis. We hypothesize that individuals who report more frequent RSA report greater savings (H1). This hypothesis is based on two premises. Firstly, we measured savings in relation to income, which seems to be better suited to addressing the concept of thrift (precaution). It relates to the precautionary motive of saving (saving as a safety buffer). Secondly, since Poland is a country with weak social ties and low social capital (Ipsos, 2022), it may suffer from a limited willingness of individuals to make their resources available for the common good. This decreases the likelihood of a negative effect hypothesis. Although the teachings of the Catholic Church call for charity, empirical evidence from Poland shows that it is the non-believers who are more likely to both donate money to charity and work voluntarily for the benefit of others (Centrum Badania Opinii Publicznej, 2013).

1.2. Religiosity and borrowing

Chunping et al. (2016) elaborated on the theoretical link between religion, borrowing decisions, and the outcomes of consumers. In line with the arguments put forward by Keister (2003), they point to thrift as religiously sanctioned virtue, which can lead to greater restraint on consumption and, as a result, more limited willingness (and need) to borrow. They also argue that the affirmation of a particular asceticism in Christianity can inspire an entrepreneurial spirit and facilitate the accumulation of capital without a loan or credit.

Another reason why religion may reduce the propensity to borrow relates to the sanctioning of certain lending / borrowing behaviours as unacceptable. Islamic law (*shari'ah*), e.g., is characterised by the prohibition of interest (*riba*) and excessive leverage (Baele et al., 2014). Likewise, although the Catholic Church's stance on lending money at interest is adapting to the changing rules governing socio-economic life, the Catholic Church forbade the practice of lending money with interest for a very long time (Graeber, 2011). Consequently, this stigmatisation of lending / borrowing activity has left a lasting mark on the culture. Empirical studies show that some cultural traits—especially those related to religion—are extremely persistent and change slowly (Petkov et al., 2014). In some languages (e.g., in German), there is a semantic association between financial debt and moral guilt (or shame)

(Almenberg et al., 2021). In line with these theoretical predictions, prior empirical evidence indicates that consumers with a religious background borrowed less (Chunping et al., 2016).

Consequently, based on the literature indicated above, we tested the hypothesis that more frequent RSA is associated with reporting less debt (H2).

1.3. Religiosity and financial satisfaction

To the best of our knowledge, the currently available evidence concerning the effect of religion on consumer financial satisfaction is scarce. Although Sarofim et al. (2020) use the term financial well-being in their conceptual model showing the relationship between religion and consumer finance, they only apply a limited set of financial outcome variables (savings, debt, etc.). However, their approach is based on the reasonable and empirically supported assumption that better financial outcomes lead, *ceteris paribus*, to a greater sense of financial satisfaction (and well-being) reported by consumers (see, e.g., the structural models of Shim et al. (2009) as well as Xiao et al. (2009). In particular, Hansen et al. (2008), Plagnol (2011), in addition to S. Brown and Gray (2016), showed that the financial outcome variables that were used in our study—that is, assets (which are the product of saving) and financial liabilities (debt)—have a significant but opposing (positive for assets and negative for liabilities) relationship with financial satisfaction.

Similarly, Kose and Cinar (2024), who report the results of wide-ranging research using data from the World Values Survey, considered financial outcome variables to be a channel through which religion affects financial satisfaction. The results reveal the non-linear nature of the relationship between religiosity and financial satisfaction. This is particularly visible in the case of (faith-based) individual religiosity ('a person's level of devoutness and religion's importance in one's life' (Kose & Cinar, 2024, p. 2)). In this case, the study by Kose and Cinar (2024) revealed a U-shaped relationship (a negative relationship at low levels of religiosity and a positive at high levels). In the case of (communal-based) social religiosity (regular religious service attendance and active participation in religious communities), the relationship bears a closer resemblance to a J-shaped curve, but it is still negative at the lowest levels of religiosity.

Despite these findings, our third hypothesis (H3) is as follows: if more frequent RSA increases saving and reduces borrowing then more frequent RSA should also increase the financial satisfaction of consumers. In light of the results presented by Kose and Cinar (2024), this is to be expected, especially when the measure of religiosity used (i.e. RSA) refers to the social dimension of religion—a measure also employed in our study.

1.4. Risk tolerance as a mediator between religiosity and consumer financial outcomes

Attitudes towards risk and the willingness to take risks are among the relevant determinants of financial decisions and behaviour (Eeckhoudt et al., 2005). Research shows that risk aversion enhances precautionary savings (Bommier & Le Grand, 2018), limits borrowing (S. Brown et al., 2012), and positively affects financial satisfaction (Joo & Grable, 2004).

The link between religion and risk tolerance is also well documented. Most studies reveal that religiously affiliated individuals, in general, and those who are more religious, in particular, demonstrate a higher level of risk aversion (Chen et al., 2016; Hilary & Hui, 2009; León & Pfeifer, 2017; Noussair et al., 2013). However, the explanation for this relationship varies. For instance, Miller (2000) posits that being non-religious is in itself a form of risky behaviour—at least regarding those religions that claim exclusivity (e.g., Christianity and Islam, as opposed to Buddhism or Hinduism). Benjamin et al. (2016, p. 7) put it very plainly as a Pascal's wager: "irreligion is a risky strategy because one gains little if there is no God but potentially loses a great deal if there is a God". On the other hand, León and Pfeifer (2017) point to passages in both the Bible and the Quran, according to which it is clear that financial risk-averse behaviour is promoted by the norm and value systems of both Christianity and Islam. Finally, some studies have shown that the relationship between religion and risk aversion is sensitive to how broad the definition of risk is (such as generalised risk or financial risk) (León & Pfeifer, 2017).

Based on the evidence described above, we hypothesize that individuals whose RSA is more frequent will report less risk tolerance (H4). Additionally, risk tolerance will mediate the relationship between frequency of RSA and savings (H5) / debt (H6). Extending this argument, we also hypothesize that risk tolerance will mediate the relationship between RSA and financial satisfaction (H7).

1.5. General trust as a mediator between religiosity and consumer financial outcomes

The role of trust in finance—both generalised and to financial institutions—has already been well documented (Sapienza & Zingales, 2012). Trust correlates with various forms of financial inclusion worldwide (Xu, 2020). Specifically, it has been established that trust has a positive relationship with both savings (Baidoo & Akoto, 2019) and financial well-being (Barrafrem et al., 2021).

Berggren and Bjørnskov (2011) argue that religion can be both positively and negatively associated with general trust (i.e. trust in other people in

general or social trust as Berggren and Bjørnskov (2011) call it). On the one hand, religiosity can increase trust through the belief that religious people are guided by a code of ethics that prohibits indecent and dishonest behaviour. As a result, a religious person may be perceived as more trustworthy. Additionally, religions are associated with doing good for others, which in itself should go hand in hand with a greater openness to others and a willingness to trust them. On the other hand, religions can lead to divisions, distrust, and intolerance. Anyone who does not belong to a particular religion is in a sense different (alien): they do not adhere to the same values, they do not share the same norms and principles, and consequently, they cannot be trusted.

