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ARE TWO HEADS REALLY BETTER THAN ONE IN INTRA-HOUSEHOLD FINANCIAL MANAGEMENT? EVIDENCE ON THE FINANCIAL BEHAVIOUR OF COUPLES IN POLAND

Andrzej Cwynar

Abstract

Research shows that involvement in intra-household financial management fosters the development of financial literacy and sound financial behaviour. However, little is known about how different intra-couple financial management styles (sole versus joint management) affect the way consumers act when confronted with typical financial matters. Using a simple classifier allowing to distinguish households in which both partners undertake financial activity from those in which only one partner is involved in managing household finances, we applied statistical tests of significant differences and multiple linear regression models to determine whether the financial behaviour of joint participants is distinct from that of sole participants in Poland. Mann-Whitney U test showed that significant differences exist in credit management behaviour, with individuals who share participation performing better behaviour in this domain compared to sole managers. Credit management also appears to be the most problematic domain of household financial management where undesirable behaviour is the most likely. However, closer inspection with linear regression revealed that these differences can be attributed to socio-demographic variables such as age, place of residence, income, and number of dependent children.

Keywords: *Intra-household financial management, financial behaviour, credit management*

JEL classification: *D12, G51, G52, G53, J16*

1. Introduction

Previous studies showed that individuals indicated in surveys as household chief financial officers (H-CFOs) were often more financially literate than their relationship partners (Hsu 2016; Ward and Lynch 2019; Bialowolski, Cwynar, and Weziak-Bialowolska 2020). Based on extensive empirical evidence of a significant and positive relationship between financial literacy and sound financial behaviour (see Stolper and Walter 2017 for an overview), it is reasonable to assume that H-CFOs also tend to perform healthier financial behaviour compared to non-H-CFOs. This assumption has strong theoretical underpinnings in the learning by doing (Dewey 1938) and the experiential learning (Kolb 1984) theories and has been confirmed empirically (Ward and Lynch 2019; L'Esperance 2020; van Raaij, Antonides, and de Groot 2020). As expected, those relationship partners who make financial decisions in a household should improve their financial

Andrzej Cwynar, PhD,
Associate Professor
University of Economics and Innovation
Projektowa 4, 20-209 Lublin, Poland
E-mail: andrzej.cwynar@wsei.lublin.pl
ORCID: 0000-0003-2702-0397

behaviour due to informational feedback received as a result of participation in the financial affairs of the household. In turn, those who waive financial decision-making by delegating it to their partner are less involved in the financial life of the couple and, consequently, have fewer opportunities to correct their financial behaviour by learning from experience.

However, full specialisation in the field of household financial management is rare. Research shows that the majority of couples make financial decisions jointly (van Raaij, Antonides, and de Groot 2020; Kim, Gutter, and Spangler 2017), which suggests that participation of both partners in the management of household finances provides some benefits. In this article we investigate whether these benefits include better financial behaviour on the part of those partners who participate in the financial management process. Specifically, the aim is to compare the financial behaviour of household financial managers in couples where only one partner is involved in managing finances (henceforth sole participants) with the financial behaviour of individuals in couples where both partners participate in financial management (henceforth joint participants). Following Warmath, Piehlmaier, and Robb's (2019) arguments, we hypothesised that the financial behaviour of the latter is better than that of the former. In a recent study, Warmath, Piehlmaier, and Robb (2019) found that some forms of shared financial decision-making can reduce financial overconfidence. They argue that when decision-making is shared, it can provide the conditions necessary for effective feedback: there is an observer who can espy that the partner's confidence deviates from her or his ability, and who can effectively communicate this. We assumed that such effect is not limited to overconfidence and applies equally to undesirable financial behaviour. Confirmation of our hypothesis would mean that exclusion from household financial management is detrimental not only to the excluded partner (as shown by Ward and Lynch 2019), but also to the one who manages finances. This, in turn, may adversely affect the financial well-being of the entire household and family.

The key contribution of this study is that it provides an insight into intra-household financial management styles in a country which differs significantly from those studied in this respect so far. In a recent article, van Raaij, Antonides, and de Groot (2020) note the absence of studies on financial management of partners in households in non-Western countries with lower levels of financial inclusion. Using data collected in Poland, we aim to fill this gap.

2. Theoretical framework and previous empirical evidence

Our study starts from the theories indicating that couples adopt a division of labour and specialisation within their households – including specialisation in household financial management – as described by the models of intra-household bargaining power (Nash 1950; Manser and Brown 1980; McElroy and Horney 1981). These models emphasise the conditions and mechanisms necessary to achieve a division of household effort related to financial activities between relationship partners. One direct consequence of specialisation in household financial management is that the specialising partner (H-CFO) is more likely to develop financial literacy (as predicted in theoretical models proposed by Jappelli and Padula (2013) and Lusardi, Michaud, and Mitchell (2017)) and sound financial behaviour (in line with the learning by doing (Dewey 1938) and the experiential learning (Kolb 1984) theories).

