DEPOSIT INSURANCE: BELIEVERS AND DOUBTERS*

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Abstract

This study analyzes data from a large fintech company that offers "insured" Euro term deposits from various European banks. We observe significant variation in interest rates for similar maturities across and within countries. Only 11% of investors, termed "Believers," place complete trust in deposit insurance and consistently choose the highest yield. In contrast, 67% of investors, known as "Doubters," never do. For Doubters, interest rates are less critical when choosing countries, but they matter more when selecting a bank within a country. Notably, despite no recorded defaults, Doubters' skepticism remains stronger and more persistent than the confidence of Believers.

KEYWORDS: deposit insurance, term deposit, risk-free rate, polarization, home bias
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"Where there is light, there is shadow." - Japanese Proverb

I. Introduction

Social and political polarization is a significant issue today. It divides groups into two opposing sub-groups across various spectrums, including political, racial, ethnic, and economic lines.

This paper asks whether we see a similar bi-modal distribution in trust in deposit insurance. Specifically, if there are no search or other transaction costs or financial literacy concerns that impede switching, do we see a group of investors who believe in the guarantee provided by deposit insurance and thus always invest in term deposits that offer the highest return, but another group of investors, who never do? We call the former group the "Believers" who have full faith in deposit insurance, and the latter group "Doubters" who doubt the credibility of deposit insurance. If these two distinct groups exist, who are they? Which types of banks cater to these two groups? And are there any changes over time?

We obtained customer data from a large European fintech company that provides its customers access to "guaranteed" term deposits. This company has partnered with many European banks which offer their term deposits to these customers via the company's publicly available online platform. These term deposits are protected by deposit insurance for up to EUR 100,000 per depositor per bank according to the EU guidelines, and investors in this platform are not allowed to invest more than EUR 100,000 with each bank. In our data, savers have not suffered any losses because of default. There are no additional services attached to the term deposit. This makes these term deposits a "risk-free" simple product in the spirit of Gilkeson, et al (2000). Also, as early withdrawal fees are high, early withdrawal is very unattractive to investors and we do not see it in our sample.

The offerings are arranged in descending order of interest rates on this platform. Information about the banks is available with a click. The explanation of deposit insurance is made very salient. Switching at any time between banks and products is easy as one account with the fintech allows customers to invest with all banks on the platform.[1] Therefore, financial sophistication is not necessary to select suitable options. This contrasts with selecting the best term deposit product from

[1] Lu et al (2024), using novel transaction-level data from over a million U.S. depositors, find that depositors shift their deposits across bank accounts more actively when the payment technology linked to their accounts is more efficient.

single bank offerings (cf. Deuflhard, Georgarakos and Inderst, 2019). If we observe polarization in choices, it likely stems from differing perceptions of risk regarding deposit insurance.

We do find polarization in product choices. If the choice is between all countries at a point in time, an average investor faces a choice set of 22 products. We find that 11% of investors trust deposit insurance and regard these products as riskless – the Believers – and always choose the product that offers the highest yield, but 67% – the Doubters – never do. This suggests a bi-modal distribution in demand.

On the supply side, we observe significant variation in interest rates for the same maturity across and within countries. Inter-country differences average 100 basis points, with some reaching 175 basis points. Intra-country differences average 50 basis points. Banks in higher-risk countries tend to offer higher interest rates. Within a country, high-risk banks tend to offer higher interest rates. Some banks consistently provide high rates, while others do not, even when controlling for publicly available risk factors. This suggests a bi-modal distribution in supply.

To explain these findings, we construct a simple model. In this model, various banks' term deposits are guaranteed by a deposit insurance scheme. Believers consider these deposits risk-free and always opt for the highest interest rate. In contrast, Doubters prefer lower rates from banks they trust more. This leads to a polarized matching equilibrium: Believers choose higher rates from less preferred banks, while Doubters select lower rates from more trusted banks.

We further probe the demand side. Our analysis reveals that male investors are more likely to choose the highest interest rate products than female investors. Additionally, older investors tend to favor lower interest rates compared to younger ones. The likelihood of selecting the highest interest rate declines as the number of choices increases.[2] Investors are more likely to pick the highest interest rate paying product if it is the first time they invest and/or is the first time they invest with a specific bank within a particular country. This is not true for first time investments in a country. This could be because first time investments in a country may be driven more by beliefs about the deposit insurance credibility of the central bank of the country. Believers have more trust in the European Central Bank

[2] Iyengar and Kemenica (2010) in lab and field find a stronger preference for simple, easy-to-understand options when choices increase in retirement funds or drug plans. Peng and Xiong (2006) show the effect of limited attention on asset prices.

(ECB) than Doubters. This maybe because they believe that the ECB will ultimately come to the rescue when banks fail as it happened with Greece beginning 2009. Finally, though investors are more likely to choose the highest interest rate product if they did so in the past, this effect decreases over time. This finding implies that there is less persistence in beliefs among Believers than amongst Doubters. Some Believers become Doubters even after a successful investment episode. This is surprising, considering that there has not been a single default in our sample period.

We now probe the supply side. How important is it for a bank to offer the highest interest rate to attract funds? Offering the highest interest rate paying product has a huge impact on the ratio of investors that invest in the term deposit; it increases this ratio by 24%.[3] Just increasing the offered interest by 1% increases this ratio by 18%. Interestingly, offering the highest interest rate paying product has no significant effect in the absence of Believers. This evidence supports market segmentation: Believers choose term deposits with the highest interest rates offered by the less preferred banks, but the Doubters choose term deposits with lower interest rates offered by the more preferred banks.

We find additional evidence of market segmentation. Deposits from higher-rated countries, which generally offer lower interest rates, are more appealing to Doubters. This is intuitive as the country would be the next backstop if the insurance scheme should fail, and Doubters have doubts about the credibility of deposit insurance in these lower rated countries. Interestingly, within a country, lower rated banks (on average they offer higher interest rates) are also more likely to be chosen, and this effect exists for Doubters but is stronger for Believers. This suggests that doubts about the credibility of deposit insurance are at a country level and not at a bank level which is natural because deposit insurance is promised at a country level and not at a bank level.

The results of our paper are consistent with the findings of the European Commission's Eurobarometer surveys from 2013 to 2018 that document heterogeneity in the level of trust in the European Central Bank. The paper closest in spirit to ours is by Johnson et al (2019) who document that borrowers often suspect the motives of banks and so do not refinance their mortgages and leave money on the table. In the literature on investor beliefs, the paper complements the survey findings

[3] The ratio of bank i is defined as (Number of investment decisions for bank i's term deposit of maturity m in month t)/(Number of investment decisions in month t for maturity m).

of Giglio et (2021), who stress the importance of heterogenous beliefs in the formation of portfolios. Our paper also complements the literature on the importance of trust in the demand for insurance (see, for example, Cole et al (2012)).

The theoretical rationale for providing deposit insurance – it is a mechanism to ensure confidence in the financial system and prevent bank runs – was first provided by Diamond and Dybvig (1983). Anginer and Demirguc-Kunt (2018) review the economic costs (the moral hazard that occurs when insured banks take on excessive risks) and benefits of deposit insurance. They highlight the importance of institutions and specific design features for how well deposit insurance schemes work in practice. For example, providing deposit insurance can threaten sovereign solvency (Allen et al (2011)). Calomiris and Jaremski (2016), after a critical survey of the U.S. history of deposit insurance, conclude that deposit insurance serves more the private interest of banks rather than the public interest of financial stability. Though these views differ as to the rationale for the existence of deposit insurance, they do agree that deposit insurance increases the flow of funds into deposits because risk is decreased. Empirical evidence supports this conjecture (see Huizinga and Nicodeme (2002), Iyer and Puri (2012), Karas et al (2013), Gatti and Oliviero (2018), Martin et al (2018), Fecht et al (2019), Peia and Vranceanu (2019), and Bonfim and Santos (2023)).

The contribution of our paper is that we are the first paper, to the best of our knowledge, to infer extreme heterogeneity in beliefs about the credibility of deposit insurance by observing the actual choices of depositors.

II. Institutional Background & Data

The European fintech company that gave us the data offers an investment platform that provides customers access to a selection of "guaranteed" term deposits. The term deposits are offered by banks from several European countries. The platform caps term deposits at EUR 100,000 per bank and investor. The deposits are virtually riskless because bank savings are protected by up to EUR 100,000 per depositor per bank through deposit insurance schemes according to EU guidelines.

Deposit insurance in the European Union (EU) is provided by a variety of national deposit guarantee schemes (DGS). A process of harmonization of these schemes was started by the European Central Bank (ECB) in 1994 and was significantly amended in 2014 (EU Directive 1994/19/EC, 2009/14/EC, and 2014/49/EU.) By 2024, all reserves held in each country's deposit guarantee fund

must equal at least 0.8% of all deposits covered.[4] The countries whose banks offer term deposits on the fintech's platform, even non-EU countries like U.K. or Bulgaria., already fulfill this requirement. Further, in the case of default, the fintech provides support for the client. The actual guarantee is implemented by a country's central bank, and each country has its own implementation regulations.[5] Trust in the "guarantee", therefore, varies with an individual's trust in the country's central bank to honor the guarantee, as well as trust in the ECB led harmonization of the Deposit Guarantee Scheme of various countries.

After setting up an account, a customer would need to deposit funds from their bank account to a platform reference account. They can then select a term deposit offered by a partner bank from a "menu" displayed on the publicly available online platform, and then transfer the money from their platform reference account to the partner bank without having to open additional accounts. A customer can invest Euro 1,000 or more in any partner bank at any time, but the maximum cumulative investment per bank cannot exceed EUR 100,000. Term deposit offerings in this "menu" are sorted in descending order of offered interest rates and can be filtered by country rating, maturity, and currency. Also, customers can easily access a short fact sheet on the offering partner bank, usually informing them about country and bank rating.

To summarize, all deposits offered on the platform are "guaranteed", search costs for the highest paying products are minimized on this platform, and any European customer can invest subject to opening an account. This lack of friction implies that rational decision makers should only care about default risk if they do not believe in the "guarantee" and/or if they believe but anticipate a disutility from the potential paperwork surrounding a bank's default. Therefore, our data is ideally suited to answer our research questions as search costs and financial sophistication needed to select the best product are negligible as compared to selecting the best term deposit product from single bank offerings (cf. Deuflhard, Georgarakos and Inderst, 2019). As mentioned before, no investors have suffered any losses up to today, and in case a credit event occurs, the fintech company promises

[4] The FDIC had a Deposit Reserve Ratio (DRR) of 2% during our sample period. Given an insured amount of 250,000$ per depositor, US and EU ratios are relatively comparable (https://www.fdic.gov/resources/deposit-insurance/deposit-insurance-fund/dif-fund.html).

[5] Details and data of the deposit guarantee schemes for each country can be found at: https://www.eba.europa.eu/regulation-and-policy/recovery-and-resolution/deposit-guarantee-schemes-data

to support customers to recover their money. Therefore, the choice of whether a customer will select the highest interest paying product will depend on their trust in the insurance scheme.

Figure I depicts the size of the choice set available to investors at a given point in time for different maturities. The period is from January 2014 to February 2018. Investors can choose between the following maturities (in months): 3, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 72, 84, 120. However, the 6, 12, 24, 36-months maturities make up 62% of the products available and 94% of all investments. For clarity, we only depict these most prominent products in Figure I. The menu is rather small in the beginning with only one available product in 2014. The available choice set then increases steadily over time such that at the beginning of 2018 investors can choose between about 40 different banks if they want to invest over a 6-, 12-, 24- or 36-months horizon.

