Stakes and mistakes*

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Abstract

We provide causal evidence on one of the most prominent critiques of behavioral finance – that most of the evidence in psychology, which underpins the field, comes from experiments with little at stake for participants. How far do behavioral biases – leading to investment mistakes – get attenuated when stakes are raised? We study this issue by exploiting exogenous variation in stakes resulting from unexpected inheritances due to sudden parental death. We find that increasing stakes reduces investment mistakes, but this effect is economically small. Mistakes do not disappear when stakes are raised, even when this increase is substantial.

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Behavioral finance as a field has grown dramatically in popularity over the last three decades. The field has documented systematic patterns of investor behavior and prices that are consistent with experimental evidence in psychology, sometimes even when this evidence contradicts basic tenets of rationality (Barberis and Thaler, 2003). However, both practitioners and critics of behavioral finance have also pointed out a few important reasons for skepticism. One of the most prominent ones is the fact that most of the evidence in psychology – which underpins the field – comes from experiments with little at stake for participants. The argument goes that once we examine behavior in situations with high stakes – like real-world financial decisions – many documented biases might weaken substantially. Levitt and List (2008) express this concern eloquently:

"Perhaps the greatest challenge facing behavioral economics is demonstrating its applicability in the real world. In nearly every instance, the strongest empirical evidence in favor of behavioral anomalies emerges from the lab. Yet, there are many reasons to suspect that these laboratory findings might fail to generalize to real markets."

Whether laboratory findings might generalize to real world financial markets where stakes are undoubtedly more substantial is particularly difficult to test. One could point out specific situations, such as biases in retirement account decisions, where stakes do not seem to undo biases (e.g., Benartzi and Thaler, 2001); but saying something more general about stakes and mistakes is difficult. The literature has made progress on this issue in two different directions. First, many papers have considered the effect of increasing stakes in experiments. The evidence form these studies is mixed. For example, Camerer and Hogarth (1999) review seventy-four experiments that vary incentives, and find that in typical tasks of interest to financial economists – like trading in financial markets or choosing among risky assets – increased incentives do not substantially change average behavior. On the other hand, Andersen et al (2011) examine ultimatum games, and show that increasing stakes can indeed change rejection rates in the experiment. Besides, one key issue with such an approach varying experimental rewards is that budgetary limits make it difficult to raise stakes to real-world levels; even in high-incentive conditions, rewards are an order of magnitude smaller than in financial markets. Second, papers like Vissing-Jorgensen (2002, 2003) and Massa and Simonov (2006) have examined the relation between wealth and investment biases. They find that wealthier participants exhibit less biases. While this evidence is consistent with the view that higher stakes reduce biases, it is not causal. The main endogeneity concern arises from the fact that the level of wealth is likely to be correlated

with other determinants of behavioral biases, such as financial sophistication (Feng and Seasholes, 2005; Dhar and Zhu, 2006; Calvet, Campbell and Sodini, 2009), or IQ (Grinblatt, Keloharju and Linnainmaa, 2011, 2012). Moreover, reverse causality – that financial market participants who make less mistakes end up richer – cannot be ruled out in these studies, as Vissing-Jorgensen (2003) points out.

The ideal experiment, then, on whether high stakes do indeed reduce biases would be to *randomly* increase subjects' endowments, and examine if biases do indeed disappear if the increase is substantial. In this paper, we exploit a research design that resembles such an experiment, by examining sudden inheritances arising from unexpected parental deaths. This approach is similar in spirit to Andersen and Nielsen (2012), who look at inheritances in the context of fixed costs of stock market participation. Our estimates indicate that large, unexpected inheritances reduce the propensity to make investment mistakes in a statistically significant way, but the sensitivity of mistakes to stakes is economically very small. For example, our evidence on the home bias in investments indicate that it would require a windfall inheritance of 87.6 million DKK (11.8 million euros) to eliminate such bias from an average individuals' portfolio, while even the 99th percentile of financial wealth in our sample is between 5.7 and 6.1 million DKK (765,000 to 819,000 euros).

We are able to answer whether these inheritances causally affect investing-related biases by examining high quality administrative register data on trading and investment decisions made by the entire population of Denmark. Our estimates are therefore based on a relatively large sample of more than 65,000 individuals who receive an inheritance – which enables us to identify even small effects with a high degree of precision – allowing us to contribute to the stakes and biases debate in a way that has eluded the literature.

Using this dataset, we examine five important behavioral biases in investments documented by the previous literature. These biases can be broadly classified into those associated with a lack of portfolio diversification, those related to suboptimal asset choice, and those related to mistakes in trading. We measure portfolio under-diversification using three indicators – an indicator for local bias which takes the value one if the individual only invest in Danish stocks (or mutual funds investing in Danish stocks), an indicator for holding mutual funds (a conservative measure of portfolio

diversification), and a Herfindahl measure of portfolio concentration (Grinblatt and Keloharju, 2001). Our measure of mistakes regarding asset choice is the tendency to invest in index funds with high fees, for which a lower cost alternative is available. Finally, our measure of trading mistakes is the disposition effect, i.e. tendency to realize gain and hold onto stocks with losses, which has been shown by prior literature to be value-destroying (Odean, 1998).

First, we confirm that these mistakes prevail widely in our data. For example, more than half (55%) of our investors only hold domestic stocks despite the fact that Danish stocks make up less than 1% of world market capitalization. Nearly two-thirds of our sample portfolios consist only of directly held stocks. The average portfolio is highly concentrated, with a Herfindahl index of 0.59. Even the minority of investors who hold mutual funds tend to hold mutual funds that charge high fees – the average index fund fee in our data is 95 basis points.

Moreover, these mistakes correlate with underlying wealth, consistent with the stakes-reduce-biases view (similar to Vissing-Jorgensen's (2003) evidence on US households). Figure 1 shows a steady decline in mistakes across the distribution of financial wealth, and clarifies two other facets of our data. First, with the exception of the disposition effect, the decline in biases with wealth happens across the entire distribution, rather than at the very top of the wealth distribution. Second, even for the very wealthy, these biases are substantial in the data. For example, even for the wealthiest 5% of the population, about a quarter still do not hold any funds, and a fifth invest only in Danish stocks.

However, as mentioned previously, wealth is correlated with various other individual characteristics that determine behavioral mistakes, such as IQ. To provide evidence on the effect of large *changes* in investment stakes on mistakes, we investigate *changes* in these biases around unexpected inheritances. Importantly, inheritances in Denmark exhibit significant variation, and can be large – on average, thrice the beneficiary's annual income at the top quartile (figure 2). By design, these are within-person changes, hence they account for a variety of individual level traits that are either time-invariant or those that are unlikely to change substantially over the five-year horizon around inheritance that we examine.

Our main results, illustrated in figure 3 and summarized in Tables 4 and 5, show that changing stakes only has a small effect on biases. For example, an inheritance of a million DKK (134,000 euros)

reduces the tendency to invest only in local stocks by 0.7%, even up until five years after the inheritance shock, relative to a baseline of 55% in our dataset. Similarly, the propensity to buy at least one mutual fund increases by 0.7% per million DKK of inheritance, which is again tiny compared to a baseline of 36%. The average fee paid to index mutual fund managers remains virtually identical (an effect of less than one basis point), while the disposition effect declines only by 0.004 per million DKK inherited. Note that given our sample size of nearly 50,000 inheritances, we retain enough statistical power to get precise estimates – with the exception of index fund fees and the disposition effect, these changes in mistakes are statistically significant at the 1% level.

Inherited wealth is, of course, subject to concerns regarding intergenerational correlations in wealth, education, intelligence, etc. For example, one might be concerned that the differences in inheritances are only a reflection of parental wealth. If wealth is correlated with IQ and IQ is partly genetic, our results might reflect that high IQ individuals do better when they start managing their portfolios seriously after their parent's demise. We do two things to address these types of concerns. First, we only look at beneficiaries with equally wealthy parents who got different bequests because they had different numbers of siblings. For example, we compare an only child whose parent died, with another beneficiary whose parent also died leaving behind a similar-sized overall estate, but the latter person had a brother or sister, so received only half the bequest relative to the former. This set-up rules out intergenerational differences that are likely to be correlated with differences in parental wealth – now we can compare two beneficiaries whose parents were equally wealthy, yet they receive different inheritances. We find evidence to suggest that biases are indeed lower for beneficiaries receiving smaller inheritances where the variation in inheritance size comes from number of siblings (figure 5), and this is true particularly at higher levels of inheritance.

Second, we address the concern that even in these sibling-based tests, one could be concerned that people who grow up with different numbers of siblings might exhibit different behaviors – for example, they might react differently to parental death or to sudden inheritances. We explore a similar set-up, but now we employ an instrumental variables design. We focus on beneficiaries with a certain number of siblings and parental wealth and compare them to other beneficiaries with similar parental wealth, who also *had* the same number of siblings while growing up, but lost at least one adult sibling before the parent, leaving them with a larger bequest. Since both these beneficiaries had the same

number of siblings while growing up, their behavioral traits related to family size or resource sharing while growing up are likely to be similar, but their inheritances are different. Using this instrument, we find that inheritance does reduce the incidence of investment mistakes, but the sensitivity of mistakes to investment stakes is economically small. Further, when we account for the possibility that some of the reduction in mistakes might arise mechanically due to inheriting better-managed estates, our evidence indicates that active reduction in mistakes after inheritances – perhaps more closely related to the true effect of stakes on mistakes – is even smaller.