Despite the fact that empirical research is inconclusive concerning the relationship between religion and general trust (Berggren & Bjørnskov, 2011), in our study we hypothesized that it is a positive relationship. The worldwide results of Guiso et al. (2003, p. 228) support such a hypothesis showing that "Trust towards others is associated for the most part with religious participation" and that "Participation in religious services increases trust only among Christians"—an observation essential to us in studying Catholics and their religious service attendance.

As a consequence, we tested the hypothesis that individuals with more frequent RSA will demonstrate more trust (H8). Furthermore, we hypothesised that trust mediates the relationship between frequency of RSA and savings (H9) / debt (H10). Additionally, trust is expected to mediate the relationship between frequency of RSA and financial satisfaction (H11).

1.6. Social contacts as a mediator between religiosity and consumer financial outcomes

A separate channel through which religion can influence financial outcomes is that of social contacts (Keister, 2008). The church represents a community that provides access to the resources of others. Through this access, an individual may gain knowledge and skills, including those related to financial management. Specifically, Keister (2008, p. 1240) argues that "People learn how to save from their parents and others they encounter as children (…). Strategies for saving and for avoiding debt as well as work behaviours that facilitate saving are largely learned".

Empirical evidence supports these theoretical considerations. It has been shown that social networks influence individual financial decisions in two ways: through the peer effect and the conformity effect (Duflo & Saez, 2003; Hong et al., 2004). The former concerns information-sharing and learning from others, while the latter arises from the need to conform to the social group one that belongs to. J. R. Brown et al. (2008) confirmed that 'neighbours matter':

a 10-percentage point increase in community stock ownership translates into an approximately 4-percentage point increase in the likelihood of an individual to participate in the stock market. Georgarakos and Pasini (2011, p. 695) not only established that sociability has an effect on stock market participation that is distinct from the effect of trust (although both are positive), but also that sociability 'can partly balance the discouragement effect on stockholding that is induced by low trust'. In a meta-analysis Shariff et al. (2015) showed that religious priming has a robust effect on pro-social behaviour. Cwynar et al. (2020) found that individuals with access to greater resources embedded in their social networks are more likely to seek professional debt advice.

As a result, the following was hypothesised in our study: firstly, the respondents with a more frequent RSA will report more social contacts (H12); secondly, social contacts will mediate in the relationship between the frequency of RSA and savings (H13) / debt (H14); finally, social contacts will mediate in the relationship between the frequency of RSA and financial satisfaction (H15).

1.7. Conceptual model of religiosity and consumer financial outcomes

In the present study, we aim to investigate how RSA is related to the consumer financial outcomes. To this end, we use a conceptual model proposed by Sarofim et al. (2020). This model is based on an extensive literature review, as well as on qualitative research. Not only does it capture the relationships between religion (conceptualised as religious identity) and individual financial outcomes, but it also identifies the mechanisms through which religion impacts these outcomes. These mechanisms include the mediating roles of trust, affect, risk propensity, and perceived control.

We adapted this model as follows: firstly, we conceptualized religiosity as RSA; secondly, we examined the longitudinal associations between RSA and three consumer financial outcomes related to wealth accumulation; thirdly, with regard to process mechanisms (mediators), we included risk tolerance, general trust, and social contacts. Due to the lack of an adequate variable in our data set, the affect and perceived control were not included.

In their original analysis, Sarofim et al. (2020) distinguished the supply (financial institutions) and demand side (consumers) of the financial market. Due to the excessive complexity of these relationships and the fact that disentangling how these two are related can be quite challenging, in this study we focus solely on consumers. Furthermore, since we do not empirically test the resulting intervention recommendations from this model, we abandoned the study of this element of the model as well. Also, some of the variables present in the Sarofim et al. model (2020) are not reflected in our empirical

study. As for the variables that are outcomes of religiosity, these are: donation participation and purchase of religious vs. non-religious brands. These are issues that go far beyond the domain of consumer finance, and are the subject of intense study in psychology and sociology on the one hand, and marketing science on the other (see an overview in Sarofim et al., 2020).

Our adaptation of the conceptual model in Sarofim et al. (2020) that we examined empirically is presented in Figure 1.

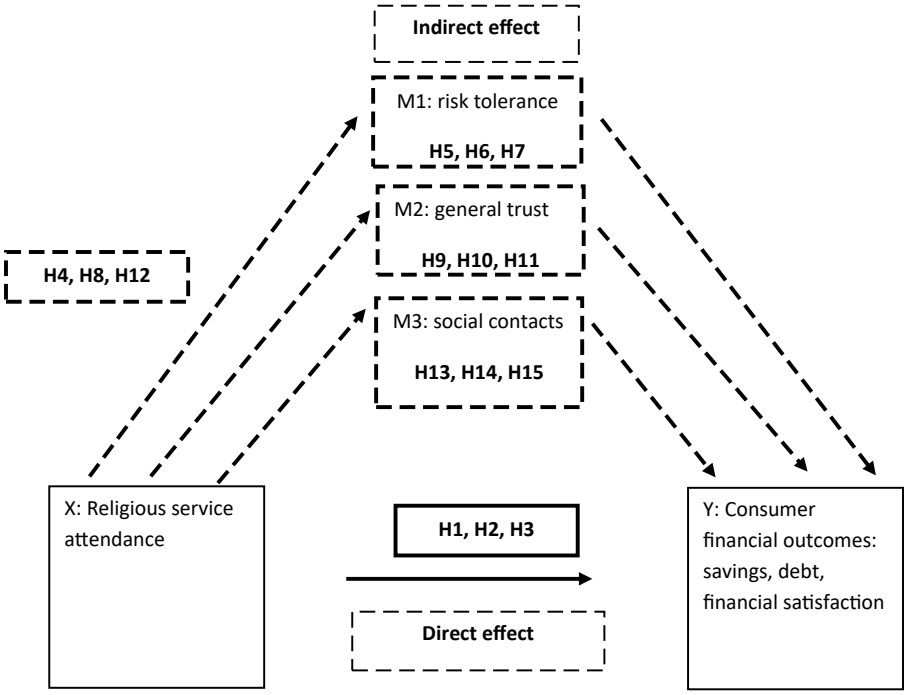

Figure 1. Analysed conceptual model adopted from Sarofim et al. (2020)

Note: Mediators were included in regression models one at a time.

Source: own elaboration.

We empirically verified the model in the Polish population. According to the European Values Survey (EVS, 2022), Poland appears to be one of the most religious country in Europe in terms of every measure used: the importance of God, church attendance, and the perception of oneself as a religious person. Poland is among the few European countries (next to Italy and Portugal) where the vast majority of respondents believe that there is a personal God (EVS, 2022). Despite the great importance of religion in Polish life, secularisation trends are also evident in Poland, particularly in younger age groups (EVS, 2022; Pew Research Center, 2017). As is the case with Western Europe,

Poland is experiencing the phenomenon of faith and belonging without practising: although almost all Poles declare themselves to be religious believers, the indicators of religious practice (such as daily prayers or RSA) are low (Pew Research Center, 2017). The characteristic feature of Poland, though, is its mono-religiousness, with 98.38% of those who belong to a religious denomination (89.88% of those who declared themselves as either belonging or not belonging to a religious denomination) indicating Roman Catholicism as their affiliation (GUS, 2022).

