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Why Do People Save in Cash? Distrust, Memories of Banking Crises, Weak Institutions and Dollarization

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Editorial

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Why Do People Save in Cash? Distrust, Memories of Banking Crises, Weak Institutions and Dollarization

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Oesterreichische Nationalbank

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Abstract

The paper analyzes why households in transition economies prefer to hold sizeable shares of their assets in cash at home rather than in banks. Using survey data from ten Central, Eastern and Southeastern European countries, I document the relevance of this behavior and show that cash preferences cannot be fully explained by whether people are banked or unbanked. The analysis reveals that a lack of trust in banks, memories of past banking crises and weak tax enforcement are important factors. Moreover, cash preferences are stronger in dollarized economies where a "safe" foreign currency serves as a store of value.

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1 Introduction

Available evidence suggests that households in developing and transition economies tend to save in cash. The low reliance on financial intermediaries for saving decisions has the potential for adverse effects on economic development (Levine and Zervos, 1998). Against this background, the objective of this paper is to find out whether and, if so, why households prefer to hold cash rather than income earning deposits at banks.

The question relating to the extent of cash preferences arises because the available evidence is only indicative and little information is available about the factual importance of cash. On an aggregate level, per capita figures of currency in circulation are uninformative as poorer economies are often dollarized (Feige, 2003). In turn, it is well known that sizeable shares of US dollar and euro in circulation are held abroad. Despite available evidence from a few countries showing that this money is used as a store of value (Dvorsky et al., 2009), the lack of evidence from a broader sample of countries prevents this information from being used for detailed statistical analysis. More promising are data about the adoption of basic financial services, which is low in developing and transition economies (Claessens, 2006; Honohan, 2008). However, this source of information is also unsatisfactory for inferring the extent of cash savings — not least because cash savings could actually be more important than indicated by adoption rates, for example if households prefer to save in cash despite their use of bank services. Also, the question about the driving factors behind the use of cash can only be partially answered by adoption rates, since these rates confound demand and supply effects — e.g. whether the main reason can be seen in the low density of the bank branch network or because people who have access to financial services decide not to use them (Beck, Demirgüç-Kunt, and Martínez Pería, 2007). Moreover, a better understanding of the financial behavior of households in poorer countries requires data that reaches beyond households' adoption of financial products. For example, if the behavior were mainly demand driven, it would be of interest for policymakers to know whether people save in cash to avoid taxes or because they do not trust banks.

This paper contributes to overcoming the limited knowledge about the importance of cash by utilizing household survey data from ten Central, Eastern and Southeastern European countries. Importantly, the data provide several direct survey measures about the importance of cash. Moreover, they contain information on the availability of banking services and on a broad set of socio-economic characteristics of households to identify the main causes why people save in cash.

To exemplify the scope of cash savings, Figure 1 depicts one measure of cash preferences derived from the survey data. In some countries more than a third of respondents report a strong preference towards cash over bank deposits. Cash preferences are, on average, lowest in EU member states and highest in Southeastern European countries—the latter group consists of countries with a considerable extent of dollarization. It is noteworthy that Figure 1 only shows people who report to have savings, excluding the consideration that country differences are driven by differences in the share of the population with savings. Also, the overall picture does not change much if only respondents having a bank relationship are compared indicating that the low reliance on financial intermediaries for saving decisions is not necessarily caused by the unavailability of banks.

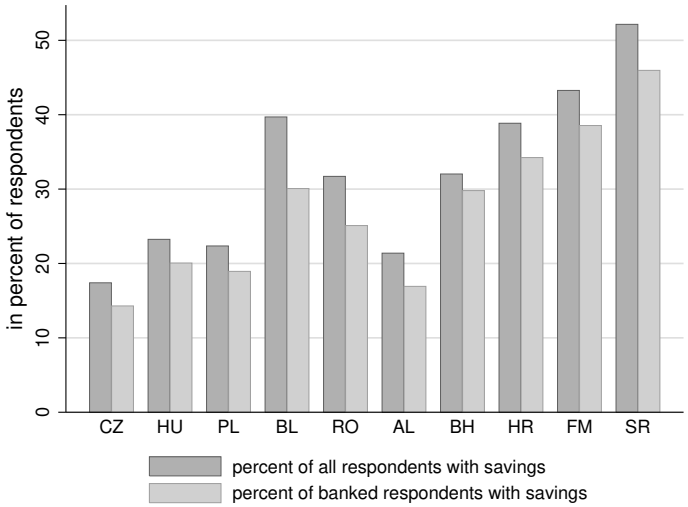

Figure 1: Cash Preferences by Country. Percent of respondents who have a strong cash preference derived from the statement that "I prefer to hold cash rather than a savings account". Values from 2010 and 2011. Source: OeNB Euro Survey.

A different but equally remarkable feature of the data is that there is substantial heterogeneity—not only across but also within countries. For example, among a group of Croatian respondents aged 30 to 50 years living in a large city, with a high level of education, income in the top tercile and holding a savings account, 27% answer that they have a strong preference for cash relative to bank deposits, while 32% report to have no cash preference (the remaining 41% report a medium cash preference).

Against this background, I aim to answer two specific questions: first, which individual-specific factors determine whether households prefer holding cash in preference over interest bearing monetary assets? Second, why are liquidity preferences strong in some countries and weak in others?

To answer these questions, I present an empirical model which relates information on both self-stated cash preferences and actual portfolio choices of households to theoretically informed explanatory variables. In particular, the model accounts for (i) transaction and precautionary demand for money à la Baumol (1952), Tobin (1956, 1958) and Miller and Orr (1966), (ii) the role of trust, following the findings of Guiso, Sapienza, and Zingales (2004) who show that demand for financial products is closely linked to trust and social capital in Italy, and (iii) results from the currency substitution literature—incorporating the idea that the relative return of currency is affected by the possibility of holding a "stable" foreign currency. Moreover, I analyze the role of memories of past banking problems which could be important given the occurrence of episodes of financial distress in the banking system in all analyzed countries. The literature has shown that such crisis experiences have a long-lasting impact on financial decisions (Mudd and Valev, 2009; Osili and Paulson, 2009).

Foremost, I find that the observed importance of cash cannot be fully explained by a low density of the bank branch network or by consumers' unwillingness to adopt banking services, i.e. cash preferences are also high for persons who have adopted banking products. To identify which other individual specific factors are important I conduct estimations which control for a broad set of individual specific and institutional variables.

The estimation results show that a lack of trust in banks is a key factor driving cash preferences. This conclusion is based on several measures of trust in banks, including the perceived safety of deposits and a more general notion of trust in banks. The effect of trust in banks and the effect of doubts about the safety of deposits are economically important: distrust in banks is associated with (i) stronger liquidity preferences and (ii) a lower incidence of savings account ownership by about 8 percentage points or about one quarter to one third of the respective sample mean.

The strong impact of trust in banks is surprising given that banks are now predominantly owned by Western European banks.[1] This could imply that history is at work. The finding that memories of past banking problems contribute to explaining differences in cash preferences across individuals supports this conjecture. To ascertain that this effect is not driven by a misinterpretation concerning the direction of causality, I conduct instrumental variable estimations and use exogenous information about the timing of banking crises indicating that this finding is not driven by reverse causality.

Moreover, the results show that the extent of cash preference is closely linked to dollarization. This assessment is based on the findings that network effects of currency substitution and doubts about the stability of the local currency lead to higher cash preferences. I also find evidence for the importance of the grey economy: relatively higher cash balances are observed, on average, in environments with weak tax authorities.

Having established that trust is a key element in explaining *interpersonal* differences in cash preferences, I ask whether trust in banks can also contribute to explaining the observed regional variation in the importance of cash holdings. My results suggest that this is the case whereas social capital, as stipulated by Guiso et al. (2004), is not found to affect cash preferences. Although some caution is warranted regarding this finding, the results lend support to the view that institution-specific trust matters more than social capital.

The paper is related to the literature on bank access and outreach (e.g. Beck, Demirgüç-

[1] Western European banks own between 72% (Poland) and 95% (Bosnia and Herzegovina) of banking assets in the analyzed countries.

Kunt, and Martínez Pería, 2007; Honohan, 2008). Examples for micro-data based studies are Djankov, Miranda, Seira, and Sharma (2008) for Mexico and Honohan and King (2009) for South African countries. Beck and Brown (2011) and Grosjean (2011) focus on the adoption of transaction accounts, bank cards and mortgages in transition economies. In contrast to these papers, I analyze cash preferences rather than whether households are banked or unbanked, which is important given that cash preferences are found to be high although access to financial intermediaries is available. Also, I focus on the demand side, while Beck and Brown (2011) mainly analyze supply effects, i.e. the impact of banking sector reforms.[2] Grosjean (2011) studies whether the legacy of the Ottoman empire exerts an impact on contemporaneous financial development.

Also, I draw on the literature on trust and portfolio choice (Guiso et al., 2004, 2008). The empirical evidence on this issue, though persuasive, is sparse and based on only a few countries. Besides Guiso et al.'s (2004) results obtained for Italy, Coupé (2011) analyzes the impact of trust in banks on cash holdings in the Ukraine. I confirm the importance of trust in banks for a broader set of countries and show that differences in trust in banks also contribute to explaining cross-country differences in cash preferences. The analysis of several countries also allows important differences to be identified across institutional regimes.

The results concerning the role of memories of past banking problems obtained in this paper are in line with previous papers. Mudd and Valev (2009) find that Bulgarians who had lost money in the banking crisis of 1996 were still more likely to to be apprehensive about another banking crisis in 2008. Osili and Paulson (2009) show that the experience of crisis (in their host countries) exerts a long-lasting and substantial impact on how immigrants invest in the U.S.

[2]I have data on ten countries, while Beck and Brown (2011) analyze a sample of 27 countries which contains more heterogeneity in supply side characteristics.

2 Descriptive Evidence on Cash Preferences

The countries covered in this analysis are strongly heterogenous – they differ not only with respect to their economic and institutional development, but also with respect to cultural aspects, as exemplified by a history of Habsburg and Ottoman influences (Becker, Boeckh, Hainz, and Woessmann, 2011; Grosjean, 2011). In the context of cash preferences, the most important differences can be suspected in the level of financial development, i.e. in the density of bank branch networks, or in differences in income levels, i.e. if people are too poor to afford banking services.

Table 1 represents an attempt to isolate the effect of these factors by comparing three measures of cash preferences for the sample of (i) all individuals, (ii) individuals who report to have savings, (iii) individuals who are banked and (iv) individuals with a savings account. The latter two groups are separated because the group of individuals who are banked mostly comprises of respondents holding a transaction account (but no savings account). An important variable in my analysis is the self-reported preference for cash relative to savings deposits (*cash preference*). This variable is based on respondents' consent to the statement "I prefer to hold cash rather than a savings account" with answers ranging on a six-point scale from "very much agree" to "do not agree at all". The variable *cash preference* aggregates these responses to a three category variable (weak, medium and strong cash preference). The reported figures in Table 1 refer to the sample share of respondents who have a strong cash preference. This share does not differ much for all respondents (col. 1), for the subsample of respondents who have savings (col. 2) or for banked respondents (col. 3). However, sample means drop sharply for respondents who hold a savings account (col. 4).

The same pattern can be observed if I do not resort to stated preferences but to actual portfolio behavior. In particular, line 2 of Table 1 shows the percentage of respondents for whom cash has a higher weight in financial portfolios than bank products (in particular transaction or saving accounts).

Table 1 also summarizes results for two selected countries, Serbia and Croatia, yielding

largely similar evidence: the fact that someone is banked does not seem to have a strong influence on cash preferences. What is more important is whether someone has a savings account. However this decision is endogenous and it remains to be determined why people prefer cash or why they do not hold a savings account.

Table 1 shows results from a third measure of cash relevance, namely the share of respondents *with* a savings account who hold higher amounts in cash at home than on the savings account. Although these values refer to only a small subset of the entire population (e.g. in Bosnia and Herzegovina only 13% of the sampled population holds a savings account), the numbers show that cash is important also for those who hold a savings account. Moreover, strong country differences are discernible with this share being 43% in Serbia compared with only 13% in Croatia.

This brief account of descriptive evidence suggests that (i) cash holdings are substantial in some countries, (ii) that the low density of bank branch networks or a lack of adoption of banking products does not explain the picture and (iii) that cash holdings can be high even if people have savings accounts. Hence the question about the determinants of large cash holdings cannot be answered by analyzing the adoption of banking products in general or the adoption of savings accounts in particular.

In later empirical analyses I will mainly rely on the self-reported preference for cash (*cash preference*). Foremost, this is an empirical necessity because no direct information on the share of cash in portfolios of households is available for all respondents (i.e. this information is only available for the small subsample of respondents holding a savings deposit). However, this variable also has the merit that the wording of the question from which it is constructed reflects exactly the choice I want to look at, i.e. the choice between the two most important financial assets. This gets also reflected in the fact that *cash preference* is closely correlated with actual portfolio decisions, both at the individual level as well as at the aggregate country level. Table 2 relates *cash preference* to the actual rank of cash in households portfolios. For 67% of persons stating that they have a strong cash preference, cash is actually more important than bank saving products.

For persons who self-report having a weak cash preference, the corresponding share is only 38%. Similarly, among persons holding a savings account and stating a strong cash preference, 30% hold more cash at home than in the account. The corresponding share for persons with a weak cash preference is 17%. Similarly, I find that *cash preference* is strongly correlated with savings account incidence at the individual level.