In our next set of tests, we focus on the interaction between stakes and other well-known moderators of behavioral biases, such as financial literacy or trading experience. We find that the effect of increasing stakes on mistakes is indeed higher for individuals with have higher levels of financial literacy (figure 6), while we find no moderating effect of trading experience. Still, even for those individuals with the highest levels of financial sophistication, large changes in stakes are not sufficient to undo behavioral biases in investments completely.

Finally, we account for the possibility that large inheritances could also be accompanied by beneficiaries inheriting competent financial advisers – so that any reduction in investment mistakes is not a result of higher stakes but better advice. Note that the presence of such an effect would imply that our estimates on the reduction in mistakes are biased upward. Given that our estimates are already economically small, this would not change any of our conclusions. Still, to understand the importance of this channel, we examine benefactors who had substantial accounts at large Danish banks, the primary source of advice in our context. Again, we find very similar results to our baseline, indicating that financial advice is unlikely to be the main driver of our findings.

Although many experimental studies have documented the existence of behavior inconsistent with standard predictions of neoclassical models with rational agents, the contribution of this paper is to directly address skepticism regarding the applicability of this evidence in financial markets. Perhaps the three most important concerns on the generalizability of experimental evidence concern the mitigating effects of competition, experience, and higher stakes. While the first two have been addressed in the literature (see, for example, Hong and Kacperczyk (2010) on competition and List (2003, 2011) on experience), identifying the causal effect of stakes on biases remains a challenge.

Moving beyond studies that vary experimental incentives, as discussed previously, a few papers have used creative designs to circumvent the issue of experimental reward magnitudes being orders of magnitude lower than real-world stakes. One of these is to conduct experiments with poorer people: the same dollar reward amount is much more significant a stake in rural India than in New York City (Ariely et al, 2009). This technique, however, is difficult to apply in the specific context of financial decision-making without impairing the generalizability of the results. The problem arises because experience and financial sophistication have both been shown to matter in such decisions, and it is extremely hard to find an environment in which these two factors would not confound a study which varies average financial incentives as a proportion of income.

The literature, however, has been able to show in certain specific contexts that several psychological predictions from experiments do generalize to high-stakes environments. For example, Pope and Schweitzer (2011) analyze golf putting data and find that even the best golfers show evidence of loss aversion. On average, this bias costs the best golfers over $1.2 million in tournament winnings per year, so stakes here are substantial. In finance, the best-known examples come perhaps from employee behavior in retirement accounts. Studies have found evidence of substantial default effects (Madrian and Shea, 2001; Carrol et al, 2009), mental accounting (Choi et al, 2009a), experience effects (Choi et al, 2009b), dominated under-investment (Choi et al, 2011) in the context of 401(K) savings in the United States, which constitute a substantial part of retirement savings for a large part of the working population.

The main contribution of this study, relative to this literature, is in terms of our ability to examine large *exogenous, within-person changes* in stakes, and hence our ability to causally estimate how such changes relate to the incidence of generic, yet important, investment-related behavioral biases studied by a long literature.

Our study proceeds as follows. In Section II we will present our data and provide descriptive statistics. Section III documents the prevalence of investment mistakes in the Danish population, and describes how mistakes relate to financial wealth, while Section IV provides background on inheritances and results from our main test of the effect of stakes on mistakes, using exogenous variation in wealth resulting from unexpected inheritances. In Section V we consider a sibling-based

strategy, Section VI examines active vs passive investment decisions, and Section VII focuses on the interaction between stakes and other possible moderators of behavioral biases. Finally, we offer concluding remarks in Section VIII.

II. Data and descriptive statistics

We construct a dataset of individual beneficiaries who unexpectedly inherited wealth as a result of the sudden death of their legal parents. Our dataset contains economic, financial, and personal information about the individuals and their deceased parents. The data are collected from relevant official registers. Demographic, income, and wealth data are comparable to the data from other Nordic countries.[1] The dataset is constructed from four different sources made available from Statistics Denmark, as explained below.

Individual and family data are from the official Danish Civil Registration System. These records include the personal identification number (CPR), name, gender, date of birth, names and CPR numbers of nuclear family members (parents, siblings, and children), and marital history (number of marriages, divorces, and widowhoods). In addition to providing control variables, such as age, gender, and marital status, this data enables us to identify all individuals' legal parents. The sample contains the entire Danish population, and provides unique identification across individuals and households over time.

Income and wealth information is from the official records of the Danish Tax Authorities (SKAT). This dataset contains personal income and wealth information, sorted by CPR number, about the Danish population. SKAT receives this information directly from the relevant sources: financial institutions supply information to SKAT on customers' deposits, on interest paid or received, and on security investments and dividends. Employers similarly supply statements of wages paid to their employees. Through Statistics Denmark, we obtain access to personal income and wealth data from 1990 to 2017. However, individual stock holdings at the end of the year are available from 2006, while data on individual trading of stocks, mutual funds, and bonds are available from 2012 and onwards. As a result, we have reliable data for the entire Danish population on individuals' holdings of risky

[1]Finland: Grinblatt and Keloharju (2001), Kaustia and Knüpfer (2012) and Knüpfer et al. (2017); Norway: Hvide and Östberg (2015); and Sweden: Calvet et al. (2007, 2009).

assets from 2006 to 2017 and trades from 2012 to 2017. Information on holdings of risky assets and trades includes direct investments and indirect investments through mutual funds.

Causes of deaths are from The Danish Cause-of-Death Register at the Danish National Board of Health (Sundhedsstyrelsen). In this dataset, the cause of death is classified according to international guidelines specified by the World Health Organization's (WHO) International Classification of Diseases (ICD-10) system. The sources of this data are the official death certificates that are issued immediately after the death of every Danish citizen. The death certificate details the cause of death based on post-mortem examination reports, information on social and psychiatric history provided by family members and associates, and other corroborating information, such as suicide notes. In Denmark, both the death certificate and the post-mortem examination report are completed by a doctor and, therefore, convey a medically qualified opinion on the cause of death. Sundhedsstyrelsen compiles this data for statistical purposes, and makes it available for medical and social science research through Statistics Denmark. We will obtain the cause of death for all Danish citizens who passed away from January 1, 1998 through December 31, 2017. We use this dataset to identify a sample of individuals who died suddenly and unexpectedly, and use the data from the Danish Civil Registration System (see above) to link deceased to their beneficiaries.

Educational records are from the Danish Ministry of Education. All completed (formal and informal) education is registered on a yearly basis for each individual and made available through Statistics Denmark. We use this data to measure an individual's education level, and to identify individuals who are financial literature, defined as having either formal (university) education in economics or finance, or, alternatively, have an apprenticeship in the financial industry.

To examine the effect of wealth on financial mistakes we focus on the adult population aged between 18 and 65 that are participating in the stock market. Table 1 shows descriptive statistics from 2016 across vigintiles of financial wealth.

[Insert Table 1 here]

As expected average income, wealth, age and education is increasing with financial wealth. More interestingly, the descriptive statistics highlight the challenge when testing whether stakes reduce

mistakes: measures of stakes correlate with education and financial literacy that in turn affect the incidence of mistakes.

III. Mistakes

The starting point of the analysis is to identify mistakes that are prevalent among households. We rely on a five important mistakes that have been documented in many contexts and in different financial markets.

Our first measures of mistakes focus on portfolio diversification. In particular, we measure under-diversification of the portfolio in three ways: an indicator for local bias which takes the value one if the individual only invest in Danish stocks (or mutual funds investing in Danish stocks), an indicator for holding mutual funds and a measure of the portfolio concentration. The latter is calculated by as a Herfindal index of portfolio weights. If the portfolio include mutual funds we set the value of the squared portfolio weights to 0.05, which is the value for a portfolio of 20 stocks where the portfolio weight is 5% for all stocks. These measures are motivated by prior literature that documents that retail investors tend to hold few stocks (e.g. Blume and Friend, 1975; Kelly, 1995; and Polkovnichenko, 2005) and exhibit local bias (e.g. French and Poterba, 1991; Zhu, 2002; Grinblatt and Keloharju, 2002; and Feng and Seasholes, 2004). Our fourth measure of mistakes focuses on index funds with high fees, for which a lower cost alternative is available. We obtain mutual fund fees as well as their investment strategy from Morningstar at the ISIN level. Our fifth and last measure of mistakes is the disposition effect, i.e. tendency to realize gain and hold onto stocks with loses. We follow prior literature and calculate PGR-PLR, where PGR = proportion of gains realized, i.e., # realized gains /(# realized gains + # paper gains); PLR = proportion of losses realized, i.e., # realized losses /(# realized losses + # paper losses). Individuals exhibiting the disposition effect are defined as individuals with PGR>PLR.

[Insert Table 2 here]

Table 2 shows the incidence of the five mistakes among individual investors. Consistent with prior literature, mistakes are prevalent among individual investors. More than half (55%) only hold domestic stocks despite the fact that Danish stocks make up less than 1% of the market capitalization

in the world. The average portfolio consists of directly held stocks as only 36% of the individual investors have invested in a mutual fund. As a result, the average portfolio is highly concentrated with an average portfolio concentration of 0.57. Even if investors hold mutual funds, they tend to hold mutual funds that charge high fees. The average mutual fund fee is 114 basis points; it is 92 basis points for index funds.