Previous research confirmed that, on average, H-CFOs were more financially literate than their relationship partners (Hsu 2016; Ward and Lynch 2019; Bialowolski, Cwynar, and Weziak-Bialowolska 2020). However, the research on the link between the allocation of financial management power in a couple and the financial behaviour of each relationship partner is very scanty and fragmented. Using data from the Health and Retirement Study, Babiarz, Robb, and Woodyard (2012) found that spouses who have the "final say" when making major family decisions are more likely to take action to preserve their standard of living and are better protected against its potential deterioration resulting from the loss of a spouse. Ward and Lynch (2019) showed that when relationship partners are forced to make independent financial decisions (i.e. when they are left without access to the "transactive memory system"), there is a significant gap in the quality of decisions made by H-CFOs and non-H-CFOs and the gap increases with relationship length. Based on data from the Survey of Consumer Payment Choice, L'Esperance (2020) investigated the association between the intra-household allocation of financial decision-making (in the domains of paying bills, saving and investing) and credit-related variables: individual credit score and credit card repayment behaviour. She found that delegation of the financial decision-making power to the other partner is not significantly related to any of these two variables. However, non-H-CFOs were found to be less likely to know their credit scores. Using data from the Dutch population, van Raaij, Antonides, and de Groot (2020) established that

financial problems are less likely to emerge among those couples who apply the syncratic financial decision-making model and have a joint bank account as compared to the male-dominant money management style and separate bank accounts.

Importantly, delegation of the financial decision-making power to the specialising partner may be considered a rational behaviour. Ward and Lynch (2019) used the psychological concept of "transactive memory" proposed by Wenger (1986) to obtain a clear conceptual framework providing arguments for the rationality of such behaviour. They argue that partners in a couple, when dealing with household tasks, use each other as a source of expertise in the fields in which they do not specialise. As a result, they do not have to devote time and other resources to acquire knowledge and skills necessary to navigate in the domains which are not their areas of expertise. They simply develop intra-household competences on a "need-to-know" basis: they make an effort to learn only in the areas of their specialisation, knowing that they can always turn to their partner to get access to expertise regarding issues beyond their specialisation. If financial management is not the domain in which they specialise, they can justifiably fail to invest in financial literacy (Lusardi, Michaud, and Mitchell 2017) and to fully participate in the financial life of the household. Ward and Lynch (2019) showed that, indeed, the household-level financial outcomes are predicted by the financial literacy of H-CFO, but not the financial literacy of non-H-CFO, which supports the claim that non-H-CFO can rationally and justifiably delegate financial decision-making to her or his financially-specialised partner.

However, the rationale behind the "transactive memory system" applied to intra-household financial decision-making is convincing as long as the specialising partner provides her or his expertise for the benefit of both partners, managing their shared or separate finances. Death, serious illness, divorce, separation or even a prolonged period of absence of the partner who specialises in household financial management leaves the non-specialising partner unaided, without access to essential competences. In the case of the loss of the specialising partner, the other partner faces a significant risk of deterioration in her or his standard of living. This risk is particularly high for older individuals and for women (Hsu 2016; Babiarz, Robb, and Woodyard 2012). Based on empirical evidence, Babiarz, Robb, and Woodyard (2012) note that many households are not prepared for the potential change in the standard of living resulting from the loss of the partner who was more knowledgeable about financial affairs.

Fortunately, the allocation of the role of household financial manager to one partner does not rule out the possibility that the other partner can also participate, to a degree, in managing finances of the household, although she or he does not have the "final say" in this domain. Given that nowadays it is very difficult to completely dissociate oneself from financial matters, it is more than likely that in a large number of households both partners are involved in dealing with financial affairs. The benefits of having a partner who co-manages financial matters – even to a limited extent – are clearly indicated in the literature (Osamor and Grady 2018; Warmath, Piehlmaier, and Robb 2019; van Raaij, Antonides, and de Groot 2020). Generally, these benefits are related to the feedback received from the other partner (including exploration of more options, correction of mistakes and controlling one another). Kamleitner, Mengay, and Kirchler (2017) point out that despite the increasing autonomy of spouses observed nowadays, more and more couples make joint financial decisions.

3. Shared financial management in a relationship: conceptualisation and operationalisation

The involvement of relationship partners in household financial management can be measured in various ways, and distinct measurement methods impose different typologies of households in terms of allocation of financial management power. Couples in which one partner completely relinquishes her or his participation in financial management are rare. Typically, financial decision-making and, more generally, financial management is a process that is more or less shared (Babiarz, Robb, and Woodyard 2012; Bernasek and Bajtelsmit 2002; Mader and Schneebaum 2013; Johnston, Kassenboehmer, and Shields 2015; Warmath and Zimmerman 2019; Kim, Gutter, and Spangler 2017). This sharing can be operationalised in several ways. In a classic work, Pahl (1989) assumed that sharing manifests itself as pooling money (e.g. in a joint account) which is fully or almost fully accessible to (and controlled by) each relationship partner. Both partners are then responsible for the management of the money from the joint account. In this approach, sharing is measured simply by asking each partner separately whether they have a joint account which they can both control. Based on respondents' replies to this question, Pahl (1989) distinguished four intra-household systems of money management: (i) the (female or male) whole wage, (ii) the housekeeping

allowance, (iii) pooling (shared management), and (iv) independent management. The empirical data showed that the most widespread was the pooling system (at least 50% of all cases, depending on the source), while the independent system was the case the least frequently (less than 10%) (Vogler and Pahl 1994). Although Pahl's (1989) approach allows for investigation of how couples manage household money and what household budgetary categories can be distinguished on this basis, it does not, however, enable a direct insight into how the wide range of financial decisions (regarding, for instance, saving, investing, borrowing, insuring) are made within a couple.