INSERT Figure I: Products Available ABOUT HERE

The fintech company shared data for a random subset of customers from January 2014 to February 2018. Table I documents the filtering process of this data. We first drop all interactions on the platform that are unrelated to an explicit investment decision (these include deposits into/withdrawals from the reference account, and interest and principal payments at maturity of the product[6]). As only 6% of customers are non-German and we have little demographic data for those customers, we drop all transactions from non-German customers. Next, we remove transactions by customers that at any point in time had negative reference account balances. While these negative account balances might usually be explained by short timing mismatches, we want to make sure that all transactions are valid. Next, we remove transactions in products that are not Euro-denominated to avoid any currency risk affecting our results. Finally, to avoid bank financing for short-term liquidity needs, we drop all overnight contracts from our sample; the shortest possible investment horizon kept in our sample is three months. The filtering procedure results in a dataset that includes transactions of nearly 5,000 customers, with an average customer investing EUR 31,000 about 3 times with a maturity of roughly 1.5 years.

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[6] We do use those transactions to verify the accuracy of the contract, e.g., the interest paid should be consistent with the characteristics of the chosen contract.

INSERT Table I: Filtering **ABOUT HERE**

Table II provides some descriptive statistics on these customers. The average customer is about 56 years old. 65% of customers are male. Most customers are either employed in the private sector or retired.[7] 40% of customers tend to trust in the ECB, though this measure varies a lot across regions, age groups and time.[8] The median term deposit chosen by customers has a maturity of one year (the mean is 1.5 years). The median customer invests 20,000 Euros per investment (mean is 31,0000 Euros per investment). The investment amount is bounded by the platform's minimum investment amount of 1,000 Euros and a maximum of 100,000 Euros. While the median customer invests 2 times using the platform (the mean is 3 times), some customers are much more active.

INSERT Table II: Customer Demographics ABOUT HERE

The banks that offer deposits on the platform usually do not have any retail business, neither in Germany nor in their home country. Therefore, these banks can be considered unknown to investors. Table III shows some summary statistics for the banks that offer term deposits and the countries of their location. In some countries, only one bank offers products, but in others, as many as five banks offer products. The mean is two banks per country. Most banks offer products with multiple maturities. The average number of products per bank is 4.8. This number is fairly similar across countries. Usually, the four most prominent maturities (6, 12, 24, and 36 months) are part of this choice set. The market share column in Table III is sorted by EUR weighted investment share (averaged per day and then over time). Sorting by the transaction weighted investment share would result in a very similar distribution since average investment amounts are very similar across countries.

[7] Profession data is more granular than shown in Table II. We have subsumed various professions into broader categories. We also have very detailed information on the industry the customer works in.

[8] Trust in ECB is measured by matching customers to survey participants of the European Commission's Eurobarometer surveys from 2013 to 2018. In those surveys people are asked (at least twice a year) "Please tell me if you tend to trust it or tend not to trust it?: The European Central Bank." We collect data from an average of 1551 survey participants across 12 surveys and match them based on region and age to the customers in our dataset.

In aggregate, banks from Portugal, France, Austria, Sweden, Italy, Bulgaria and UK receive most investments, but their market shares vary over time.

INSERT Table III: Country/Bank Characteristics ABOUT HERE

We obtain daily country ratings given by Fitch, Moody's and S&P from Refintiv. Bank ratings and Bank Tier 1 ratios are manually collected from the respective bank's investors' relations page, the homepages of the three rating agencies and Bureau Van Dijk's BankFocus database. We then transfer those ratings into a numeric score based on a matching table provided by Trading Economics[9]. On a given day, we average the scores from the three rating agencies, and then average over the sample period.

Country ratings are rather stable over time. They range from 100 (AAA) for Germany and Sweden to 50/55/58 (BB+/BBB-/BBB) for Portugal/Bulgaria/Italy, respectively, which translates into an annual default rate of about 1% for these last three countries.[10]

Bank ratings are not available for all banks in our sample. Banks without ratings are usually unlisted, comparatively small, and do not have retail branches. These types of banks often leverage the fintech platform to gain access to customer deposits without having to build a retail platform. The average bank in our sample has total assets of about 9.5 billion EUR.[11] Median bank ratings lie between 65 (BBB+) for German banks and 30/25/25 (CCC+/B-/B-) for Portugese/Latvian/Lithuanian banks, respectively. Bank ratings vary considerably across banks within a country, but are rather stable across time for a given bank[12]. As an alternative bank risk measure, we obtain the banks' Tier 1 Capital Ratios as defined by the Basel III accord from *Bureau Van Dijk's BankFocus* database. The Tier 1 Ratio is defined as $Tier\ 1\ Ratio = \frac{Tier\ 1\ Capital}{Total\ Risk\ Weighted\ Assets}$, with Tier 1 Capital being defined as a bank's

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[9] https://tradingeconomics.com/country-list/rating

[10] https://www.spglobal.com/ratings/en/research/articles/210407-default-transition-and-recovery-2020-annual-global-corporate-default-and-rating-transition-study-11900573

[11] This makes Deutsche Bank about 150 times larger than the average bank in our sample.

[12] The average bank rating in our sample is 45, the within country standard deviation of 16.26, and the within bank standard deviation is only 1.28.

equity capital and disclosed reserves, and Total Risk Weighted Assets being defined as all of the bank's assets weighted by their respective credit risk (weighting scales for different asset classes are defined in coordination with the regualting authority). The larger the Tier 1 Ratio, the more capital a bank has to withstand financial distress and, therefore, is regarded as less risky. Basel 3 regulations require a minimum Tier 1 ratio of 6%. All banks in our sample, for which we have information on Tier 1 ratios, easily fullfill this criterion.

INSERT Figure II: Country Market Shares ABOUT HERE

Panel A of Figure II depicts the market shares of the countries, which for a country X are calculated monthly as the total EUR-amount investment by the banks in X divided by the total Euro-amount investment in that month. It can be seen that these country market shares vary over time. Even countries that have a relatively small mean market share over our sample period sometimes have the highest share in a given month. One such example is Portugal.

Panel B of Figure II shows that those months of large market shares for Portugal are related to products from Portuguese banks offering the highest or at least very favorable interest rates. For example, whenever the gap between the highest 1-year maturity interest rate offered by Portuguese banks and the overall highest 1-year maturity interest rate offered is negative, market shares of Portuguese banks drop. However, when the gap is zero – this implies that the Portuguese bank is offering the highest interest rate – market shares for Portuguese banks go up. The correlation between a country's market share and the above mentioned 1-year interest rate gap measure is 43.8% across all countries.[13] This is our first piece of evidence that investors are reaching for yield in these products.

III. The existence of spreads

We have established that the fintech firm offers a large menu of products from which investors can pick. Products can be differentiated by maturity, bank, country, and interest rate offered. If the guarantee provided by deposit insurance is believed, the product will be considered riskless, and the

[13] The correlation is 41.4% for 6-months products, 43.8% for 12-months products, 28.2% for 2-year products and 39.1% for 3-year products.

only product that will survive in equilibrium will be the product that offers the highest interest rate. However, bank and country risk become important if some investors do not believe in the guarantee and, in equilibrium, we might see spreads.

Panel A of Figure III depicts the spread in interest rates offered between the products with the highest and the lowest interest rate for different maturities over time.[14] Those spreads are usually non-zero and substantially large. The average spread across all products across all countries is about 100 bps. The maximum spread reaches 175 bps. The average spread for products of one year maturity is 126 bps. Given an average interest rate of 1.90% for the highest interest rate paying product in this maturity, an investor can leave 66% (=1.26%/1.90%) of the return on the table when deciding to invest in a one-year term deposit. In Euro terms, this implies that the median investor, investing 20,000 Euros (see Table II) in a one-year term deposit would give up 252 Euros, which is a substantial fraction of his hypothetical interest earned. Given that investors specifically come to this platform to avoid Germany's low fixed term deposit interest rates in the period from 2014 to 2018, it is interesting to find that, once on the platform, they do not opt for the highest yield.

INSERT Figure III: Dispersion in Interest Rates ABOUT HERE

Panel B of Figure III depicts the spread between the highest and the second highest interest rate in a maturity. While much reduced, the gap is still considerable. This implies that when we define a Believer as an investor who chooses the highest interest rate and a Doubter as an investor who does not choose the highest interest rate, and since the gap between the highest rate and the second highest rate is not small, our claim of polarization is economically meaningful.

Some investors might not only have preferences with respect to their investment horizon but also with respect to their investment country. Reasons for this could be behavioral preferences or risk considerations. Panel C of Figure III shows the within country spread for one year maturity products. The spread is non-zero most of the time in every country. Country factors cannot explain these spreads anymore.

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[14] The graph for a particular maturity begins as soon as at least two products are available for that maturity.

IV. A Simple Model

To understand these spreads, we construct a simple model of market segmentation in our context of banks in different countries offering different term deposit interest rates to different types of customers.

There exist two types of customers – the Believers, B and the Doubters, D – and two types of banks – more preferred banks (MPB) and less preferred banks (LPB).

Believers trust in deposit insurance and believe that these term deposits are riskless, and so invest in term deposits from banks that offer higher interest rates. They do not derive any non-monetary utility from investments. For all types of bank deposits, it takes a ΔR increase in interest rates to motivate Believers to increase their supply of funds by ΔQ. The indifference curves of the Believers are depicted in blue in Figure IV, Panel A.

INSERT Figure IV: Polarization in Equilibrium ABOUT HERE

The Doubters do not have complete trust in deposit insurance. They do not believe in full recovery of their deposit if the bank defaults. They also prefer higher interest rates, but they are willing to sacrifice if they can invest in more familiar banks. They may consider these banks to be safer. For more preferred banks (MPB), it takes less than a ΔR increase in interest rates to motivate Doubters to increase their supply of funds by ΔQ, but for less preferred banks (LPB), it takes more than a ΔR increase in interest rates to motivate Doubters to increase their supply of funds by ΔQ. The indifference curves of the Doubters are depicted in green in Figure IV, Panel A. Only offered interest rates matter for the Believers.

Both types of banks raise funds of quantity Q by issuing term deposits.[15] This is the demand for funds, and this is depicted by the black horizontal line in Figure IV, Panel B. Funds are supplied by Believers and Doubters. As Believers care only about the interest rate offered, their supply curves

[15] For simplicity, in our model, we assume that both types of banks have the same horizontal (perfectly elastic) demand curve. In our empirical work, we relax this assumption in the spirit of Ben-David et al (2017), who show that deposit rates may be affected by financing needs of banks.

are upward sloping and the same for both types of banks. This supply curve is depicted by the blue line in Figure IV, Panel B. As Doubters care about interest rates as well as the types of banks, their supply curves are upward sloping as well, but the slope of the curve is smaller for less preferred banks than for more preferred banks. These supply curves are depicted by the green lines in Figure IV, Panel B. Both Believers or Doubters do not invest in term deposits if interest rates are below $\underline{R}$. This minimum interest rate, $\underline{R}$, is the interest rate offered by outside options.

Figure IV, Panel B, shows that the intersection of the demand and the supply curves are at points A and B for the more preferred banks. At point A, the investors in the term deposits are Doubters, and at point B, the investors in the term deposits are the Believers. As the more preferred bank would like to raise a quantity of funds, Q, by offering the lowest interest rate, it follows that the more preferred banks raise Q only from the Doubters at point A offering interest rate $R^*_{\text{B to MPB}}$.