Table 2 also shows the incidence of mistakes across the distribution of financial wealth. Mistakes are much more prevalent for individuals with low financial wealth compared to individual with high financial wealth. The fraction that invest in local stocks declines from 88 percent to 16 percent. The fraction that hold mutual funds increase from 5 percent to 75 percent. Portfolio concentration decreases from 0.93 to 0.2, and index fund fees declines from 110 basis points to 65 basis points. The only exception is the incidence of the disposition effect that is rather constant across the distribution of financial wealth. Overall, Table 2 highlights the critique against behavioral finance: mistakes in financial markets are prevalent when stakes are small, but tend to disappear when stakes are large. These observations motivate a more careful analysis of the effect of stakes on mistakes using exogenous changes in stakes due to sudden and unexpected inheritances.

IV. Stakes and mistakes: Background and main results

Our main goal is to examine the incidence of mistakes when individual stakes are raised. To start out, we first examine the relation between aggregate wealth and the incidence of investment mistakes in figure 1. Consistent with prior literature on other countries, we find that wealthier individuals are less subject to typical mistakes. However, in order to link stakes to mistakes in a causal sense, we need exogenous variation in stakes.

Identifying such exogenous variation in an individual's investment stakes poses a major empirical challenge. We make progress by using unexpected inheritances due to sudden death. The key identifying assumption of our approach is that the timing of the death is unexpected and sudden. In particular, we are interested in testing whether raising stakes due to windfalls reduce the incidence of mistakes. If the critique of behavioral finance is correct we expect to see significant reductions in the incidence of mistakes after stakes are raised. If mistakes are underpinned by behavioral biases as

an individual trait, we would expect to find that individuals continue to make mistakes after stakes are raised.

The starting point of our analysis is documenting deaths that cause a household termination and, hence, an inheritance case. Household terminations occur whenever the last living member of the household dies or, in rare cases, when a couple dies in the same year. We focus on deaths wherein the deceased have offspring, in which case the estate will, by default, be shared equally among the offspring. The net worth of the estate is subject to a 15% estate tax for immediate relatives if the estate's net wealth exceeds 242,400 DKK (32,500 EUR) in 2006. This threshold is inflated by a price index in subsequent years. Apart from the inheritance tax, the estate does not have to pay taxes on any unrealized capital gains incurred by the deceased, and thus beneficiaries have no tax incentives to either keep or liquidate the inherited assets. Because of the relatively low estate tax and substantial cash holdings, 85% of the estates (or their beneficiaries) hold sufficient cash to settle the estate tax without selling assets.

We use the cause of death from the death certificate to classify whether the death was sudden and unexpected. We follow Andersen and Nielsen (2011, 2012) and combine relevant ICD-10 codes from related medical literature with a thorough inspection of World Health Organization's detailed classification system. The medical literature defines sudden death as unexpected death that occurs instantaneously or within a few hours of an abrupt change in the person's previous clinical state. We use ICD-10 codes to identify causes of death that are truly sudden and unexpected by beneficiaries (see Appendix Table A1 for details).

Panel A in Table 3 summarizes the size of inheritances in our sample. An average beneficiary inherits 481,000 DKK (64,500 euros) after estate tax. There is large variation in size of inheritance. Beneficiaries in the lowest quartile inherits almost nothing, while the beneficiaries in the top quartile on average inherit 1.576 million DKK (211,500 euros). Relative to an average annual income of 353,000 DKK (64,500 euros) and average financial wealth of 516,000 DKK (69,300 euros) inheritances are economically significant. The average ratio of inherited wealth to income is 1.5, while the average inherited wealth to financial wealth ratio is 2.9. The economic significance is particularly strong in the top decile of inherited wealth where the average inheritance is equivalent to 4.9 times

annual income and 7.5 times financial wealth. In summary, Table 3 documents hat beneficiaries in our sample has an economically significant increase in their stakes related to financial decision making. We also note that there is significant variation in the economic magnitude of stakes, which will be helpful for our analysis.

[Insert Table 3 here]

To further shed light on the distribution of inheritances and hence increase in stakes, Figure 2 shows the distribution of the inherited wealth to income ratio and inherited wealth to financial wealth across the distribution of inherited wealth.

[Insert Figure 2 here]

As expected, beneficiaries in the first quartile receives an economically insignificant inheritance relative to their income and financial wealth. However, there is substantial variation in the top quartile of inherited wealth. The median beneficiary in the top quartiles inherit wealth that is equivalent to 3 times their annual earnings before tax and more than 4 times their pre-inheritance level of financial wealth. In addition, there is a substantial right tail where beneficiaries experience a 5-fold to 10-fold increases in their stakes. We conclude that our inheritance sample does seem to exhibit sufficient variation in inheritances from a statistical power point of view for a test of whether stakes reduce mistakes.

Table 4 presents results from such a test. We estimate the following equation:

$$Y_{i,t} = \beta_0 + \beta_1 \cdot After\ inheritance + \beta_2 \cdot 1\{t \geq T\}.After\ inheritance + \delta X_{i,j} + \eta_i + \tau_t + \varepsilon_{i,t} \quad (i)$$

where $Y_{i,t}$ is one of our five measures of mistakes for individual *i* in year *t*, and T is the year of inheritance. $After\ inheritance$ is an indicator taking the value one after an individual has received windfall due to the sudden death of their parent. $X_{i,j}$ are individual-level controls, which may include age, income etc. In addition, the specification includes individual fixed effects (η_i) to control for unobserved time-invariant individual traits and year fixed effects (τ_t) to control for time effects.

[Insert Table 4 here]

Across our five measures of mistakes, Table 4 shows that larger stakes reduce mistakes in the domain of diversification. After inheriting, individuals increase their holdings of foreign assets, thereby reducing the fraction of individuals that only hold domestic stocks by 3.3 percentage points. At the same time the fraction that hold mutual funds increase by 3.3 percentage points. Similarly, Column 3 in Table 4 shows that the level of portfolio concentration is reduced by 0.03. In Column 4 we find no effect of inheritances on index fund fees. Finally, Column 5 shows that the incidence of the disposition effect increases by 0.3 percentage points after individuals inherit. At first glance, Table 4 seems to partially support the critique of behavioral finance, that mistakes are prevalent when stakes are small. However, one should note that the effects are economically small. In the following analysis we therefore examine whether it takes time for stakes to reduce the incidence of mistakes, as well as estimating the marginal effect of stakes on mistakes to ensure that the modest reduction in mistakes in Table 4 are not an artifact of small inheritances.

Figure 3 illustrates how mistakes are affected after individuals receive inheritance. The first take away from Figure 3 is that the effect of increasing stakes on mistakes is muted. We compare the incidence of mistakes around inheritances for individuals that receive small inheritances (defined as being in the first quartile of inherited wealth) to the incidence of mistakes of individuals that receive large inheritances (defined as being in fourth quartile of inherited wealth). We note that the reduction in mistakes is gradual as it takes a few years for the increase in mistakes to manifest itself in reductions in mistakes. We also note that individuals with large inheritances reduce the incidence of mistakes by more than individuals that receive small inheritances. To formally understand the marginal effect of stakes on mistakes, we therefore estimate the following equation:

$$Y_{i,t} = \beta_0 + \beta_1 \cdot Inherited\ wealth + \beta_2 \cdot 1\{t \geq T\}. Inherited\ wealth + \delta X_{i,j} + \eta_i + \tau_t + \varepsilon_{i,t} \quad \text{(ii)}$$

where $Y_{i,t}$ is one of our five measures of mistakes for individual *i* in year *t*, and T is the year of inheritance. $Inherited\ wealth$ is the after-tax inheritance in million Danish kroner. $X_{i,j}$ are individual-level controls, which include age, and income. In addition, the specification includes individual fixed effects (η_i) to control for unobserved time-invariant individual traits and year fixed effects (τ_t) to control for time effects. Table 5 reports results.

[Insert Table 5 here]

Table 5 shows that stakes reduce mistakes. One million DKK in inherited wealth leads to 0.7 less local bias in Column 1. Similarly, the fraction of individual increases by 0.7 percentage points per million DKK of inherited wealth, whereas portfolio concentration is reduced by 0.7 percentage points per million DKK of inherited wealth. The effect of inherited wealth on index fund fee is -0.5 basis points, but statistically insignificant. Finally, we find that an inheritance of one million DKK reduces the incidence of the disposition effect by 0.4 percentage points. A quick back of the envelope calculation of the marginal effects suggest that it takes a substantial increase in stakes to eliminate mistakes. For instance, it would require a windfall of 87.6 million DKK (11.8 million euros) to eliminate local bias in an individuals' portfolio, or an inheritance of 94.9 million DKK (12.9 million euros) for all individuals to hold mutual funds. In comparison, the 99th percentile of financial wealth of the Danish population is between 5.7 and 6.1 million DKK (765,000 to 819,000 euros) during our sample period.

The limited reduction in mistakes following unexpected windfalls due to sudden deaths suggest that mistakes by and large are explained by individual traits, rather than limited attention to financial decisions involving small stakes. In the following we therefore examine heterogeneous treatment effects by exploring whether financial literary, access to financial advice and trading experience help *some* individuals reduce their mistakes *more* when stakes are raised.

V. Variations in inheritances due to number of siblings

Inherited wealth could also be correlated with individual or family characteristics which might affect behavioral biases in investments directly, as mentioned in the introduction. Here we address such concerns using two further tests.

First, we only look at people who got different bequests because they had different numbers of siblings when their benefactors died. So, we essentially compare an only child whose parent died, with another beneficiary whose parent also died leaving behind a similar-sized overall estate, but the latter person had a brother or sister, so received only half the bequest relative to the former. We find evidence to suggest that biases are indeed lower for beneficiaries receiving smaller inheritances where

the variation in inheritance size comes from number of siblings. Figure 5 shows that keeping parental wealth constant (i.e., within each quartile of parental wealth), beneficiaries with more siblings – hence lower inheritance-driven wealth shocks – have higher incidences of investment mistakes than those with a lower number of siblings. This is true particularly at higher levels of inheritance, where the difference in stakes among beneficiaries depending on their number of siblings is more substantial.