Pahl's (1989) initial typology was modified by Vogler and Pahl (1994) by cross-checking responses to two questions: one concerning the management of household money, and the other asking who in the couple has the ultimate responsibility for running it and paying the bills, termed the "independent indicator of financial management" (Vogler and Pahl 1994). The application of this additional indicator resulted in a refined typology of intra-household systems of money management: (i) the (female or male) whole wage, (ii) the housekeeping allowance, (iii) joint pool, and (iv) the female- or male-managed pool. The key modification in the typology stems from the observation that there are different forms of pooling, and that genuinely shared management (meaning that both partners perceive money as jointly managed) is only one of them. However, the refined typology proposed by Vogler and Pahl (1994) still concentrates on money management, without going into the complex internal structure of household financial management process, which is now commonly viewed as a combination of cash management, saving and investing, credit management and insuring against contingencies (Dew and Xiao 2011).

Nevertheless, Vogler and Pahl's (1994) "independent indicator of financial management" has been readily adopted by researchers and is now the most widespread approach to examining how partners in couples make household financial decisions. When applied to non-dyadic data, based on views of only one relationship partner, this approach is exposed to the risk of subjective assignments of how the management power is allocated. The use of dyadic data, then, is an important improvement in the study of the allocation of intra-household financial management power, although it may involve the issue of disagreements between partners' reports on who makes financial decisions in their households (Lyons et al. 2007; Johnston, Kassenboehmer, and Shields 2015; Friedberg and Webb 2006; Vogler and Pahl 1994).

Another way to operationalise how partners in couples make household financial decisions is to make them specify the extent to which they participate in the process on a scale of 0 to 100%. Warmath, Piehlmaier, and Robb (2019) termed this approach "a sense of inclusion in household financial decisions"; it has also been recently applied by Ward and Lynch (2019). While both these studies relied on reports from only one partner, Bialowolski, Cwynar, and Weziak-Bialowolska (2020) applied this approach to dyadic data.

The indicator of involvement in household financial management adopted in our study differs from those discussed in this article so far: our indicator is not based on the reported share in financial management. We simply assumed that the respondents who had selected the "Not applicable" response to the question on financial behaviour (henceforth NA) were not involved in dealing with the financial matters that were the subject of the question. Considering that we asked both partners the same questions concerning their financial behaviour (with the opportunity to report that specific behaviour is not applicable to them), our indicator allows to distinguish households in which both partners participate in managing finances from those in which financial management rests on one person. Of course, based on our indicator, we cannot be sure that when both partners report a certain behaviour, they manage their finances jointly. This particularly applies to spending behaviour (Kamleitner, Mengay, and Kirchler 2017), which inherently may be performed independently by each partner. However, given that the range of behaviours explored in our research goes far beyond a mere spending behaviour, we believe that partners rely heavily on one another when engaging in these behaviours. Recent empirical evidence supports such expectation (Kamleitner, Mengay, and Kirchler 2017; van Raaij, Antonides, and de Groot 2020). Simply put, we assumed that partners from households in which both members of a couple undertake a financial activity (joint participants) have greater opportunity for mutual feedback compared to sole financial managers (sole participants). Consequently, joint participants should be more likely to adjust their financial behaviour in order to make it more sound due to corrective communication with their partner on financial matters. For this reason – and based on the rationale stemming from both theoretical and empirical literature presented in this section – we hypothesised that joint participants perform significantly better financial behaviour compared to sole participants.

4. Methods

4.1. Participants

The analyses were conducted on a purposive sample of 1,000 adult individuals from 500 heterosexual relationships (both married and cohabiting couples). Data from both partners were included for all the couples. The participants provided self-reported information on their basic socio-economic characteristics, including demographics (gender, age, education, income, place of residence, relationship status). Additionally, self-reports about their financial behaviours in four domains (cash management, saving and investment, credit management and, finally, insurance) were collected. The questionnaire contained a total of 33 questions. The items from the questionnaire which served for the present study can be found in the Appendix. The remaining questionnaire items and their response distributions are available upon request.

The data collection process took place between 10 and 14 December 2018 and was conducted using the CAWI (computer-assisted web interviewing) technique. Relationship partners responded independently without a possibility to consult each other's responses. DRB Research, a professional market and opinion research agency, partnered in the survey phase of data collection. In order to reduce potential bias, the sample was controlled for age and, using EU NUTS nomenclature, for region measured at NUTS2. Detailed descriptive statistics of participating individuals are presented in Table 1.

Table 1. Sample distribution in terms of key sociodemographic characteristics, standard descriptive statistics and coding of variables for regression analyses

Variable	%	N	Min	Max	Median	Mode
Gender			1 (female)	2 (male)	x	1
Female	50	500				
Male	50	500				
Relationship type			1 (cohabitation)	2 (marriage)	x	2
Marriage	76.8	768				
Cohabitation	23.2	232				
Age (year of birth)			1953	1998	1977	1980
Up to 30	14.6	146				
31–40	29.4	294				
41–50	22.8	228				
51–60	19.9	199				
61–70	13.3	133				
Level of education			1 (primary and lower secondary)	6 (PhD degree or more)	4	5
Primary	1.2	12				
Lower secondary	0.3	3				
Lower vocational	9.3	93				
Secondary	10.8	108				
Vocational	20.2	202				
Post-secondary	11.4	114				
Higher	43.4	434				
PhD degree or more	3.4	34				