Figure IV, Panel B, shows that demand curves and the supply curves intersect at points B and C for the less preferred banks. At point B, the investors in the term deposits are Believers, and at point C, the investors in the term deposits are the Doubters. As the less preferred bank would like to raise a quantity of funds, Q, by offering the lowest interest rate, it follows that the less preferred banks raise Q only from the Believers at point B offering interest rate $R^*_{\text{R to LPB}}$, which is greater than $R^*_{\text{B to MPB}}$.

Implication (Polarized Matching Equilibrium): The market will be polarized. Believers will choose term deposits with the highest interest rate offered by the less preferred banks, but the Doubters will choose term deposits with a lower interest rate offered by the more preferred banks.

V. Polarization

A. In Demand

We first show polarization in demand. Assuming that being a Believer or a Doubter is an invariable (or at least a very stable) personal trait – Believers always trust deposit insurance to cover losses during default whereas Doubters always have doubts – we just showed that in equilibrium some investors will always go for the highest available return (the Believers) and some investors will never do this (the Doubters).

For each investor in our sample, we calculate the fraction of decisions for which the investor picked the highest interest paying product. The ratio for investors who always picked the highest interest paying product will be 1, whereas the ratio for investors who never picked the highest interest paying product will be 0. Figure V shows the histogram of this ratio across all investors.

INSERT Figure V: Histogram of Ratio of Choosing the Highest Interest Rate Product **ABOUT HERE**

The red bars in Figure V show that 67.3% of investors never invest in the highest interesting paying product. In contrast, only 10.9% of investors always go for the highest interest rate paying product. About 22% of investors end up somewhere in between those two extremes. We thus find supporting evidence depicting a polarized demand.

Given the choice problem of investors, such a distribution may arise naturally. Our average decision maker had to decide on average between 22.8 different products; on average only 1.2 of those products did offer the highest rate. An agent picking randomly would thus not pick the highest interest rate paying product in about 95% (=1 - 1.2/22.8) of the cases. To obtain an appropriate benchmark, we thus run a simple simulation of how this distribution would look like if all investors acted randomly in all their investment decisions. This simulated distribution is shown by the green bars in Figure V. We see more investors always picking the highest interest paying product in the actual data compared to the random decision makers. We also see more investors never picking the highest interest rate paying deposit in the actual data compared to the random decision makers. We conclude that our polarization is real: Believers and Doubters appear more frequently than in the randomly simulated distribution.

If our hypothesis on the existence of Doubters (Doubters do not believe that deposit insurance will cover all losses in the event of default) and Believers (Believers believe that deposit insurance will cover all losses in the event of default) is correct, these revealed perceptions about the credibility of deposit insurance should be persistent over time for an individual. This important testable implication is supported by Figure VI.

INSERT Figure VI: Persistence of Investor Decisions **ABOUT HERE**

We cluster investors by the number of investment decisions made in our sample period. For each investment decision made in a specific cluster, we then calculate the ratio of investors who picked the highest interest rate paying product in their first decision, their second decision, and so on. Figure VI shows these probabilities for investors that made up to 6 investment decisions. In square brackets, we provide the number of investors that fall into a specific cluster. Decision on the x-axis indicates

the respective decisions in chronological order. % Best shows the fraction of investors who went for the highest interest rate paying product in this specific decision.

In Panel A, we focus on the sample of customers who went for the highest interest rate paying product in their first decision (Initial Believers), and in Panel B we focus on the sample of customers who did not go for the highest interest rate paying product in their first decision (Initial Doubters). In Panel C, we combine both groups and show the investor-weighted average of all investors.

Believers (Doubters), by definition, start at a rate of 100% (0%) probability of choosing the highest interest rate paying product with their first choice and can only worsen (improve) this probability as they make further decisions. Interestingly, most of the unlearning/learning of Believers and Doubters happens with their second decision.[16] While about 10% of previous Doubters switch to the highest interest rate paying product, about 50% of previous Believers become Doubters. After the second decision, those probabilities stay rather stable for both groups on a slightly downwards sloping trajectory. In untabulated results, we show that this stabilization is driven by investors usually not deviating from their investment strategy (picking or not picking the highest interest rate paying product) after their second investment. Even though the gap between both groups diminishes over time, they never close.

Panel C shows that amongst investors who make more than one decision, the likelihood of picking the highest interest rate paying product decreases (increases) with successive investment decisions by Believers (Doubters). The magnitude of the decrease in Believers is larger than the magnitude of increase in Doubters. In other words, we find more persistence in beliefs among Doubters than amongst Believers. This is surprising considering that there has not been a single default in our sample period.

B. In Supply

We now show polarization in supply. We run the following panel regression:

[16] See Koestner et al (2017) for a summary of the retail investor learning literature.

$$InterestRate_{i,c,b,t} = \alpha + \beta_1 * riskfree_t + \beta_2 * CountryRisk_{i,c,t} + \beta_3 * BankRisk_{i,c,b,t} + \gamma_M * Maturity_{i,t} + \varepsilon_{i,c,b,t} \quad (1)$$

Here i is the specific term deposit, c being the country where the bank b offering the specific deposit is headquartered, and t denotes the day. Country and bank risk constructions are described in Table III. As risk free rate, we use German 1 year government bond yields retrieved from Thompson Reuters Datastream. We always use maturity fixed effects based on the respective products maturity. In other specifications, we also use day, country, and bank fixed effects.

INSERT Table IV: ABOUT HERE

The results are presented in Table IV. Unsurprisingly, the interest rate of term deposits is positively related to the risk-free rate. In most specifications, this coefficient is close to one, indicating a 1:1 relationship between the risk-free rate and the interest rate of term deposits. Also, the interest rate of term deposits is positively related to the maturity of the respective product. This implies that the term structure is upward sloping in our sample period.[17]

We do find that interest rates are negatively related to country and bank risk (as measured by bank rating or tier 1 ratio).[18] Better ratings imply lower default probability and so lower interest rates should be offered. However, it is surprising that country and bank risks are relevant in our setting despite the guarantees. This suggests that some investors (the Doubters) do not believe in these guarantees, and banks adjust offered rates accordingly. In line with the model presented in Section IV, it could be the case that better country and bank ratings are characteristics of more preferred banks even though they may not be related to the ultimate risk of the term deposit. Another equally plausible explanation for our finding could be that investors incur a disutility from the administrative formalities related to a bank's default, and banks have to price that into their offerings. In specification (4), we

[17] Even though we only tabulate the coefficients for the 12-, 24- and 36-months products, the upward sloping term structure can also be confirmed looking at all available maturities.

[18] In untabulated results, we use rating dummies instead of the continuous rating score as independent variable. The general finding is confirmed by those regressions.

use bank fixed effects together with multiple other explanatory variables. We notice here that some banks seem to pay a premium of about 1% (0.321- (-0.602) = 0.923%) compared to other banks even if we control for day, maturity, and country. This supports our hypothesis that some banks are less preferred than others and react to this by offering higher interest rates.

Additionally, if our assumption on the existence of preferred vs. less preferred banks is reasonable, we would suspect bank attractiveness to be a rather stable characteristic. Consequently, banks offering relatively high/low interest rates compared to their peers, should continue to do so over time. Every day, we rank term deposits based on their interest paid within a given choice set (either same maturity or same maturity and same country). We then sort banks into quartiles based on their relative ranking in each day. Banks that pay a relatively low(high) interest rate on a given day would end up in the bottom (top) quartile. We then calculate the probability of a bank to end up in the same quartile or another one six months or twelve months later. If the interest rate was primarily a function of bank-fixed effects (like being a preferred as opposed to a non-preferred bank) banks should not switch between quartiles too often. But if it is a function of time-variant effects, like funding needs, we would see banks switching between quartiles often.

INSERT Figure VII: Persistence of Deposit Interest Rates **ABOUT HERE**

Panel A of Figure VII presents the results for same maturity across all countries for a gap of 6 months. We find that the likelihood of staying in the same quartile is very high. This is especially true for the group of highest interest rate paying banks which, according to our interpretation, are the least preferred banks.[19]

We now use the residuals of regression specification from column (5) of table IV instead of the raw interest rates offered by the different deposits.[20] In other words, we sort by the unexplained component of the interest rate. As the specification in column (5) of Table IV controls for the term structure, the risk-free rate, country risk, bank risks, as well as country and day fixed effects, we would

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[19] In untabulated results, we show that it is also true for a gap of 1, 1.5, 2, 2.5 and 3 years and if we compare banks only to banks from the same country.

[20] Using residuals from other specifications does not change our results.

expect the residual to be pure white noise if the list of risk controls is comprehensive. We however see in Panel B of Figure V that the residual seems to be stable over time as well. So, there must be some systematic differences between banks that are unrelated to bank risk. Controlling for various potential risk factors, this evidence supports our hypothesis that high interest rates offered by less preferred banks and low interest rates offered by more preferred banks are persistent over time, suggesting a polarized supply in term deposits.

By now we have established that both supply and demand of term deposits are polarized. We now want to bring both sides of the market together and observe more equilibrium market outcomes.

VI. Additional Results

A. Demand Side

The first question we ask is: What makes an investor pick the highest interest rate paying product? The highest interest rate paying product is defined as the product that offers the highest interest rate in that maturity at that point in time. For each investment decision made by an investor, we construct a dummy that is equal to one if the investor did pick the highest interest rate paying product from his choice set and zero otherwise[21]. We then run the following regression:

$$Highest\ interest\ rate\ paying\ product_{i,d} = \alpha + \beta * DecisionEnvironment_d + \gamma\ CustomerCharacteristics_i + \delta\ CustomerDecisionEnvironment_{i,d} + \varepsilon_{i,d} \quad (2)$$

i is the investor and *d* is the respective decision environment of this investor. The general decision environment consists of the number of products in the investor's choice set (i.e., all products offered at this point in time), and the characteristics of those products, like their interest rate, maturity, country and bank risk. Customer characteristics are the investors' gender, age, profession, residence, and experience. Finally, some decision variables are unique to the interaction between customer and the specific situation. These are: How much does the investor intend to invest? Is it the first time he

[21] For most analyses, we assume that the investor has a fixed investment horizon and thus the investor's choice set consists of all term deposits with the same maturity. In untabulated results, we restrict the choice set further to term deposits with the same maturity and from the same country. For reasons of brevity, we will not show the results for this second choice set but can confirm that all major results stay qualitatively the same.

invests in this bank or in this country? What is the investor's track record of investing on this platform till then? Is the investor experienced? We try to answer these questions by adding more and more complexity to the regression setup. Table V shows the results.

INSERT Table V: Determinants of Choosing the Highest Interest Rate Paying Product ABOUT HERE

In specification (1) we show that the average unconditional probability of picking the highest interest rate paying product is 19%. This probability will generally be reduced by the complexity of the decision situation. We find that the more products are in an investor's choice set, the less likely it is that the investor chooses the highest interest rate paying one. We confirm this relation in specifications (2) to (10) by showing that the likelihood of picking the highest interest rate paying product is reduced by 1-2 percentage points for every additional product in the choice set. This can be explained by the limited attention hypothesis.

The demographics of investors also seem to play a role. Male and younger investors seem to be more likely to pick highest interest paying deposits (see specification (5). Profession and place of residence (untabulated) seem unrelated.

