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Stressors and Financial Market Trading:
The Case of Marital Separation

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Abstract

The effect of stressors on financial market investment decisions is underexplored. We investigate the association of divorce, a common stressful life event, with the trading behavior of individual investors. In the period around their divorce, investors realize lower returns compared to a control sample, as well as compared to their own portfolios in other years. After controlling for a number of demographic variables, including age and income source, we document that men and women both underperform over the year before, the year of and the year after divorce. Two years after the divorce, the trading performance of women recovers to pre-divorce levels, while that of men continues to be significantly lower.

Introduction

In neoclassical finance, trading is a voluntary activity that economic agents undertake to optimize their reward-risk tradeoff. However, their human side undoubtedly plays a role in influencing their trading and how exogenous psychological stressors affect trading activity is an important issue. To obtain a more comprehensive understanding of trading activity by individuals, it is necessary to consider not only the impact of fixed attributes such as overconfidence and gender, but also temporary stressors that can have an effect on trading activity and performance. In the current paper, we use divorce as an indicator of a common stressful life event for individual investors. Using 17 years of transaction-level stock price data of individual investors from Finland, we investigate the trading performance of investors who divorced and compare it with the performance of others. We uncover that investors' trading performance is negatively affected by divorce; interestingly, older investors are less affected than younger investors and women are affected only temporarily, while the effect on men is more persistent than that on women.

It has been widely documented that one of the most stressful life events one can experience is divorce.[1] Evidence from psychology[2] shows that divorce has a negative impact on the quality of life and health of both women and men, including symptoms of both depression and anxiety. Divorce affects men and women in different ways: the effects occur later and are more long lasting for men than for women.[3] Stress levels

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[1]Pastrana (2011) considers the grieving process following a divorce very similar to that of the death of a close family member.

[2]Amato (2010) reviews the recent general literature on divorce, including predictors of divorce, children's adjustment to divorce and the consequences of divorce for men and women.

[3]Men tend to differ from women in how they mourn the loss of the marriage, experiencing the highest level of divorce-related stress at a later point in time than women (e.g., Baum, 2003). Women

in males are highest once the divorce is finalized, whereas women tend to experience the highest degree of stress when the decision to separate is made (i.e., prior to the divorce). Men are more likely than women to grieve the divorce by increasing alcohol consumption, increasing their workload, and engaging in other risky behavior.

Several studies (Kitson, 1982; Kitson and Holmes, 1992; Amato, 2000) have found that the process of completely integrating the fact that one is divorced into all areas of life takes about two years.[4] Moreover, a social support perspective (e.g. Thoits, 1995) points out that the stress induced by divorce is due to the erosion of marriage's benefits of companionship, everyday assistance, and emotional support.

From the standpoint of an investor's asset allocation decision, divorce is a shock to lifetime earnings due to a change in background risk. This is expected to reduce the investor's propensity to hold risky assets. The life-cycle model of Love (2010) predicts that women optimally reduce their share of risky assets, whereas men increase their share following separation. Consistent with the reduction in background risk, empirical studies document that marriage increases the share of an investor's portfolio held in risky assets (Sundén and Surette, 1998; Lupton and Smith, 2003; Bertocchi et al. 2011), an effect particularly pronounced for women. In a recent study, Christiansen et al. (2012), using Danish data, show that women increase their share in risky assets following marriage, and decrease it following divorce, whereas men behave in a con-

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are more likely than men to end the relationship and hence handle the grief better (e.g., Thomas, 1982).

[4]A large number of changes often occur around the time of marital dissolution, including ending a long-term relationship, dealing with feelings of anger or sadness, changing residences, experiencing a decline in the standard of living, and adopting a single lifestyle. An assumption of stress theory is that a large number of changes concentrated within a short time can have adverse effects on mental and physical health (Pearlin et al. 2005).

trary fashion around both marriage and divorce.[5] Combined, these studies suggest that both men and women shift their overall portfolios significantly with the shock to background risk caused by a change in marital status.

Rather than focus on the asset allocation decision, we explicitly consider how the stock trading behavior of investors is affected around divorce. Using trade-level stock investment decisions of households in Finland, we examine how individuals react differently to the stress of marital separation. Based on the notion that divorce is disruptive and stress-inducing (Thoits, 1995), our hypothesis is that this life event will have an adverse effect on trading performance. Indeed, we find that in the three-year period around their divorce, investors realize lower returns compared to a control sample, as well as compared to their *own* portfolios in other years. After controlling for a number of demographic variables, including age and income source, we continue to find that men and women both underperform over the three years around their divorce. Two years subsequent to divorce, women's performance recovers to pre-divorce levels, while that of men (younger men to a greater extent) continues to be significantly lower. These gender differences are not as significant in a control sample of never-divorced investors.[6]

As an alternative example of distressed investors, we investigate the performance of spouses of deceased investors during the three years around the death of their

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[5]Some of the noted side-effects of divorce, including a reduction in physical health (Rosen and Wu, 2004; Fan and Zhao, 2009; Love and Smith, 2010; Atellaet et al. 2012) and mental health (Bogan and Fertig, 2013) similarly lead to a decrease in the share of an investor's portfolio held in risky assets. In this study we do not differentiate between changing health conditions from the stress induced by divorce.