Second, we address the concern that even in these tests, one could be concerned that people who grow up with different numbers of siblings might exhibit different behaviors– for example, they might react differently to parental death or to sudden inheritances. In order to address this concern, we explore a set-up similar to our baseline, but now we identify inheritance shocks using an instrumental variable (IV) specification. Our instrument for the value of inherited wealth is premature sibling death. In this specification, we focus on those who *had* siblings while growing up, but lost their (adult) sibling before the parental death event, leaving them with a larger bequest. Compared to a beneficiary whose sibling is still alive, both had siblings while growing up, so their behavioral traits related to family size or resource sharing while growing up are likely to be similar. However, the untimely sibling demise yields a larger inheritance for the former beneficiary.

These results are presented in Table 6. In that table we identify 517 estates where an adult child died before wealth is inherited from the parents. To do so, we identify deceased children of at least 18 years of age. The child had to have been single (single, divorced or widowed) at death, and could not have had children of their own (grandchildren inherit in case their mother or father dies before their grandparents). For these estates we find a control group by matching on number of beneficiaries (including the deceased), vigintiles of parental wealth and year of parental death.

Column 1 of Table 6 presents the first stage from the IV estimation. Our instrument satisfies strength requirements, with 'Deceased sibling' being a highly statistically significant predictor of inherited wealth. Using inherited wealth instrumented with deceased siblings, we examine the effect of wealth shocks on investment mistakes in columns 2 through 6. Our results suggest that higher stakes do reduce home bias and portfolio concentration, and increase the propensity to invest in mutual funds. We do not uncover any statistically or economically significant effect on index fund fees paid or the disposition effect.

Overall, we find that the incremental inheritance coming from the lack of a sibling does incrementally reduce behavioral biases. But again, the overarching conclusion from these tests is that the sensitivity of investment mistakes to increased stakes is economically small, even when it is precisely estimated.

VI. Active vs passive reductions in mistakes

Some of our previous evidence on inherited wealth reducing biases previously could also arise passively from inheriting better-manager portfolios. For example, inheriting foreign stocks from parents would mechanically reduce a beneficiary's home bias measure in our set-up. Similarly, inheriting mutual funds or a more diversified portfolio of stocks would also affect our measures. Since our previous results show that significant results only obtain for our first three measures of mistakes – that is, home bias, mutual fund investments and portfolio concentration – these are the ones we examine in this section[2]. Here we distinguish between active vs passive decisions by looking separately at changes in the types of portfolios held after an inheritance coming from (a) passively adding the inherited portfolio to one's own (estate held portfolios) or (b) active changes in portfolios arising out of sales and purchases of components.

Our results are presented in Table 7. This table reports the effect of inheritances in the incidence of mistakes conditional on whether the estate held the investment (columns 1, 3 and 5) or not (columns 2, 4 and 6). Our evidence shows that a majority of the change in behavior comes from estate-held investments, although we are able to estimate a small but precise effect of changing stakes on mistakes even for portfolios that are directly held. Overall, again, our results indicate a very small effect of stakes on the incidence of investment mistakes.

VII. Heterogeneous treatment effects

In this section we explore heterogeneous treatment effects to understand the limited effect of stakes in reducing mistakes. We are interested in understanding whether individuals that are financially

[2] Note also that since the disposition effect requires trading, any effect on that particular measure is unlikely to be a reflection of passive decisions.

literate and therefore more attentive to financial mistakes reduce their mistakes when stakes are raised. Similarly, we examine whether trading experience moderate mistakes when stakes are raised.

V.I Financial literacy

To measure financial literacy, we use our detailed educational records from the Ministry of Education, and classify individuals as being financially literate if they have a degree in economics or finance or received training through an apprenticeship in a financial institution. As we are interested in understanding whether financially literate respond differently to windfalls than other individuals we estimate equation (2) with an interaction term between inherited wealth and the indicator for being financially literate. Because the specification includes individual fixed effects, the baseline effect of being financially literate is absorbed. Table 8 reports results.

[Insert Table 8 here]

Across the five measures of mistakes in Table 8, we note that financial literacy has a modest effect of moderating mistakes when stakes are raised. The effect of inherited wealth is almost identical to the baseline results from Table 5, when we include an interaction term between inherited wealth and an indicator for whether the individual is financially literate. Individuals that are financially literate reduce their home bias by 0.2 percent more per million of inherited wealth, and index fund fees by 2.6 basis points per million of inherited effects. For mutual fund investments and portfolio concentration we note that financially literature has a small moderating effect, but that the effect is statistically insignificant. Finally, we surprisingly note that financially literate individuals seem to exhibit the disposition effect more frequently after inheriting, although the effect is economically insignificant. We conclude that financial literacy has a small, but economically modest moderating effect on the incidence of mistakes when stakes are raised.

V.II Trading experience

In this section we examine whether trading experience moderate mistakes when stakes are raised. We measure trading experience as the number of years you have been participating in the stock market. To capture the moderating effect, we interact inherited wealth with trading experience and report the results in Table 9.

[Insert Table 9 here]

From Table 9 we note that there is no evidence to suggest that individuals with more trading experience reduce their mistakes more than individuals with less trading experience. We conclude that mistakes are prevalent after stakes are raised, even for individuals who have been active in the stock market for many years.

V.III Financial advice

One concern with our empirical strategy of using unexpected inheritance to test the effect of stakes on mistakes is the possibility that individuals who receives large inheritance will be more likely to receive financial advice. Inheritance might trigger financial advice if financial advisors are also inherited with larger estates, or if financial institutions offer differential services depending on customers' wealth. We note that if inherited wealth triggers financial advice, then any reduction in investment mistakes might result from advice, rather than higher stakes. Thus, the direction of the bias would imply that we find larger reduction in mistakes than we otherwise would. Given that our estimates are already economically small, this would not change any of our conclusions.

Still, to understand the importance of this channel, we examine the influence of financial advice by exploiting variation in benefactors' retail banking relationship. In particular, we note that financial advice is more likely if a benefactor is customer at a large nationwide bank, rather than a small regional bank with limited capacity for financial advice. In Table 10, we therefore include an interaction term between inherited wealth and an indicator for large banks to test whether differences in the access to financial advice drive our results.

[Insert Table 10 here]

Table 10 shows no differential impact of stakes on mistakes for beneficiaries who are customers at nationwide banks, relative to beneficiaries that are customers at regional banks. If anything, customers at nationwide banks tend to hold slightly more expensive index funds after they inherit. Overall, results in Table 8 are very similar results to our baseline in Table 5, indicating that financial advice is unlikely to be the main driver of our findings.

VIII. Conclusion

In this study we test the critique of behavioral finance that most of the empirical evidence derives from financial decisions with little at stake. We rely on unexpected inheritances due to sudden deaths to derive unanticipated windfall that allow us to test the effect of large stakes on mistakes in financial decisions.

We find that increasing stakes reduce investment mistakes, but this effect is economically small. Our results indicate that stakes need to be increased by an amount equivalent to more than 250 times the average annual income to eliminate the incidence of mistakes on individuals' financial decisions. The magnitude of this estimate is striking given that one of our measures of mistakes relates to (lack of) portfolio diversification, something individuals can achieve relatively easily at a low cost.

To the best of our knowledge, this study provides the first convincing test of an important critique that has questioned the advance of behavioral finance as a field. Our study provides compelling evidence in favor of behavioral finance: Mistakes do not disappear when stakes are raised, even when this increase is substantial.

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Figure 1: Stakes and mistakes

This figure shows the incidence of mistakes in financial decisions across the distribution of financial wealth. We focus on five measures of mistakes. *Home bias* is equal to one if individuals only invest in Danish stocks or in mutual funds that only invest in Danish stocks. *Mutual fund investment* is an indicator for whether individuals hold mutual funds. *Diversification* measures the level of portfolio concentration using a Herfindahl-index which sums the square of portfolio weights (see definition in Section 2). *Index fund fees* is measured in basis points. Finally, *disposition effect* is an indicator for individuals that exhibit the disposition effects (ie.. tend to realize gains and hold on assets with paper losses. All figures plot the average value for vigintiles of financial wealth.