Table 1. ***Continued***

Variable	%	N	Min	Max	Median	Mode
Place of residence (number of inhabitants)			1 (rural area)	7 (city 500,000 inhabitants or more)	4	6
Rural area	15.8	158				
Town up to 19,999	11.2	112				
Town 20,000–49,999	14.4	144				
Town 50,0000–99,999	14.4	144				
City 100,000–199,000	11.2	112				
City 200,000–499,000	16.3	163				
City 500,000 or more	15.8	158				
Individual income (monthly, in PLN)			1 (less than 1,500)	6 (at least 6,000)	3	3
Less than 1,500	11.4	114				
1,500–2,499	23.9	239				
2,500–3,499	30.3	303				
3,500–4,499	17.3	173				
4,500–5,999	9.7	97				
At least 6,000	7.4	74				
Number of dependent children			0	5	1	0
0	34.9	349				
1	30.5	305				
2	27.3	273				
3	5.7	57				
4	0.9	9				
5	0.7	7				
Length of relationship (in full years)			0	47	11	10
0-9	41.4	414				
10-19	23.7	237				
20-29	17.9	179				
30-39	12.5	125				
40 and more	4.5	45				

4.2. Measures

Participation in household financial management

The analyses were aimed at comparing the financial behaviour of financial managers from two types of households: those in which both partners dealt with financial matters (joint participants) and those in which only one partner was involved (sole participants). In order to identify these two types of households, we used a simple classifier: we checked in which households respondents reported that the financial behaviours we asked about were not applicable to them. Simply put, following the approach applied previously in relevant literature (Dew and Xiao 2011), we assumed that a respondent who had stated that a behaviour (e.g. saving from every paycheque) was not applicable to her or him, was not involved in managing this particular domain of household finances. Given that such self-reports were obtained from both partners in all the couples, it was possible to develop the following classification of households based on the pairs of reports:

1) households in which both partners were involved in dealing with financial matters,
2) households in which only one partner was involved in dealing with financial matters,
3) households in which none of the respondents were involved in dealing in financial matters.

The last category is questionable as it seems unlikely that both partners withdraw from financial management. However, it should be remembered that in some households certain financial behaviours may be absent because the household members do not use the financial products necessary to undertake a given behaviour. For instance, low-income households may be unable not only to save but also to invest or insure themselves. Our data shows that only in four households both partners reported that *all* behaviours listed in the questionnaire were not applicable to them (Table 2).

Financial behaviour

We decided to use the Financial Management Behaviour Scale (henceforth FMBS) proposed by Dew and Xiao (2011) to measure our key variable – financial behaviour. The proposition assumes that there are some sound financial behaviours that consumers should undertake. For instance, comparison shopping is desirable, while spending beyond budget is undesirable. The scale was designed to capture the extent to which consumers perform these behaviours based on their self-reports. The scale consists of 15 items (which describe the behaviours) and asks the respondents to indicate how often they have engaged in these activities in the past six months. The respondents reported their behaviour using a 5-point Likert scale ranging from "1 = never" to "5 = always". The FMBS was constructed and validated to allow for reliable measurement of both the overall financial behaviour based on responses to all 15 items and behaviours in four distinct domains: cash management (4 items), savings and investment (5 items), credit management (3 items) and insurance (3 items). The FMBS was used in recent studies by Veiga et al. (2019) and, in a revised form, by Spuhler and Dew (2019), Lind et al. (2020) and Strömbäck et al. (2020).

In this study, three of the FMBS subscales (cash management, savings and investment, insurance) were used in their original form. The credit management subscale was modified. Two out of three items which make up the original credit management subscale refer to behaviours involving the use of credit cards. We found it inadequate to apply the original credit management subscale in Poland given the specificity of the Polish financial market, where credit cards are significantly less widespread compared to the United States, where the scale was designed (Polish Bank Association 2017). Consequently, we replaced the original credit management module with a modified subscale adjusted to Polish conditions. The modified subscale was proposed and first used by Cwynar (2020).

Like all subscales of the original FMBS, the credit management subscale adjusted to the specificity of the credit market in Poland asks the respondents the same question ("Indicate how often you have engaged in…") and uses a 5-point Likert scale. However, unlike the original subscale, it consists of five items. As a result, the revised financial management behaviour scale used in this study consisted of 17 items (see Appendix). Given that the items in the modified credit management subscale indicated negative (undesirable) behaviours (as in the original FMBS), they were reversely coded. This means that the results can be easily interpreted: the higher the modified FMBS score, the better financial behaviour. Cronbach's alpha coefficients for each subscale (including the adjusted credit management subscale) as well as for the modified FMBS were satisfactory ($alpha_{CASHM} = 0.739$, $alpha_{SAVIN} = 0.861$, $alpha_{CREDM} = 0.891$, $alpha_{INSUR} = 0.816$, $alpha_{FMBS} = 0.884$), which enabled the analysis of the whole scales rather than specific items. Table

Table 2. The frequency of NA responses

	None of partners selected NA		Both partners selected NA		Only female selected NA		Only male selected NA	
	n	%	n	%	n	%	n	%
Cash management	472	94.4	6	1.2	6	1.2	16	3.2
Savings and investment	439	87.8	13	2.6	20	4.0	28	5.6
Insurance	414	82.8	35	7.0	24	4.8	27	5.4
Credit management	331	66.2	104	20.8	35	7.0	30	6.0
Overall financial behaviour	484	96.8	4	0.8	2	0.4	10	2.0