The most interesting results are related to the third category of variables: the customers' investment parameters and experience that are exclusive to the specific customer. We notice that investors are more likely to pick the highest interest rate paying product if it is the first time they invest and/or it is the first time they invest with a specific bank.[22] First-time investments in a specific country, however, seem to have the opposite effect. This could be because first-time investments in a country may be driven more by trust in the deposit insurance of that country's central bank, and country-risk and interest rates are negatively correlated.

In specifications (4), (6), (9), (10) we use customer fixed effects, and so the identification in these regressions comes from the within-customer variation across the different decisions of a customer. Still, all effects presented so far survive.

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[22] The economic magnitude again ranges between 14.3% and 18.9% of the unconditional mean of choosing the highest interest paying product.

We use specifications (7) to (10) to understand how an investor's investment history influences the investor's future investments. To do so, we construct two variables: *Previous highest interest rate paying product* equals 1 if the respective investor did pick the highest interest paying product in the last investment decision; it is 0 otherwise. *Previous highest interest rate paying product ratio* calculates the fraction of picking the highest interest paying product across all the investor's previous decisions. We include those two variables in our regression to answer the following question: Will a Believer continue to be a Believer? Specification (7) tells us that if someone went with the highest interest rate paying product the last time, the investor is 16% more likely to do so again in the future compared to an investor who did not. This economically (increase of 78.9% of the unconditional mean) and statistically highly significant finding is very much in line with our model implications that Believers tend to remain Believers. Specification (8) says this persistence amongst investors also exists in the *Previous highest interest rate paying product ratio* variable..

When we apply customer fixed effects in specifications (9) and (10), the results of specifications (7) and (8) reverse. The probability of choosing the highest interest rate paying product diminishes over time. While Believers tend to remain Believers, they are more likely to deviate from their strategy over time. We had observed this phenomenon in Panel C of Figure VI where we had found more persistence in beliefs among Doubters than amongst Believers. This is surprising considering that there has not been a single default in our sample period.

The second question we ask is why investors do not choose the highest interest rate paying product and what convinces investors to choose other products? To do so, we span the entire choice set at the point of decision making. We do not only look at the actual choice but also walk down roads not taken by investors.

Suppose at a given point in time an investor could decide between N different term deposits of a particular maturity. He will pick one term deposit and not pick the other N-1 products for various reasons. We construct a dummy variable that equals 1 for the actual choice made and zero for the N-1 options. We do so for every decision made by an investor in our sample. We then run the following regression:

$$Choice_{i,d,o} = \alpha + \beta * ProductCharateristics_{d,o} + \theta_{i,d} + \varepsilon_{i,d,o} \quad (3)$$

Here investor i is making his decision *d* choosing from option *o*. $\theta_{i,d}$ represents an investor-decision fixed effect. Note that this fixed effect is very restrictive. Any unobserved investor characteristics and the market environment at the time of the decision are controlled by fixed effects. We are basically reducing the analysis to the question: Why did the investor pick product A and why didn't he pick product B? The answer must have to do with differences in product characteristics.

INSERT Table VI: Determinants of Investor Choice **ABOUT HERE**

Panel A of table VI shows this result for all investors, whereas Panel B and Panel C shows this result for Believers and Doubters respectively. Here, unlike our previous definition of Believers and Doubters, where Believers (Doubters) always (never) chose the highest interest rate product, Believers (Doubters) are defined as those who in their last decisions invested (did not invest) in the highest interest rate paying product.

Specification (1) of Panel A of Table VI, tells us that the average product is chosen in 4.37% of the cases. Put differently, the average choice set must have a size of $\frac{100\%}{4.37\%} \approx 23$ term deposits. Picking the right product from such a menu might be a complicated task. It is thus not surprising that we find that the likelihood of picking a specific product goes down with the size of the choice set (see specifications (2) to (5)). We saw this same result also in Table V.

We find strong and highly significant results that show that investors, on average, care about deposit returns. Specifications (2) and (3) of Panel A indicate that a one percent differential in the interest rate makes it about 10% more likely that the product with the higher interest rate is picked. Therefore, investors do reach for yield. In Figure III, we noticed that the spread in interest rates can easily take values of 1% or higher. This is also observed in specification (4) where products with lower interest rates (products with lower interest rates are ranked higher) are less likely to be picked. In a no risk environment with rational decision makers, you would expect these coefficients to be infinitely large. So why is this coefficient not even larger in specifications (2) and (3)? In specification (4), why are products with lower interest rates ever chosen?

Part of the answer might be found in the risk attitudes of investors. Specification (5) of Panel A tells us that deposits from higher rated countries (on average they offer lower interest rates) are more likely to be chosen. However, within a country, specification (5) tells us that lower rated banks

(on average they offer higher interest rates) are also more likely to be chosen. Note that both statements are made in a setting without decision fixed effects.

Turning those decision fixed effects on in specifications (6) to (8), we can confirm the positive relationship between interest rate differential and the probability of being chosen by investors. If anything, this relation is even stronger.

Finally, we want to understand how past decisions might influence current decision making. In specification (7) we find that an investor is 25% more likely to invest in a product if he has invested in that same product in the past.[23] Interestingly, this result is not true if the past product offered low interest rates (see specification (8)). This is consistent with investors understanding and learning from their past decisions, directly adapting their investment strategy.

When we look at the analogous results for Believers in Panel B and Doubters in Panel C, the points to note are (1) Interest offered by the banks matter a lot more to Believers than Doubters and (2) Believers do not care about country rating whereas Doubters go for higher rated countries.

In summary, both personal traits as well as the decision environment influence the propensity to choose the product offering the highest interest rate.

B. Supply Side

The first question we ask is how important it is to offer the highest interest rate paying product for a bank. We have shown in the previous sections that Believers are reaching for yield. The model implies that the less preferred banks might use this to attract these Believers. We want to test this hypothesis by identifying the determinants of term deposit flow from investors to banks.

For every product, we aggregate the invested amount per month. However, using the invested amount as dependent variable has two major problems. The total amount invested per month across all deposits is an exponentially increasing (and highly fluctuating) number as we start our sample in the early days of the platform. Following these considerations, we will focus on a relative measure of term deposit flows – the fraction of flow going to a bank. Second, we specifically want to measure product attractiveness to investors. Imagine a situation with 11 investors and two term deposits

[23] We do find very similar results if we look at same partnerbank or same country investments.

available. One of the investors has 10 Euros available, the others each have 1. If the rich investor goes for product A and all others go for product B, the resulting market shares of 50% each would completely distort the fact that product B is far more attractive to investors. As we know from Table II that the buying power of investors can vary largely, we go with a decision-weighted investment share instead of a Euro-weighted one. This measure is called Market Share. The market share of bank i is defined as (Number of investment decisions for bank i's term deposit of maturity m in month t)/(Number of investment decisions in month t for maturity m).

Table VII, specifications (1) to (6), present the results.

INSERT Table VII: Determinants of Bank Flows **ABOUT HERE**

Offering the highest interest rate paying product has a huge impact on the ratio of investors that invest in the term deposit; it increases market share by 24% (Specification (1)). Just increasing the offered interest by 1% increases market share by 18%. (Specification (2)). Specifications (3) and (4) show that better rated banks can attract more investor money. [24]

While it is now clear that increasing the yield attracts flows, it is not yet clear which kind of investors react to this incentive. So, the second question we ask is whether the investor mix matters. We look at the investor base of a given month and construct a *Fraction Believers* variable that measures what share of the investors can be considered Believers given their past investments. We define a believer as someone who only invested in highest interest rate paying products till that point in time in maturity *m*.[25] Note that this definition is backward looking, not considering the actual decision in month t, but only the investor's decisions until t-1. In specification (5), we find that offering the highest interest rate paying product has no significant effect on term deposit flows in the absence of Believers. The entire effect comes from Believers being present. In other words, the belief in the deposit

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[24] It is interesting to note that Larsen et al (2022) document that retail investors invest in deposits for precautionary reasons; they are insensitive to interest rates. A reason why their inferences differ from ours is that our design uses a change in interest rates as a primary independent variable (we see an effect) whereas their design checks whether flows are the same in different levels of interest rate tranches (the flows are the same). It could also be that their investors are all Doubters; our results show that Doubters are relatively insensitive to interest rates.

[25] Results do not change if we relax this definition to investors that invest in the top 75% interest rate paying products.

guarantee is a necessary condition for a clear relation between interest rates offered and demand for a given product. In specification (6), we find that the positive relation between offered interest rate and fraction of investors attracted is significantly reduced (nearly halved) in the absence of Believers. This suggests the existence of two fundamentally different investor types who consider disjoint sets of variables when making their investment decisions. While Believers mainly care about the interest rate, Doubters seem to attribute a larger weight to other factors.

VII. Conclusion

This paper revisits the classic literature on deposit insurance, a literature where the evidence is overwhelming that deposit insurance increases the flow of funds into deposits because risk is perceived to have decreased. This result holds for the average investor. What about investors who are not average? The intuition forwarded in this literature suggests that the investor who trusts the deposit insurance to completely make good any loss given bank default – we call them the Believers – will perceive deposits to be riskless and will therefore go for the deposit offering the highest interest rate. Conversely, the investor who does not trust the deposit insurance to completely make good any loss given bank default – we call them the Doubters – will perceive deposits to be risky and will therefore not go for the deposit offering the highest interest rate but will go for deposits offered by their preferred banks (banks whom they trust).

This motivates us to ask the following questions: do we see a group of investors who believe in the guarantee and always invest in term deposits that offer the highest return, but another group of investors, who never do? If so, who are these groups? Which types of banks cater to these two groups? Are there changes over time?

The contribution of our paper, to the best of our knowledge, is that we are the first paper to infer heterogeneity in beliefs about the credibility of deposit insurance by observing the choices of depositors. More importantly, we document a polarization in these beliefs. We find that 11% of investors trust deposit insurance and regard term deposits as riskless – the Believers – and thus always go for the highest yield, but 67% – the Doubters – never do. Doubters tend to be male, younger, and have less trust in the European Central Bank. Interestingly, Doubters are insensitive to interest rates.

Beliefs are persistent on average: Believers tend to remain Believers, and Doubters tend to remain Doubters. We notice a subtle difference when we dig deeper. For investors who make more than one decision, we find more persistence of beliefs among Doubters than amongst Believers.