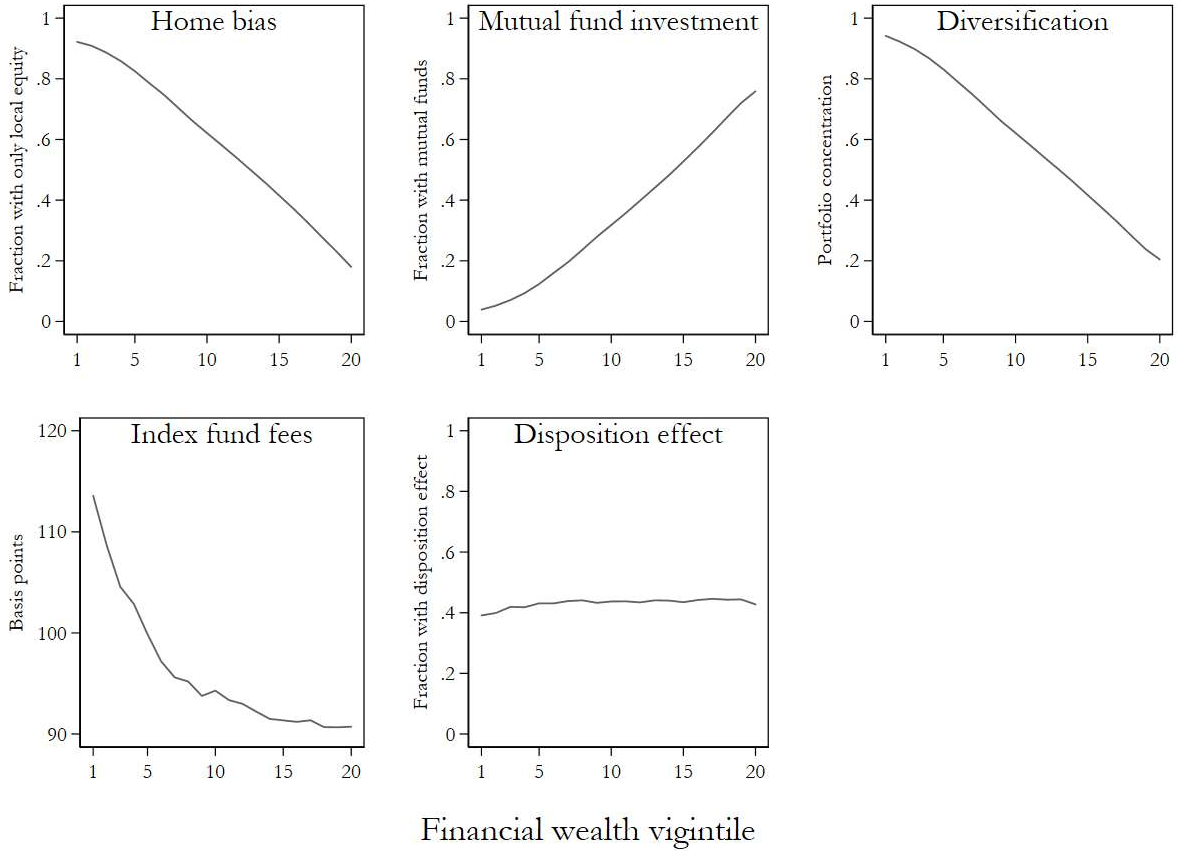

Figure 2: Size and distribution of inheritances

This figure shows the distribution of inherited wealth relative to income (top figure) and financial wealth (bottom figure). Inherited wealth is measured after inheritance taxes. We report the distribution of the ratios for quartiles of inherited wealth. An inherited wealth to income (financial wealth) ratio of 2 implies that an individuals' inherited wealth is two times his/her annual income before tax (financial wealth) in the year before the year of the inheritance.

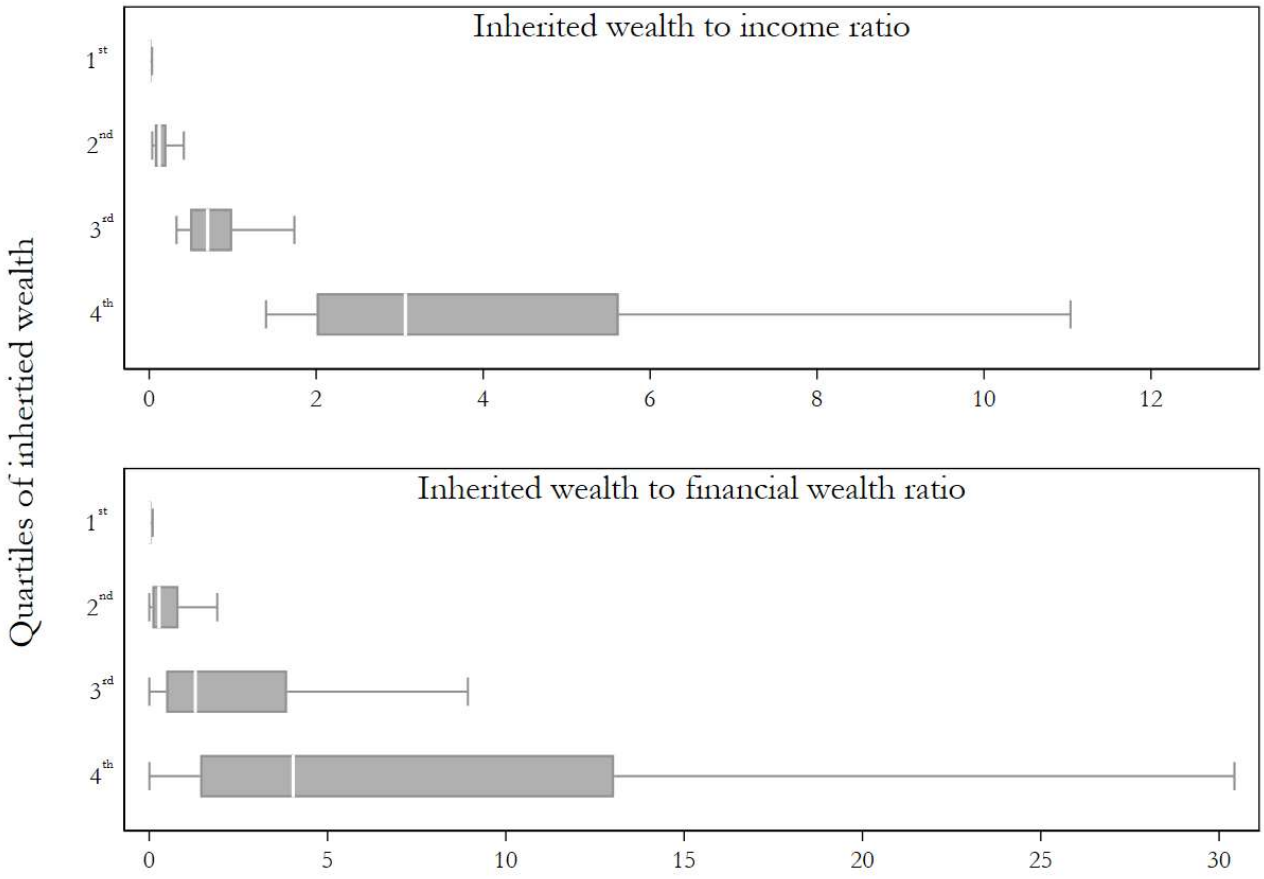

Figure 3: Stakes and mistakes around inheritances, time series

This figure shows the incidence of mistakes relative to the year of inheritance for individuals with small inheritances (1st quartile of inherited wealth) relative to individuals who received large inheritances (4th quartile of inherited wealth). Measures of mistakes are defined in Figure 1.

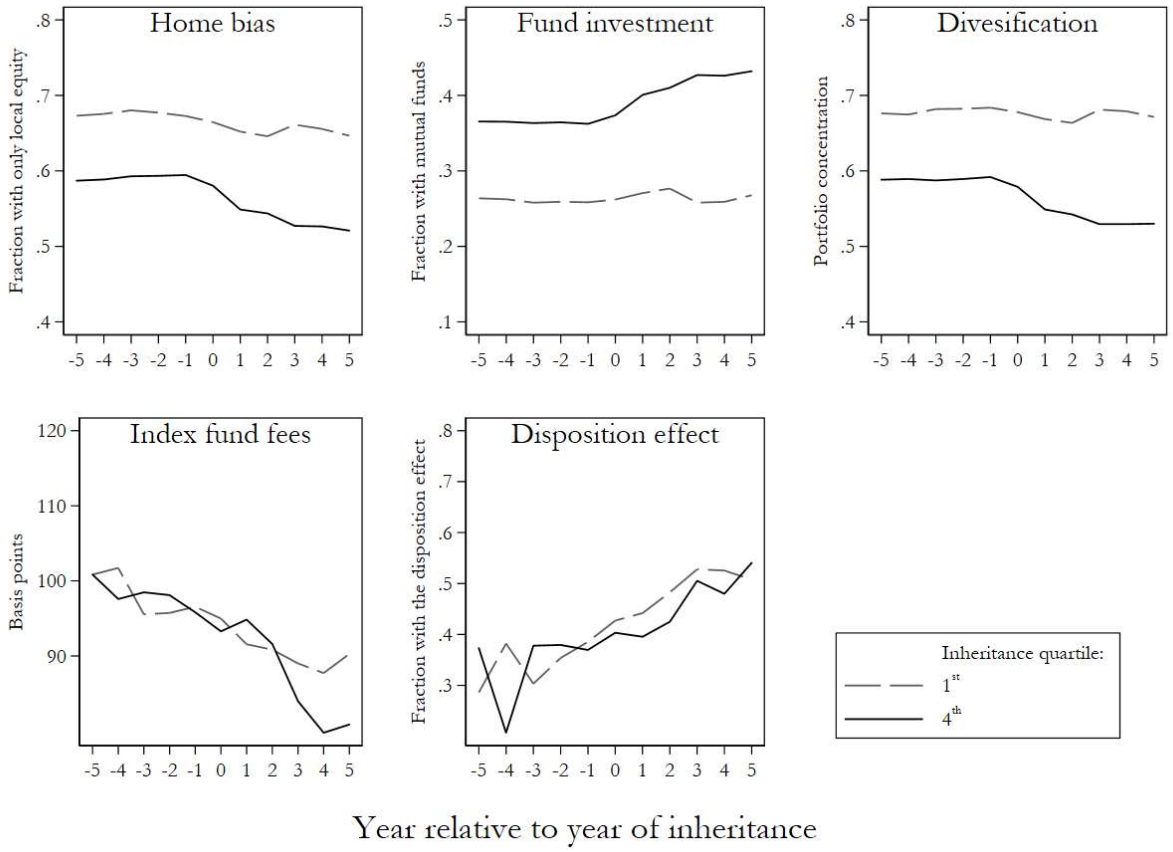

Figure 4: Stakes and mistakes: by size of inheritance

This figure shows the estimated effect of stakes (i.e. inheritances) on the mistakes for quartiles of inherited wealth. Measures of mistakes are defined in Figure 1.