2. Methods

2.1. Data and study participants

The analysis builds on three waves (2011, 2013 and 2015) of the Polish household panel study 'Social Diagnosis' (Czapiński & Panek, 2015). It is a biennial panel survey designed to examine the living conditions and well-being of Polish households. Data are self-reported and representative of the Polish population aged over 15. The survey comprises questions concerning the household financial situation (income, debt, and savings), various aspects of well-being, lifestyle, and socio-economic characteristics. The relevant data and study documentation are freely available (in Polish and English) in the public domain (http://www.diagnoza.com/).

In *Wave 2011*, the study covered 36,655 individuals aged 16 and over. Of these, 25,717 individuals were surveyed in *Wave 2013*. By 2015, the number of individuals covered by all three rounds of the survey had declined to 19,492 respondents. All individuals with missing values for outcomes (i.e. financial conditions), control or exposure variables, i.e. RSA were excluded. This resulted in the analytical samples ranging between 11,453 and 15,512 individuals (depending on the estimate model).

2.2. Exposure—religious service attendance

RSA was used as an indicator of religiosity in this study. RSA was assessed by a single question: "On average, how often in a month do you take part in a church service or other religious meetings?" with the following answers to choose from: (1) never, (2) sometimes (1–3 times a month), (3) weekly (4 times a month), (4) very often (more than 4 times a month). This variable was recoded as a dichotomous one (1: at least once a week, 0: less than once a week)

following recommendations from previous studies, which indicated that this threshold served well as a means of differentiating between individuals in terms of their adherence to the moral code of the Catholic religion (Kirchmaier et al., 2018). Alternative specification was examined as a robustness analysis. The primary exposure measurement in the analyses was RSA in 2011.

2.3. Consumer financial outcomes

Three distinct consumer financial outcomes were examined. Savings and debt were both expressed in relation to monthly income ("What is the approximate total amount of your household savings?" / "What is the total amount of your household's debt?"). Five positive answers ranging from "Up to the equivalent of the household's monthly income" to "Above the equivalent of the household's yearly income" were allowed, plus a negative response indicating zero savings / debt. The third outcome was satisfaction with the financial situation. It was measured by the question: "Please assess to what extent you are satisfied with the financial situation of your family?" with six response categories from which respondents could choose the answer most appropriate to their circumstances, ranging from very not satisfied to very satisfied.

2.4. Mediators

A set of three mediating variables was tested. These were: (1) general trust ("Most people can be trusted"; yes, no); (2) risk tolerance (measured by the question "Do you smoke?"; yes, no), (3) social contacts as measured by the number of friends. These variables have already been established as important mediators of the relationship between religion and financial outcomes (Keister, 2008; León & Pfeifer, 2017; Renneboog & Spaenjers, 2012; Sarofim et al., 2020).

2.5. Control variables

A comprehensive set of control variables was used to examine the prospective association between RSA and consumer financial outcomes. These variables have already been established as important determinants of RSA and general financial conditions. Specifically, the analysis accounted for demographic

variables (gender, age, marital status, education, and the size of the place of residence), objective financial conditions such as equalised household disposable income (after log transformation) and labour market status (being unemployed vs. not). Moreover, civic engagement was also accommodated by controlling for voting in the last parliamentary elections (yes, no) and volunteering (yes, no). Additionally, controls related to baseline well-being and health were also included: (1) general health ("Please assess to what extent you are satisfied with your health condition?" with six possible answers from which respondents could choose, ranging from very not satisfied to very satisfied), and (2) feeling lonely ("Do you feel lonely, though you would prefer not to?" with two answers to choose from: yes, no).

On top of that, each regression controls for the respective outcome and respective mediator in 2011 to reduce the risk of reverse causation. Baseline descriptive statistics for all control variables are presented in Table 1 and the descriptive statistics of mediating and outcome variables are presented in Table 2.

2.6. Statistical analysis

The longitudinal dataset was used and a mediation analysis as proposed by Valeri and VanderWeele (2013) was applied to examine the direct effect (i.e. the association between independent and dependent variables), indirect effects (the association between independent variables and the dependent variable through the mediator), and total effects of RSA on consumer financial outcomes.

In this mediation analysis three waves of data were used with an exposure measured in waves for 2011, mediators in 2013, and outcomes in 2015, controlling for a set of control variables (in 2011) and prior mediators and outcomes (i.e. measured in 2011). This specification includes lagged covariates, as suggested by VanderWeele et al. (2020). In this analysis, the outcome is measured in the last period, while attempting to evaluate factors that change over time and might influence this outcome. This design necessitates multiple waves of data. For example, each potentially changeable determinant of the outcome is examined through a regression model fitting the outcome in wave 3 against the mediator of interest in wave 2 and controlling for (1) potentially confounding covariates in wave 1, (2) the prior level of the moderator in wave 1, and (3) the baseline outcome level in wave 1. The coefficient for the wave 2 mediator is then interpreted as an estimate of its effect on the outcome in wave 3, assuming that wave 1 mediator, baseline outcome, and the set of covariates sufficiently account for the confounding. This design controls (albeit not entirely, as it is feasible only in randomized control trials and

Table 1. Distribution of participant characteristics at study baseline (*N* = 11,453 – 15,512). Polish household panel study 'Social Diagnosis'

Participant characteristic	%	Mean (SD)
Religious service attendance		
Never	29.2	
1–3 times a month	25.4	
4 times a month	34.1	
More than 4 times a month	11.3	
Control variables		
Gender (male)	47.5	
Age group (years)		
18–24	11.9	
25–34	16.0	
35–44	12.9	
45–54	13.9	
55–64	15.2	
65+	30.1	
Marital status		
Unmarried	27.1	
Married	58.4	
Widowed	10.3	
Divorced	3.6	
Legally separated	0.2	
Practically separated	0.5	
Education attainment		
Post-secondary or higher education	23.8	
Upper secondary or vocational education	57.6	
Primary or lower secondary	18.6	
Size of place of residence		
Rural areas	42.2	
City with up to 100,000 residents	32.0	
City with 100,000–500,000 residents	16.9	
City with 500,000 residents	8.9	
Unemployment (% of yes)	2.2	
Equivalised monthly income (PLN)		1,481.3 (1121.3)
Voting in the last elections (% of yes)	69.6	
Volunteering (% of yes)	18.9	
General health		
Very satisfied	8.3	
Satisfied	32.4	
Satisfied a little bit	30.5	
Dissatisfied a little bit	12.5	
Dissatisfied	11.0	
Very dissatisfied	5.3	
Feeling lonely (% of yes)	20.5	

Source: based on data from 'Social Diagnosis'.