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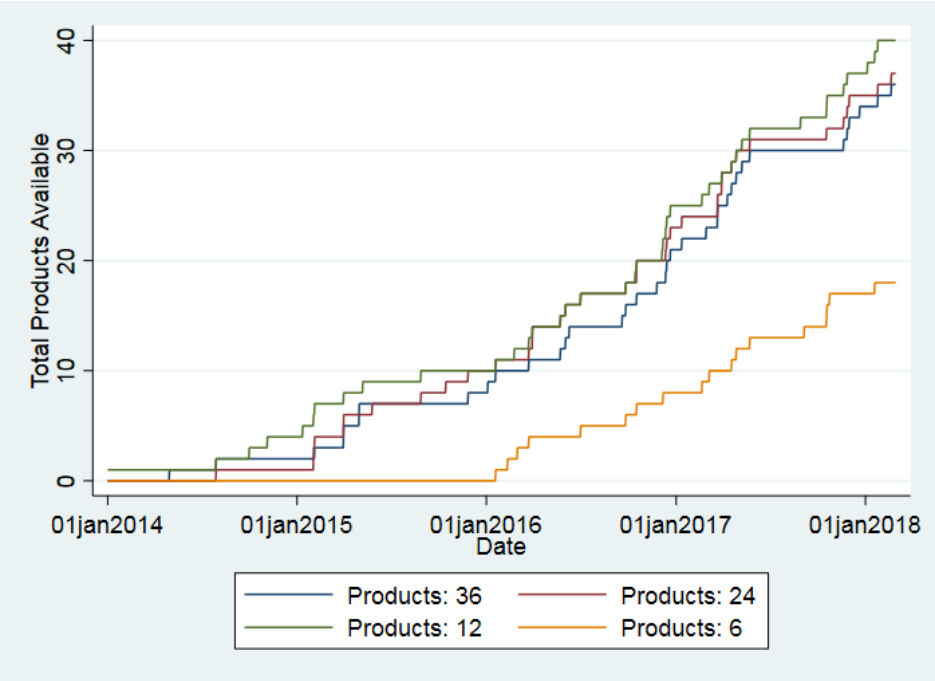
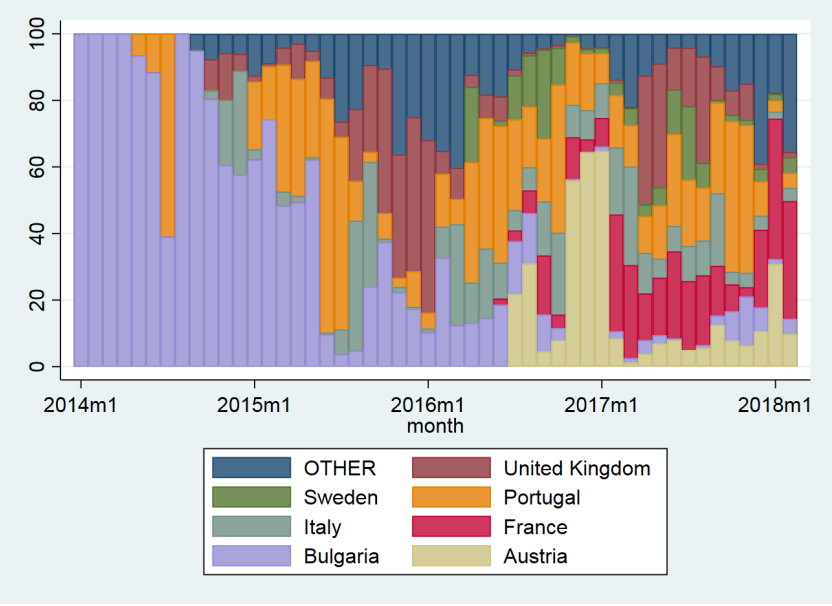
Figure I: Products Available



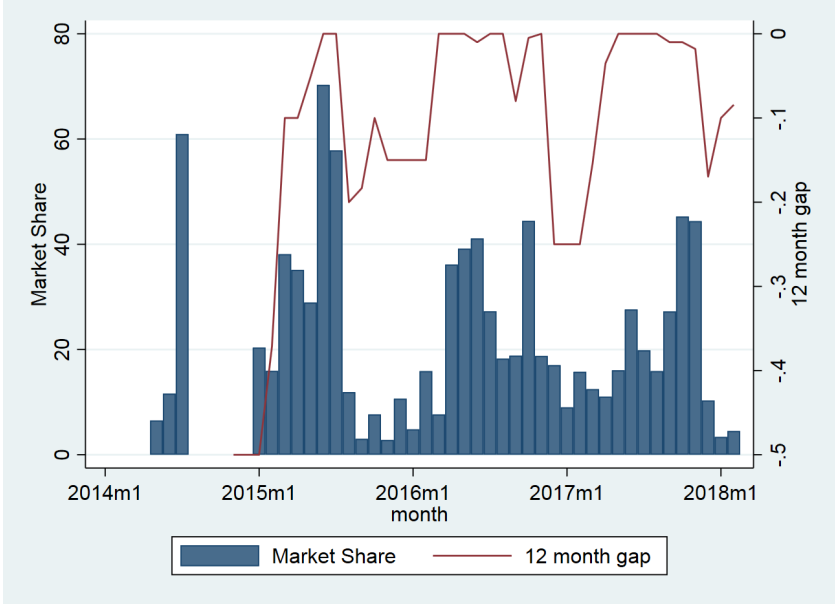
Notes: This figure shows the number of term deposits available to investors for different investment horizons (6, 12, 24, and 36 months) from January 2014 to end of February 2018.

Figure II: Country Market Shares

Panel A: Country Market Shares



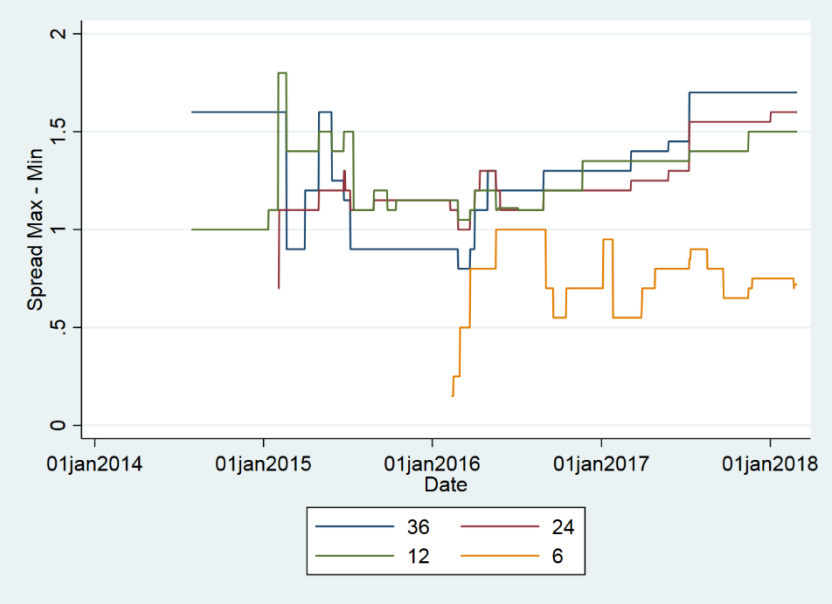
Panel B: Market Share and Interest Rate Gap for Portugal



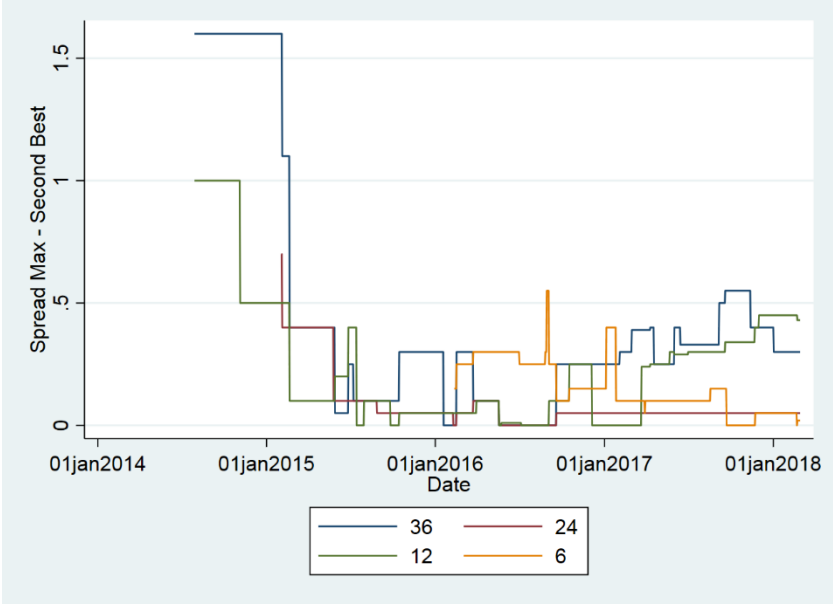
Notes: Panel A of this figure shows the market shares of the 7 countries that capture the highest investment flows over the time-series. All other countries (Poland, Germany, Latvia, Czech Republic, Croatia, Ireland, Estonia, Cyprus, Lithuania) are subsumed in the OTHER category. Market shares of each country X are calculated monthly as the total EUR-amount investment from banks in country X divided by the total Euro-amount investment in that month. Panel B shows the market share in blue for the most preferred market Portugal; the scale is in percent on the left axis. The gap between the highest interest rate offered by Portuguese banks for 1 year maturity products and the overall highest interest rate offered for 1 year maturity products is calculated and is shown in red; the scale is in percent on the right axis. This measure, by definition, has a maximum value of 0 percent.

Figure III: Dispersion in Interest Rates

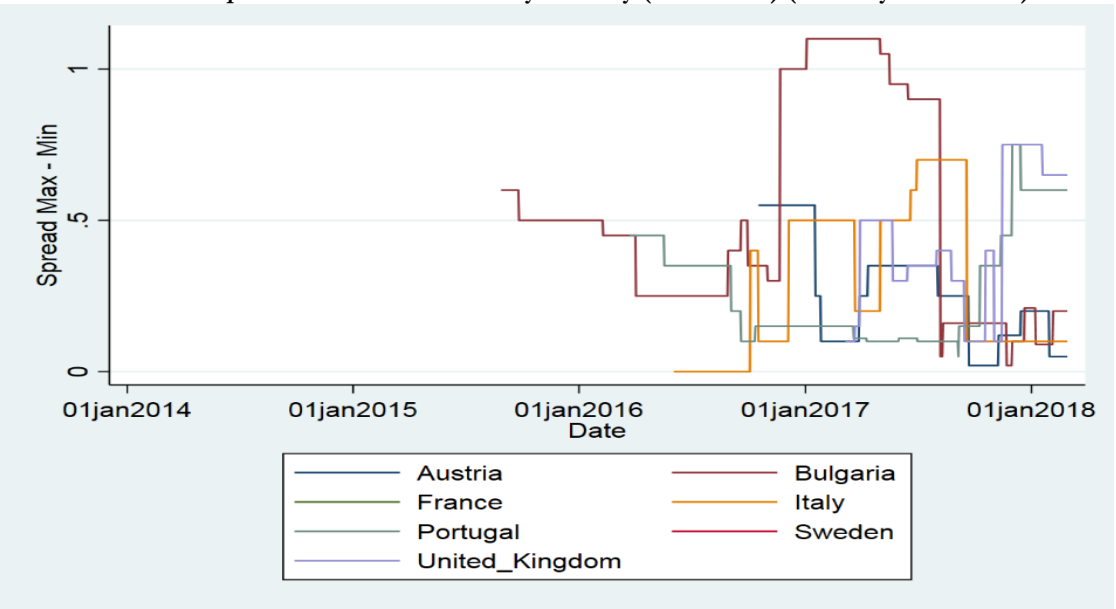
Panel A: Dispersion in Interest Rates Overall (Max - Min)



Panel B: Dispersion in Interest Rates Overall (Max – Second Highest Interest Rate)