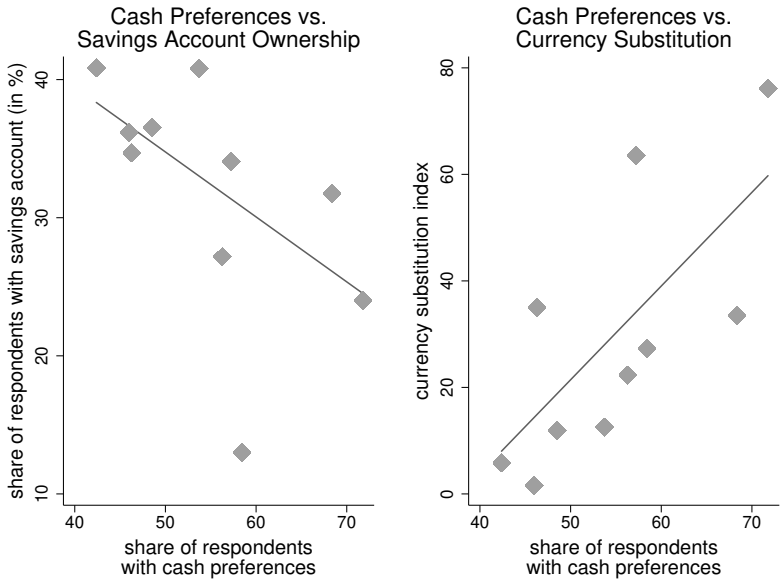

Figure 2: Cash Preferences and Savings Account Incidence and Currency Substitution. Note: Values from 2010 and 2011. Source: OeNB Euro Survey and Scheiber and Stix (2008).

In addition, *cash preference* is correlated with important outcome-based measures on an aggregate cross-country level. The left panel in Figure 2 juxtaposes country averages of *cash preference* and the dissemination of savings deposits, revealing a (weak) negative correlation. The right panel in Figure 2 depicts a positive correlation between preferences for cash as stated by respondents and actual foreign currency cash holdings.

In sum, the presented evidence indicates that *cash preference* is a valid measure. For robustness tests I also conduct estimations using actual portfolio indicators, i.e. information on the rank of cash in households' portfolios.

3 Empirical Strategy and Data

3.1 Conceptual Framework

My aim is to model preferences for cash. To choose the right explanatory variables, I propose a simple conceptual framework. This framework combines findings from money demand models, from models which highlight the role of trust for financial decisions and from dollarization models.

Transaction and Precautionary Demand. I assume that agent i chooses optimal cash balances in order to trade off the time and brokerage costs of transactions against the cost of holding money instead of an alternative interest-earning asset (Baumol, 1952; Tobin, 1956). The determinants of optimal cash demand tr_i are the scale of transactions, the time costs of withdrawals, the cost of portfolio adjustment, the risk of theft and the nominal interest rate. In addition, liquidity preferences are driven by precautionary motives (Miller and Orr, 1966; Tobin, 1958) which could be either rationalized by uncertainties regarding net disbursements or by uncertainties surrounding the expected nominal interest rate. In the latter case, as stressed by Tobin (1958), risk-avoiding behavior and hence risk aversion will be a determinant of cash preferences.

Trust. Guiso et al. (2004) sketch a model about the link between trust and financial decisions. The expected return of an investment (e.g. saving via a savings account at a bank) of agent i depends on the probability that a broker or a bank will abscond, collapse or not fulfill its promises. The broker's incentive to abscond depends negatively on the strength of legal enforcement X^J and on the size of social networks and norms (trust) T^J prevailing in area J. This implies that the demand of agent i for cash $D_i = l(X^J, T^J, \phi_i)$ is decreasing in the level of legal enforcement X^J and in the level of social capital (trust) T^J. Moreover, the demand depends on personal characteristics ϕ_i which might affect the investment decision.

As a slight extension of this model, I posit that the demand for cash might additionally

depend on an individual-specific estimate of the probability that a bank will fail. This individual specific estimate is dependent upon two elements: First, on the perceived safety of savings deposits s_i. Second, on agents' memories of past banking crises m_i. Integrating these two elements in the above framework implies that the demand of agent i for a financial product is given by $D_i = l(s_i, m_i, X^J, T^J, \phi_i)$.

This framework allows testing the proposition of Guiso et al. (2004) that social capital (T^J) affects the investment decision against the alternative that it is institutional specific trust or an institution-specific default probability (s_i) which drives investment decisions. This is not merely of academic interest, but also has direct policy implications. If people's resilience of relying upon financial intermediaries is caused by a lack of trust in banks, policy measures could in principle strengthen trust in banks (e.g. bank regulation, depositor protection). Social capital, arguably, is not amenable to policy intervention, at least in the short to medium term.

Dollarization. One particular feature of countries in transition is dollarization, i.e. the use of a stable foreign currency either as a store of value, or for domestic transactions. The initial cause of dollarization is seen in high inflation rates and strong depreciations of the local currency (e.g. Engineer, 2000; Seater, 2008), often leading to hysteresis (e.g. biased expectations about the exchange rate development).

I account for the effect of dollarization on cash demand by noting that the return of cash holdings relative to saving assets is affected by the share of foreign currency in total cash holdings (d_i). The literature has established that the optimal foreign currency share is affected by two channels: first, an important driver can be seen in network effects as foreign currencies are often used to settle domestic transactions. In particular, this implies that the utility derived from using foreign currencies increases with the number of other people who also use foreign currencies for transactions (e.g. Craig and Waller, 2004; Feige, 2003; Feige, Faulend, Sonje, and Šošić, 2003). Second, expectations regarding the development of the exchange rate could be important in determining the extent of

dollarization. However, with regard to this latter effect the literature does not allow an unambiguous prediction to be derived..[3]

Putting these three elements together—transaction and precautionary demand, trust and currency substitution—yields the following function of demand for currency,

$$D_i = f(tr_i, s_i, m_i, X^J, T^J, d_i, \phi_i), \tag{1}$$

which will be used to choose the empirical model.[4]

3.2 Data Description

I use data from the Euro Survey project of the Austrian Central Bank (OeNB), which collects information from private individuals about the role of the euro in five EU member countries (Bulgaria, Romania, Poland, Hungary, and Czech Republic) as well as in five EU (potential) candidate countries (Croatia, Albania, Serbia, Bosnia and Herzegovina and FYR Macedonia). The survey has been carried out on a semiannual basis between spring 2010 and fall 2011. In each survey wave and in each country about 1,000 randomly selected persons aged over 14 are interviewed. For the estimations in this paper, I only use responses from persons above the age of 18 who are either employed or retired and who report to have savings. This restriction was chosen to make sure that the sample only includes respondents who face true economic choices concerning savings decisions. The

[3]Results on how expected exchange rate movements impact on the use of cash are relatively clear cut if agents are confined to only three assets: domestic cash, foreign cash and a saving asset in local currency. In this case, the possibility of a depreciation of the domestic currency makes the foreign currency appealing as a store of value (e.g. Engineer, 2000; Seater, 2008). However, in the more realistic scenario, in which agents can hold currency and depositable accounts in both currencies, no clear prediction concerning the effect of exchange rate expectations can be derived from the literature. For example, in the models of Poloz (1984, 1986), the direction of how the expected rate of depreciation affects demand for currency substitution is difficult to predict, as it is dependent on the specific parameter constellation. The model of Seater (2008) predicts that currency substitution is likely to increases with depreciation expectations.

[4]Although I present the three ingredients of the model framework as separate, they are closely connected. For example, Tobin (1958) notes that "[i]f cash is to have any part in the composition of investment balances, it must be because of expectations or fears of loss on other assets" (p. 68, *ibid.*) In a sense, trust in banks reflects this probability of a capital loss. Also, uncertainty regarding the return of alternative assets, which has also been cited as a motivation for the existence of precautionary balances, is intimately related to exchange rate expectations in dollarized environments. Developing a fully-fledged model which incorporates all these ingredients in a unified framework would be a worthwhile undertaking, but is beyond the scope of the present paper.

Appendix provides a definition of variables. Table A.1 summarizes descriptive evidence by country.

According to the theoretical arguments, the relative importance of cash is driven by transaction and precautionary demand, by trust in banks and by the possibility to save in foreign currencies.

With regard to transaction and precautionary demand, the regressions control for income, education, household size and risk aversion. As I model liquidity preferences and not directly demand for money, liquidity preferences should be a decreasing function of income.[5] Precautionary motives are accounted for by including a measure of risk aversion. The data set does not contain a direct measure of uncertainties regarding net disbursements, however, I partly account for this effect by controlling for self-employment.

All regressions control for bank density which is proxied by a subjective measure of the distance to banks. In particular, respondents were asked to indicate their consent on a six point scale to the statement "for me, it takes quite a long time to reach the nearest bank branch".

An important institutional aspect of cash demand can be seen in the efficiency of tax authorities. In environments with weak tax authorities and/or when cash payments are frequently used to avoid taxes, one can expect to find a relatively higher importance of cash relative to bank savings. Some surveys contained a subjective assessment of this issue. Respondents were asked to give their level of consent to the statement that "in my country, it is very common that people pay cash to avoid taxes". In total about two thirds of all respondents agree to this statement with the highest levels for FYR Macedonia and Bulgaria (about 80%) and the lowest levels for Czech Republic, Hungary, Poland and Croatia (about 54%). I expect that *cash used to avoid taxes* exerts a positive effect on cash preferences. To validate these survey responses, I compute the between country correlation of *cash used to avoid taxes* and a governance indicator measuring "rule of law" (Kaufmann et al., 2010) and find a correlation of -0.77.

[5] A scale elasticity of smaller than one, which is usually found in empirical studies of demand for currency, implies that the cash to income ratio declines with income.

To identify the impact of trust in banks, I employ several variables. First, *deposits are safe* is a dummy variable reflecting respondents' consent to the statement that "currently, depositing money at banks is very safe in [my country]". Alternatively, I employ measures which more directly adhere to the trust concept: the survey collects information on trust in domestically-owned and foreign-owned banks (*trust dom. (for.) owned banks*) and whether respondents agree that foreign banks are better (*foreign banks are better*). A higher perceived safety of deposits and higher trust in banks should have a negative effect on cash preferences.

All countries in the sample have experienced banking crises during the transition to market economies with the scope of these crises varying across countries (Laeven and Valencia, 2008). In former Yugoslavian countries, savings deposits were frozen and foreign currency deposits were converted into local currencies inducing substantial losses for depositors. Other countries experienced bankruptcies of large banks or outright confiscations of saving deposits. To assess whether this experience still affects today's financial decisions, I include the dummy variable *memory restr. access* derived from answers to the statement that "I remember periods during which access to savings deposits was restricted in [the respective country]". Two remarks about the interpretation of this variable are necessary. First, *memory restr. access* does not refer to whether someone has actually incurred financial losses, but rather asks about whether the respondent is aware that such losses occurred. This implies that such memories are not restricted to older respondents, because crisis experiences can be passed on to younger generations. Second, the question asks about restricted access to deposits, as was the case in former Yugoslavia. However, the descriptive evidence (Table A.1), while clearly indicating the varying scope of banking problems across countries, suggests that a sizeable share of respondents also reports to remember such episodes in countries were no restrictions occurred. One can justify this observation by the fact that bank crashes are always associated with restricted access to deposits as it can take years until deposit insurance compensates depositors (even in countries with a high institutional quality).

The final group of theoretically informed variables which is expected to affect the demand for currency is related to dollarization. To account for this, I include a measure of expectations regarding the exchange rate of domestic currency vis-à-vis the euro (*exp. lc depreciation*, *exp. lc constant* versus *exp. lc appreciation*[6]). To incorporate the role of network effects, I control for an individual specific subjective measure of the share of other people using euro (*euro cash holdings common*), i.e. whether respondents' consent to the statement that "in [my country] it is very common that people hold euro cash".

3.3 Empirical Strategy

I estimate ordered probit regressions with the three category variable *cash preference* as the dependent variable. In addition to the theoretically informed variables I control for occupation, gender and whether a person is the head of household.

As mentioned, the sample is characterized by strong regional heterogeneity. As the list of potentially important institutional variables which describe between-country differences is quite long, I first control for them by including country-specific time effects. This brings the focus of analysis to interpersonal differences of cash preferences. In later specifications, this restriction is relaxed and regional differences are also analyzed. The data set contains 68 regions (which largely correspond to the European Union's NUTS II classification of regions) and variation across regions will be utilized.

All reported estimation results are based on standard errors which account for clustering at the country level (or the regional level if regional variables enter the regression).

[6] I also include a dummy variable for the answer category don't know (*exp. lc dk*) because this answer can also contain information, e.g. on uncertainty regarding the exchange rate.

4 Results

4.1 Cash Preferences

Table 3 presents the marginal effects that respondents have a strong preference for cash. To put the size of these marginal effects into perspective, I note that the unconditional likelihood of this event is about 29%. As not all variables are available in every survey, the depicted samples vary across specifications.

The results of the basic socio-demographic control variables are largely in line with prior expectations: persons with higher income and higher education have a lower preference for cash, highlighting the role of transaction related costs and of financial literacy. For example, the coefficients in specification I imply that persons with higher income are 3 percentage points less likely than persons with low income to have a high cash preference; the same likelihood is 11 percentage points lower for persons with high education in comparison to those with low education. Young persons have a higher preference for cash than older persons. This could reflect lower wealth of younger people or, alternatively, that younger people are less concerned about keeping money at home.