Table 2. Descriptive statistics of mediating and outcome variables at study baseline (*N* = 11,453 – 15,512). Polish household panel study 'Social Diagnosis'

Participant characteristic	%	Mean (SD)
Outcome		
Financial satisfaction		
1. Very not satisfied	8.0	
2. Not satisfied	14.6	
3. Rather not dissatisfied	15.6	
4. Rather satisfied	33.0	
5. Satisfied	24.6	
6. Very satisfied	4.2	
Savings		
None	65.7	
Up to one-month household income	8.5	
From 1-month up to 3-month household income	12.0	
From 3-month up to 6-month household income	7.7	
From 6-month up to 12-month household income	3.9	
Above 12-month income	2.1	
Debt		
None	59.5	
Up to one-month household income	8.5	
From 1-month up to 3-month household income	9.4	
From 3-month up to 6-month household income	7.4	
From 6-month up to 12-month household income	5.7	
Above 12-month income	7.9	
Difficult to say	1.9	
Mediators		
General trust ("Most people can be trusted"; % of yes)	13.2	
Risk tolerance / aversion ("Do you smoke?"; % of yes)	26.3	
Social contacts (number of friends)		6.9 (7.4)

Source: based on data from 'Social Diagnosis'

not with observational data we use) for potential confounding and reverse causation by accounting for baseline outcome, baseline mediator and the set of covariates measured at the beginning of the study period. Although this design cannot examine distant exposures from an individual's distant past, it addresses more actionable exposures that are potentially modifiable in the present, addressing pertinent research questions using available data.

A series of nine models was run—for each of the three outcome variables separately and for each of the three mediators separately. In these models, the same set of control variables were used. In this sense, an outcome-wide approach was applied (VanderWeele et al., 2020), which allows for the effect of a single exposure on multiple outcomes to be compared.

The significance of examined associations and effects was tested using the bootstrapping method as suggested by Aguinis et al. (2017). 1,000 replications were used to construct the bootstrapped errors. In order to determine whether the mediation exists, a strategy suggested by Aguinis et al. (2017, p. 676) was adopted. They suggested that to claim the existence of a mediation it should be sufficient that the indirect effect is significant, regardless of the presence or absence of a direct effect. The procedure *paramed* implemented in Stata and applying bootstrapped standard errors to the obtained parameters was used (Liu et al., 2016; Valente et al., 2020).

In the supplementary analyses, two additional specifications of RSA were tested to examine the robustness of results against different frequencies of RSA. Firstly, the original models were recomputed with RSA coded as 1: more than 4 times a month vs. others (Supplementary Material, Table S1). Secondly, RSA was recoded as follows: 1: sometimes (1–3 times a month) or weekly (4 times a month) vs. others (Supplementary Material, Table S2).

Analyses were performed using Stata 17.

3. Results

Our analyses indicated that there was a positive association between RSA and subsequent savings. This association was also found to be mediated by social contacts, although the indirect effect was rather minor (Table 3). It was also found that RSA was negatively associated with both a subsequent increase in borrowing and a subsequent increase in financial satisfaction. No mediation effects were found for these two associations.

Regarding the associations between RSA and subsequent mediating variables, it was found that RSA was associated with subsequent increased social contacts and risk tolerance. As for the mediations (process mechanisms—as Sarofim et al. (2020) call them), our empirical results only support the hy-

Table 3. Effects of religious service attendance on financial outcome measures as mediated by risk tolerance, general trust, and social contacts (*N* = 11,453 – 15,512, depending on the model estimated)

Path (RSA → mediator → outcome)	Effect of RSA on the mediator	Effect of the mediator on the outcome	Indirect effect of RSA on the outcome	Direct effect of RSA on the outcome while controlling for the mediator
	β (95%CI) *p*-value	*β* (95%CI) *p*-value	*β*[a] (95%CI) *p*-value	*β*[a] (95%CI) *p*-value
Religious service attendance and financial satisfaction				
RSA → GT → SF	0.001 (–0.009; 0.012) 0.803	0.030 (–0.039; 0.098) 0.395	0.000 (–0.000; 0.001) 0.811	0.082 (0.037; 0.132) <0.001
RSA → RT → SF	–0.026 (–0.036; –0.017) <0.001	–0.022 (–0.100; 0.056) 0.579	0.001 (–0.001; 0.003) 0.581	0.074 (0.001; 0.003) 0.002
RSA → SC → SF	0.448 (0.254; 0.642) <0.001	0.002 (–0.002; 0.006) 0.394	0.001 (–0.001; 0.003) 0.402	0.069 (0.027; 0.122) 0.004
Religious service attendance and savings				
RSA → GT → Savings	0.000 (–0.010; 0.011) 0.956	0.046 (–0.049; 0.141) 0.95	0.000 (–0.001; 0.001) 0.956	0.078 (0.011; 0.143) 0.018
RSA → RT → Savings	–0.028 (–0.037; –0.018) <0.001	–0.064 (–0171; 0.043) 0.246	0.002 (–0.001; 0.005) 0.256	0.057 (–0.010; 0.125) 0.086
RSA → SC → Savings	0.478 (0.285; 0.670) <0.001	0.008 (0.003; 0.014) 0.002	0.004 (0.002; 0.008) 0.010	0.079 (0.015; 0.149) 0.018
Religious service attendance and debt				
RSA → GT → Debt	0.000 (–0.011; 0.011) 0.990	0.056 (–0.075; –0.188) 0.401	0.000 (–0.002; 0.001) 0.990	–0.276 (–0.363; –0.189) <0.001
RSA → RT → Debt	–0.027 (–0.036; –0.017) <0.001	0.037 (–0.114; 0.187) 0.634	–0.001 (–0.006;0.002) 0.635	–0.272 (–0.364; –0.187) <0.001
RSA → SC → Debt	0.456 (0.262; 0.650) <0.001	–0.002 (–0.010; 0.005) 0.591	0.000 (–0.005 0.001) 0.593	–0.276 (–0.368; 0.191) <0.001

Notes: RSA: religious service attendance; SF: financial satisfaction; GT: general trust; RT: risk tolerance; SC: social contacts; CI: confidence interval.

[a] bootstrapped confidence intervals (1000 replications).

Source: based on data from 'Social Diagnosis'.

pothesis formulated for social contacts and only with regard to the effect of RSA on savings. The rest of the mediators turned out to be insignificant (in all models estimated). In short, although RSA was associated to a significant extent with future social contacts and risk tolerance—and the direction of temporal influence was as expected—these constructs did not act as mediators to convey the impact of RSA on consumer financial outcomes. There was, however, one exception to this conclusion: social contacts were found to mediate the relationship between RSA and savings.

For the secondary mediation analyses with differently defined RSA (Table S1 and S2 in the Supplementary Material), the directionality of most associations was preserved but the effect sizes were somewhat attenuated, and with wider confidence intervals. However, differences were found for the associations between very frequent RSA (more than once a week) and savings mediated with social contacts. In these models, significant estimates for direct and indirect effects were found.

4. Discussion, implications, and future research

The purpose of this study was to examine whether (and if so, how) religiosity correlates with subsequent consumer financial outcomes as measured by the level of savings and debt to income, as well as the level of financial satisfaction. Given the measure of religiosity used (RSA) and the applied outcome measures related to consumer finances, our study fits into the still limited stream of literature concerning the link between religiosity and consumer financial outcomes.