Table 3. Financial behaviour variables: descriptive statistics

	N	Mean	Median	SD	Skewness	Curtosis	Min	Max
Cash management (CASHM)	966	3.87	4.00	0.89	-0.90	0.76	1	5
Savings and investment (SAVIN)	926	3.43	3.60	1.11	-0.49	-0.53	1	5
Insurance (INSUR)	879	3.82	4.00	1.16	-0.79	-0.26	1	5
Credit management (CREDM)	727	2.69	2.60	1.25	0.21	-1.14	1	5
Overall financial behaviour (FMBS)	980	3.49	3.47	0.86	-0.18	-0.36	1	5

SD – standard deviation; Min – minimum value; Max – maximum value

3 summarises the descriptive statistics for both the overall financial behaviour scale and the four distinguished subscales.

As in the original FMBS, the respondents could select NA in response to any item of the modified FMBS. For this reason, the number of valid responses (N) in Table 3 differs among particular financial management subdomains: from 727 for credit management to 966 for cash management. However, to avoid list-wise deletion, which would result in a significant reduction of the sample, the missing financial behaviour scores were estimated based on the mean scores reported as responses to the remaining items within respective subdomains of financial management.

4.3. Analyses

In order to examine the statistical significance of differences in financial behaviour between respective groups of respondents, we applied the Mann-Whitney *U* test. The analyses were conducted in three steps. First, we compared the financial behaviour of those individuals who were involved in managing financial matters in the couples where the other partner reported NA (sole participants) with the financial behaviour of individuals involved in managing financial matters in the couples where none of the partners selected NA (joint participants; see the subsection "Full sample comparisons"). Then, considering that some prior studies suggest a gender gap in financial behaviour (Barber and Odean 2001; Fisher, Hayhoe, and Lown 2015; Agarwal et al. 2018; Meyll and Pauls 2019; Nitani, Riding, and Orser 2020; Rudeloff, Brahm, and Pumptow, 2019; Sholevar and Harris, 2020), we compared the financial behaviour of men / women from the couples in which the other partner selected the NA response and men / women from the couples in which none of the partners selected the NA response (see the subsection "Cross-gender comparisons"). All analyses were conducted at the significance level $\alpha = 0.05$.

Finally, we used multiple linear (Ordinary Least Squares – OLS) regression analysis with financial management behaviour variables as the dependent variables to ensure that the observed differences could not be explained by socio-demographic variables self-reported by respondents through the questionnaire (gender, age, level of education, place of residence, relationship type, relationship length, number of dependent children). Previous research has shown that these variables may be linked to financial behaviour both directly and through financial literacy – although for gender and age these results are still inconclusive (Korniotis and Kumar 2011; Henager and Cude 2016; Stolper and Walter 2017; Barasinska and Schäfer 2018; OECD 2020; Ooi 2020). Overall, the expectation from learning by doing (Dewey 1938) and the experiential learning (Kolb 1984) theories is that people who are older, better educated, and report higher incomes should perform more desirable financial behaviours. This is due to participation in the financial market, both to a greater extent and for a longer period of time.

5. Results

5.1. Full sample comparisons

Table 4 summarises the results of the comparison between individuals who were involved in managing financial matters in the couples where the other partner reported NA (sole participants) and the financial behaviour of individuals involved in managing financial matters in the couples where none of the partners selected NA (joint participants). Statistically significant differences were found only in credit management behaviour. Strictly speaking, joint participants reported significantly better credit management behaviour compared to sole managers.

5.2. Cross-gender comparisons

Table 5 presents the results of the comparison of men from the couples in which women selected the NA response and men from the couples in which none of the partners selected the NA response. We found no statistically significant differences between these two groups.

Finally, we found that women from the couples in which none of the partners selected the NA response performed better financial behaviour compared to women from the couples in which men selected the NA response only with respect to activities in the credit management domain. Table 6 presents the results of the comparison using Mann-Whitney *U* test.

Table 4. Mann-Whitney *U* test for significant differences in financial behaviour between financial managers from the couples in which one partner selected the NA response and individuals from the couples in which none of the partners selected the NA response

	Couples in which one partner selected NA			Couples in which none of the partners selected NA					
	MR	Me	IQR	MR	Me	IQR	Z	p	r
Cash management	429.48	4.00	1.27	484.76	4.00	1.25	-0.92	0.356	0.03
Savings and investment	461.01	3.63	2.05	463.64	3.60	1.40	-0.07	0.947	< 0.01
Insurance	455.79	4.00	2.00	439.05	4.00	2.00	-0.46	0.644	0.02
Credit management	312.22	1.90	2.63	368.29	2.80	2.13	-2.02	0.043	0.07
Overall financial management	445.50	3.00	1.93	491.06	3.47	1.20	-0.55	0.579	0.02

MR – mean rank; Me – median; IQR – interquartile range; Z – Z score; p – significance level; r – effect size

Table 5. Mann-Whitney *U* test for significant differences in financial behaviours between men from the couples in which women selected the NA response and men from the couples in which none of the partners selected the NA response