Concerning the hypothesis regarding the perceived safety of deposits, I find a significant and sizeable impact: persons who assess deposits as safe are 10 percentage points less likely to prefer cash than those who regard deposits as unsafe. The fact that about 41% of all respondents included in the sample answer that deposits are unsafe, underlines the economic significance of this finding. Memories of restricted access to deposits also exert a significant impact. The marginal effect is about 10 percentage points, which is among the highest of all marginal effects. Again, the aggregate significance of this effect is highlighted by the fact that about 54% report remembering periods of restricted access to deposits. Moreover, about one quarter of the sample both doubts the safety of deposits and remembers banking problems – which aggregates to a marginal effect of 20 percentage points. Finally, I note that all results concerning the safety of deposits and memories of banking problems are robust to different sample compositions. Also, the results are not

driven by individual countries.[7]

The results highlight the importance of bank density: those for whom banks are close have a 10 percentage points lower likelihood of a high cash preference than those for whom banks are difficult to reach.[8] This finding is comparable to Honohan and King (2009) who, for a sample of Southern African countries, reports that the adoption of banking services correlates with the distance to banks. Those who agree that cash payments are used to avoid taxes are 8 percentage points more likely to prefer cash than those who disagree. As country differences in the quality of tax enforcement should be controlled for by country dummies, the significance of *cash used to avoid taxes* depicts an additional interpersonal effect. This suggests that answers either reveal about the behavior of respondents or about the extent of tax evasion in respondents' close vicinity.

Among variables which should affect precautionary demand, risk aversion exerts a significant and positive effect on cash preferences. In contrast, self-employed respondents who might have a higher uncertainty regarding net disbursements are not found to have higher cash preferences, *ceteris paribus*.

Results show that the variable *euro cash holdings common*, which measures network effects of currency substitution, exerts a sizeable effect of 9 percentage points. Moreover, this effect is robust and stable across different specifications and samples. In contrast, depreciation expectations do not seem to affect cash preferences.

Finally, I control for remittances. Although there is no strong theoretical justification for doing so, the importance of remittances in some countries raises the question whether remittances are one part of the answer to the question of why cash is important. The results for the dummy variable *receives remittances* are disconfirmative – the respective coefficient is either negative or insignificant.

Specification I does not account for whether agents have a formal bank relationship. In specification II, I include a dummy for transaction account ownership showing no

[7] I have conducted ten regressions, consecutively deleting one country at a time. Results are unaffected, qualitatively.

[8] *Distance to banks* varies from 1 to 6. The 10 percentage points results from a comparison of those who answer 6 ($= 6 \times 0.02$) and those who answer 1 ($= 1 \times 0.02$).

significant effect. Arguably, there are pros and cons of including this variable. On the one hand, if agents optimally choose their portfolio of financial instruments, the existence of a transaction account could be endogenous. Consequently, one either has the choice of excluding (if one believes that the other explanatory variables explain the portfolio choice) or including this variable. However, in the latter case, the endogeneity should be accounted for which, however, is difficult because of a lack of suitable instruments. On the other hand, one could argue that transaction accounts mainly have a payment function and hence that their adoption is not affected by the savings decision. Although, on balance, I consider the second argument more plausible, this issue is undecided. In this light, I choose the pragmatic approach of including the variable *transaction account* without accounting for possible endogeneity. Then I check, also for all following tables, whether its inclusion affects results. In the majority of specifications this variable is insignificant. In those cases where a statistically significant effect is found, the variable will be included in the respective table. Irrespective of these expositional issues, it is important to note that the inclusion or exclusion of *transaction account* does not affect the main findings concerning the other variables.

Although the estimates of Table 3 are to a large extent in line with prior expectations, another issue of causality warrants emphasis. All presented estimation results reflect correlation and not necessarily causality. In particular, this pertains to the effect of *deposits are safe* and *memory restr. access*. Concerning the perceived safety of deposits, one could argue that the direction of causality runs from a high cash preference to low trust, e.g. people who do not need bank services might not need to trust banks. This could, for example, arise if set-up costs prevent poor individuals from using banking services. To mitigate this concern, I restrict the samples to persons who are banked, i.e. to persons who have any financial product in their portfolio (specification III). The fact that results are largely similar for the banked population suggests that my direction of interpretation (from trust to cash preferences) is justified. The possible endogeneity of memories of banking problems will be scrutinized in Section 4.5.

Although the regressions control for age, income and education, one concern is that wealth exerts an additional effect on cash preferences (cf. Beck and Brown, 2011; Djankov et al., 2008). As the survey data do not contain a direct measure of financial wealth, I make use of some indirect measures contained in the survey which are likely to be correlated with wealth. In specification IV, I include ownership of stocks or mutual funds as an additional dependent variable. As an alternative, I include ownership indicators for cars, houses and secondary houses (results not shown).[9] In both cases, these wealth indicators exert a negative effect on cash preferences but do not affect the other findings, qualitatively.

Also, one could argue that the high reliance on cash is driven by financial illiteracy. One survey contained questions about this issue and I construct a variable *financial illiteracy* which measures the share of wrong answers to four standard literacy questions (c.f. Lusardi and Mitchell, 2008). Its inclusion shows that financial illiteracy increases cash preferences sizeably (specification V) but does not affect the other results, qualitatively.[10]

4.2 The Effect of Dollarization

One dimension of regional heterogeneity is given by the level of dollarization, with some Southeastern European countries displaying strong dollarization. Moreover, dollarized and non-dollarized countries differ substantially with respect to income levels, the institutional framework and, supposedly, the level of trust in political and/or monetary institution—which is the main reason why countries became dollarized. Therefore, it is likely that results differ between these two country groups. Results from descriptive statistics suggest this to be the case. The unconditional probability of a strong cash preference is 0.4 in strongly dollarized countries, compared with only 0.2 in weakly dollarized countries.

To analyze this issue further, I split the sample into strongly dollarized and weakly

[9]Beck and Brown (2011) also use a home ownership as a proxy variable for wealth.

[10]It is noteworthy that *risk aversion* turns insignificant and that the coefficient for *deposits are safe* almost halves suggesting that financially illiterate agents strongly consider cash as a safe asset and bank deposits as unsafe.

dollarized countries (Table 4).[11] The results in specification I and II demonstrate that the role of the perceived safety of deposits and the role of memories of banking problems is not driven by dollarization *per se*. A similar assessment holds for distance to banks, risk aversion and network effect (*euro cash holdings common*). Although the sign and significance of these variables is comparable between strongly and weakly dollarized countries, some differences concerning the size of coefficient are striking. First, the coefficient of *deposits are safe* is twice as large in dollarized than in non-dollarized countries. This suggests that people in dollarized countries react more sensitively to doubts about the safety of deposits than people in non-dollarized countries which would fit with the experience of sizeable deposit withdrawals in 2008 in Southeastern Europe but not in Central European countries.[12] Second, the coefficients of *risk aversion* and of *euro cash holdings common* are about three times larger in dollarized countries than in non-dollarized countries. Again, this corresponds with the interpretation that foreign currency cash is held as a safe asset and that network effects of currency substitution are stronger in strongly dollarized than in weakly dollarized economies.

One maintained hypothesis is that exchange rate expectations and network effects of currency substitution affect the return of foreign currency cash holdings and, via this channel, the likelihood that agents prefer to hold cash. As a natural and important falsification exercise, I directly test whether this channel can actually be found in the data. In particular, specification III of Table 4 employs as the dependent variable the share of foreign currency cash in households' cash portfolios. This variable takes values of 1, 2 and 3 for foreign currency cash shares that are lower, approximately equal to or higher than 50%, respectively. Note that this variable is only defined for respondents who hold any foreign currency cash. Results show that the interpretation of the role of exchange rate expectations and of network effects is indeed justified.[13] There are only

[11] I define strongly dollarized countries as countries where the share of savings deposits denominated in foreign currency has been higher than 50% at least once over the past five years.

[12] From October 2008 to March 2009, deposits declined (on an exchange rate adjusted basis) by 15% in Serbia, 13% in Albania, 9% in Bosnia and Herzegovina and 3% in Croatia. In Poland, Hungary and the Czech Republic, deposits increased by between 6% and 14%.

[13] As I want to inquire into the behavior of people who hold foreign currency cash, I do not adjust

a few significant variables, among them depreciation expectations, network effects, the receipt of remittances and income. The sign of these effects are all in line with prior expectations. Note that neither the perceived safety of deposits nor memories of bank problems exert an influence, as expected, which strengthens my confidence that the results for these variables in specifications I and II do not capture unobserved individual-specific characteristics.

4.3 Cash Preferences versus Observed Portfolio Behavior

I have argued that the chosen measure of liquidity preferences is to be preferred over available indicators of the actual ownership of financial assets. In this section I nevertheless employ outcome based measures of actual portfolio behavior as dependent variables.

Table 5 summarizes results from three measures: Two of them are based on the reported ranking of cash in households' portfolios, i.e. *cash rank* takes a value of one if cash has a higher weight in households' portfolios than transactions or savings accounts. Upon closer scrutiny, it turns out that this variable is loaded with several inconsistencies.[14] Therefore, I also construct another variable, *cash rank restricted* which aims at eliminating these inconsistencies. The third variable *cash share* is categorical, measuring the share of cash relative to the share of savings deposits (defined as 1, 2 and 3 for cash shares lower, about equal or higher than 50%, respectively). It is only available for the rather small and peculiar subsample of respondents holding a savings account.

Employing these portfolio indicators shows that results for *cash rank restricted* are very similar to results for *cash preferences*. If the unadjusted variable *cash rank* is used, results are less robust. However, the role of the perceived safety of deposits, distance to banks, income and education are again very similar to results for *cash preferences*. For *cash share* (specification IV) the safety of deposits is one of the few variables that is

estimates for sample selectivity.

[14]For example, it takes a value of zero for persons who only hold a transaction account or a wage card. In some countries wage cards, enabling the owner to withdraw his salary or his pension at an ATM, are very frequent. Anecdotal evidence suggests that persons with wage cards typically withdraw their salary in only one or a few installments and store the amount at home. However, the unadjusted variable *cash rank* would indicate that cash has a low importance for such persons.

significant at all. This result in conjunction with the finding that *distance to banks* is not significant suggests that cash at home is not held because of transaction costs but rather because of concerns about the safety of deposits.

4.4 Trust in Banks and Liquidity Preferences

Up to now, I have focused on the perceived safety of deposits. Arguably, the perceived safety of deposits is a rather specific measure of trust in banks as it encompasses both a generic notion of trust in banks as well as legal and institutional aspects, for example in relation to deposit insurance systems or the quality and speed of the judicial system to enforce property rights (c.f. Guiso et al., 2004).

Table 6 summarizes several specifications which include variables which adhere more directly to the generic trust concept (in particular, trust in banks). Also, all specifications include a measure of *trust in police*. This should prevent that findings merely reflect a person's general distrust in institutions and not necessarily distrust in banks.

Including *trust in dom. owned banks* reveals a significant and sizeable impact (-6 percentage points, specification I of Table 6). Specification II confirms the conjecture that trust entails more dimensions than just the assessment of the safety of deposits. In particular, the sample is restricted to respondents who perceive deposits as safe and still a significant impact of trust in banks is obtained.

The survey contains other measures which express trust in banks: an assessment about trust in foreign-owned banks and an assessment about whether savings deposits at foreign banks are better to safeguard the value of one's savings. Point estimates suggest that trust in foreign-owned banks matters considerably less (-2 percentage points) than trust in domestically-owned banks (-6 percentage points).

4.5 The Role of Memories of Banking Problems

One of the largest marginal effects is obtained for *memories restricted access*. Is this result driven by reverse causality? As the survey question is formulated, it should measure

memories of past banking turbulences regardless of whether the respondent himself actually incurred losses or whether memories refer to an acquaintance who incurred losses. In my view, this definition is correct as the variable should be related to the subjective assessment of the probability that a banking crisis could occur again. The information set to form this probability should include the experience of other people having incurred losses. However, given this interpretation, it could well be that the estimated parameter reflects reverse causality. For example, news about problems for banks during the financial crisis could result in higher cash preferences. To rationalize these higher cash preferences respondents could cite memories of banking problems. In fact, this interpretation is not unlikely because I observe that memories of banking problems, which in principle should remain constant over time, somewhat fluctuate over time.

To examine the possibility of reverse causality, I want to find a variable that is correlated with how strongly a person remembers past banking turbulences but uncorrelated with the error term in the cash preference equation. As usual with survey data, there is a paucity of suitable instruments. The age of a person, which would be an obvious candidate, must be dismissed because it affects cash preferences directly. Instead, I make use of information derived from another survey instrument about memories, i.e. respondents were asked whether they "remember periods of high inflation during which the value of the [LOCAL CURRENCY] dropped sharply". This variable bears the potential of being a suitable instrument because it is highly correlated with memories of banking problems. Moreover, it should have no effect on cash preferences: if memories of past inflation affect portfolio behavior, then they should affect the currency composition of savings but not the share of savings held in cash. A closer look at the data also confirms this in the sense that memories of inflation, once added to the baseline specification, exert no significant effect on cash preferences. The results from the corresponding two stage least squares regression (Table 7, spec. I) shows that the coefficient of *memories restricted access* remains positive and statistically significant.

Clearly, the use of a subjective variable as an instrument is somewhat unsatisfactory.

Additionally, one could argue that inflation crises typically occur around banking crisis and that respondents cannot adequately separate these two events. Given these objections, I also aim to use objective information on the timing of banking crises (Barisitz, 2008; Laeven and Valencia, 2008) to identify the effect of *memories restricted access*.