Our results confirmed all the formulated hypotheses regarding the direct effects of RSA on the applied financial outcome variables (H1, H2, H3). We provide empirical evidence that RSA is prospectively associated with the following: the total stock of savings relative to income (positively), the total amount of debt relative to income (negatively), and the level of financial satisfaction (positively). Consequently, our study reinforces the existing empirical evidence that wealth accumulation factors are significantly linked to religion (Keister, 2003, 2008). By using a longitudinal study design with the appropriate temporal sequence of exposure, mediator and outcome, our results provided stronger evidence regarding the causal links between RSA and financial outcomes (from RSA to financial outcomes) than purely cross-sectional evidence. Such a temporal design was often difficult to achieve in earlier studies and the causality was determined for the most part using instrumental variables (Chunping et al., 2016; He & Hu, 2016; Kim et al., 2021; Renneboog & Spaenjers, 2012).

We also provide empirical evidence that RSA is associated with two (of the three studied) variables considered in the literature as the individual characteristics conducive to economic growth and material outcomes: risk tolerance (negatively) and social contacts (positively). Such results confirm hypotheses H4 and H12 and are consistent with the results of previous studies (Chen et al., 2016; Hilary & Hui, 2009; Keister, 2008; León & Pfeifer, 2017; Noussair et al., 2013). In contrast, our results do not support hypothesis H8 that RSA and general trust are positively related. The coefficient for this relationship was found to be insignificant.

With regard to mediating mechanisms, our results do not confirm that RSA is linked to savings, debt, and financial satisfaction either through risk tolerance or through the general trust (rejection of hypotheses H5, H6, H7, H9, H10, H11). Of the mediators tested, only social contacts significantly mediated between RSA and savings (confirmation of hypothesis H13)—but not between RSA and debt, nor between RSA and financial satisfaction (rejection of hypotheses H14 and H15). Consequently, our results provide only partial empirical support for the conceptual model proposed by Sarofim et al. (2020), which assumes that religiosity influences consumer finances through a set of process mechanisms. Our results show that most interactions between RSA and consumer finance occur through the direct channel. Testing other mediators is an important and interesting direction for future researchers, as despite many theoretical and conceptual proposals, little is still known about what variables actually mediate between religion and consumer financial outcomes.

Given that a household's net worth is determined by both its savings and its debts, our results obtained among Poles (almost exclusively Roman Catholics) confirm what Keister (2003) observed in the United States: that religious service attendance is significantly positively related to consumer wealth. In our study, we showed that this relationship can occur through social contacts, which Keister (2003, 2008) refers to as direct channel of influence. What was proposed by Keister at the conceptual level (that is, that religion can influence wealth through social contacts) received empirical support in our study. Thanks to this, our proposal to extend the model presented by Sarofim et al. (2020) to include additional process mechanism mediating between religion and consumer financial outcomes—social contacts—has gained empirical justification.

We believe that the fact that only social contacts proved to be a significant mediator between RSA and savings in our study has a rationale. On the one hand, RSA represents precisely the social (and less theological) dimension of religion (Kirchmaier et al., 2018). RSA is more a measure of belonging than a measure of believing (Noussair et al., 2013) and in this sense it is a variable representing the same domain as social contacts. On the other hand, Keister's work convincingly suggests that social contacts (the accumulated knowledge

and experiences of others) are important particularly for learning the best strategies for saving and investing: "Knowledge about the importance of saving, the avenues available for saving, and saving strategies is at least partly gained through exposure to the savings behaviour of others. Wealth accumulation depends on having information about a number of financial instruments and their features" (Keister, 2003, p. 176). Research shows that learning outcomes are generally weaker for borrowing, as it is most often episodic (Kaiser & Menkhoff, 2017).

Both Keister's results and ours have practical implications. In light of these results, churches and other venues where group religious practices take place can be viewed as spaces that enable financial socialisation. They not only allow people to benefit from the knowledge and experience resources of other believers; as Keister (2003, p. 199) indicates, being "exposed to religious ceremonies, rituals, and values, people develop a set of competencies and habits that they draw on in making decisions about consumption, saving, and investment".

The results of the recent randomised control trial by Bryan, Choi and Karlan (2021) show that churches and other places of religious services can be goal-oriented training sites, where financial goals do not have to be achieved by means of strictly financial training. Bryan et al. (2021) showed that a several-month training programme run by a Protestant pastor and aimed at increasing religiosity led to an increase in the income of its participants (through increasing grit). A meta-analysis by DeHaven et al. (2004) shows that health improvement programmes conducted in religious organization can improve health outcomes. There is no reason to believe that financial health programmes will not work in a similar way.

Our results also allow for some general reflections relating in some sense to the practical implications of the relationships we noted. If the frequency of attendance in religious services is indeed associated with more savings and less debt (i.e. with greater chances of financial prosperity and well-being), then ongoing secularisation in the Western world may entail the atrophy of an important driver of wealth, namely religiosity—at least among Roman Catholics. Therefore, perhaps the agenda indicating actions to be taken in order to improve the financial literacy, behaviour, and outcomes of consumers should include support for religious groups (e.g., for the Catholic Church in Poland) aimed at preventing the rapid erosion of its role in social and, as it transpires, in the everyday economic life of consumers.

Perhaps the reason for the lack of statistical significance of the mediating effects tested in our study are the specificities of the country in which it was conducted. We speculate that, for some reason, in Poland trust, risk tolerance, and, to a lesser extent, social contacts are not significantly correlated with consumer financial outcomes. This finding certainly requires further research (see Cwynar et al., 2017) into some of the preliminary results regard-

ing the credit and loans market and Pawlikowski et al. (2019) with regard to the results linking religiosity and well-being).

Poland is a country with very low social capital, including very low trust. According to a recent Ipsos global survey (covering 30 countries), in Poland trust in others ranks among the lowest in the world (Ipsos, 2022). Moreover, empirical evidence from Poland shows that believers have significantly lower levels of trust in other people compared to non-believers (Centrum Badania Opinii Publicznej, 2013). Given these findings, the lack of a significant relationship between RSA and general trust is much easier to explain. It seems that in Poland, despite the high degree of attachment to religious tradition and exceptionally high indicators of religiosity, even the sense of community that faith can bring about is not capable of breaking through the barrier of distrust. A symptom of this phenomenon is that more frequent participation in religious services, although positively related to the number of social contacts, does not translate into a greater degree of trust in other people.

Another explanation for the lack of statistical significance of indirect (mediation) effects in our study is that the measurement instruments that were used are responsible for such results. This may be especially true for risk tolerance. Although previous studies imply that smoking may be used as a proxy for risk tolerance (Ida & Goto, 2009; Khwaja et al., 2006; Rindfleisch & Crockett, 1999), we are aware of how imperfect a measure of the phenomenon under study this instrument actually is. However, in the survey we used, there were no other measures of risk tolerance (risk aversion) that could be applied in a longitudinal scheme.