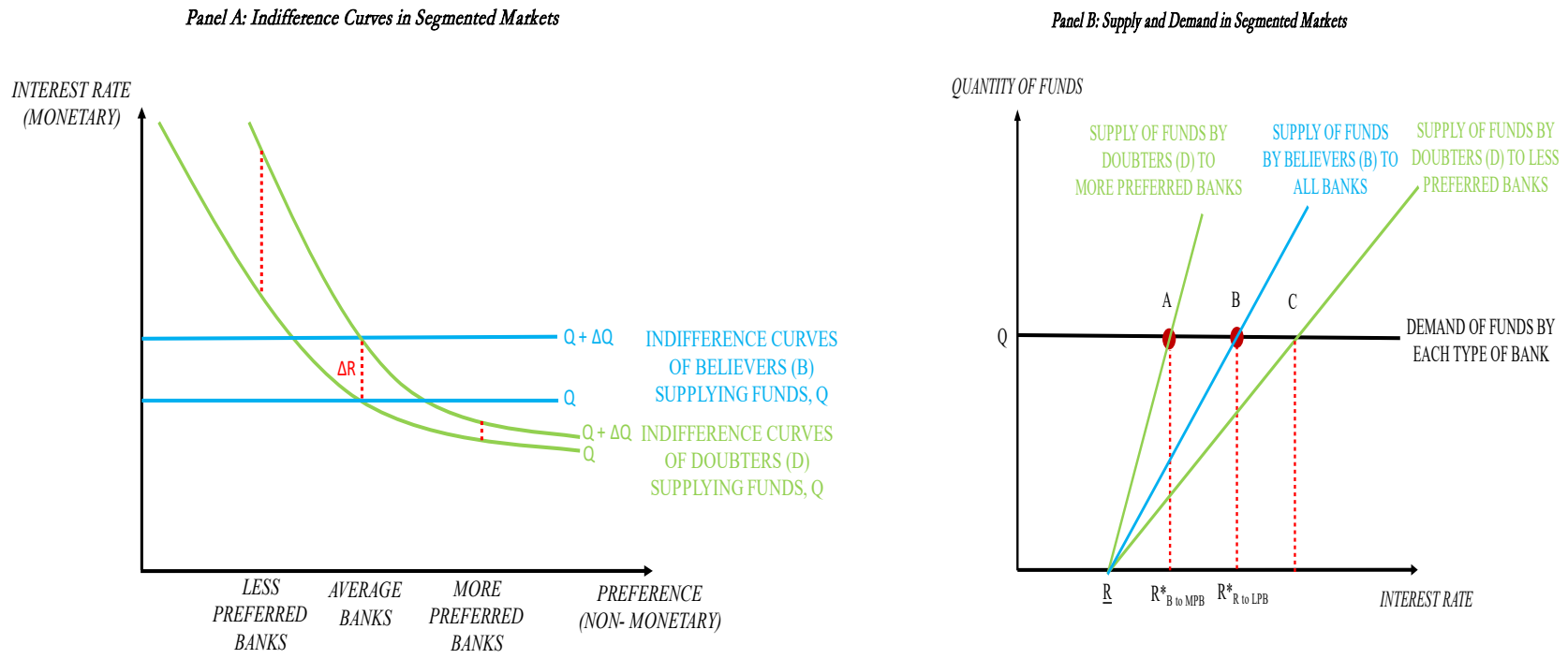


Panel C: Dispersion in Interest Rates by Country (Max - Min) (maturity: 12 months)



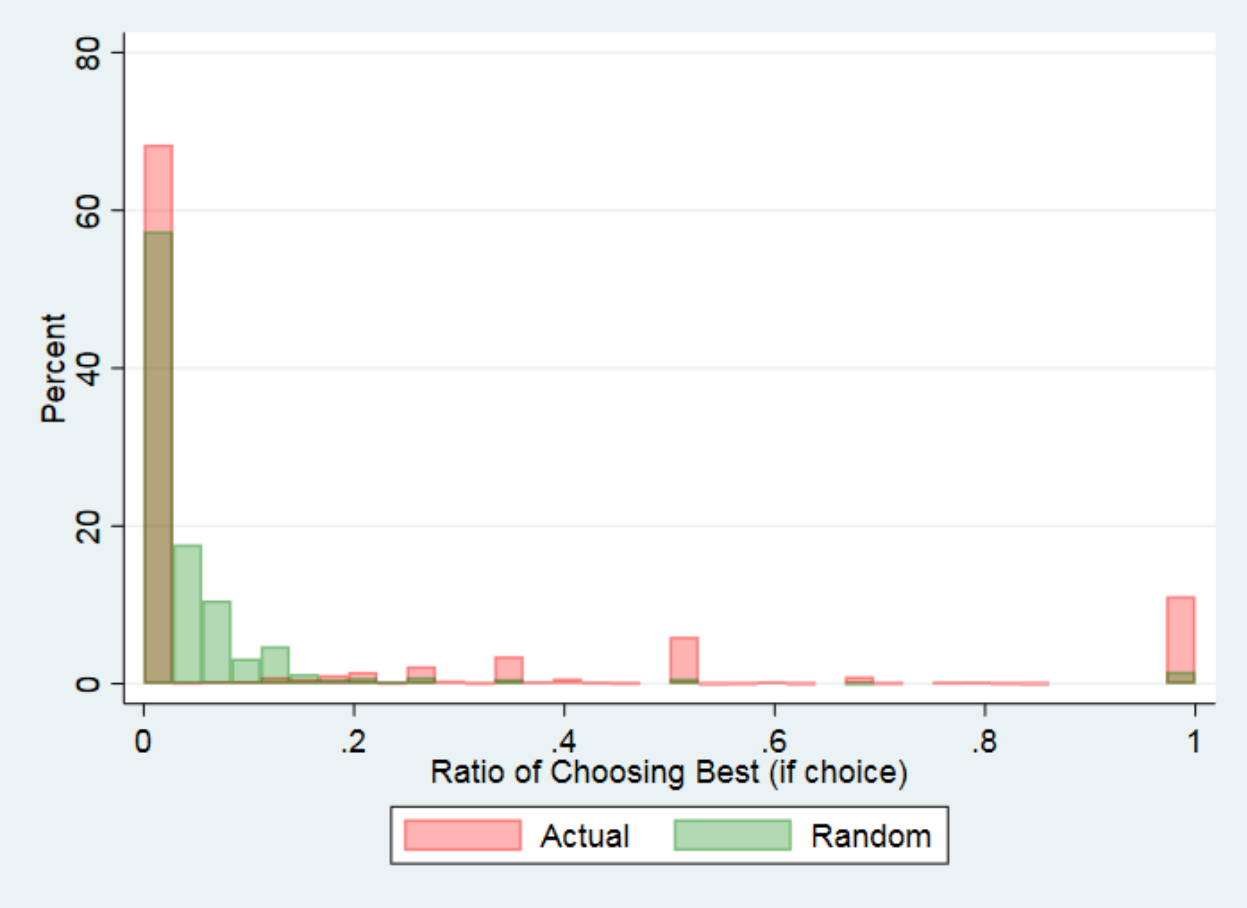
Notes: This figure plots the spread in returns of different term deposits over time.
Panel A defines the Spread as $Spread_{j,t} = Interest_{Max,j,t} - Interest_{Min,j,t}$, where $Interest_{Max/Min,j,t}$ is the maximum/minimum interest paid by a term deposit with a maturity of j month ($j \in \{6,12,24,36\}$) at day t.
Panel B defines the Spread as $Spread_{second,j,t} = Interest_{Max,j,t} - Interest_{Second,j,t}$, where $Interest_{Max/Second,j,t}$ is the maximum/second highest interest (this second highest interest can be identical to the maximum interest if two products pay the same return) paid by a term deposit with a maturity of j month ($j \in \{6,12,24,36\}$) at day t.
Panel C defines the Spread as $Spread_{c,j,t} = Interest_{Max,c,j,t} - Interest_{Min,c,j,t}$, where $Interest_{Max/Min,c,j,t}$ is the maximum/minimum interest paid by a term deposit from country c ($c \in \{Austria, Bulgaria, France, Italy, Portugal, Sweden, UK\}$) with a maturity of 12 months at day t.

Figure IV: Polarization in Equilibrium



Notes: Panel A shows how the indifference curves of Believers (in blue) and Doubters (in green) move up when interest rates rise by ΔR. Panel B depicts the equilibrium points (in red dots) where demand for funds equals the supply of funds. The supply of funds curves of Believers (in blue) are the same for all types of banks, but the supply of funds curves of the Doubters (in green) are different for different types of banks. All types of banks demand a quantity Q of funds (in black).

Figure V: Histogram of Ratio of Choosing the Highest Interest Rate Product



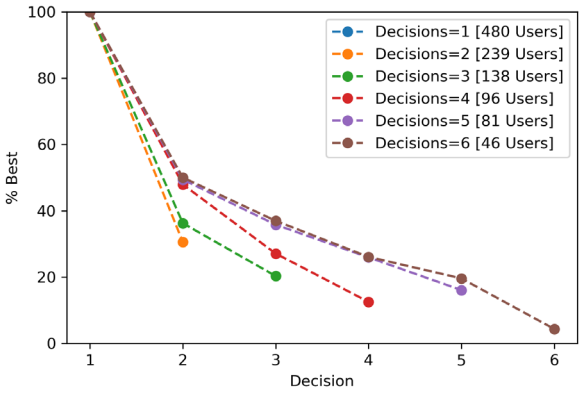
Notes: This figure shows the histogram of ratio of choosing the highest interest rate product. The ratio of choosing the highest interest rate product (if there is a choice) is defined as

$$\frac{number\ of\ decisions\ where\ the\ highest\ interest\ rate\ paying\ product\ was\ chosen\ (for\ choices\ with\ at\ least\ 2\ products)}{number\ of\ investment\ decisions\ (with\ at\ least\ 2\ products)}$$ for each investor. The histogram of this measure across all investors is depicted in red bars (*Actual*).

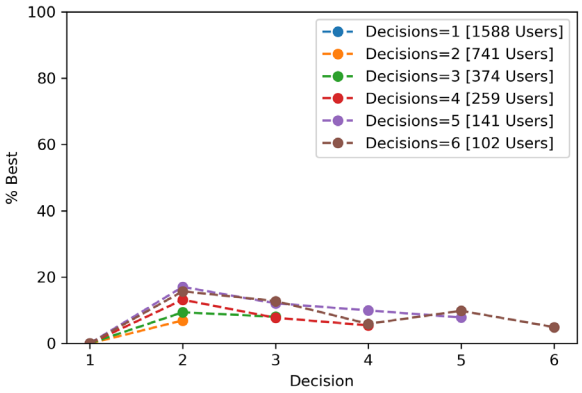
We then calculate the random probability of choosing the highest interest rate product (if choice) as $p = \frac{\#\ highest\ interest\ rate\ paying\ products}{\#\ products}$ for each investment decision. We then simulate the ratio of choosing highest interest rate paying (if at least 2 products available) for each investor based on these probabilities. The histogram of this measure across all investors is depicted in green bars (*Random*).