In a first approach, I calculate the age of respondents at the time of the last banking crisis and analyze whether the effect of memories differ between then adults and then non-adults (including then unborn). Given how *memories restricted access* is defined, I expect it to have an impact for both age cohorts, however it should be stronger for respondents that were living through a crisis than for those who only heard about these events (cf. Osili and Paulson, 2009). The corresponding results in specification II and III show that the effect of *memories restricted access* is twice as high for the old cohort than for the young cohort, providing support for this conjecture.[15]

The analysis of Osili and Paulson (2009) suggests that crisis experience of US immigrants fades after 21 years of living in the US. In a second approach, I omit *memories restricted access* and replace it by the number of years since the last banking crisis. In specification III, the temporal distance is found to have a negative impact on cash preferences, i.e. a move from its minimum of nine years to its maximum of 21 years, reduces cash preferences by 11 percentage points. Given that the initial effect of *memories restricted access* is found to be about 11 percentage points this implies, very similar to Osili and Paulson (2009), that the effect of crisis experience vanishes after about 20 years.

As the number of years since the last banking crisis only varies across countries, I have to omit country dummies from this specification. However, this is rather restrictive because a single variable has to capture all variation between countries. In specification V, therefore, I have implemented the less restrictive approach of interacting the memory variable with the temporal distance from the last banking crisis. Again, results show that the impact decreases with the number of years since the last crisis – from its minimum to

[15] Adults are defined as persons who were 25 or older. Lowering the age threshold decreases the number of observations in the young cohort which results in less precise estimates. Qualitatively, however, results remain the same.

its maximum , the effect of *memories restricted access* decreases by 7 percentage points.[16]

5 Institutionalized Trust or Social Capital?

Results demonstrate that variations of cash preferences *across* individuals are linked to trust. This is in line with Guiso et al. (2004) who employ Italian household data to demonstrate that high levels of trust have a negative effect on the use of cash. One distinguishing contribution of Guiso et al. (2004) is their focus on social capital, an important determinant of the prevailing level of trust within a society. They propose measuring social capital by regional measures of electoral participation and blood donation. In their view, these measures are to be preferred over direct measures of trust because the latter are contaminated by institutional specificities, like the quality of law enforcement.

I extend the analysis of Guiso et al. (2004) to a multi-country setting and test whether variations in trust contribute to the explanation why cash preferences differs so strongly across countries. Moreover, I ask whether regional differences of cash preferences are driven by social capital (or by a broader notion of trust) as stipulated by Guiso et al. (2004) or by institution-specific trust (e.g. trust in banks).

To conduct this test, I make use of information collected by the EBRD's Life in Transition Survey (LITS). The LITS was conducted in 2006 in all countries which are also covered by the OeNB Euro Survey and collected information on trust in people and several variables which can be used to proxy social capital (EBRD, 2011). Moreover, LITS uses a regional sampling frame which is similar to that of the OeNB Euro Survey which allows matching LITS data with OeNB Euro Survey data at the regional level. I then use these regional measures of trust and social capital as explanatory variables.[17] Note that the use of regional shares which are constructed from a different data source and which refer to a different time period should alleviate endogeneity concerns.

[16]Note that the sample in specification V is restricted to persons who were adults at the time of the crisis. This corresponds to the concept used by Osili and Paulson (2009). A similar specification for then non-adults shows that the interaction term is not significant.

[17]Descriptive evidence about regional variables is summarized in Table A.2.

The specification which will be estimated expresses individual specific cash preferences as a function of both individual specific variables and region-specific variables, notably regional trust in banks and regional social capital.[18] This implies that I only control for time effects, dropping country-fixed effects.

Results are summarized in Table 8. Each specification includes three variables that should capture economic and institutional differences in regions. *LITS bank access* measures the regional share of people with either a bank account or with a debit or credit card. Note that I employ this variable as a proxy for regional GDP, utilizing the finding that it is strongly correlated with national GDP (correlation coefficient of 0.83). Additionally, I employ information on the regional importance of bartering as an income source (*LITS income from bartering*) which should be a proxy for regional differences in the composition of GDP. The third variable controls for the quality of the legal system as captured by a measure of how much people entrust the court system (*LITS trust courts*). This follows Guiso et al. (2004) who stress the importance of law enforcement and its interaction with trust. It turns out that all three variables are statistically insignificant whereas results for individual-specific variables are roughly comparable to previous specifications.

Before employing the information from LITS, specification I includes regional measures of the perceived safety of deposits and of memories of banking problems taken from the OeNB Euro Survey. As is the case with the construction of all LITS variables, the regional measures of the perceived safety of deposits and of memories of banking problems are not computed from the same data source which is employed for the individual specific variables. In particular, the data used for constructing these variables is from survey data that were collected prior to Spring 2009. Both coefficients bear the expected sign and the regional measure of the perceived safety of deposits is significant at the 5% level. The respective point estimate implies that the probability of a strong cash preference

[18] This framework corresponds closely to (Guiso et al., 2004) who also model individual portfolio behavior as a function of individual variables and of regional variables. The only difference is that I analyze several countries. I employ the same set of individual-specific explanatory variables as in previous specifications, except that the individual specific measures of the memories of banking problems is omitted because of concerns regarding multicollinearity.

is reduced by about 11 percentage points if regional safety of deposits moves from its minimum of around 30% to its maximum of 85%. Specification II includes trust in banks derived from the LITS data. The point estimate implies a roughly similar sized impact: the probability of a strong cash preference is reduced by about 12 percentage points if regional trust in banks moves from its minimum of around 15% to its maximum of 68%.[19]

Despite the use of proxies for regional economic activity, unobserved regional heterogeneity is still of concern. For example, in regions with a low bank penetration, people are likely to have higher cash preferences. The same people could answer that they do not trust banks. In order to exclude this effect, the sample in specifications III to VII is further restricted to contain only banked individuals. Comparing specification III with specification II shows that results do not change qualitatively thereby indicating that the suspected reverse causality is not strong enough to influence results.

Concerning the role of social capital, specification III includes a measure of generalized trust (trust in people) as a proxy for social capital. In Guiso et al. (2004) this variable contributes significantly to explaining the regional variation in the use of financial assets in Italy. In my sample this variable is weakly significant but bears the wrong sign. In contrast, trust in banks remains significant. Similar to Guiso et al. (2004), I alternatively employ regional voter turnout at the last parliamentary or presidential elections (specification IV) and at the last referendum (specification V) as proxies of social capital. It is striking that results in neither case support the notion that social capital is related to cash preferences. This conclusion is robust irrespective of whether *LITS trust in banks* is omitted or not.

Admittedly, this analysis can be criticized because of (i) the omission of other potentially important variables that explain economic and institutional differences across regions or (ii) because of the use of inadequate variables to measure social capital.

Given the economic, institutional and cultural heterogeneity across countries, it is difficult to find a short but exhaustive list of variables which control for these differences

[19]The probability of a strong cash preference moves by 5 percentage points if regional trust in banks varies by one standard deviation above or below the sample mean.

(the number of cross sections is rather low). Therefore, it seems impossible to fully account for this objection. However, it can be alleviated somewhat by trying to control for country differences in alternative ways. I have done this in two ways. First, I include country dummies which focuses the analysis on regional variation while holding country effects constant. On the one hand, this does not change the results concerning the insignificant role of social capital variables (results not shown). On the other hand, this also wipes out the significance of other regional variables, including trust in banks. Also, including country dummies is not without problems on its own because it raises the question whether the remaining regional variation is strong enough. If one believes that social capital varies over countries and not over regions within a country (which is against Guiso et al. (2004) original example), then an alternative approach would be to aggregate all regional variables to the country level instead of the regional level. I also followed this approach and obtained results which are qualitatively similar to those in Table 8: trust in banks is found to be significant while social capital variables are insignificant.

Concerning the second concern, namely the use of inadequate variables to measure social capital, I note that it is evidently questionable how to measure social capital in an international context. For example, my measures of electoral participation might not be optimal as the political systems differ across countries. To overcome this problem, I construct another social capital proxy which is not influenced by differences in electoral systems. Specifically, *LITS civic involvement* is defined as the regional share of respondents who are members of non-party civic or voluntary organization (clubs, associations). In specification VII, I find that this variable is significant but bears the wrong sign.

My overall reading of these findings is that social capital or the general level of trust towards other people prevailing in a society does not seem to have much effect on cash preferences. In contrast, more support is found for the role of trust in banks. Although the presented specifications control for several dimensions of regional differences, there might still be other omitted variables which are important.[20] In the end, the low number

[20]One potential candidate would be the institutional legacy of the Ottoman empire. However, Grosjean (2011) shows that trust in the banks and an index about the institutional legacy of the Ottoman empire

of countries and/or the lack of other important regional variables warrants to draw this conclusion with caution.

6 Robustness Tests

In this section I conduct several robustness tests which should ensure that results are not driven by unobserved heterogeneity.

One concern would be that the variables which measure trust in banks capture the effect of unobserved variables that are correlated with trust in banks, which would lead to the erroneous conclusion that trust in banks is important while it is irrelevant in reality.

To investigate this issue, I utilize the fact that the survey contains information on the ownership of life insurance policies, and based on this, that life insurance policies are typically not issued by banks (although banks might distribute them). Hence, I should observe that trust in banks affects ownership of savings accounts, but not ownership of life insurances. In contrast, if trust in banks affected both savings accounts and life insurances then results could capture an unobserved variable.

Table 9 shows results for the incidence of savings accounts (specifications I and II) and life insurances (specification III and IV), respectively. I model ownership of savings accounts and life insurances conditional on respondents' being banked, i.e. a two equation sample selection model is estimated with the first stage accounting for whether a respondent is banked. As an identification variable, I employ *distance to banks* which is found to have a strong impact on the probability that a respondent is banked.

I find that results are in line with previous findings in the sense that both the perceived safety of deposits as well as trust in domestically-owned banks exert a positive impact on the incidence of savings accounts. The effect of *trust in dom. owned banks* is substantial, explaining about one fourth of the observed sample mean. Memories of banking problems do not have a significant impact. For life insurance ownership, in contrast, no significant effect of either the safety of accounts or of trust in banks is found. These results suggest

are not correlated which suggests that results concerning the effect of trust in banks remain unchanged.

that the effect obtained for trust in banks is not driven by unobserved individual-specific variables.

Grosjean (2011) provides evidence that contemporaneous financial development (i.e. the adoption of bank products) is lower in regions with a legacy from the Ottoman empire. Becker et al. (2011) find higher trust in institutions and lower corruption in regions with past Habsburg affiliation. As some regions in my sample have an Ottoman legacy while others have an Habsburg legacy, I want to exclude that results are driven by this factor. In particular, I have repeated the estimations in Table 3 for a sample of countries that fully belonged to the Ottoman empire.[21] Reassuringly, I find that results are unaffected, qualitatively.[22] Finally, for three countries the data set contains information on the religion of respondents. Including this information does not change the conclusion drawn from Table 3 concerning the perceived safety of deposits, the role of memories of banking crisis and the role of dollarization.

Finally, I account for the (potential) effect of unobserved dependencies between respondents by repeating the estimations in Table 3 with standard errors clustered at the regional level and at the level of the primary sample unit (mostly municipalities). Again, this does not affect the main findings.

7 Conclusions

Using microdata from a household survey I document that (i) a high share of the population in several Central, Eastern and Southeastern European countries prefers to hold cash instead of interest-bearing financial assets and (ii) that there is substantial heterogeneity both across countries and across individuals.

To explain these observations, I propose an empirical model which relates informa-

[21] The entire territories of Albania, Bosnia and Herzegovina, Bulgaria and FYR Macedonia were part of the Ottoman empire. The remaining countries (except the Czech Republic and Poland) stood both under Habsburg and Ottoman influences (Grosjean, 2011).

[22] Results are available upon request. The opposite test of restricting the sample only to those countries that had no Ottoman influences, Czech Republic and Poland, is not possible because of a low number of observations.

tion on both self-stated cash preferences and actual portfolio choices of households to theoretically informed explanatory variables. In general, I find that results for self-stated cash preferences yield a consistent picture irrespective of the sample size or the country composition of the sample. Results concerning actual portfolio behavior are less robust though still largely in line with the results obtained with self-stated cash preferences.

An important conclusion that can be drawn from my results is that observed heterogeneities in cash preferences cannot be explained fully by whether people are banked or unbanked. Several other factors are important: a lack of trust in banks, the size of the grey economy (weak tax enforcement) and the prevailing extent of currency substitution. Also, I find that memories of past banking crises affect households' preferences regarding cash holdings. These findings are obtained by controlling for a broad set of potentially informative variables which exert effects that are largely in line with theoretical expectations. In particular, income, educations and wealth are important. Higher transaction costs, as measured by the distance to banks, are associated with higher cash preferences. The finding for risk aversion suggests that cash is seen as a safe asset. Also, I show that the receipt of remittances does not lead to a higher cash preference making the point that they are mainly funneled through the banking system.

In general, the results lend support to the view that weak institutions play an important role in explaining country differences in cash preferences. On the one hand, this assessment is based on direct evidence that weak tax enforcement is associated with higher cash preferences. On the other hand, I observe substantial differences between strongly dollarized and weakly dollarized countries that persist even when accounting for individual characteristics. I think that these between-country differences can be partly traced to weak institutions, which, in my view, are one of the main causes why countries become dollarized in the first place. I suspect that the combination of weak institutions (e.g. weak tax enforcement and the size of the grey economy) and network effects in the use of foreign currency cash, which promises a higher return than domestic currency cash, renders the behavior of people to save in cash rather persistent.

Although I find that trust in banks is a crucial determinant, my results do not lend support to the hypothesis that social capital is important. This result has to be treated with some caution, because I can only incompletely control for regional heterogeneity. It would be an interesting undertaking to explore the interrelation between trust in specific institutions and general trust (social capital) more deeply, not least because of its policy implications: If only trust in banks matters, policy measures like enhanced depositor protection could cushion the effect of a lack of trust on portfolio decisions. If social capital is important, policy intervention would barely be effective in the short run.