4.1. Limitations

When interpreting our results, it is important to keep in mind that they involve only one measure of religiosity—the RSA. RSA represents the social dimension of religiosity and may therefore show different relationships with financial variables than measures of religiosity representing the theological dimension (various measures of religious beliefs). Previous research shows that using different measures of religiosity can generate different effects in the economic and financial domain (Guiso et al., 2003). In the survey we used, however, RSA was the only measure of religiosity available.

In our study, we used dummy variables as proxies for risk tolerance and general trust, which may be questionable, especially with regard to risk tolerance, which we measured by asking respondents whether they smoke cigarettes. Smoking is a nuanced behaviour (one may smoke compulsively, but also occasionally; one may not currently smoke, but at the same time have had years of smoking experience in the past, etc.). Binary coding of

this variable (smoker / non-smoker) ignores these nuances. Previous studies on which we based our assumption that smoking behaviour may be used as a proxy for risk tolerance have captured the gradient of this behaviour instead of treating it in a binary way. For example, Ida and Goto (2009) first divided their sample into current smokers and non-smokers. They then divided non-smokers into never-before and ex-smokers. Finally, using a battery of six questions, they divided current smokers into heavy, moderate, and light smokers. Similarly, generalised trust is an intrinsically complex phenomenon (Robbins, 2022). The use of binary measures—such as the one we used ("Most people can be trusted / can't be trusted")—gives a general picture of this phenomenon, but certainly does not allow for an analysis of its nuances.

Our results are also limited to the Roman Catholic religion, which prevails in Poland. It is known from previous studies that the effects of participation in religious services vary across religious denominations (Guiso et al., 2003; Keister, 2003). Poland is a unique country on the religious map of the world. The point is not only that the level of declared religious affiliation is very high, but above all that it is almost exclusively Roman Catholic. Cross-country data (Arruñada, 2010) shows that no other country can compare with Poland in this regard. Strong attachment to the Catholic Church played an important role in Poland's political transformation (the transition from communism to capitalism) and was intertwined with many social processes. All this may make country-specific factors strong in the effects we have noted. In future research, it would be worthwhile to verify whether RSA shows the same relationship with consumer financial outcomes in countries with a similar structure of its religious market, dominated by Roman Catholics (Ireland, Portugal, Italy—if one considers Europe alone).

Although the approach we used enabled us to link RSA with future financial outcomes in a time-sequential way that allows the risk of reversed causality to be minimized, our results do not allow an unambiguous inference about the direction of the cause-and-effect relationship, which is basically only possible in experimental studies such as those conducted by Bryan et al. (2021) and Benjamin et al. (2016).

Finally, the data we used were collected almost a decade ago (the last wave of the 'Social Diagnosis' took place in 2015; the survey has not been continued since then). During these several years, Polish society has experienced progressive secularisation (including a decline in the number and percentage of participants in group religious services). However, given the nature of the key variable (RSA), which refers to the social aspect of religiosity, we believe that our conclusions are still valid and up to date: those who attend religious services more often report better financial outcomes, which is likely to be due to social contacts and associated financial socialisation in the group.

Conclusions

Using data from the longitudinal 'Social Diagnosis' study of the socio-economic situation of households in Poland, we demonstrate that religious service attendance is sequentially linked to key consumer financial outcomes essential for wealth accumulation. Specifically, we find that it is positively associated with the level of savings relative to income (positively) and negatively associated with the level of debt relative to income. Additionally, religious service attendance is positively correlated with financial satisfaction.

Of the three mediators examined, only social contacts significantly explain the relationship between religious service attendance and savings. However, we found no evidence that risk tolerance or general trust mediate the relationship between religious service attendance and consumer financial outcomes, which we attribute to limitations in the available measures of these variables in the dataset.

References

Aguinis, H., Edwards, J. R., & Bradley, K. J. (2017). Improving our understanding of moderation and mediation in strategic management research. *Organizational Research Methods*, *20*(4), 665–685. https://doi.org/10.1177/1094428115627498

Akerlof, G. A., & Kranton, R. E. (2000). Economics and identity. *Quarterly Journal of Economics*, *115*(3), 715–753. https://doi.org/10.1162/003355300554881

Almenberg, J., Lusardi, A., Säve-Söderbergh, J., & Vestman, R. (2021). Attitudes towards debt and debt behavior. *Scandinavian Journal of Economics*, *123*(3), 780–809. https://doi.org/10.1111/sjoe.12419

Arruñada, B. (2010). Protestants and Catholics: Similar work ethic, different social ethic. *The Economic Journal*, *120*(547), 890–918. https://doi.org/10.1111/j.1468-0297.2009.02325.x

Baele, L., Farooq, M., & Ongena, S. (2014). Of religion and redemption: Evidence from default on Islamic loans. *Journal of Banking and Finance*, *44*, 141–159. https://doi.org/10.1016/j.jbankfin.2014.03.005

Baidoo, S. T., & Akoto, L. (2019). Does trust in financial institutions drive formal saving? Empirical evidence from Ghana. *International Social Science Journal*, *69*(231), 63–78. https://doi.org/10.1111/issj.12200

Barrafrem, K., Tinghög, G., & Västfjäll, D. (2021). Trust in the government increases financial well-being and general well-being during COVID-19. *Journal of Behavioral and Experimental Finance*, *31*, 100514. https://doi.org/10.1016/j.jbef.2021.100514

Barro, R. J., & McCleary, R. M. (2003). Religion and economic growth across countries. *American Sociological Review*, *68*(5), 760–781. https://doi.org/10.2307/1519761

Benjamin, D. J., Choi, J. J., & Fisher, G. (2016). Religious identity and economic behavior. *Review of Economics and Statistics*, *98*(4), 617–637. https://doi.org/10.1162/REST_a_00586

Berggren, N., & Bjørnskov, C. (2011). Is the importance of religion in daily life related to social trust? Cross-country and cross-state comparisons. *Journal of Economic Behavior & Organization*, *80*(3), 459–480. https://doi.org/10.1016/j.jebo.2011.05.002

Blaine, B. E., Trivedi, P., & Eshleman, A. (1998). Religious belief and the self-concept: Evaluating the implications for psychological adjustment. *Personality and Social Psychology Bulletin*, *24*(10), 1040–1052. https://doi.org/10.1177/01461672982410002

Bommier, A., & Le Grand, F. (2018). Risk aversion and precautionary savings in dynamic settings. *Management Science*, *65*(3), 955–1453. https://doi.org/10.1287/mnsc.2017.2959

Brown, J. R., Ivković, Z., Smith, P. A., & Weisbenner, S. (2008). Neighbors matter: Causal community effects and stock market participation. *Journal of Finance*, *63*(3), 1509–1531. https://doi.org/10.1111/j.1540-6261.2008.01364.x

Brown, S., Garino, G., & Taylor, K. (2012). Household debt and attitudes toward risk. *The Review of Income and Wealth*, *59*(2), 283–304. https://doi.org/10.1111/j.1475-4991.2012.00506.x