	Couples in which only women selected NA			Couples in which none of the partners selected NA					
	MR	Me	IQR	MR	Me	IQR	Z	p	r
Cash management	150.17	3.75	1.69	240.64	4.00	0.75	-1.60	0.109	0.07
Savings and investment	229.68	3.90	1.75	230.01	3.60	1.53	-0.01	0.991	< 0.01
Insurance	218.38	4.00	1.92	219.57	3.00	2.00	-0.05	0.963	< 0.01
Credit management	164.87	2.00	3.00	185.47	3.00	1.60	-1.10	0.272	0.06
Overall financial management	205.00	3.14	1.14	243.66	3.49	1.20	-0.39	0.698	0.02

MR – mean rank; Me – median; IQR – interquartile range; Z – Z score; p – significance level; r – effect size

Table 6. Mann-Whitney *U* test for significant differences in financial behaviours between women from the couples in which men selected the NA response and women from the couples in which none of the partners selected the NA response

	Couples in which only men selected NA			Couples in which none of the partners selected NA					
	MR	Me	IQR	MR	Me	IQR	Z	p	r
Cash management	241.13	4.00	1.37	244.61	4.00	1.17	-0.10	0.922	< 0.01
Savings and investment	232.11	3.20	2.58	234.12	3.50	1.40	-0.08	0.939	< 0.01
Insurance	242.39	4.33	2.00	219.61	4.00	2.00	-0.92	0.359	0.04
Credit management	144.00	1.70	2.00	184.35	2.60	2.00	-2.04	0.042	0.11
Overall financial management	232.90	3.00	1.71	247.80	3.42	1.18	-0.33	0.744	0.01

MR – mean rank; Me – median; IQR – interquartile range; Z – Z score; p – significance level; r – effect size

5.3. Regression analysis

In order to ensure that the observed differences in the credit management domain are indeed related to the management style (sole (coded as 0 in the analysis) vs. joint (coded as 1 in the analysis)), we conducted a multiple linear (OLS) regression analysis with credit management behaviour as the dependent variable. The results of this analysis are presented in Table 7. As explained in section 4.2 *Measures*, credit management behaviour was measured through self-reports of respondents using five items describing five different credit and debt management behaviours. Using a 5-point Likert scale, respondents rated how often they engaged in these behaviours. Table 3 provides descriptive statistics for this variable.

The model was a good fit to the data ($F(9.716) = 4.63$; $p < 0.001$; results of other validation tests, including the F-test for joint significance, are given in Table 7), and explained 4.3% of the variance in the dependent variable. The analysis indicated age, place of residence, number of dependent children, and income as significant predictors of credit management behaviour. The younger the respondents were, the smaller the place of residence, the more dependent children, and the higher the individual monthly income, the better the self-reported credit management behaviour.

Most importantly, the regression analysis did not confirm that belonging to a couple that manages finances collectively (as opposed to a couple where finances are managed by only one partner) is a factor significantly associated with respondents' credit management behaviour. Although the Mann-Whitney *U* test indicated that there were significant differences in credit management behaviour between joint and sole financial managers, regression analysis showed that these differences could be explained by typical socio-demographic variables: in comparison with the style of financial management (joint vs. sole), age, income, place of residence and number of dependent children were found to be relevant predictors of these differences.

Given that Mann-Whitney *U* test showed statistically significant differences in credit behavior between women from the couples in which men selected the NA response and women from the couples in which none of the partners selected the NA response, we ran another linear regression analysis to check if these differences could be attributed to socio-demographic variables. However, the analysed model did not fit the data well ($F(8.352) = 1.75$; $p = 0.086$), thus not confirming the results of the Mann-Whitney *U* test.

Table 7. Results of linear regression analysis with credit management behaviour as the dependent variable

						95% CI	
	B	SE	β	t	p	LL	UL
(Constant)	-25.50	8.19		-3.12	0.002	-41.58	-9.43
Financial management style	0.13	0.17	0.03	0.79	0.429	-0.19	0.46
Gender	0.04	0.10	0.02	0.46	0.647	-0.15	0.23
Age	0.01	0.00	0.14	3.43	0.001**	0.01	0.02
Level of education	-0.05	0.07	-0.03	-0.69	0.492	-0.17	0.08
Place of residence	-0.05	0.02	-0.08	-2.17	0.030*	-0.10	-0.01
Length of the relationship	0.00	0.00	0.07	1.91	0.057	0.00	0.00
Number of dependent children	0.10	0.05	0.08	2.13	0.034*	0.01	0.20
Monthly individual income	0.10	0.04	0.11	2.71	0.007**	0.03	0.18
Relationship type	-0.09	0.11	-0.03	-0.80	0.427	-0.31	0.13
	Statistics	df	p				
Ramsey RESET test	0.69	18.698	0.917				
Rainbow test	0.98	363.353	0.590				
Breusch-Pagan test	14.63	9	0.102				
F-test for joint significance	4.63	9.716	<0.001				

B – unstandardised regression coefficient; *SE* – standard error; *β* – standardised regression coefficient; *t* – t test; *p* – significance level; *p < 0.05; ** p < 0.01; ***p < 0.001; *CI* – confidence interval; *LL* – lower limit; *UP* – upper limit; *df* – degrees of freedom