I have analyzed a particular group of countries characterized by a not too distant history of banking crises and other economic and political turbulences. It would be very interesting to see whether the factors which were identified to affect cash preferences in Central, Eastern and Southeastern Europe are also important in other parts of the world.

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A Appendix

A.1 Survey Description

A.2 Data and Variable Description

cash preference: Derived from answers to statement that "I prefer to hold cash rather than a savings account". Answers are "strongly agree", "agree", "somewhat agree", "somewhat disagree", "disagree" and "strongly disagree". Answers are transformed into a variable with three categories: weak cash preference ("strongly disagree" and "disagree"), medium cash preference ("somewhat agree", "somewhat disagree") and strong cash preference ("strongly agree", "agree").

cash rank: Respondents were asked to indicate the ownership of financial assets as well as to rank these financial instruments according to their importance. "There are several ways in which you can hold savings. For example, one can hold cash, use bank accounts, have life insurances, hold mutual funds, etc. Please take a look at this card that lists various savings instruments - could you please select the ones you are using and rank them according to the amounts you have saved on the respective instrument". The listed choices comprised (1) cash, (2) savings accounts, (3) life insurance, (4) mutual funds, (5) stocks, (6) pension funds, (7) bonds, (8) transaction accounts and (9) one category for all other financial instruments. Indicator variable which is one if cash is more important than a transaction account or a savings account, zero else.

life insurance: Based on above question. Dummy variable taking value one if respondents have a life insurance.

cash rank restricted: Built on *cash rank* cash rank but adjusted for inconsistent answers. In particular, all observations of *cash rank* are set to missing if *cash rank*$= 0$ $(= 1)$ but the respondents states that he/she has (no) cash preferences.

cash share Respondents who have a savings account were asked "Now, if you think about the overall sum of your cash holdings and the amount of saving deposits ... what proportion of this total sum do you hold as cash?" From answers an indicator is constructed which takes a value of 1 if the weight is below 50%, 2 if it is in the range of 50% and 3 if it is higher than 50%. This indicator is used instead of the raw percentages because non-response was high. However, the questionnaire took care of this by asking non-respondents to indicate whether the cash share is lower than 50%, about 50% or higher than 50%. The willingness to respond was much higher for this categorical question.

transaction account, savings account: Dummy variables derived from a question on the ownership of a transaction account or a savings account. Note that *transaction account* includes respondents who own debit cards or wage cards (the latter are rather frequent in some countries; these cards are used to withdraw the salary or the pension at an ATM.

foreign currency share Respondents who hold foreign currency cash were asked "If you think about the overall sum of your cash holdings (banknotes and coins) ... which share is denominated in foreign currency?" From answers an indicator is constructed which takes a value of 1 if the foreign currency cash share is below 50%, 2 if it is in the range of 50% and 3 if it is higher than 50%. This indicator is used instead of the raw percentages because non-response was high. However, the questionnaire took care of this by asking non-respondents to indicate whether the cash share is lower than 50%, about 50% or higher than 50%. The willingness to respond was much higher for this categorical question.

deposits are safe: Derived from answers to the statement that "currently, depositing money at banks is very safe in [MY COUNTRY]". Answers are "strongly agree", "agree", "somewhat agree", "somewhat disagree", "disagree" and "strongly disagree". Dummy variable coded as one if answer ranges from "strongly agree" to "somewhat agree", zero else.

memory restr. access: Derived from answers to statement that "I remember periods during which access to savings deposits was restricted in [MY COUNTRY]". Answers are "strongly agree", "agree",

"somewhat agree", "somewhat disagree", "disagree" and "strongly disagree". Dummy variable coded as one if answer ranges from "strongly agree" to "somewhat agree", zero else.

trust dom. owned banks, trust for. owned banks, trust in police: Based on question "I would like to ask you a question about how much trust you have in certain institutions. For each of the following institutions, please tell me if you tend to trust it or tend not to trust it. 1 means 'I trust completely', 2 means 'I somewhat trust' , 3 means 'I neither trust nor distrust' , 4 means 'I somewhat distrust' and 5 means 'I do not trust at all'. (a) Domestically owned banks, (b) Foreign owned banks, (c) the police". Dummy variable coded as one if respondents somewhat or completely trust, zero else.

foreign banks better: Derived from answers to statement that "savings deposits at foreign banks are much safer than those at domestic banks". Answers are "strongly agree", "agree", "somewhat agree", "somewhat disagree", "disagree" and "strongly disagree". Dummy variable coded as one if answer ranges from "strongly agree" to "somewhat agree", zero else.

banks are stable: Derived from answers to statement that "currently, banks and the financial system are stable in [MY COUNTRY]". Answers are "strongly agree", "agree", "somewhat agree", "somewhat disagree", "disagree" and "strongly disagree". Dummy variable coded as one if answer ranges from "strongly agree" to "somewhat agree", zero else.

income high, income middle, income na: Dummy variables which take value one for each net household income terciles (high, medium, low). Sample values are used to construct terciles. For those respondents who did not give an answer an additional dummy variable is defined (income na)

risk aversion: Derived from answers to statement that "in financial matters, I prefer safe investments over risky investments". Answers are "strongly agree", "agree", "somewhat agree", "somewhat disagree", "disagree" and "strongly disagree". Dummy variable coded as one if answer ranges from "strongly agree" to "somewhat agree", zero else.

exp. lc depreciation, exp. lc constant, exp. lc dn: Derived from question "How do you think will the exchange rate of the local currency develop over the next five years?" (answer categories refer to the exchange rate vis-à-vis the euro). Dummy variables for respondents expecting the local currency to depreciate, to appreciate or to remain constant vis-à-vis the euro. An additional dummy variable is defined for respondents who "do not know". Omitted category: respondents expecting exchange rate appreciation.

euro cash holdings common: Derived from answers to statement that "in [MY COUNTRY] it is very common to hold euro cash". Answers are "strongly agree", "agree", "somewhat agree", "somewhat disagree", "disagree" and "strongly disagree". Dummy variable coded as one if answer ranges from "strongly agree" to "somewhat agree", zero else.

distance to banks: Derived from answers to statement that "for me, it takes quite a long time to reach the nearest bank branch". Answers are "strongly agree", "agree", "somewhat agree", "somewhat disagree", "disagree" and "strongly disagree". Categorical variable ranging from 1 ("strongly disagree") to 6 ("strongly agree").

cash used to avoid taxes: Derived from answers to statement that "in [MY COUNTRY], it is very common that people pay cash to avoid taxes". Answers are "strongly agree", "agree", "somewhat agree", "somewhat disagree", "disagree" and "strongly disagree". Dummy variable coded as one if answer ranges from "strongly agree" to "somewhat agree", zero else.

receives remittances: Derived from answers to question "Do you personally or your partner receive money from abroad? E.g. from family members living or working abroad, pension payments, etc?". Dummy variable coded as one if answer is "yes regularly" or "yes infrequently", zero else.

financial illiteracy: Based on four question. Two questions refers to nominal and real interest rates, one to exchange rates and one to risk assessment of stocks versus mutual funds. The variables is defined as the share of incorrect answers (including if respondents answered don't know)to these questions.

Variables which are observed at the regional level:
The data set consists of 10 countries and 68 regions. The following list summarizes variables which are observed at the regional level. The main data source for these variables is the Life in Transition Survey (LITS) conducted jointly by the European Bank for Reconstruction and Development and the World Bank in 2006. The goal of this survey was to "assesses the impact of transition on people through their personal and professional experiences during the first 15 years of transition" (EBRD, 2011). The survey was administered in 28 countries and about 1,000 interviews were conducted in each country. The fact that the regional sampling frame of LITS is similar to that of the OeNB Euro Survey allows matching the two data sources at the regional level.

LITS trust in banks, LITS trust courts: Derived from LITS instrument "To what extent do you trust the following institutions? - (a) Banks and the financial system, (b) Courts" (Q303/8, Q303/4). Answer categories are "complete distrust", "some distrust", "neither trust nor distrust", "some trust", "complete trust" and "difficult to say". For each region, the variable represents the share of surveyed individuals who answer that they have "complete trust" or "some trust". Those that answer "difficult to say" are omitted.

LITS trust in people: Derived from LITS instrument "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people? Please answer on a scale from 1 to 5, where 1 means that you have complete distrust in people, and 5 means that most people can be trusted. What would it be today?" (Q302/1). Answer categories are "complete distrust", "some distrust", "neither trust nor distrust", "some trust", "complete trust" and "difficult to say". For each region, the variable represents the share of surveyed individuals who answer that they have "complete trust" or "some trust". Those that answer "difficult to say" are omitted.

LITS bank access: Derived from LITS instrument "Does anyone in your household have - a bank account (- a debit/credit card)?". For each region, the variable represents the share of surveyed individuals who answered that they either have a bank account or a debit/credit card.

LITS income from bartering: Derived from LITS instrument "Which of these sources of livelihood apply to your household?". Answers comprise 14 income categories, including social transfers. For each region, the variable represents the share of surveyed individuals who answered that they receive income from "sales or bartering of farm products".

LITS election turnout: Derived from LITS instrument "Did you vote in the last parliamentary or presidential elections?" (Q701). Answer categories are "yes" and "no". For each region, the variable represents the share of surveyed individuals who answer "yes".

LITS referenda turnout: Derived from LITS instrument "How likely are you to ... sign petitions?" Q704/4. Answer categories are "have done", "might do", "would never do". For each region, the variable represents the share of surveyed individuals who answered "have done", "might do".

LITS civic involvement: Derived from LITS instrument "Are you a member of ... other civic/voluntary organization (club, association)" (Q703/2). Answer categories are "yes" and "no". For each region, the variable represents the share of surveyed individuals who answer "yes".

ES deposits are safe: Based on Euro Survey variable *deposits are safe*. For each region, the variable represents the share of surveyed individuals who said that deposits are safe. Note that when calculating this variable, I only include answers from surveys prior to our sample, i.e. from 2007 and 2008.

ES memory restr. access: Based on Euro Survey variable *memory restr. access*. For each region, the variable represents the share of surveyed individuals who said that deposits are safe. Note that when calculating this variable, I only include answers from surveys prior to our sample, i.e. from 2007 and 2008.

A.2.1 List of Countries and Country Groups

Country abbreviations: Czech Republic (CZ), Hungary (HU), Poland (PL), Bulgaria (BL), Romania (RO), Albania (AL), Bosnia and Herzegovina (BH), Croatia (HR), Former Yugoslav Republic Macedonia (FM), Serbia (RS).

EU countries: Czech Republic, Hungary, Poland, Bulgaria and Romania.

Non EU countries: Albania, Croatia, Bosnia and Herzegovina, Former Yugoslav Republic Macedonia, and Serbia.

Strongly dollarized economies: Bosnia and Herzegovina, Bulgaria, Croatia, Former Yugoslav Republic Macedonia, and Serbia.

Weakly dollarized economies: Czech Republic, Albania, Hungary, Poland, and Romania.