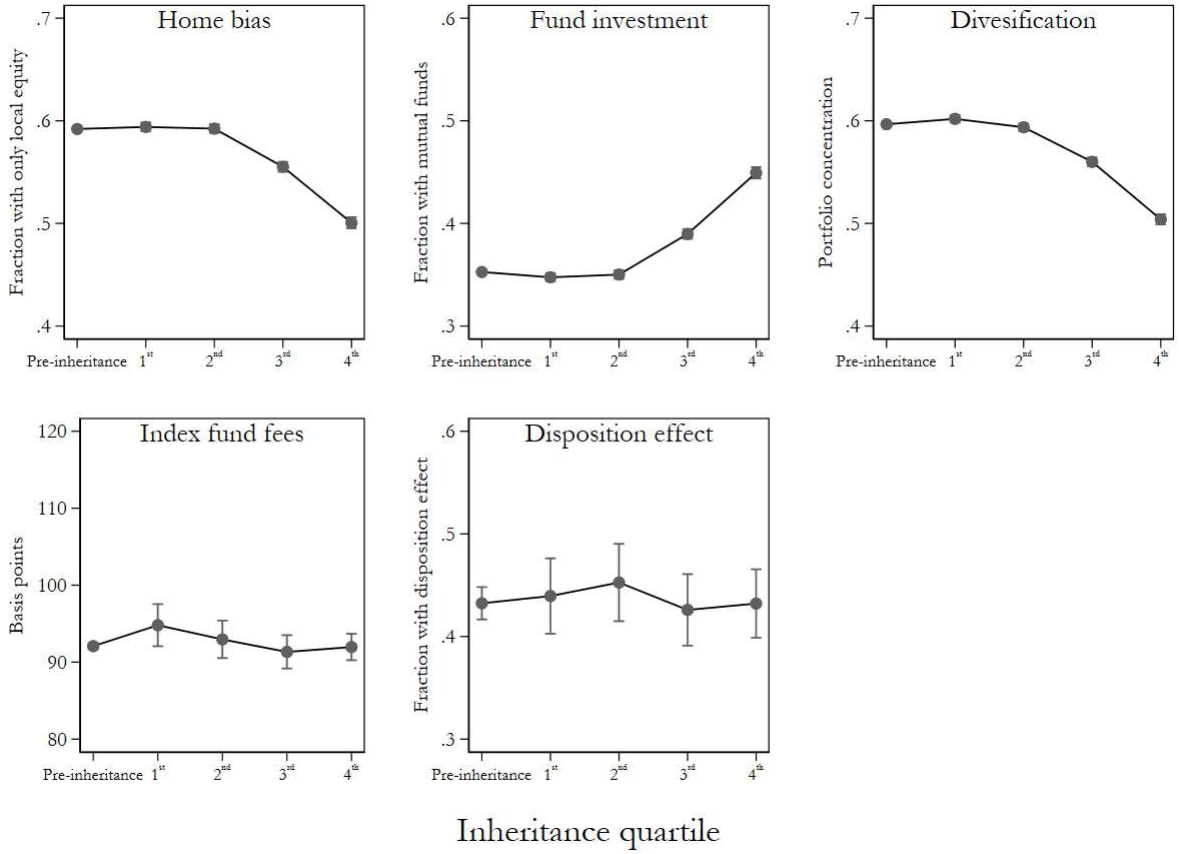

Figure 5: Stakes and mistakes: variation in inheritance driven only by sibling composition

This figure shows the estimated effect of stakes (i.e. inheritances) on mistakes for quartiles of parental wealth. Within each quartile we differentiate between beneficiaries without siblings, one sibling, two siblings and three or more siblings.

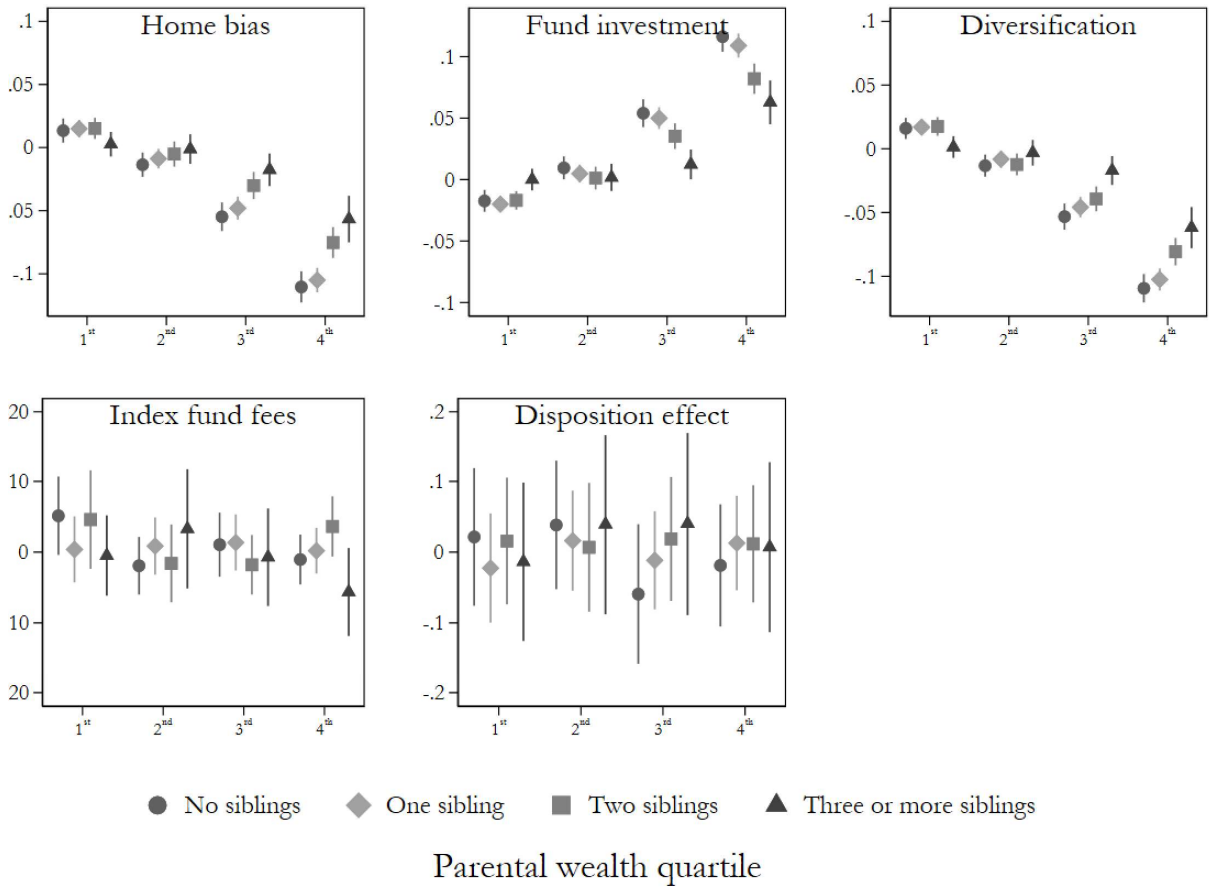

Figure 6: Stakes and mistakes: the effect of financial literacy

This figure shows the estimates effect of stakes (i.e. inheritances) on the mistakes for quartiles of inherited wealth depending on whether individuals are financially literate. We define financially literate as individuals who have a degree in economics or finance, or has been through an apprenticeship at a financial institution.