6. Discussion, implications and future research

The results of our analyses allow for some general observations regarding the financial behaviour of the couples surveyed. First, assuming that the "Not applicable" reply is a marker of the respondent's exclusion from a given domain of intra-household financial management, it can be observed that although in the majority of couples both partners are active in all the domains, participation rates vary considerably: between 66% for credit management and 94% for cash management. This heterogeneity is in line with common sense as well as with statistical data and results of previous research. Cash management refers to financial matters to be dealt with on a daily basis, repetitive operations and everyday budgeting, which are part of almost everyone's life. By contrast, credits and loans are only taken out by some households, contingent on their borrowing capacity or the opportunities to leverage wealth. For instance, approximately half of adult Poles now have loans from banks (Polish Bank Association 2019), while 75% have declared that they have taken out at least one loan or one credit in their life to date (KRD Economic Information Bureau 2018). In the United States, Hilgert, Hogarth, and Beverly (2003) documented a hierarchy in household financial management. They argue that the financial behaviour of consumers is hierarchical in the sense that activity is required in one domain in order to undertake behaviour in another domain. The primary domain where most consumers are active is cash management.

Second, in the whole sample, the highest value on the "desirability" scale was that recorded for cash management (mean = 3.87, median = 4) and insurance behaviour (mean = 3.82, median = 4). We recorded a slightly lower result for savings and investment behaviour (mean = 3.43, median = 3.6). However, this result is still above the middle value on the applied Likert scale (i.e. the value of 3) so it can be assumed that in the opinion of our respondents their savings and investment behaviour is, on average, good (desirable) rather than bad (undesirable). The situation is different for credit behaviour. Here both the mean (2.69) and the median (2.6) are below the middle value on the applied Likert scale. This shows that, among all distinguished areas of financial behaviour, the respondents most often perform unhealthy credit behaviour. All in all, such results are consistent with the findings of previous studies using the original or modified FMBS (Spuhler and Dew 2019; Veiga et al. 2019; Strömbäck et al. 2020; Lind et al. 2020).

Both the descriptive statistics and the results of statistical tests of significant differences obtained in our study show that credit behaviour stands out from other domains of financial behaviour. This may suggest a particular importance of credit-related behaviours for the financial life of a couple and, perhaps, for the quality of a relationship. Many studies to date have shown that household debt increases the likelihood of marital conflict and decreases marital satisfaction (see Skogrand et al. 2011 and Baryła-Matejczuk et al. 2020 for a review). Our findings seem to confirm particular importance of credit and debt-related issues among the domains of household financial management.

Third, our survey did not confirm that financial management is a male domain. It was men who reported NA more frequently with regard to cash management, savings and investment as well as insurance. The only exception was the credit domain, where more women than men selected the NA response. Previous studies suggest that women more often take responsibility for short-term financial management (shopping, paying bills, maintaining the current household budget, all of which come under cash management in the FMBS), while men are more often in charge of allegedly more complex long-term financial decisions which require making intertemporal choices (i.e. those that relate to savings and investment, credit management and insurance in the FMBS) (Mader and Schneebaum 2013; Hitczenko 2016). Our results suggest something else. Putting cash management aside, we found that women are more often involved in the domains of financial management which are related to securing the financial stability of a household, maintaining its financial resilience and decreasing its vulnerability to future shocks (whereas men more often engage in credit management). To a degree, such results are in line with a vast literature suggesting that women are more risk averse compared to men (for a review, see Byrnes, Miller, and Schafer 1999; Barasinska and Schäfer 2018). However, given that these findings differ from what was found in Western countries, one cannot rule out that country-specific factors play a role in shaping the division of particular areas of responsibility in household financial management between women and men. Perhaps what we found in the dataset obtained from Polish couples is part of the legacy of more than forty years of living in a country suffering from constant shortages, which resulted in a more egalitarian society, as suggested by Bucher-Koenen et al. (2017).

Our analyses brought thought-provoking results regarding the key issue – that is, the financial behaviour among two categories of individuals involved in the financial management of household finances: sole and joint participants. We did not confirm the hypothesis adopted in this article that financial behaviour

differs between the two categories. Given that in this paper we have not formally tested alternative explanations of the results obtained, any discussion of them would be speculative. Nevertheless, they are worth mentioning because they point to directions in which future research could and should go.

First, the intra-couple financial management studied in this paper is somewhat like a black box: the questionnaire we administered allowed us to determine the structure of the intra-couple financial management (sole vs. joint) and its outcomes (on the applied Financial Behaviour Management Scale). However, it is not clear *how* couples manage their finances. The authors of previous studies in this research stream have pointed out that this is a very complex domain, many aspects of which are still poorly understood (Mader and Schneebaum 2013; Johnston, Kassenboehmer, and Shields 2015). Perhaps for some reason, the benefits of joint financial management, which are the basis of the hypothesis adopted in this article, are offset by the benefits of sole specialisation. Insights into this black box are possible primarily through qualitative research (e.g., in-depth interviews) and, above all, through experiments. It is in these directions that future research should go.

Second, the results we obtained must be interpreted in the context of the metrics used. We identified the intra-household financial management structure indirectly, using a simple classifier referring to respondents' selection of NA responses. We cannot rule out the possibility that more accurate measures diagnosing financial management structure directly would yield different results. The best solution would be to identify financial management participation in real-world settings – which is very difficult to observe and measure. Another solution is to ask respondents forming a couple directly about who of them manages finances while controlling for the effect of conflicting partner reports. This is another important direction in which future research should go.