A.2.2 Descriptive Statistics

Table A.1: Descriptive statistics of individual-specific variables

	Min/Max	CZ	HU	PL	BL	RO	AL	BH	HR	FM	SR	Total
preference for cash	1/3	1.85	1.92	1.93	2.03	2.04	1.88	2.13	2.17	2.09	2.37	2.02
		(0.69)	(0.73)	(0.71)	(0.88)	(0.77)	(0.73)	(0.73)	(0.75)	(0.88)	(0.72)	(0.77)
cash rank	0/1	0.30	0.33	0.49	0.45	0.55	0.84	0.69	0.56	0.57	0.58	0.53
		(0.46)	(0.47)	(0.50)	(0.50)	(0.50)	(0.37)	(0.46)	(0.50)	(0.50)	(0.49)	(0.50)
cash share	1/3	1.56	1.65	1.76	1.41	1.69	1.81	1.61	1.37	1.57	2.12	1.62
		(0.78)	(0.82)	(0.89)	(0.73)	(0.87)	(0.82)	(0.74)	(0.66)	(0.78)	(0.86)	(0.81)
foreign currency share	1/3	1.18	1.81	1.40	1.72	1.73	1.46	2.01	1.98	2.17	2.73	1.91
		(0.47)	(0.89)	(0.72)	(0.89)	(0.86)	(0.71)	(0.86)	(0.88)	(0.86)	(0.59)	(0.90)
deposits are safe	0/1	0.68	0.44	0.68	0.54	0.51	0.63	0.43	0.67	0.68	0.52	0.59
		(0.47)	(0.50)	(0.47)	(0.50)	(0.50)	(0.48)	(0.50)	(0.47)	(0.47)	(0.50)	(0.49)
memory restr access	0/1	0.41	0.61	0.55	0.60	0.41	0.52	0.41	0.39	0.68	0.76	0.54
		(0.49)	(0.49)	(0.50)	(0.49)	(0.49)	(0.50)	(0.49)	(0.49)	(0.47)	(0.43)	(0.50)
trust dom. owned banks	0/1	0.46	0.35	0.50	0.40	0.29	0.54	0.43	0.44	0.56	0.27	0.44
		(0.50)	(0.48)	(0.50)	(0.49)	(0.45)	(0.50)	(0.50)	(0.50)	(0.50)	(0.45)	(0.50)
trust for. owned banks	0/1	0.42	0.25	0.39	0.43	0.28	0.58	0.48	0.43	0.55	0.29	0.42
		(0.49)	(0.44)	(0.49)	(0.50)	(0.45)	(0.49)	(0.50)	(0.50)	(0.50)	(0.45)	(0.49)
foreign banks better	0/1	0.66	0.47	0.55	0.38	0.42	0.40	0.38	0.44	0.29	0.41	0.45
		(0.47)	(0.50)	(0.50)	(0.49)	(0.49)	(0.49)	(0.49)	(0.50)	(0.45)	(0.49)	(0.50)
trust in police	0/1	0.33	0.35	0.43	0.33	0.23	0.51	0.50	0.52	0.45	0.30	0.41
		(0.47)	(0.47)	(0.48)	(0.46)	(0.44)	(0.50)	(0.50)	(0.50)	(0.50)	(0.45)	(0.49)
euro cash holdings common	0/1	0.45	0.22	0.45	0.46	0.69	0.62	0.52	0.72	0.84	0.86	0.59
		(0.50)	(0.41)	(0.50)	(0.50)	(0.46)	(0.48)	(0.50)	(0.45)	(0.37)	(0.35)	(0.49)
exp lc depreciation	0/1	0.17	0.44	0.25	0.34	0.49	0.57	0.22	0.31	0.29	0.68	0.37
		(0.37)	(0.50)	(0.43)	(0.47)	(0.50)	(0.50)	(0.42)	(0.46)	(0.45)	(0.47)	(0.48)
exp lc constant	0/1	0.38	0.30	0.36	0.48	0.25	0.26	0.70	0.49	0.56	0.14	0.39
		(0.49)	(0.46)	(0.48)	(0.50)	(0.43)	(0.44)	(0.46)	(0.50)	(0.50)	(0.35)	(0.49)
exp lc appreciation	0/1	0.26	0.17	0.17	0.03	0.06	0.08	0.05	0.04	0.05	0.05	0.10
		(0.44)	(0.37)	(0.38)	(0.17)	(0.24)	(0.27)	(0.21)	(0.19)	(0.22)	(0.22)	(0.31)
exp lc dn	0/1	0.19	0.09	0.22	0.15	0.20	0.09	0.03	0.16	0.09	0.13	0.14
		(0.39)	(0.29)	(0.42)	(0.35)	(0.40)	(0.29)	(0.18)	(0.37)	(0.29)	(0.34)	(0.34)
risk aversion	0/1	0.88	0.86	0.84	0.89	0.86	0.84	0.74	0.90	0.94	0.90	0.87
		(0.33)	(0.34)	(0.37)	(0.32)	(0.35)	(0.37)	(0.44)	(0.30)	(0.23)	(0.30)	(0.34)
receives remittances	0/1	0.03	0.03	0.04	0.07	0.10	0.23	0.14	0.07	0.12	0.11	0.09
		(0.18)	(0.16)	(0.20)	(0.26)	(0.30)	(0.42)	(0.35)	(0.26)	(0.32)	(0.31)	(0.29)
distance to banks	1/6	2.74	2.15	2.76	2.36	2.99	3.08	3.11	2.47	2.93	2.78	2.74
		(1.14)	(1.27)	(1.37)	(1.51)	(1.46)	(1.49)	(1.42)	(1.35)	(1.79)	(1.56)	(1.49)
transaction account	0/1	0.77	0.73	0.55	0.78	0.60	0.36	0.39	0.62	0.58	0.51	0.59
		(0.42)	(0.44)	(0.50)	(0.42)	(0.49)	(0.48)	(0.49)	(0.48)	(0.49)	(0.50)	(0.49)

Table A.1: (cont'd) Descriptive statistics of individual-specific variables

	Min/Max	CZ	HU	PL	BL	RO	AL	BH	HR	FM	SR	Total
cash used to avoid taxes	0/1	0.59	0.56	0.53	0.77	0.69	0.70	0.64	0.45	0.75	0.78	0.64
		(0.49)	(0.50)	(0.50)	(0.42)	(0.46)	(0.46)	(0.48)	(0.50)	(0.43)	(0.42)	(0.48)
income high	0/1	0.33	0.32	0.26	0.28	0.35	0.40	0.40	0.38	0.38	0.28	0.34
		(0.47)	(0.47)	(0.44)	(0.45)	(0.48)	(0.49)	(0.49)	(0.49)	(0.48)	(0.45)	(0.47)
income middle	0/1	0.31	0.25	0.31	0.26	0.23	0.29	0.28	0.27	0.26	0.27	0.27
		(0.46)	(0.43)	(0.46)	(0.44)	(0.42)	(0.46)	(0.45)	(0.44)	(0.44)	(0.44)	(0.45)
income low	0/1	0.33	0.28	0.37	0.25	0.16	0.23	0.16	0.14	0.30	0.27	0.26
		(0.47)	(0.45)	(0.48)	(0.44)	(0.37)	(0.42)	(0.37)	(0.34)	(0.46)	(0.44)	(0.44)
education high	0/1	0.11	0.23	0.27	0.34	0.35	0.27	0.17	0.18	0.23	0.29	0.24
		(0.32)	(0.42)	(0.44)	(0.47)	(0.48)	(0.44)	(0.38)	(0.39)	(0.42)	(0.45)	(0.43)
education middle	0/1	0.85	0.59	0.66	0.59	0.50	0.56	0.72	0.75	0.57	0.57	0.64
		(0.35)	(0.49)	(0.47)	(0.49)	(0.50)	(0.50)	(0.45)	(0.43)	(0.50)	(0.49)	(0.48)
education low	0/1	0.03	0.18	0.07	0.06	0.15	0.17	0.11	0.07	0.20	0.14	0.12
		(0.18)	(0.38)	(0.26)	(0.25)	(0.36)	(0.38)	(0.32)	(0.25)	(0.40)	(0.35)	(0.32)
age 19-34	0/1	0.28	0.18	0.32	0.25	0.23	0.33	0.23	0.34	0.21	0.20	0.26
		(0.45)	(0.38)	(0.47)	(0.43)	(0.42)	(0.47)	(0.42)	(0.47)	(0.41)	(0.40)	(0.44)
age 35-54	0/1	0.41	0.39	0.47	0.45	0.41	0.46	0.41	0.43	0.39	0.50	0.43
		(0.49)	(0.49)	(0.50)	(0.50)	(0.49)	(0.50)	(0.49)	(0.50)	(0.49)	(0.50)	(0.50)
age 55+	0/1	0.32	0.44	0.20	0.29	0.37	0.21	0.36	0.23	0.40	0.29	0.31
		(0.46)	(0.50)	(0.40)	(0.46)	(0.48)	(0.40)	(0.48)	(0.42)	(0.49)	(0.45)	(0.46)
1 person HH	0/1	0.12	0.24	0.10	0.12	0.19	0.03	0.13	0.13	0.09	0.08	0.12
		(0.32)	(0.43)	(0.31)	(0.33)	(0.39)	(0.17)	(0.34)	(0.34)	(0.28)	(0.27)	(0.33)
2 person HH	0/1	0.37	0.35	0.32	0.32	0.39	0.15	0.25	0.29	0.18	0.20	0.28
		(0.48)	(0.48)	(0.47)	(0.47)	(0.49)	(0.35)	(0.43)	(0.46)	(0.38)	(0.40)	(0.45)
3+ person HH	0/1	0.51	0.42	0.57	0.56	0.42	0.82	0.62	0.57	0.74	0.72	0.60
		(0.50)	(0.49)	(0.49)	(0.50)	(0.49)	(0.38)	(0.49)	(0.50)	(0.44)	(0.45)	(0.49)
retired	0/1	0.13	0.35	0.10	0.17	0.32	0.11	0.30	0.22	0.32	0.22	0.22
		(0.34)	(0.48)	(0.30)	(0.37)	(0.47)	(0.32)	(0.46)	(0.41)	(0.47)	(0.41)	(0.41)
self-employed	0/1	0.10	0.06	0.10	0.07	0.06	0.17	0.08	0.09	0.11	0.09	0.10
		(0.31)	(0.23)	(0.30)	(0.25)	(0.24)	(0.38)	(0.28)	(0.28)	(0.31)	(0.29)	(0.30)
female	0/1	0.47	0.48	0.52	0.45	0.52	0.41	0.46	0.53	0.47	0.46	0.48
		(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.49)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)
head of household	0/1	0.63	0.70	0.60	0.71	0.73	0.66	0.80	0.57	0.81	0.64	0.68
		(0.48)	(0.46)	(0.49)	(0.45)	(0.44)	(0.47)	(0.40)	(0.50)	(0.39)	(0.48)	(0.47)

Notes: The table shows the sample means and standard deviations of respective variables. Total refers to the entire sample of observations without adjusting for country size.

Table A.2: Descriptive statistics of regional variables

	Min/Max	CZ	HU	PL	BL	RO	AL	BH	HR	FM	SR	Total
LITS trust in banks	0.15/0.68	0.49	0.37	0.37	0.30	0.40	0.56	0.36	0.33	0.25	0.29	0.37
		(0.10)	(0.06)	(0.11)	(0.12)	(0.09)	(0.13)	(0.09)	(0.04)	(0.05)	(0.05)	(0.11)
LITS trust courts	0.07/0.46	0.24	0.41	0.25	0.17	0.26	0.29	0.22	0.14	0.15	0.16	0.23
		(0.08)	(0.04)	(0.08)	(0.12)	(0.07)	(0.08)	(0.05)	(0.03)	(0.04)	(0.03)	(0.10)
LITS bank access	0.13/0.93	0.81	0.63	0.66	0.44	0.42	0.21	0.44	0.83	0.28	0.58	0.56
		(0.05)	(0.10)	(0.11)	(0.09)	(0.17)	(0.08)	(0.11)	(0.09)	(0.08)	(0.10)	(0.21)
LITS income from bartering	0.00/0.26	0.03	0.04	0.03	0.08	0.06	0.14	0.08	0.06	0.11	0.13	0.07
		(0.04)	(0.02)	(0.05)	(0.06)	(0.04)	(0.10)	(0.06)	(0.04)	(0.11)	(0.08)	(0.06)
LITS trust in people	0.04/0.58	0.26	0.23	0.27	0.21	0.25	0.28	0.24	0.25	0.15	0.29	0.24
		(0.05)	(0.08)	(0.07)	(0.10)	(0.07)	(0.03)	(0.17)	(0.10)	(0.02)	(0.08)	(0.10)
LITS election turnout	0.50/0.90	0.73	0.82	0.71	0.68	0.80	0.83	0.64	0.81	0.85	0.75	0.74
		(0.07)	(0.06)	(0.05)	(0.06)	(0.06)	(0.02)	(0.08)	(0.04)	(0.04)	(0.06)	(0.09)
LITS civic involvement	0.00/0.17	0.09	0.05	0.05	0.02	0.02	0.03	0.06	0.10	0.05	0.07	0.05
		(0.04)	(0.04)	(0.03)	(0.02)	(0.01)	(0.01)	(0.05)	(0.04)	(0.02)	(0.02)	(0.04)
LITS referenda turnout	0.06/0.86	0.69	0.34	0.61	0.36	0.15	0.33	0.58	0.59	0.43	0.55	0.47
		(0.13)	(0.06)	(0.15)	(0.14)	(0.06)	(0.07)	(0.20)	(0.07)	(0.08)	(0.10)	(0.21)
ES deposits are safe	0.28/0.87	0.63	0.44	0.76	0.42	0.52	0.64	0.48	0.59	0.59	0.49	0.55
		(0.10)	(0.07)	(0.06)	(0.08)	(0.04)	(0.06)	(0.08)	(0.02)	(0.04)	(0.02)	(0.13)
ES memory restr access	0.31/0.83	0.41	0.49	0.58	0.66	0.52	0.57	0.59	0.50	0.69	0.81	0.57
		(0.07)	(0.09)	(0.04)	(0.10)	(0.10)	(0.03)	(0.10)	(0.04)	(0.05)	(0.01)	(0.12)

Notes: The table shows the sample means and standard deviations of respective variables. Total refers to the entire sample of observations without adjusting for country size.

Table 1: Descriptive Evidence on Three Measures of Cash Preferences

	all individuals	only individuals ...		
		with savings	who are banked	with a savings account
	I	II	III	IV
all countries				
1. strong cash preference (% of respondents)	0.32	0.31	0.28	0.19
2. cash more important than savings accounts (in % of respondents)		0.46	0.41	0.28
3. amount in cash larger than amount held on savings account (in % of respondents)				0.22
Serbia				
1. strong cash preference (% of respondents)	0.51	0.52	0.50	0.38
2. cash more important than savings accounts (in % of respondents)		0.42	0.42	0.35
3. amount in cash larger than amount held on savings account (in % of respondents)				0.43
Croatia				
1. strong cash preference (% of respondents)	0.45	0.39	0.36	0.31
2. cash more important than savings accounts (in % of respondents)		0.48	0.49	0.15
3. amount in cash larger than amount held on savings account (in % of respondents)				0.13

Notes: The table presents sample means of respective variables for all respondents (col. 1) and for different subsamples (col. 2-4). "Strong cash preference" is an indicator variable that takes a value of one for respondents with a strong cash preference. "Cash more important than savings accounts" is a measure of the importance of cash in actual financial portfolios. "Amount in cash larger than amount held on savings account" refers to the portfolio share of cash in actual financial portfolios. This variable is only defined for respondents who hold a savings account. Variables are defined in the Appendix.

Table 2: Correlation of *cash preference* and outcome based measures of the importance of cash

	preference for cash		
	weak	medium	strong
1. cash more important than savings accounts (in % of respondents)	0.38	0.53	0.67
2. amount in cash larger than amount held on savings account (in % of respondents)	0.17	0.22	0.30
3. ownership of savings deposits (in % of respondents)	0.49	0.31	0.19

Notes: The table presents sample means of respective variables for the three categories of *cash preference*. "Cash more important than savings accounts" is a measure of the importance of cash in actual financial portfolios. "Amount in cash larger than amount held on savings account" refers to the portfolio share of cash in actual financial portfolios. This variable is only defined for respondents who hold a savings account. Variables are defined in the Appendix.