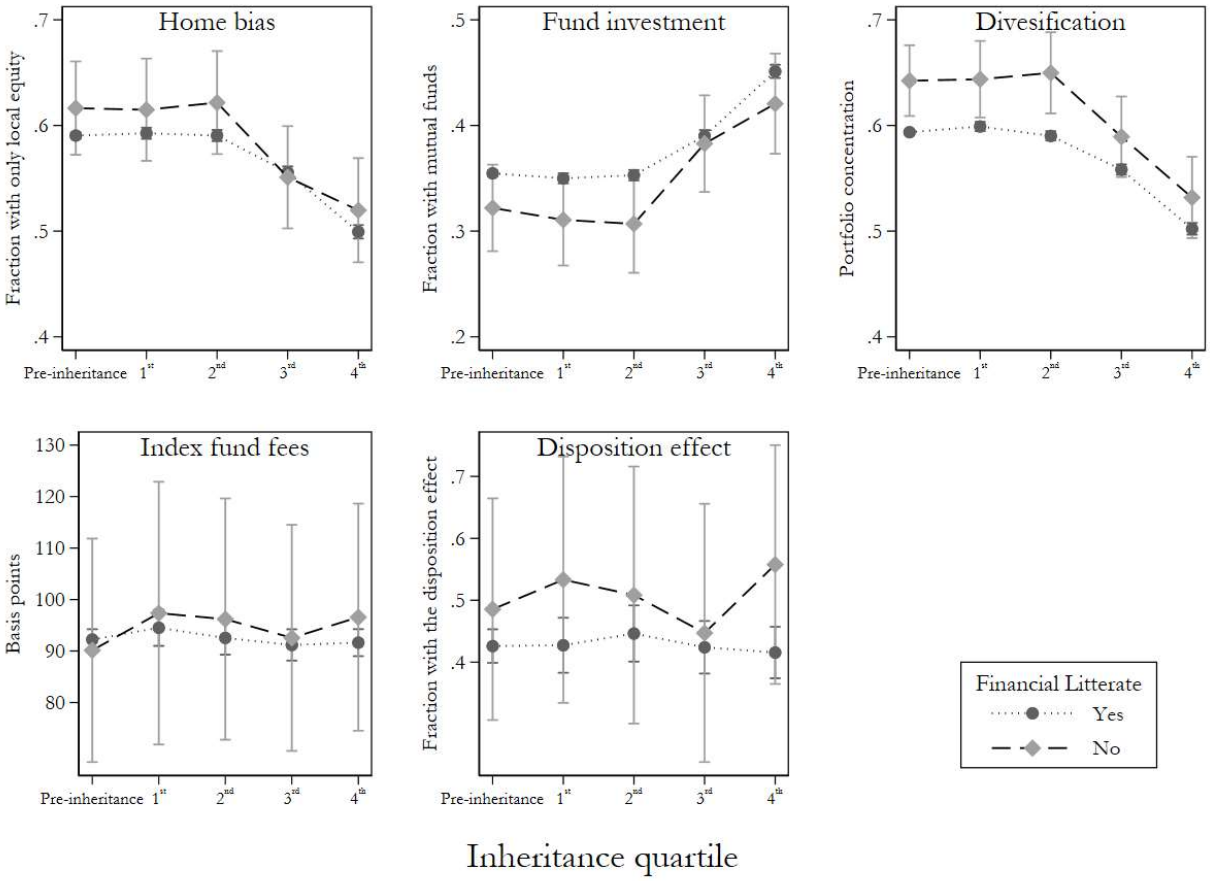

Table 1, Individual and portfolio characteristics

This table reports descriptive statistics of individuals' portfolio characteristics: mean and standard deviation for all individuals who hold stocks in 2016. For each individual, we observe demographic characteristics in panel A: *income after tax*, *net wealth*, *age*, *gender*, *education* (years of schooling), *marital status*, and whether there are *children in the household*; and portfolio characteristics in panel B: *risky asset share*, *market value* of shareholdings. We compare the mean characteristics of individuals across financial wealth vigintiles. Corresponding *t*-statistics are reported in square brackets. All amounts are in thousands of year 2010 Danish kroner (DKK). Standard deviations are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level by standard *t*-tests, respectively.

	All	Financial wealth vigintile					Difference
		1	5	10	15	20	(20) – (1)
Panel A: Demographic characteristics							
Income (1,000 DKK)	379.6	247.1	322.1	363.1	402.4	716.4	469.4***
	(621.0)	(655.31)	(210.2)	(236.6)	(300.4)	(2471.5)	(13.1)
Net wealth (1,000 DKK)	888.4	-130.1	50.8	364.0	921.1	7009.9	7140.0***
	(7071.3)	(1522.1)	(1077.3)	(1223.1)	(29427.9)	(31404.4)	(166.3)
Age (years)	45.6	37.6	40.8	44.6	50.0	53.4	15.8***
	(13.6)	(13.7)	(13.7)	(13.4)	(11.8)	(9.4)	(0.1)
Gender (percent male)	55.3	58.4	54.4	54.4	53.8	64.7	6.3***
	(49.7)	(49.3)	(49.8)	(49.8)	(49.8)	(48.0)	(0.3)
Education (years)	14.5	13.6	14.2	14.6	14.7	15.4	1.8***
	(2.5)	(2.3)	(2.3)	(2.4)	(2.5)	(2.6)	(0.2)
Financial literate (percent)	7.5	3.7	5.4	7.6	8.6	14.0	10.3***
	(26.3)	(18.9)	(22.5)	(26.5)	(28.0)	(34.7)	(0.2)
Married (percent)	52.0	39.7	48.4	53.8	57.6	54.8	15.1***
	(50. 0)	(48.9)	(50.0)	(49.9)	(49.4)	(49.8)	(0.4)
Panel B: Portfolio characteristics							
Risky asset share (percent)	35.7	37.0	25.4	31.8	41.2	60.1	23.1***
	(32.2)	(32.1)	(26.7)	(30.1)	(32.1)	(33.2)	(0.2)
Market value of risky assets (1,000 DKK)	320.2	1.8	12.8	53.9	195.1	3688.5	3656.6***
	(6469.6)	(2.3)	(13.5)	(51.3)	(152.9)	(28703.3)	(151.8)
N	715,172	35,761	35,756	35,758	35,738	35,738	

Table 2, Mistakes across the distribution of financial wealth

This table reports descriptive statistics on the incidence of mistakes across the distribution of financial wealth. We focus on five measures of mistakes. *Home bias* is equal to one if individuals only invest in Danish stocks or in mutual funds that only invest in Danish stocks. *Mutual fund investment* is an indicator for whether individuals hold mutual funds. *Diversification* measures the level of portfolio concentration using a Herfindahl-index which sums the square of portfolio weights (see definition in Section 2). *Index fund fees* is measured in basis points. Finally, *disposition effect* is an indicator for individuals that exhibit the disposition effects (ie. tend to realize gains and hold on assets with paper losses. All figures plot the average value for vigintiles of financial wealth.

	All	**Financial wealth vigintile**					**Difference**
		1	5	10	15	20	(20) – (1)
Only local stocks (percent)	55.0	88.2	76.8	58.2	37.4	16.8	-71.4***
							(0.3)
Investment in mutual fund (percent)	36.2	4.7	14.0	31.9	54.0	74.5	69.8***
							(0.3)
Portfolio concentration	0.57	0.93	0.80	0.60	0.39	0.20	-0.72***
							(0.01)
Index fund fees (basis points)	82.0	109.7	90.5	79.7	74.9	67.5	-42.2***
							(1.4)
Disposition effect (percent)	53.1	53.4	54.4	52.9	53.1	51.6	-1.8***
							(1.4)

Table 3, Size of inheritances

This table reports the size of inheritances relative to income and financial wealth. We report averages of income, financial wealth, inherited wealth, value of inherited stocks, and inheritance to across the distribution of inherited wealth. Inherited wealth is after estate taxes. Income and financial wealth are measured before the inheritance. All amounts are in thousands of year 2010 Danish kroner (DKK).

	All	**Quartile of inherited wealth**			
		1	2	3	4
Income (million DKK)	0.353	0.382	0.380	0.367	0.283
Financial wealth (million DKK)	0.516	0.379	0.434	0.467	0.785
Inherited wealth (million DKK)	0.481	0.003	0.058	0.285	1.576
Value of inherited stocks (indicator)	0.448	0.208	0.320	0.562	0.703
Inherited wealth to income ratio	1.469	0.008	0.151	0.780	4.937
Inherited wealth to financial wealth ratio	2.953	0.060	0.860	3.428	7.465
	66,561	16,641	16,640	16,640	16,640

Table 4, Mistakes around inheritances

This table reports the effect of inheritances in the incidence of mistakes. In column 1 the dependent variable is an indicator for home bias, which takes the value one if an individual only invest in Danish stocks or in mutual funds that only invest in Danish stocks. In Column 2 the dependent director is an indicator for investments in mutual funds In Column 3 the dependent variable is diversification, measured as the level of portfolio concentration using a Herfindahl-index which sums the square of portfolio weights. (See definition in Section 2. In Column 4 the dependent variable is index fund fees is measured in basis points. Finally, the dependent variable in Column5 is an indicator for the disposition effect (i.e. tend to realize gains and hold on assets with paper losses. *After inheritance* is an indicator for time periods after receiving the inheritance. The specification include individual fixed effects as well as year fixed effects. Standard errors are reported in parenthesis. ***. ** and * indicate significance at the 1, 5, and 10 percent level, respectively.

	Dependent variable:				
	Home bias (1)	Mutual fund investment (2)	Portfolio concentration (3)	Index fund fees (bps) (4)	Disposition effect (5)
Constant	0.615***	0.342***	0.618***	97.327***	0.122***
	(0.002)	(0.002)	(0.001)	(0.764)	(0.012)
After inheritance	-0.033***	0.033***	-0.033***	0.449	0.005
	(0.001)	(0.001)	(0.001)	(0.008)	(0.017)
Individual fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
R^2	0.823	0.831	0.27	0.822	0.116
N	511,227	511,227	511,227	17.901	37,409

Table 5, Mistakes and inherited wealth

This table reports the effect of inheritances in the incidence of mistakes. In column 1 the dependent variable is an indicator for home bias, which takes the value one if an individual only invest in Danish stocks or in mutual funds that only invest in Danish stocks. In Column 2 the dependent director is an indicator for investments in mutual funds In Column 3 the dependent variable is diversification, measured as the level of portfolio concentration using a Herfindahl-index which sums the square of portfolio weights. (See definition in Section 2. In Column 4 the dependent variable is index fund fees is measured in basis points. Finally, the dependent variable in Column5 is an indicator for the disposition effect (i.e. tend to realize gains and hold on assets with paper losses. *Inherited wealth* is measures in million DKK. The specification include individual fixed effects as well as year fixed effects. Standard errors are reported in parenthesis. ***. ** and * indicate significance at the 1, 5, and 10 percent level, respectively.