Third, individualism and willingness and readiness to cooperate are strongly culturally determined variables (Hofstede 2021). Therefore, our results may be specific to Polish conditions – that is, conditions of a country that is culturally different from Western countries (if only because it was closed behind the Iron Curtain for almost half a century), from which the vast majority of articles reporting results of intra-couple financial management studies originate. Such cross-country differences in couples' financial management have already been initially diagnosed in Europe by Mader and Schneebaum (2013). Deepened and more extensive cross-country comparisons are another interesting direction for future research.

While we have no basis to provide a plausible explanation for the results we obtained, we can discuss their implications. The key observation of our study is that whether you manage your finances as the only person in a couple, or whether you do it together with the other partner, it remains unrelated to the quality of financial behaviour. Adding to the findings from other studies (Hsu 2016; Ward and Lynch 2019; Bialowolski, Cwynar, and Weziak-Bialowolska 2020), what matters is that you participate in financial management at all and not the structure in which you participate. Programs aimed at improving financial literacy and financial behaviour should therefore emphasise the need to be involved in household financial management and prevent self-exclusion from participation in this activity. Although couples can benefit from specialisation on an external "transactive memory system" (Ward and Lynch, 2019), there are always risks to such specialisation associated with the possibility of losing a partner.

Finally, although unrelated to the purpose of the paper, we make a brief comment here on the associations found in our study between socio-demographic variables and credit management behaviour. In light of theoretical expectations and the findings of previous empirical studies, our results are surprising. Only for income is the relationship with credit management behavior consistent with the expectations. The results are surprising especially for age, where the effect is largest. We speculate that these puzzling findings may be related to the fact that, unlike other financial behaviours, borrowing money is not a repeatable (recurring) act and thus may not be subject to experiential learning principles in the same way as other financial behaviours. To put it differently, perhaps in order to analyse the relationship between socio-demographic variables and consumers' credit management behaviour, one should refer to some other theoretical foundation, more adequate than experiential learning and learning by doing theories. For example, data from Poland show that rural residents borrow significantly less, and when they do borrow, it is in smaller amounts, compared to urban residents. Rural residents are also less likely to be unreliable debtors (KRD Economic Information Bureau 2017). Poland is also clearly meridianally bisected in terms of the frequency of arrears per 1,000 inhabitants. This percentage is significantly higher in western Poland despite the fact that it is richer (BIG InfoMonitor 2022). Both phenomena may have a cultural basis. Eastern Poland is less urbanized, more conservative in its views and beliefs and more religious. In smaller communities with conservative views, debt is often considered a matter of honor, and an inability to repay it is often

a source of shame and a sense of guilt. Kamleitner, Hoelzl, and Kirchler (2012) provide very interesting discussion around psychological and cultural aspects of getting into debt which may relate to our findings. To sum up, the drivers of desirable credit management behaviour may be underpinned by social norms and resulting pressures more than by learning by doing mechanisms.

7. Conclusions and limitations

We found that the financial behaviour of joint participants in intra-household financial management do not differ significantly from that of sole participants, which does not confirm the hypothesis adopted in this article. However, we established that of all the possible financial behaviours the credit management appears to be the most problematic domain of household financial management among couples in Poland, i.e. the domain where undesirable behaviour is the most likely.

The results of our study must be interpreted with the awareness of the limitations of the measures used. First, based on the distribution of NA responses among the FMBS items, we applied a simple classifier of relationship partners into sole or joint participants in household financial management. Future studies should verify whether our findings hold for other (more direct) measures of participation in household financial management.

Second, despite sufficient psychometric properties, the applied measure of financial behaviour (the FMBS) has some weaknesses. It measures behaviour through self-reporting, which may distort the real picture of financial behaviour as respondents can feel pressure to embellish reported states. Moreover, in spite of high reliability as measured by Cronbach's alpha, our revised subscale of credit management requires thorough validation and further research to confirm the robustness of its properties. This is even more advisable because the subscale contains items indicating negative behaviours (as opposed to the items in other domains of the FMBS).

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Appendix

Revised Financial Management Behaviour Scale based on Dew and Xiao (2011)

On a scale of 1 to 5 (where 1 means never, 2 – seldom, 3 – sometimes, 4 – often, 5 – always), please indicate how often you have engaged in the following activities in the past six months. You can also say "Not Applicable (N/A)"

Cash management

a) Comparison shopped when purchasing a product or service.
b) Paid all your bills on time.
c) Kept a written or electronic record of your monthly expenses.
d) Stayed within your budget or spending plan.

Savings and investment

a) Began or maintained an emergency savings fund.
b) Saved money from every paycheck.
c) Saved for a long term goal such as a car, education, home, etc.
d) Contributed money to a retirement account.
e) Bought bonds, stocks, or mutual funds.

Insurance

a) Maintained or purchased an adequate health insurance policy (e.g. against serious diseases).
b) Maintained or purchased adequate property insurance like auto or homeowners insurance.
c) Maintained or purchased adequate life insurance.

Credit management (revised subscale; all responses were reversely coded in the analyses)

a) Made only minimum payments on a loan.
b) Borrowed to pay off a debt.
c) Got behind on debt repayment, including interest on debt.
d) Borrowed simultaneously from more than one source (e.g. banks, personal loan/payday loan companies, instalment purchases, pawnshops, family, etc.).
e) Borrowed for at least one of the following purposes (or for similar purposes): the purchase of expensive clothing or accessories, a holiday abroad, technological novelties or gadgets.