Brown, S., & Gray, D. (2016). Household finances and well-being in Australia: An empirical analysis of comparison effects. *Journal of Economic Psychology*, *53*, 17–36. https://doi.org/10.1016/j.joep.2015.12.006

Bryan, G., Choi, J. J., & Karlan, D. (2021). Randomizing religion: The impact of Protestant evangelism on economic outcomes. *The Quarterly Journal of Economics*, *136*(1), 293–380. https://doi.org/10.1093/qje/qjaa023

Centrum Badania Opinii Publicznej. (2013). *Osoby niewierzące w Polsce – kim są oraz jakie uznają normy i wartości?* https://www.cbos.pl/SPISKOM.POL/2013/K_134_13.PDF

Chen, H., Huang, H. H., Lobo, G. J., & Wang, C. (2016). Religiosity and the cost of debt. *Journal of Banking and Finance*, *70*, 70–85. https://doi.org/10.1016/j.jbankfin.2016.06.005

Chunping, Z., Li, P., & Lingwei, S. (2016). Do religious beliefs affect borrowing behavior? Evidence from Chinese households. *Review of Economics of the Household*, *14*, 989–1005. https://doi.org/10.1007/s11150-016-9324-2

Cwynar, A., Cwynar, W., Wais, K., & Parda, R. (2017). Personal loan companies in Poland: Does empirical evidence justify regulatory transition? *Prague Economic Papers*, *26*(4), 377–396. https://doi.org/10.18267/j.pep.627

Cwynar, A., Cwynar, W., Kowerski, M., Filipek, K., & Szuba, P. (2020). Debt literacy and debt advice-seeking behaviour among Facebook users: The role of social networks. *Baltic Journal of Economics*, *20*(1), 1–33. https://doi.org/10.1080/1406099X.2019.1693142

Czapiński, J., & Panek, T. (2015). Social diagnosis. Objective and subjective quality of life in Poland. *Contemporary Economics*, *9*(4), 1–528.

DeHaven, M. J., Hunter, I. B., Wilder, L., Walton, J. W., & Berry, J. (2004). Health programs in faith-based organizations: Are they effective? *American Journal of Public Health*, *94*(6), 1030–1036. https://doi.org/10.2105/ajph.94.6.1030

Duflo, E., & Saez, E. (2003). The role of information and social interactions in retirement plan decisions: Evidence from a randomized experiment. *Quarterly Journal of Economics*, *118*(3), 815–842. https://doi.org/10.1162/00335530360698432

Eeckhoudt, L., Gollier, C., & Schlesinger, H. (2005). *Economic and financial decisions under risk*. Princeton University Press. https://doi.org/10.2307/j.ctvcm4j15

EVS. (2022). *EVS trend file 1981–2017*. GESIS, Cologne. ZA7503 Data file Version 3.0.0. https://doi.org/10.4232/1.14021

Friedman, B. M. (2011). Economics: A moral inquiry with religious origins. *American Economic Review*, *101*(3), 166–170. https://doi.org/10.1257/aer.101.3.166

Georgarakos, D., & Pasini, G. (2011). Trust, sociability, and stock market participation. *Review of Finance*, *15*(4), 693–725. https://doi.org/10.1093/rof/rfr028

Graeber, D. (2011). *Debt. The first 5,000 years*. Melville House Publishing.

Gruber, J. H. (2005). Religious market structure, religious participation, and outcomes: Is religion good for you? *The B.E. Journal of Economic Analysis & Policy*, *5*(1). https://doi.org/doi:10.1515/1538-0637.1454

Guiso, L., Sapienza, P., & Zingales, L. (2003). People's opium? Religion and economic attitudes. *Journal of Monetary Economics*, *50*(1), 225–282. https://doi.org/10.1016/S0304-3932(02)00202-7

GUS (Główny Urząd Statystyczny). (2022). *Ludność Polski według grup wyznań i rodzaju deklarowanej przynależności wyznaniowej w 2021 r. Tablice z ostatecznymi danymi w zakresie przynależności narodowo-etnicznej, języka używanego w domu oraz przynależności do wyznania religijnego*. https://stat.gov.pl/spisy-powszechne/nsp-2021/nsp-2021-wyniki-ostateczne/tablice-z-ostatecznymi-danymi-w-zakresie-przynaleznosci-narodowo-etnicznej-jezyka-uzywanego-w-domu-oraz-przynaleznosci-do-wyznania-religijnego,10,1.html

Hansen, T., Slagsvold, B., & Moum, T. (2008). Financial satisfaction in old age: A satisfaction paradox or a result of accumulated wealth? *Social Indicators Research*, *89*(2), 323–347. https://doi.org/10.1007/s11205-007-9234-z

He, W., & Hu, M. (Rong). (2016). Religion and bank loan terms. *Journal of Banking and Finance*, *64*, 205–215. https://doi.org/10.1016/j.jbankfin.2015.12.005

Hilary, G., & Hui, K. W. (2009). Does religion matter in corporate decision making in America? *Journal of Financial Economics*, *93*(3), 455–473. https://doi.org/10.1016/j.jfineco.2008.10.001

Hong, H., Kubik, J. D., & Stein, J. C. (2004). Social interaction and stock-market participation. *Journal of Finance*, *59*(1), 137–163. https://doi.org/10.1111/j.1540-6261.2004.00629.x

Iannaccone, L. R. (1998). Introduction to the economics of religion. *Journal of Economic Literature*, *36*(3), 1465–1495.

Ida, T., & Goto, R. (2009). Simultaneous measurement of time and risk preferences: Stated preference discrete choice modeling analysis depending on smoking behavior. *International Economic Review*, *50*(4), 1169–1182. https://doi.org/10.1111/j.1468-2354.2009.00564.x

Ipsos. (2022). *Interpersonal trust across the world. A 30-country global advisor survey*. https://www.ipsos.com/sites/default/files/ct/news/documents/2022-03/Global Advisor - Interpersonal Trust 2022 - Graphic Report_1.pdf

Iyer, S. (2016). The new economics of religion. *Journal of Economic Literature*, *54*(2), 395–441. https://doi.org/10.1257/jel.54.2.395

Joo, S. H., & Grable, J. E. (2004). An exploratory framework of the determinants of financial satisfaction. *Journal of Family and Economic Issues*, *25*(1), 25–50. https://doi.org/10.1023/B:JEEI.0000016722.37994.9f

Kaiser, T., & Menkhoff, L. (2017). Does financial education impact financial literacy and financial behavior, and if so, when? *The World Bank Economic Review*, *31*(3), 611–630. https://doi.org/10.1093/wber/lhx018

Keister, L. A. (2003). Religion and wealth: The role of religious affiliation and participation in early adult asset accumulation. *Social Forces*, *82*(1), 175–207. https://doi.org/10.1353/sof.2003.0094

Keister, L. A. (2007). Upward wealth mobility: Exploring the Roman Catholic advantage. *Social Forces*, *85*(3), 1195–1225. https://doi.org/10.1353/sof.2007.0044

Keister, L. A. (2008). Conservative protestants and wealth: How religion perpetuates asset poverty. *American Journal of Sociology*, *113*(5), 1237–1271. https://doi.org/10.1086/525506