Table 3: Cash preferences

	preference for cash (weak, medium, strong)				
	I	II	III	IV	V
			> one asset	wealth	fin. literacy
deposits are safe	-0.10***	-0.10***	-0.10***	-0.10***	-0.06**
	(-2.85)	(-2.90)	(-3.83)	(-2.85)	(-2.23)
memory restr. access	0.10***	0.09***	0.07***	0.10***	0.09***
	(7.32)	(7.20)	(3.56)	(7.31)	(4.84)
risk aversion	0.06***	0.06***	0.05**	0.06***	0.03
	(3.26)	(3.34)	(2.21)	(3.22)	(1.62)
distance to banks	0.02***	0.03***	0.02***	0.02***	0.02***
	(3.45)	(3.39)	(3.11)	(3.40)	(2.69)
receives remittances	-0.05**	-0.05**	-0.07**	-0.05**	-0.06
	(-2.37)	(-2.41)	(-2.40)	(-2.39)	(-1.40)
euro cash holdings common	0.09***	0.09***	0.08***	0.09***	0.09***
	(3.97)	(4.05)	(4.20)	(3.94)	(3.66)
exp. lc depreciation	0.03	0.03	0.03	0.03	0.03
	(1.35)	(1.35)	(1.26)	(1.34)	(1.43)
exp. lc constant	0.01	0.01	0.01	0.01	0.01
	(0.66)	(0.60)	(0.51)	(0.64)	(0.68)
exp. lc dn	-0.00	-0.00	0.02	-0.00	0.02
	(-0.11)	(-0.20)	(0.85)	(-0.07)	(1.09)
cash used to avoid taxes	0.07***	0.07***	0.07***	0.07***	0.08***
	(4.22)	(4.21)	(4.30)	(4.27)	(4.12)
transaction account		-0.00			
		(-0.34)			
owns stocks or funds				-0.04**	
				(-1.97)	
financial illiteracy					0.08***
					(2.95)
income high	-0.03***	-0.03***	-0.01	-0.03***	-0.02
	(-3.57)	(-3.02)	(-0.90)	(-3.30)	(-1.09)
income middle	-0.02	-0.02	-0.01	-0.02	-0.00
	(-1.13)	(-1.13)	(-0.33)	(-1.12)	(-0.23)
income na	-0.01	-0.01	-0.01	-0.01	0.00
	(-0.40)	(-0.38)	(-0.28)	(-0.30)	(0.03)
education high	-0.11***	-0.11***	-0.11***	-0.11***	-0.10***
	(-4.16)	(-4.09)	(-3.71)	(-4.09)	(-2.77)
education middle	-0.02	-0.02	-0.02	-0.02	-0.02
	(-1.07)	(-1.01)	(-1.00)	(-1.04)	(-0.53)
age 19-34	0.03**	0.03*	0.04**	0.03*	-0.00
	(1.97)	(1.87)	(2.30)	(1.82)	(-0.01)
age 55+	-0.05***	-0.05***	-0.04*	-0.05***	-0.08***
	(-3.04)	(-2.97)	(-1.72)	(-2.96)	(-3.54)
self-employed	0.01	0.01	0.02	0.01	0.03
	(0.51)	(0.56)	(0.97)	(0.61)	(1.29)
other controls	yes	yes	yes	yes	yes
country X time dummies	yes	yes	yes	yes	yes
N	5203	5173	3196	5203	3023
log-L	-5334.67	-5302.99	-3282.43	-5332.05	-3118.95
P(cash. pref.=strong)	0.29	0.29	0.26	0.29	0.29

Notes: The dependent variable *cash preference* is an indicator variable that takes three values (weak, medium and strong cash preference). P(cash pref.=strong) denotes the unconditional sample probability of a strong cash preference. The reported coefficients are ordered probit estimates of the effect of a marginal change in the corresponding regressor on the probability of the category "strong cash preference", computed at sample means of independent variables. For a definition of variables see the Appendix. As not all variables are available for every survey , the samples vary across specifications. Specification II controls for whether respondents have a transaction account. Specification III refers to the subsample of respondents who hold a bank or non-bank (stocks, life insurance, pension funds) saving product. Specification IV accounts for ownership of stocks or mutual funds. Specification V accounts for financial literacy of respondents (only available for 2011/2). All regressions include interacted country and time dummies. Dummies for household size, head of household, gender and retirees are not shown. The t-values which are reported in parentheses are corrected for potential clustering of residuals at the country level. ***, **, * mean that the coefficient is statistically different from zero, at the 1-, 5-, and 10-percent level.

Table 4: Dollarization and cash preferences

	preference for cash (weak, medium, strong)		foreign currency share (<50%, ∼50%, >50%)
	strongly dollarized countries	weakly dollarized countries	all countries
	I	II	III
deposits are safe	-0.13***	-0.06***	-0.01
	(-2.80)	(-5.09)	(-0.83)
memory restr. access	0.10***	0.09***	-0.00
	(4.63)	(11.41)	(-0.07)
risk aversion	0.09***	0.04***	0.01
	(4.28)	(4.53)	(0.45)
distance to banks	0.01*	0.03***	0.01
	(1.81)	(8.48)	(1.15)
receives remittances	-0.04**	-0.00	0.06**
	(-2.11)	(-0.21)	(2.06)
euro cash holdings common	0.15***	0.05***	0.07***
	(4.78)	(3.95)	(2.75)
exp. lc depreciation	0.01	0.03	0.09***
	(0.36)	(1.49)	(3.22)
exp. lc constant	-0.01	0.02**	0.03
	(-0.13)	(2.02)	(1.20)
exp. lc dn	-0.03	0.02*	0.06*
	(-0.70)	(1.69)	(1.68)
transaction account	-0.00	-0.04***	0.01
	(-0.18)	(-4.58)	(0.50)
income high	-0.02	-0.05***	0.09**
	(-0.88)	(-5.75)	(2.55)
income middle	-0.01	-0.02	0.06***
	(-0.46)	(-1.46)	(4.56)
income na	-0.01	-0.08***	0.15***
	(-0.23)	(-7.24)	(3.04)
education high	-0.15***	-0.05**	-0.03
	(-4.51)	(-1.97)	(-1.38)
education middle	-0.07***	0.00	-0.03
	(-3.05)	(0.17)	(-1.49)
self-employed	-0.02	-0.02	0.01
	(-1.03)	(-0.52)	(0.52)
other controls	yes	yes	yes
country X time dummies	yes	yes	yes
N	5636	6386	3706
log-L	-5835.90	-6337.96	-3058.13
P(cash. pref.=strong)	0.40	0.20	
P(foreign currency share > 50%)			0.36

Notes: The dependent variable *cash preference* is an indicator variable that takes three values (weak, medium and strong cash preference). P(cash pref.=strong) denotes the unconditional sample probability of a strong cash preference. The dependent variable *foreign currency share* measures the foreign currency cash relative to local currency cash in respondents portfolios. It is coded as an indicator variable that takes three values (foreign currency cash share lower than 50%, about 50%, higher than 50%). This variable is only defined for respondents with foreign currency cash holdings. The reported coefficients are ordered probit estimates of the effect of a marginal change in the corresponding regressor on the probability of the category "strong cash preference" (specification I, II), "foreign currency cash share higher than 50%" (specification III), computed at sample means of independent variables. For a definition of variables see the Appendix. All regressions include as controls age, sex, size of household, employment status, expected financial situation and interacted country and time dummies. In specification I (II) the sample consists of strongly (weakly) dollarized countries. The t-values which are reported in parentheses are corrected for potential clustering of residuals at the country level. ***, **, * mean that the coefficient is statistically different from zero, at the 1-, 5-, and 10-percent level.

Table 5: Cash preferences and observed portfolio behavior

	I cash preferences	II cash rank	III cash rank restricted	IV cash share
deposits are safe	-0.10***	-0.07***	-0.15***	-0.06***
	(-4.35)	(-2.58)	(-3.81)	(-2.69)
memory restr. access	0.10***	-0.02	0.06***	0.01
	(8.04)	(-0.86)	(2.78)	(0.53)
risk aversion	0.06***	-0.03*	0.04*	-0.04**
	(5.54)	(-1.80)	(1.76)	(-2.07)
distance to banks	0.02***	0.02***	0.03***	0.01
	(3.49)	(5.24)	(4.38)	(1.31)
receives remittances	-0.03	-0.03	-0.06	0.03
	(-1.44)	(-1.54)	(-1.21)	(1.16)
euro cash holdings common	0.09***	0.04**	0.15***	-0.01
	(4.64)	(2.17)	(4.12)	(-0.45)
exp. lc depreciation	0.04**	0.03	0.07***	0.04*
	(2.02)	(1.48)	(2.75)	(1.66)
exp. lc constant	0.02	0.06***	0.11***	0.01
	(1.37)	(2.81)	(3.24)	(0.45)
exp. lc dn	0.02	0.03	0.06	0.03
	(1.33)	(1.08)	(1.38)	(0.79)
transaction account	-0.03**	-0.26***	-0.25***	0.02
	(-2.32)	(-5.91)	(-5.49)	(1.60)
income high	-0.04***	-0.05*	-0.08**	-0.06*
	(-3.17)	(-1.91)	(-2.45)	(-1.95)
income middle	-0.02*	-0.04**	-0.08***	-0.02
	(-1.81)	(-2.00)	(-2.88)	(-0.70)
income na	-0.05**	-0.05**	-0.12***	-0.06*
	(-2.25)	(-2.17)	(-3.13)	(-1.69)
education high	-0.10***	-0.07**	-0.16***	-0.00
	(-3.87)	(-2.44)	(-4.67)	(-0.01)
education middle	-0.02	-0.01	-0.03	0.02
	(-1.25)	(-0.66)	(-1.16)	(0.48)
age 19-34	0.02**	0.06***	0.06***	0.02
	(2.01)	(4.76)	(2.94)	(1.25)
age 55+	-0.02	-0.01	-0.04	-0.02
	(-0.96)	(-0.63)	(-1.50)	(-1.40)
self-employed	-0.02	-0.01	-0.03	-0.01
	(-1.00)	(-0.32)	(-0.63)	(-0.26)
other controls	yes	yes	yes	yes
country X time dummies	yes	yes	yes	yes
N	12022	10761	6666	3465
log-L	-12358.45	-6148.72	-3564.74	-3165.62

Notes: The dependent variable *cash preference* is an indicator variable that takes three values (weak, medium and strong cash preference). The dependent variable *cash rank* is an indicator variable that takes a value of one if cash is more important than savings or transaction accounts in actual portfolios. *Cash rank restricted* is adjusted for inconsistent answers. The dependent variable *high cash share* measures the importance of cash relative to savings accounts. It is coded as an indicator variable that takes three values (cash share lower than 50%, about 50%, higher than 50%). This variable is only defined for respondents with a savings account. The reported coefficients are ordered probit (specification I, IV) or probit (specifications II, III) estimates of the effect of a marginal change in the corresponding regressor on the probability of the category "strong cash preference" (specification I), "cash share higher than 50%" (specification IV) or the highest category (specifications II and III), computed at sample means of independent variables. For a definition of variables see the Appendix. All regressions include interacted country and time dummies. Dummies for household size, head of household, gender and retirees are not shown. The t-values which are reported in parentheses are corrected for potential clustering of residuals at the country level. ***, **, * mean that the coefficient is statistically different from zero, at the 1-, 5-, and 10-percent level.

Table 6: Alternative trust measures

	preference for cash (weak, medium, strong)			
	I	II	III	IV
		deposits safe		
memory restr. access	0.09***	0.08***	0.09***	0.09***
	(6.29)	(6.99)	(6.47)	(5.09)
trust dom. owned banks	-0.06***	-0.04**		
	(-3.00)	(-2.35)		
trust for. owned banks			-0.02**	
			(-2.41)	
foreign banks better				-0.04**
				(-2.30)
trust in police	-0.01	-0.02**	-0.02	-0.04***
	(-0.91)	(-1.97)	(-1.41)	(-3.57)
risk aversion	0.05***	0.02	0.05***	0.05***
	(3.03)	(1.51)	(2.95)	(3.80)
distance to banks	0.03***	0.02**	0.03***	0.02***
	(3.67)	(2.12)	(3.67)	(3.14)
cash used to avoid taxes	0.07***	0.04***	0.07***	
	(4.46)	(2.58)	(4.30)	
receives remittances	-0.06***	-0.04*	-0.06**	-0.02
	(-2.70)	(-1.95)	(-2.56)	(-1.13)
euro cash holdings common	0.08***	0.09***	0.08***	0.08***
	(3.60)	(3.61)	(3.55)	(4.05)
exp. lc depreciation	0.03	0.02	0.03	0.04**
	(1.18)	(0.69)	(1.31)	(2.06)
exp. lc constant	0.01	0.02	0.01	0.03
	(0.53)	(0.84)	(0.54)	(1.21)
exp. lc dn	0.00	0.02	0.01	0.02
	(0.25)	(0.66)	(1.25)	(1.20)
income high	-0.04***	-0.03**	-0.03***	-0.06***
	(-4.61)	(-2.19)	(-4.97)	(-2.84)
income middle	-0.01	-0.01	-0.01	-0.03**
	(-0.81)	(-0.96)	(-0.92)	(-2.01)
income na	-0.01	-0.03	-0.01	-0.07***
	(-0.46)	(-0.99)	(-0.36)	(-3.25)
education high	-0.12***	-0.13***	-0.13***	-0.11***
	(-4.53)	(-4.53)	(-4.08)	(-4.06)
education middle	-0.02	-0.03	-0.03	-0.03**
	(-1.22)	(-1.37)	(-1.48)	(-2.48)
self-employed	0.00	0.00	0.00	-0.03
	(0.13)	(0.24)	(0.16)	(-1.50)
other controls	yes	yes	yes	yes
country X time dummies	yes	yes	yes	yes
N	5188	3077	5130	8064
log-L	-5337.74	-3134.55	-5283.94	-8280.63
P(cash pref.=strong)	0.29	0.26	0.29	0.30

Notes: The dependent variable *cash preference* is an indicator variable that takes three values (weak, medium and strong cash preference). P(cash pref.=strong) denotes the unconditional sample probability of a strong cash preference. The reported coefficients are ordered probit estimates of the effect of a marginal change in the corresponding regressor on the probability of the category "strong cash preference", computed at the sample means of independent variables. For a definition of variables see the Appendix. All regressions include as controls age, sex, size of household, employment status and interacted country and time dummies. In specification II, the sample is restricted to persons who state that deposits are safe. The t-values which are reported in parentheses are corrected for potential clustering of residuals at the country level. ***, **, * mean that the coefficient is statistically different from zero, at the 1-, 5-, and 10-percent level.