Figure VI: Persistence of Investor Decisions

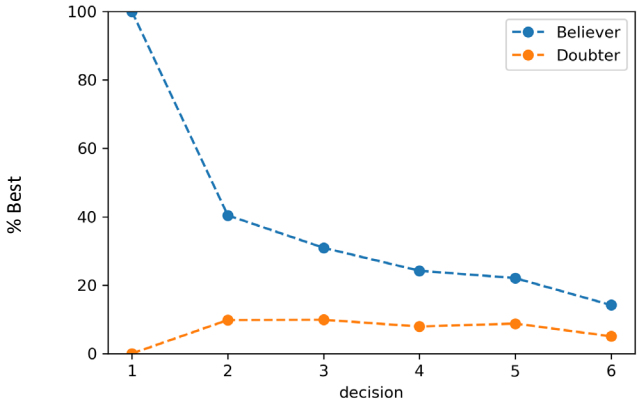
Panel A: Initial Believers



Panel B: Initial Doubters



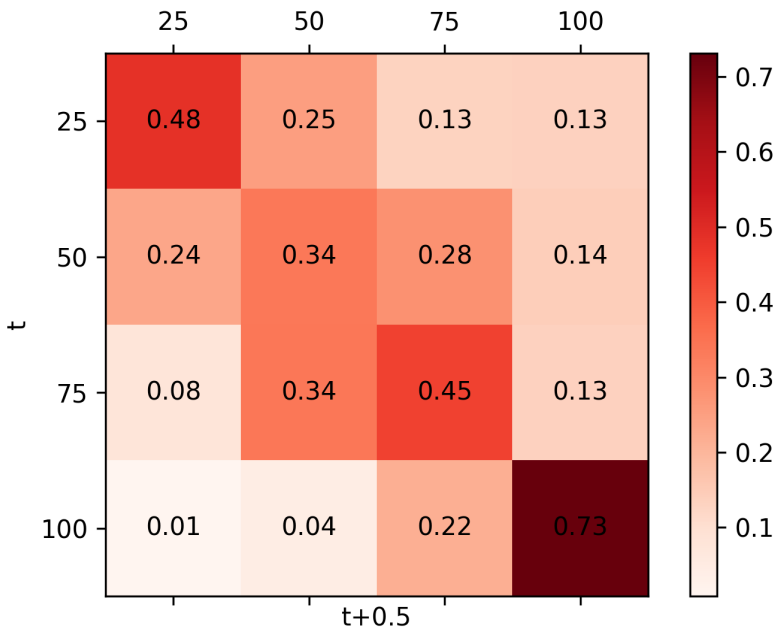
Panel C: Initial Believers vs. Initial Doubters



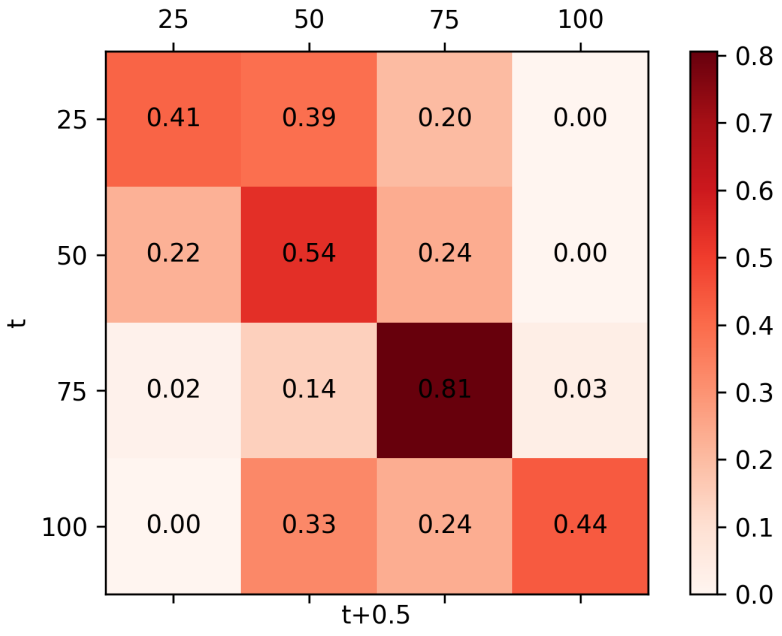
Note: For each investor we count the number of investment decisions made as *Decisions*. In *Panel A* and *Panel B* we split this sample by customers who went for the highest interest rate paying product in their first decision (*Panel A*) and customers who did not go for the highest interest rate paying product in their first decision (*Panel B*). In square brackets, we provide the number of investors that fall into a specific cluster. *Panel C* shows the investor-weighted average of *Panel A* vs *Panel B*. *Decision* on the x-axis indicates the respective decisions in chronological order. *% Best* shows the fraction of investors who went for the highest interest rate paying product in this specific decision.

Figure VII: Persistence of Deposit Interest Rates Offered by Banks

Panel A: Interest rate



Panel B: Residuals



Notes: This figure presents the empirical likelihoods of switching from one interest rate quartile i in time 0 to another interest rate quartile j within a given amount of time. Panel A shows the switch in 6 months for the same maturity across all countries; Panel B shows the switch in 6 months for the same maturity using the unforecasted rate (residuals in column (5) in Table IV).

Table I: Filtering

This table shows the number of transactions and investors after each filtering step. We first drop all interactions on the platform that are unrelated to an explicit investment decision (those include deposits to/withdrawals from the platform, and interest and principal payments at maturity). We only keep transactions from German customers. A customer is defined as German if neither his first nor his second nationality are non-German. Additionally, the customer must be born and currently taxed in Germany. We remove all transactions in which the customer invests before depositing money on his platform account and/or his investment leads to a negative account balance. We only keep Euro-denominated products and eliminate all overnight contracts.

	Transactions	Investors
Transactions to Partnerbank	19,950	5,649
German customers only	18,872	5,304
Remove transactions with negative balance	18,109	5,218
Only Euro denominated products	16,774	5,035
Drop overnight contracts	14,683	4,798

Table II: Customer Demographics

This table provides summary statistics on the sample of 4798 customers. *Age* is the mean age of customers at the point in time of their first transaction. *Male* is a dummy that equals 1 if the customer is male. *Profession: X* is a dummy that equals 1 if a customer indicated that he is working in the respective profession. Customers were only allowed to select one single profession. *Trust in ECB* is the fraction of survey participants who answered "Tend to trust" to the question "Please tell me if you tend to trust it or tend not to trust it?: The European Central Bank." This question was asked in Eurobarometer surveys conducted by the European commission and matched by Bundesland and Age to our customer sample. *Term Structure Chosen* is the maturity (in months) of the products chosen by a customer. *Amount invested* is the amount invested by a customer per transaction. *Number of transactions* provides the number of investments made by a customer.

	N	Min	25%	Mean	50%	75%	Max	St.Dev.
Age	4,798	18.00	47.00	55.63	57.75	66.00	94.00	14.71
Male	4,798	0	0	0.65	1	1	1	0.48
Profession: Employed in Private Sector	4,798	0	0	0.43	0	1	1	0.50
Profession: Public Services	4,798	0	0	0.07	0	0	1	0.25
Profession: Self-Employed	4,798	0	0	0.09	0	0	1	0.28
Profession: Retired	4,798	0	0	0.32	0	1	1	0.47
Profession: Unemployed/Other	4,798	0	0	0.09	0	0	1	0.29
Trust in ECB	4,798	0.10	0.32	0.40	0.41	0.48	0.66	0.10
Term Structure Chosen	4,798	3.00	12.00	18.73	12.00	24.00	120.00	13.02
Amount Invested	4,798	1,000.00	10,000.00	31,008.06	20,000.00	45,000.00	100,000.00	28,477.98
Number of Transactions	4,798	1	1	3.04	2	4	57	3.64

Table III: Country/Bank Characteristics

This table provides descriptive statistics on the countries and banks in our sample. *#Banks/#Products* is the number of banks/products available for investment in each country. Share is the EUR-amount invested in the respective country divided by the total EUR-amount invested in % (averaged per day and then over time). *Country/Bank Rating* are transferred into a numeric rating score on a scale from 0 to 100 (AAA=100, D=0) based on a matching table provided by Trading Economics (https://tradingeconomics.com/country-list/rating) and then averaged across ratings from S&P, Fitch, Moody's. *Bank Tier 1 Ratio* is defined as $\frac{\text{Tier 1 Capital}}{\text{Total Risk Weighted Assets}}$ of the bank. We calculate the 25, 50 and 75% percentiles as well as the time-series mean for the last two variables.

	Share	#Banks	#Products	Country Rating	Bank Rating				Bank Tier 1 Ratio			
	in EUR			Mean	25	Mean	50	75	25	Mean	50	75
Portugal	18.30	4	18	51	20	29	30	40	10	14	10	13
France	13.13	2	12	90								
Austria	12.77	2	10	95					15	17	16	16
Sweden	12.35	1	3	100					13	14	14	14
Italy	11.47	3	20	59	40	56	65	65	14	14	14	14
Bulgaria	10.09	2	11	55	35	35	35	35	20	21	20	22
United Kingdom	9.82	3	10	92					17	17	17	17
Poland	3.55	2	7	70	45	43	45	45	11	11	12	12
Germany	1.83	5	67	100	65	65	65	65	21	21	21	21
Latvia	1.75	2	5	70	25	25	25	25	12	13	14	14
Czech Republic	1.72	1	5	82	35	35	35	35	24	24	24	24
Croatia	1.13	2	13	45					15	15	15	15
Ireland	0.95	1	1	74	50	51	50	53	14	15	14	15
Estonia	0.55	2	7	82	40	40	40	40	16	16	16	16
Cyprus	0.37	1	3	45	38	38	38	38	20	20	20	20
Lithuania	0.22	1	4	70	25	25	25	25				

Table IV: Determinants of Interest Rates Offered by Banks

Table V presents the results of a panel regression with the interest rate in percent offered for every term deposit in our sample being the dependent variable. *Risk-Free Rate* is the 1-year German Government Bond yield in percent. All specifications include maturity fixed effects. *Maturity* can be 3,6,12,18,24,30,36,42,48,54,60,72,84, or 120 months. For brevity, we only show the coefficients for the most popular deposits, the 12-, 24-, and 36-months term deposits. *Country/Bank Ratings* are "translated" into a numeric rating score on a scale from 0 to 100 (AAA=100, D=0) and then averaged across ratings from S&P, Fitch, Moody's. *Bank Tier 1 Ratio* is defined as $\frac{Tier\ 1\ Capital}{Total\ Risk\ Weighted\ Assets}$ of the bank. In some specifications, we apply day, bank or country fixed effects. Again, for reasons of brevity, we only show the minimum and maximum coefficient of the bank fixed effects. We use heteroskedasticity-robust standard errors. *, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Risk-Free Rate	2.076***	2.158***	1.113***	2.217***	1.002***
	(62.23)	(33.82)	(18.53)	(78.01)	(90.42)
Maturity=12	0.406***	0.174***	0.240***	0.513***	0.304***
	(48.90)	(25.78)	(36.97)	(64.08)	(49.95)
Maturity=24	0.563***	0.292***	0.403***	0.678***	0.435***
	(67.53)	(44.72)	(57.68)	(84.34)	(69.13)
Maturity=36	0.658***	0.432***	0.449***	0.802***	0.500***
	(78.79)	(67.26)	(62.20)	(97.60)	(71.70)
Country Rating	-0.00895***				-0.0107***
	(-141.33)				(-4.56)
Bank Rating		-0.00971***			
		(-58.85)			
Bank Tier 1 Ratio			-0.00466***		-0.00233***
			(-9.27)		(-4.53)
Maturity FE	Yes	Yes	Yes	Yes	Yes
Day FE	Yes	Yes	Yes	Yes	Yes
Bank FE	No	No	No	Yes	No
Country FE	No	No	No	No	Yes
Min(Bank Coef)				-0.602***	
Max(Bank Coef)				0.321***	
Constant	2.349***	2.388***	1.308***	1.699***	2.373***
	(235.03)	(198.34)	(68.46)	(138.60)	(10.58)
Observations	58831	24639	28065	58831	28065
R-squared	0.661	0.662	0.609	0.781	0.671

Table V: Determinants of Choosing the Highest Interest Rate Paying Product by an Investor