Keister, L. A. (2012). Religion and wealth across generations. In L. A. Keister, J. Mccarthy & R. Finke (Eds.), *Religion, work and inequality* (vol. 23, pp. 131–150). Emerald Group Publishing Limited. https://doi.org/10.1108/S0277-2833(2012)0000023009

Khwaja, A., Sloan, F., & Salm, M. (2006). Evidence on preferences and subjective beliefs of risk takers: The case of smoker. *International Journal of Industrial Organization*, *24*(4), 667–682. https://doi.org/10.1016/j.ijindorg.2005.10.001

Kim, H., Kim, K. T., & Han, S. H. (2021). Religious differences and households' investment decisions. *Journal of Financial Research*, *44*(4), 753–788. https://doi.org/10.1111/jfir.12260

Kirchmaier, I., Prufer, J., & Trautmann, S. T. (2018). Religion, moral attitudes and economic behavior. *Journal of Economic Behavior and Organization*, *148*, 282–300. https://doi.org/10.1016/j.jebo.2018.02.022

Kose, T., & Cinar, K. (2024). A global assessment of the relationship between religiosity and financial satisfaction. *Social Science Journal*, *61*(2), 347–367. https://doi.org/10.1080/03623319.2020.1808769

León, A. K., & Pfeifer, C. (2017). Religious activity, risk-taking preferences and financial behaviour: Empirical evidence from German survey data. *Journal of Behavioral and Experimental Economics*, *69*, 99–107. https://doi.org/10.1016/j.socec.2017.05.005

Liu, S.-H., Ulbricht, C. M., Chrysanthopoulou, S. A., & Lapane, K. L. (2016). Implementation and reporting of causal mediation analysis in 2015: A systematic review in epidemiological studies. *BMC Research Notes*, *9*, 354. https://doi.org/10.1186/s13104-016-2163-7

Miller, A. S. (2000). Going to hell in Asia: The relationship between risk and religion in a cross cultural setting. *Review of Religious Research*, *42*(1), 5–18. https://doi.org/10.2307/3512141

Minton, E., Johnson, K. A., Vizcaino, M., & Wharton, C. (2020). Is it godly to waste food? How understanding consumers' religion can help reduce consumer food waste. *Journal of Consumer Affairs*, *54*(4), 1246–1269. https://doi.org/10.1111/joca.12328

Noussair, C. N., Trautmann, S. T., van de Kuilen, G., & Vellekoop, N. (2013). Risk aversion and religion. *Journal of Risk and Uncertainty*, *47*(2), 165–183. https://doi.org/10.1007/s11166-013-9174-8

Pawlikowski, J., Białowolski, P., Węziak-Białowolska, D., & Vanderweele, T. J. (2019). Religious service attendance, health behaviors and well-being—an outcome-wide longitudinal analysis. *European Journal of Public Health*, *29*(6), 1177–1183. https://doi.org/10.1093/EURPUB/CKZ075

Petkov, I., Schiantarelli, F., & Giavazzi, F. (2014). *Culture: Persistence and evolution*. Centre for Economic Policy Research. https://cepr.org/voxeu/columns/culture-persistence-and-evolution

Pew Research Center. (2017). Religijność i przynależność narodowa w Europie Środkowo-Wschodniej. *Pew Research Center*. https://assets.pewresearch.org/wp-content/uploads/sites/11/2017/05/15120322/POL-Overview-FOR-WEB.pdf

Pew Research Center. (2022). Religious composition by country, 2010–2050. *Pew Research Center*. https://www.pewresearch.org/religion/feature/religious-composition-by-country-2010-2050/

Plagnol, A. C. (2011). Financial satisfaction over the life course: The influence of assets and liabilities. *Journal of Economic Psychology*, *32*(1), 45–64. https://doi.org/10.1016/j.joep.2010.10.006

Renneboog, L., & Spaenjers, C. (2012). Religion, economic attitudes, and household finance. *Oxford Economic Papers*, *64*(1), 103–127. https://doi.org/10.1093/oep/gpr025

Rindfleisch, A., & Crockett, D. X. (1999). Cigarette smoking and perceived risk: A multidimensional investigation. *Journal of Public Policy & Marketing*, *18*(2), 159–171. https://doi.org/10.1177/074391569901800203

Robbins, B. G. (2022). Measuring generalized trust: Two new approaches. *Sociological Methods & Research*, *51*(1), 305–356. https://doi.org/10.1177/0049124119852371

Sapienza, P., & Zingales, L. (2012). A trust crisis. *International Review of Finance*, *12*(2), 123–131. https://doi.org/10.1111/j.1468-2443.2012.01152.x

Sarofim, S., Minton, E., Hunting, A., Bartholomew, D. E., Zehra, S., Montford, W., Cabano, F., & Paul, P. (2020). Religion's influence on the financial well-being of consumers: A conceptual framework and research agenda. *Journal of Consumer Affairs*, *54*(3), 1028–1061. https://doi.org/10.1111/JOCA.12315

Shariff, A. F., Willard, A. K., Andersen, T., & Norenzayan, A. (2015). Religious priming: A meta-analysis with a focus on prosociality. *Personality and Social Psychology Review*, *20*(1), 27–48. https://doi.org/10.1177/1088868314568811

Shim, S., Xiao, J. J., Barber, B. L., & Lyons, A. C. (2009). Pathways to life success: A conceptual model of financial well-being for young adults. *Journal of Applied Developmental Psychology*, *30*(6), 708–723. https://doi.org/10.1016/j.appdev.2009.02.003

Stulz, R. M., & Williamson, R. (2003). Culture, openness, and finance. *Journal of Financial Economics*, *70*(3), 313–349. https://doi.org/10.1016/S0304-405X(03)00173-9

Valente, M. J., Rijnhart, J. J. M., Smyth, H. L., Muniz, F. B., & MacKinnon, D. P. (2020). Causal mediation programs in R, Mplus, SAS, SPSS, and Stata. *Structural Equation Modeling: A Multidisciplinary Journal*, *27*(6), 975–984. https://doi.org/10.1080/10705511.2020.1777133

Valeri, L., & VanderWeele, T. J. (2013). Mediation analysis allowing for exposure-mediator interactions and causal interpretation: Theoretical assumptions and implementation with SAS and SPSS macros. *Psychological Methods*, *18*(2), 137–150. https://doi.org/10.1037/a0031034

VanderWeele, T. J., Mathur, M. B., & Chen, Y. (2020). Outcome-wide longitudinal designs for causal inference: A new template for empirical studies. *Statistical Science*, *35*(3), 437–466. https://doi.org/10.1214/19-STS728

Xiao, J. J., Tang, C., & Shim, S. (2009). Acting for happiness: Financial behavior and life satisfaction of college students. *Social Indicators Research*, *92*(1), 53–68. https://doi.org/10.1007/s11205-008-9288-6

Xu, X. (2020). Trust and financial inclusion: A cross-country study. *Finance Research Letters*, *35*, 101310. https://doi.org/10.1016/j.frl.2019.101310