	Dependent variable:				
	Home bias (1)	Mutual fund investment (2)	Portfolio concentration (3)	Index fund fees (bps) (4)	Disposition effect (5)
Constant	0.613***	0.336***	0.627***	96.0***	0.108***
	(0.001)	(0.002)	(0.002)	(2.0)	(0.012)
Inherited wealth (million DKK)	-0.007***	0.007***	-0.007***	-0.5	-0.001
	(0.002)	(0.012)	(0.002)	(0.9)	(0.002)
Individual fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
R^2	0.822	0.831	0.27	0.809	0.116
N	511,227	511,227	511,227	2.982	37,409

Table 6, Mistakes and exogenous variation in inherited wealth

This table reports the effect of inheritances in the incidence of mistakes. We instrument inherited wealth with an indicator for whether a beneficiary dies before the inheritance. To ensure that we capture exogenous variation in inheritance wealth, we only consider deceased beneficiaries that a) are single (unmarried, divorced or widowed), b) do not have children and c) have an age between 18 and 65 at the time of their death. Column 1 presents the first stage from the IV estimation, whereas columns 2 to 6 present second stages using our five measures of mistakes ad dependent variable: In column 2 the dependent variable is an indicator for home bias, which takes the value one if an individual only invest in Danish stocks or in mutual funds that only invest in Danish stocks. In Column 2 the dependent director is an indicator for investments in mutual funds In Column 3 the dependent variable is diversification, measured as the level of portfolio concentration using a Herfindahl-index which sums the square of portfolio weights. (See definition in Section 2. In Column 4 the dependent variable is index fund fees is measured in basis points. Finally, the dependent variable in Column5 is an indicator for the disposition effect (i.e. tend to realize gains and hold on assets with paper losses. *Inherited wealth* is measures in million DKK. The specification includes individual fixed effects as well as year fixed effects. Standard errors are reported in parenthesis. ***. ** and * indicate significance at the 1, 5, and 10 percent level, respectively.

	First stage	**Second stage**				
Dependent variable	Inherited wealth	Home bias	Mutual fund investment	Portfolio concentration	Index fund fees (bps)	Disposition effect
	(1)	(2)	(3)	(4)	(5)	(6)
Deceased sibling	0.145***					
	(0.008)					
Constant		0.619***	0.332***	0.627***	84.1***	0.321***
		(0.001)	(0.011)	(0.010)	(9.0)	(0.135)
Inherited wealth (million DKK)		-0.180***	0.183***	-0.193***	0.7	-0.060
		(0.057)	(0.054)	(0.049)	(0.5)	(0.594)
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.090	0.020	0.840	0.022	0.820	0.140
N	9,614	9,614	9,614	9,614	410	784

Table 7, Active versus passive reductions in mistakes after inheritances

This table reports the effect of inheritances in the incidence of mistakes conditional on whether the estate held the investment. In Columns 1 and 2 the dependent variable is an indicator for home bias, which takes the value one if an individual only invest in Danish stocks or in mutual funds that only invest in Danish stocks. In Columns 3 and 4 the dependent director is an indicator for investments in mutual funds In Columns 5 and 6 the dependent variable is diversification, measured as the level of portfolio concentration using a Herfindahl-index which sums the square of portfolio weights. (See definition in Section 2. In Columns 1 and 2 we split the sample according to whether the estate hold or does not hold foreign stocks. In Columns 3 and 4 we split the sample according to whether the estate hold or does not hold mutual funds, respectively. In Column 5 and 6 we split the sample according to whether the estate hold or does not hold stocks, respectively. *After inheritance* is an indicator for time periods after receiving the inheritance. The specification include individual fixed effects as well as year fixed effects. Standard errors are reported in parenthesis. ***. ** and * indicate significance at the 1, 5, and 10 percent level, respectively.

	Dependent variable:					
	Home bias		Mutual fund investment		Portfolio concentration	
Estate held investment	Yes	No	Yes	No	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.524***	0.648***	0.436***	0.306***	0.594***	0.639***
	(0.003)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
After inheritance	-0.084***	-0.011***	0.090***	0.009***	-0.060***	-0.011***
	(0.003)	(0.001)	(0.003)	(0.001)	(0.002)	(0.001)
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.760	0.845	0.767	0.857	0.791	0.858
N	152,612	358,665	149,801	361,476	235,668	275,609

Table 8, Stakes, mistakes and financial literacy

This table reports the effect of inheritances in the incidence of mistakes. In column 1 the dependent variable is an indicator for home bias, which takes the value one if an individual only invest in Danish stocks or in mutual funds that only invest in Danish stocks. In Column 2 the dependent director is an indicator for investments in mutual funds In Column 3 the dependent variable is diversification, measured as the level of portfolio concentration using a Herfindahl-index which sums the square of portfolio weights. (See definition in Section 2. In Column 4 the dependent variable is index fund fees is measured in basis points. Finally, the dependent variable in Column5 is an indicator for the disposition effect (i.e.. tend to realize gains and hold on assets with paper losses. *Inherited wealth* is measures in million DKK. Financial literate is an indicator taking the value 1 if the individual has a degree in economics or finance or obtained an apprenticeship in a financial institution. The specification include individual fixed effects as well as year fixed effects. Standard errors are reported in parenthesis. ***. ** and * indicate significance at the 1, 5, and 10 percent level, respectively.

	Dependent variable:				
	Home bias (1)	Mutual fund investment (2)	Portfolio concentration (3)	Index fund fees (bps) (4)	Disposition effect (5)
Constant	0.621***	0.334***	0.627***	97.3***	0.413***
	(0.001)	(0.002)	(0.002)	(0.8)	(0.015)
Inherited wealth (million DKK)	-0.007***	0.007**	-0.006***	-0.5***	-0.001
	(0.002)	(0.003)	(0.002)	(1.0)	(0.002)
Inherited wealth x Financial literate	-0.002***	0.003	-0.003	-2.6***	0.002
	(0.005)	(0.006)	(0.005)	(2.3)	(0.020)
Individual fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
R^2	0.845	0.853	0.849	0.463	0.5
N	511,227	511,227	511,227	2,982	12,478

Table 9, Stakes, mistakes and trading experience

This table reports the effect of inheritances in the incidence of mistakes. In column 1 the dependent variable is an indicator for home bias, which takes the value one if an individual only invest in Danish stocks or in mutual funds that only invest in Danish stocks. In Column 2 the dependent director is an indicator for investments in mutual funds In Column 3 the dependent variable is diversification, measured as the level of portfolio concentration using a Herfindahl-index which sums the square of portfolio weights. (See definition in Section 2. In Column 4 the dependent variable is index fund fees is measured in basis points. Finally, the dependent variable in Column5 is an indicator for the disposition effect (i.e. tend to realize gains and hold on assets with paper losses. *Inherited wealth* is measures in million DKK. Trading experience is XX. The specification include individual fixed effects as well as year fixed effects. Standard errors are reported in parenthesis. ***. ** and * indicate significance at the 1, 5, and 10 percent level, respectively.

	Dependent variable:				
	Home bias (1)	Mutual fund investment (2)	Portfolio concentration (3)	Index fund fees (bps) (4)	Disposition effect (5)
Constant	0.621***	0.334***	0.627***	97.3***	0.413***
	(0.003)	(0.002)	(0.002)	(2.0)	(0.021)
Inherited wealth (million DKK)	-0.013***	0.012**	-0.011***	-0.3***	0.001
	(0.004)	(0.005)	(0.003)	(0.4)	(0.008)
Inherited wealth x Trading	0.001	-0.001	0.001	0.3	-0.001
Experience	(0.001)	(0.001)	(0.001)	(0.3)	(0.001)
Individual fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
R^2	0.845	0.853	0.849	0.822	0.537
N	511,227	511,227	511,227	2,982	12,478

Table 10, Stakes, mistakes and financial advice

This table reports the effect of inheritances in the incidence of mistakes. In column 1 the dependent variable is an indicator for home bias, which takes the value one if an individual only invest in Danish stocks or in mutual funds that only invest in Danish stocks. In Column 2 the dependent director is an indicator for investments in mutual funds In Column 3 the dependent variable is diversification, measured as the level of portfolio concentration using a Herfindahl-index which sums the square of portfolio weights. (See definition in Section 2. In Column 4 the dependent variable is index fund fees is measured in basis points. Finally, the dependent variable in Column5 is an indicator for the disposition effect (i.e. tend to realize gains and hold on assets with paper losses. *Inherited wealth* is measures in million DKK. Large bank is an indicator taking the value 1 if an individual has a deposit account with a large nationwide bank, which offers financial advice to its customers. The specification include individual fixed effects as well as year fixed effects. Standard errors are reported in parenthesis. ***. ** and * indicate significance at the 1, 5, and 10 percent level, respectively.

	Dependent variable:				
	Home bias (1)	Mutual fund investment (2)	Portfolio concentration (3)	Index fund fees (bps) (4)	Disposition effect (5)
Constant	0.621***	0.334***	0.627***	97.3***	0.413***
	(0.003)	(0.002)	(0.002)	(2.0)	(0.015)
Inherited wealth (million DKK)	-0.004	0.003	-0.004	-1.0***	-0.005***
	(0.003)	(0.004)	(0.003)	(0.4)	(0.001)
Inherited wealth x Large bank	-0.002	0.006	-0.004	1.3***	0.045
	(0.004)	(0.005)	(0.003)	(0.4)	(0.048)
Individual fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
R^2	0.845	0.853	0.849	0.822	0.537
N	511,227	511,227	511,227	2,982	12,478