The dependent variable in these regressions is a dummy that equals 1 if the investor invested in the highest interest rate paying term deposit from the choice set available to him at the point in time of his decision and 0 otherwise. # *Products in Choice Set* is the number of products in his choice set at that time. *First Investment [in PB/in Country]* is a dummy that equals 1 if the investor invests for the first time [with this partnerbank/in a bank from this country]. *Invest Amount* is the invested amount in this specific investment. *Invested Amount Total [PB]* is the total invested capital at the time of the decision [in the respective partnerbank]. *Male* equals 1 if the investor is male and zero otherwise. *Experience* counts the number of investments the investor has done on this platform till then. *Age* is the age of the investor in years at the time of the investment. *Trust in ECB* is defined as in Table 2. *Previous highest interest rate paying product* is 1 if the investor invested into the highest interest rate paying product the last time he invested, zero if he did not (and not defined if it is his first investment). *Previous highest interest rate paying product ratio* provides the ratio of highest interest rate paying product choices across all of the investor's past choices. In some specifications, we apply Customer, Country, (Investor Home) Region, Product Maturity Fixed Effects. We use heteroskedasticity-robust standard errors. *, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
# Products in Choice Set		-0.0211***	-0.0190***	-0.0177***	-0.0139***	-0.00882***	-0.0167***	-0.0165***	-0.0168***	-0.0183***
		(-75.45)	(-61.56)	(-37.41)	(-33.81)	(-7.15)	(-41.89)	(-41.33)	(-26.84)	(-27.26)
First Investment					0.0257***	0.0202**				
					(3.88)	(2.20)				
First Investment in PB					0.0204*	0.0387***				
					(1.94)	(3.18)				
First Investment in Country					-0.0323***	-0.0480***				
					(-3.47)	(-4.60)				
Invested Amount					0.00466	0.00111				
					(0.48)	(0.05)				
Invested Amount Total					-0.00661**	-0.00668				
					(-2.28)	(-0.99)				
Invested Amount PB					0.0219	-0.00762				
					(1.04)	(-0.30)				
Male Dummy=1					0.0154***					
					(2.89)					
Experience					-0.00131**					
					(-2.22)					
Age					-0.000533*					
					(-1.77)					
Trust in ECB					0.270***	0.481***				
					(3.92)	(3.63)				
Previous highest interest rate paying product							0.157***		-0.0487***	
							(14.49)		(-3.26)	
Previous highest interest rate paying product ratio								0.174***		-0.344***
								(14.59)		(-11.84)
Constant	0.190***	0.660***	0.605***	0.586***	0.625***	4.612***	0.521***	0.504***	0.566***	0.682***
	(57.64)	(78.16)	(64.69)	(55.41)	(11.32)	(6.99)	(41.11)	(38.38)	(36.34)	(35.60)
Observations	14136	14136	13785	14136	14136	14136	9402	9402	9402	9402
R-squared	0.000	0.310	0.253	0.211	0.462	0.352	0.301	0.298	0.180	0.205
Adjusted R-squared	0.000	0.310	0.253	0.211	0.460	0.350	0.301	0.298	0.180	0.205
Customer-FE	No	No	No	Yes	No	Yes	No	No	Yes	Yes
Choice Set >=2	No	No	Yes	No	No	No	No	No	No	No
Country FE	No	No	No	No	Yes	Yes	No	No	No	No
Region FE	No	No	No	No	Yes	No	No	No	No	No
Maturity FE	No	No	No	No	Yes	Yes	No	No	No	No
Profession Dummies	No	No	No	No	Yes	No	No	No	No	No

Table VI: Determinants of Investor Choice

In this table we present results of a regression that not only considers the decisions made but also the potential decisions investors could have made given the choice set at the point in time. The dependent variable is a dummy that equals 1 if the investor invested in this product from his choice set and zero otherwise. *Delta Interest* is defined as the interest paid by the respective product minus the interest paid by the product with the lowest interest in the investor's choice set. *Interest rank* is 1 for the highest interest rate paying product, 2 for the second highest interest rate paying product, and so on. *Country and Bank rating* are defined as in Table 3. *Previous Same Product* equals 1 if the investor invested in that same product with the last investment, zero if the investor did not and is not defined if it is the investor's first investment decision. We use heteroskedasticity-robust standard errors. *, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively. *Panel A* shows these findings for all investors jointly. *Panel B[Panel C]* shows the same analysis for believers[doubters]. Believers/Doubters are determined based on all decisions made by the investor prior to the respective investment decision.

Panel A: All Investors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
# Products in Choice Set		-0.00310***	-0.00273***	-0.00123***	-0.00214***			
		(-55.88)	(-52.02)	(-20.61)	(-23.66)			
Delta Interest		0.0932***	0.0981***		0.119***	0.170***	0.0921***	0.0851***
		(86.65)	(93.80)		(39.17)	(109.09)	(100.60)	(92.50)
Interest Rank				-0.00366***				
				(-91.20)				
Country Rating					0.00313***			
					(4.73)			
Bank Rating					-0.00122***			
					(-15.86)			
Previous Same Product							0.250***	-0.0895***
							(41.27)	(-6.24)
Previous Same Product * Delta Interest								0.404***
								(22.57)
Constant	0.0437***	0.0667***	0.0523***	0.127***	-0.147***	-0.00934***	-0.0259***	-0.0213***
	(121.58)	(42.11)	(37.08)	(75.12)	(-4.01)	(-4.52)	(-45.13)	(-38.07)
Observations	323238	323238	322847	323238	118346	323238	225934	225934
R-squared	0.000	0.042	0.043	0.037	0.070	0.088	0.074	0.083
Adjusted R-squared	0.000	0.042	0.043	0.037	0.070	0.088	0.074	0.083
OLS	Yes	Yes	Yes	Yes	Yes	No	No	No
Decision-FE	No	No	No	No	No	Yes	Yes	Yes
Choice Set >=2	No	No	Yes	No	No	No	No	No
Country-FE	No	No	No	No	Yes	Yes	No	No
Region-FE	No	No	No	No	Yes	No	No	No
Profession-FE	No	No	No	No	Yes	No	No	No
Maturity-FE	No	No	No	No	Yes	No	No	No
Investor-FE	No	No	No	No	Yes	No	No	No

Panel B: Believer

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
# Products in Choice Set		-0.00495***	-0.00407***	-0.00159***	-0.00273***			
		(-22.98)	(-20.78)	(-6.12)	(-7.85)			
Delta Interest		0.167***	0.185***		0.202***	0.205***	0.188***	0.173***
		(28.45)	(33.18)		(12.14)	(40.70)	(40.24)	(35.89)
Interest Rank				-0.00672***				
				(-26.30)				
Country Rating					-0.00316			
					(-0.81)			
Bank Rating					-0.00168***			
					(-3.21)			
Previous Same Product							0.239***	-0.0448
							(12.35)	(-1.39)
Previous Same Product * Delta Interest								0.305***
								(8.63)
Constant	0.0697***	0.0643***	0.0298***	0.174***	0.181	-0.0646***	-0.0622***	-0.0523***
	(36.57)	(11.55)	(6.99)	(29.97)	(0.85)	(-19.58)	(-20.50)	(-17.20)
Observations	17856	17856	17777	17856	6270	17856	17856	17856
R-squared	0.000	0.102	0.112	0.066	0.133	0.101	0.131	0.140
Adjusted R-squared	0.000	0.102	0.112	0.066	0.128	0.101	0.131	0.140
OLS	Yes	Yes	Yes	Yes	Yes	No	No	No
Decision-FE	No	No	No	No	No	Yes	Yes	Yes
Choice Set >=2	No	No	Yes	No	No	No	No	No
Country-FE	No	No	No	No	Yes	Yes	No	No
Region-FE	No	No	No	No	Yes	No	No	No
Profession-FE	No	No	No	No	Yes	No	No	No
Maturity-FE	No	No	No	No	Yes	No	No	No
Investor-FE	No	No	No	No	Yes	No	No	No

Panel C: Doubters

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
# Products in Choice Set		-0.00222***	-0.00220***	-0.000639***	-0.00210***			
		(-23.64)	(-23.50)	(-6.41)	(-12.37)			
Delta Interest		0.0752***	0.0754***		0.0745***	0.0803***	0.0720***	0.0659***
		(52.73)	(52.99)		(18.28)	(82.74)	(70.09)	(63.09)
Interest Rank				-0.00315***				
				(-54.77)				
Country Rating					0.00486***			
					(5.43)			
Bank Rating					-0.00111***			
					(-10.68)			
Previous Same Product							0.276***	-0.113***
							(33.21)	(-5.18)
Previous Same Product * Delta Interest								0.484***
								(16.99)
Constant	0.0379***	0.0533***	0.0524***	0.102***	-0.229***	-0.0150***	-0.0168***	-0.0128***
	(71.00)	(18.88)	(18.70)	(34.62)	(-4.60)	(-23.43)	(-26.71)	(-20.59)
Observations	128016	128016	128010	128016	47668	128016	128016	128016
R-squared	0.000	0.026	0.026	0.027	0.047	0.021	0.074	0.085
Adjusted R-squared	0.000	0.026	0.026	0.027	0.046	0.021	0.074	0.085
OLS	Yes	Yes	Yes	Yes	Yes	No	No	No
Decision-FE	No	No	No	No	No	Yes	Yes	Yes
Choice Set >=2	No	No	Yes	No	No	No	No	No
Country-FE	No	No	No	No	Yes	Yes	No	No
Region-FE	No	No	No	No	Yes	No	No	No
Profession-FE	No	No	No	No	Yes	No	No	No
Maturity-FE	No	No	No	No	Yes	No	No	No
Investor-FE	No	No	No	No	Yes	No	No	No

Table VII: Determinants of Bank Flows

In this table we explain the market share of a given bank per month by several explanatory variables. *Market share* of bank i is defined as (Number of investment decisions for bank i's term deposit of maturity m in month t)/(Number of investment decisions in month t for maturity m). H*ighest interest rate paying product* is a dummy that equals 1 if the product is the highest interest rate paying product in its choice set and zero otherwise. *Interest Rate Delta* is defined as the interest paid by the respective product minus the interest paid by the product with the lowest interest in the investor's choice set. *Fraction Believers* is defined as $\frac{Number\ of\ believers\ in\ month\ t}{Number\ of\ all\ Investors\ in\ month\ t}$, with believers being defined as someone who always chose the highest paying product till current decision in maturity m. We use heteroskedasticity-rust standard errors. *, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	Fraction (1)	Fraction (2)	Fraction (3)	Fraction (4)	Fraction (5)	Fraction (6)
Highest interest rate paying Product	0.239***		0.235***		-0.0285	
	(11.05)		(9.92)		(-0.90)	
Interest Rate Delta		0.176***		0.136***		0.0758***
		(17.69)		(12.69)		(4.79)
Fraction Believers					0.236***	1.308***
					(3.30)	(79.37)
Fraction Believers # Highest interest rate paying Product					0.817***	
					(10.18)	
Fraction Believers # Interest Rate Delta						0.319***
						(6.25)
Country Rating			-0.000315	0.000322		
			(-0.53)	(0.54)		
Bank Rating			0.00154***	0.00230***		
			(4.71)	(6.84)		
Constant	0.291***	0.471***	0.409***	0.406**	0.402***	0.298***
	(4.22)	(5.85)	(2.81)	(2.34)	(5.84)	(3.80)
Observations	3261	3261	2904	2904	3292	3292
R-squared	0.235	0.253	0.220	0.196	0.408	0.367
Adjusted R-squared	0.222	0.240	0.208	0.184	0.396	0.355
Month-FE	Yes	Yes	Yes	Yes	Yes	Yes
Maturity-FE	Yes	Yes	Yes	Yes	Yes	Yes
Choice Set >=2	Yes	Yes	No	No	No	No