Table 7: Memories of banking problems

	preference for cash (weak, medium, strong)				
	I	II	III	IV	V
		age at last banking crisis			
		≥25 yrs.	<25 yrs.		≥25 yrs.
memory restr. access	0.26***	0.12***	0.06**		0.21***
	(4.62)	(15.06)	(2.52)		(4.83)
yrs. since crisis				-0.01**	
				(-2.29)	
memories X yrs. since crisis					-0.01**
					(-2.24)
deposits are safe	-0.19***	-0.10***	-0.10***	-0.11***	-0.10***
	(-8.40)	(-2.79)	(-2.82)	(-3.39)	(-2.79)
trust in police	-0.03	-0.01	-0.03	-0.00	-0.01
	(-1.22)	(-0.57)	(-1.39)	(-0.30)	(-0.53)
risk aversion	0.11	0.04**	0.09***	0.07***	0.04**
	(0.11)	(2.27)	(4.36)	(4.60)	(2.19)
distance to banks	0.04**	0.02***	0.03***	0.02***	0.02***
	(0.04)	(2.78)	(3.09)	(3.05)	(2.78)
cash used to avoid taxes	0.12	0.06***	0.09***	0.07***	0.06***
	(0.12)	(4.03)	(3.46)	(4.31)	(4.04)
transaction account	-0.01	-0.02	0.03*	-0.01	-0.02
	(-0.01)	(-1.24)	(1.78)	(-0.69)	(-1.24)
receives remittances	-0.10	-0.06**	-0.05***	-0.04**	-0.06**
	(-0.10)	(-1.97)	(-2.60)	(-2.44)	(-1.99)
euro cash holdings common	0.18	0.09***	0.09***	0.10***	0.09***
	(0.18)	(3.25)	(3.69)	(3.90)	(3.22)
exp. lc depreciation	0.04**	0.01	0.05	0.06**	0.01
	(0.04)	(0.56)	(1.55)	(2.05)	(0.56)
exp. lc constant	0.02**	0.01	0.02	0.04	0.00
	(0.02)	(0.20)	(0.79)	(1.35)	(0.18)
exp. lc dn	-0.01	-0.01	-0.00	0.02	-0.01
	(-0.01)	(-0.39)	(-0.00)	(0.83)	(-0.37)
income high	-0.07**	-0.01	-0.06***	-0.02**	-0.01
	(-2.13)	(-0.54)	(-2.61)	(-2.11)	(-0.55)
income middle	-0.04	-0.00	-0.03	-0.01	-0.00
	(-1.25)	(-0.12)	(-1.44)	(-0.30)	(-0.15)
income na	-0.03	0.01	-0.05**	0.02	0.01
	(-0.74)	(0.23)	(-2.05)	(0.82)	(0.20)
education high	-0.22***	-0.13***	-0.07**	-0.11***	-0.13***
	(-5.14)	(-3.85)	(-2.06)	(-4.25)	(-3.87)
education middle	-0.05	-0.03	-0.01	-0.02	-0.03
	(-0.05)	(-1.27)	(-0.37)	(-0.89)	(-1.27)
self-employed	0.01***	0.01	0.01	0.00	0.01
	(0.01)	(0.23)	(0.30)	(0.25)	(0.23)
other controls	yes	yes	yes	yes	yes
country X time dummies	yes	yes	yes	no	yes
N	5004	3189	1952	5714	3189
log-L	-5460.30	-3253.77	-1977.16	-5954.05	-3253.15
F statistic	787.46				
F p-value	0.00				
Kleibergen-Paap rk LM statistic	611.94				
Kleibergen-Paap rk LM p-value	0.00				

Notes: The dependent variable *cash preference* is an indicator variable that takes three values (weak, medium and strong cash preference). The reported coefficients are from a linear regression model estimated by two stage least squares (I) and ordered probit (II-V). For a definition of variables see the Appendix. The aim of the table is to account for the possibility that "memory restr. access" is endogenous. In specification I "memory inflation" is employed as an instrument . In specifications II and V (III), the sample is restricted to persons who were older (or younger) than 25 yrs. at the time of the last banking crisis. In specification IV, "memory restr. access" is replaced by the number of years since the last banking crisis. All regressions include as controls age, sex, size of household, employment status. Robust t-values reported in parentheses. ***, **, * mean that the coefficient is statistically different from zero, at the 1-, 5-, and 10-percent level.

Table 8: The role of social capital

	preference for cash (weak, medium, strong)						
	I	II	III	IV	V	VI	VII
	all respondents		banked respondents				
ES deposits are safe	-0.19***						
	(-2.68)						
ES memory restr access	0.13*						
	(1.73)						
LITS trust in banks		-0.22***	-0.17**	-0.22***	-0.19**	-0.20***	-0.20***
		(-2.59)	(-2.31)	(-2.77)	(-2.45)	(-2.58)	(-2.75)
LITS trust in people				0.25*			
				(1.93)			
LITS election turnout					-0.19		
					(-1.44)		
LITS referenda turnout						0.11	
						(1.61)	
LITS civic involvement							0.84**
							(2.38)
LITS bank access	0.08*	0.05	0.07	0.04	0.07	0.02	-0.03
	(1.84)	(1.12)	(1.57)	(1.01)	(1.38)	(0.40)	(-0.58)
LITS income from bartering	0.01	0.04	0.14	0.14	0.18*	0.14	0.09
	(0.09)	(0.48)	(1.29)	(1.35)	(1.78)	(1.36)	(0.74)
LITS trust courts	-0.20*	-0.09	-0.07	-0.07	-0.05	-0.01	0.01
	(-1.93)	(-0.68)	(-0.59)	(-0.58)	(-0.36)	(-0.05)	(0.15)
deposits are safe	-0.10***	-0.11***	-0.11***	-0.11***	-0.11***	-0.11***	-0.11***
	(-4.89)	(-5.08)	(-5.66)	(-5.74)	(-5.66)	(-5.72)	(-5.59)
risk aversion	0.07***	0.07***	0.05**	0.05**	0.05**	0.05**	0.05**
	(3.31)	(3.19)	(2.11)	(2.14)	(2.18)	(2.25)	(1.97)
distance to banks	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***
	(3.78)	(3.75)	(3.07)	(2.99)	(3.04)	(3.01)	(3.04)
cash used to avoid taxes	0.06***	0.07***	0.06***	0.06***	0.06***	0.06***	0.07***
	(4.05)	(4.13)	(3.46)	(3.45)	(3.40)	(3.45)	(3.85)
receives remittances	-0.03	-0.03	-0.05**	-0.05**	-0.05**	-0.06**	-0.06**
	(-1.54)	(-1.43)	(-2.30)	(-2.35)	(-2.24)	(-2.37)	(-2.43)
euro cash holdings common	0.10***	0.10***	0.09***	0.09***	0.09***	0.09***	0.08***
	(5.89)	(5.91)	(4.75)	(4.87)	(4.98)	(4.78)	(4.79)
exp. lc depreciation	0.06**	0.06***	0.07***	0.06***	0.07***	0.07***	0.07***
	(2.43)	(2.59)	(2.69)	(2.58)	(2.76)	(2.81)	(2.82)
exp. lc constant	0.03	0.03	0.04	0.04*	0.04	0.04*	0.04*
	(1.48)	(1.52)	(1.63)	(1.67)	(1.63)	(1.65)	(1.70)
exp. lc dn	0.02	0.02	0.04	0.04	0.04	0.04	0.05*
	(0.72)	(0.74)	(1.55)	(1.40)	(1.58)	(1.61)	(1.79)
other controls	yes	yes	yes	yes	yes	yes	yes
time dummies	yes	yes	yes	yes	yes	yes	yes
N	5785	5785	3525	3525	3525	3525	3525
log-L	-6020.08	-6023.19	-3678.69	-3674.49	-3675.95	-3676.20	-3670.12
P(cash pref.=strong)	0.30	0.30	0.26	0.26	0.26	0.26	0.26

Notes: The dependent variable *cash preference* is an indicator variable that takes three values (weak, medium and strong cash preference). P(cash pref.=strong) denotes the unconditional sample probability of a strong cash preference. The reported coefficients are ordered probit estimates of the effect of a marginal change in the corresponding regressor on the probability of the category "strong cash preference", computed at the sample means of independent variables. In specifications III to VII the sample is restricted to banked respondents. For a definition of variables see the Appendix. The aim of the table is to test whether regional differences in selected regressors can explain regional differences in cash preferences. All regressors starting with "ES" or "LITS" are observed at the regional level ("ES" means that regional aggregates are calculated with data from the OeNB Euro Survey, "LITS" means that regional aggregates are calculated with data from the 2006 Life in Transition Survey). All regressions include as controls age, sex, size of household, employment status and time dummies. The t-values which are reported in parentheses are corrected for potential clustering of residuals at the regional level. ***, **, * mean that the coefficient is statistically different from zero, at the 1-, 5-, and 10-percent level.

Table 9: Ownership of savings accounts and life insurances

	savings account ownership (0/1)		life insurance ownership (0/1)	
	I	II	III	IV
deposits are safe	0.08***		0.01	
	(3.89)		(0.58)	
memory restr. access	-0.00		0.02	
	(-0.30)		(1.18)	
trust dom. owned banks		0.09***		-0.00
		(4.02)		(-0.05)
trust in police	-0.00	-0.02	-0.01	-0.01
	(-0.22)	(-1.07)	(-0.73)	(-0.64)
risk aversion	-0.04	-0.03	0.02	0.02
	(-1.51)	(-1.27)	(1.14)	(1.22)
receives remittances	0.16***	0.15***	0.02***	0.03**
	(6.56)	(6.66)	(3.35)	(2.11)
euro cash holdings common	-0.02	-0.02	-0.01	-0.00
	(-0.73)	(-0.78)	(-0.39)	(-0.08)
exp. lc depreciation	-0.02	-0.02	-0.00	-0.01
	(-0.68)	(-0.63)	(-0.07)	(-0.36)
exp. lc constant	-0.02	-0.01	-0.02	-0.01
	(-0.72)	(-0.39)	(-0.71)	(-0.73)
exp. lc dn	-0.06**	-0.04	-0.00	-0.01
	(-2.16)	(-1.43)	(-0.14)	(-0.68)
income high	0.11***	0.10***	0.04*	0.05**
	(5.16)	(5.33)	(1.75)	(2.39)
income middle	0.05**	0.03*	0.02	0.02
	(2.24)	(1.66)	(1.24)	(1.31)
income na	0.11***	0.10***	0.03	0.04*
	(4.50)	(4.62)	(1.35)	(1.71)
education high	0.14***	0.13***	0.08***	0.09***
	(4.05)	(3.37)	(9.03)	(10.01)
education middle	0.02	0.01	0.03**	0.04***
	(0.86)	(0.50)	(2.25)	(3.04)
other controls	yes	yes	yes	yes
country X time dummies	yes	yes	yes	yes
Log-L	-10033.4	-11558.8	-9338.3	-10757.2
N-censored	2987	3499	2987	3499
N	10742	12308	10742	12308
P(dep. var=1)	0.35	0.35	0.21	0.21

Notes: In specifications I and II the dependent variable is an indicator variable taking value one if respondents has a savings account. In specifications III and IV the dependent variable is an indicator variable taking value one if respondents have a life insurance. P(dep. var=1) denotes the unconditional sample probability of the respective dependent variable. All reported coefficients are estimates of the effect of a marginal change in the corresponding regressor on the probability of savings account or life insurance ownership, respectively, computed at sample means of independent variables. The reported coefficients are based on a two equation heckman sample selection probit model where the first stage controls for whether respondents hold a bank or non-bank (stocks, life insurance, pension funds) saving product. *Distance to banks* is used for identification. Reported results are this conditional on respondents being banked. The first stage results are not shown but are available on request. "N-censored" denotes the number of observations of the second equation, "N" denotes the number of obervations used for the first stage equation. The sample is restricted to persons who report to have savings. For a definition of variables see the Appendix. All regressions include as controls age, sex, size of household, employment status and interacted country and time dummies. The t-values which are reported in parentheses are corrected for potential clustering of residuals at the country level. ***, **, * mean that the coefficient is statistically different from zero, at the 1-, 5-, and 10-percent level.

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- a curriculum vitae,
- a research proposal that motivates and clearly describes the envisaged research project,
- an indication of the period envisaged for the research visit, and
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