[6]The two years required for recovery for women and the extended effect of divorce on men are exactly in line with the psychological literature on divorce (Kitson, 1982; Kitson and Holmes, 1992;Amato, 2000; Baum, 2003).

partner. We find evidence that these spouses' own-benchmark returns are negatively affected for women and positively affected for men during the period immediately around the death of the spouse (compared to the period more than two years before the death of the spouse). We add the sample of spouses of deceased investors to our original sample of divorced investors and indicate these observations with a dummy variable in a regression. This indicator variable for spouses of deceased investors takes on a significantly negative value, showing that the death of a spouse has the expected negative effect on realized returns, after controlling for other fixed effects. The initial results for divorced investors are unaffected and overall these results support our findings for divorced investors.

The results in this paper indicate that the superior stock trading performance of women (Barber and Odean, 2001) may partly be due to differences in the effect of the divorce stressor. Barber and Odean (2001) attribute the difference in trading performance to the fact that men are more overconfident than women, and hence trade excessively, which eventually has a deprecating effect on their performance. The authors find that the differences in turnover and return performance are even more pronounced between single men and single women, although no differentiation is made between never-married and divorced men.

An alternative explanation of the superior trading performance of women proposed by Barber and Odean (2001, pp.286–288), is that male investors simply trade for entertainment purposes. Evidence from Finland (Grinblatt and Keloharju, 2009), shows that overconfident men are particularly prone to "sensation seeking" and hence trade more frequently than women. Similarly, using data from a German brokerage,

Dorn and Sengmueller (2009) find that clients who trade excessively for self-disclosed entertainment purposes exhibit nearly twice the turnover of those who do not and that this effect is stronger for males. Kumar (2009) finds that relative to women men are more likely to participate in lottery-like investments and sensation seeking and that this is more pronounced for single men than for married men. Grinblatt and Keloharju (2009, p. 550) note that sensation seekers engage in behaviors such as "risky driving, risky sexual behavior, frequent career changes, drug and alcohol abuse, participation in certain types of risky leisure activities (like bungee jumping or roller coaster riding), and gambling." Many of the traits of sensation-seekers are shared by males shouldering the stress of divorce.[7] In this paper, we are able to explicitly test the effect of both gender and divorce on trading performance, and our results conform to the notion that men going through divorce are more prone to sensation seeking.

Much prior literature has considered either fixed (or at least long-run) attributes as the cause of cross-sectional variation in trading performance.[8] Experimental studies, on the other hand, have explored the temporary impact of stress on the trading decisions of individuals. In such studies, stress is induced in a cold pressor test that entails participants having their arm placed in a container full of ice water for several minutes and subsequently asked to make risk–reward tradeoff financial

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[7]As Zuckerman and Neeb (1980) document, divorced males score higher on a scale of sensation seeking than single or married males.

[8]Factors considered include gender (Barber and Odean, 2001; Feng and Seasholes, 2008), age (Korniotis and Kumar, 2011), intelligence (Grinblatt et al. 2012; Korniotis and Kumar, 2013), twinhood (Barnea et al. 2010; Cesarini et al. 2010), trading experience (Feng and Seasholes, 2005; Seru et al. 2010; Döskeland and Hvide, 2011), a trader's location relative to corporate headquarters (Feng and Seasholes, 2004; Ivkovic and Weisbenner, 2005), and a trader's proximity to other traders (Ivkovic and Weisbenner, 2007; Shive, 2010; Bildik et al, 2013). Each of these factors is permanent, or at least semi-permanent relative to the stress caused by divorce.

decisions. Stressed participants in these experiments tend to exhibit greater reliance on heuristics when making simulated trading decisions; they typically are more risk averse in the domain of gains and more risk seeking in the domain of losses relative to a control sample (Porcelli and Delgado, 2009). Lighthall et al. (2009, 2012) and Porcelli et al. (2012) find that males tend to increase their trading speed and realized profits under stress, whereas stressed females slowed their decision responses, and realized lower profits. Neither males nor females tend to increase risk-taking when placed in the stressful environment. Rather they appear to be prone to gain-seeking type behavior, along the lines of the realization utility concept of Barberis and Xiong (2012).

While experiments do explore the impact of stressors on trading, the empirical evidence on actual trading performance largely considers the impact of fixed attributes. Thus the effect of temporary stressors on actual trading behavior remains a gap in the literature, that we are able to address. Specifically, we use the trades of divorced investors and a control sample of all other households and provide empirical evidence on how stressful life events can contribute negatively to trading performance. Similar to experimental studies of stress we find that male and female investors respond differently to divorce, with women generally recovering more quickly than men to their pre-divorce level of trading performance. Existing studies consider either the trading behavior of individuals, without considering a change in marital status, or a change in marital status at the asset allocation level only. Our study is the first to provide empirical evidence on investors' stock-level trading performance around the time of a change in marital status.

This paper is organized as follows. Section 1 describes our data. Section 2 presents our basic results by comparing the performance of divorced investors to themselves prior to the divorce, and to a control sample of their peers. Section 3 considers a regression analysis that controls for other investor characteristics. Section 4 considers some robustness checks, and Section 5 concludes.

1 Data

1.1 Source of investor-level transactions

This section describes the data we use to test the effect of divorce on the trading behavior of individual investors (we also use the term *households* interchangeably with *individual investors*). Our main data source is Euroclear Finland Ltd (formerly the Finnish Central Securities Depository), which includes all transactions in the depository of stockholdings for all individual investors in all common stocks listed on the NASDAQ OMX Helsinki Exchange, Finland, during the period January 1, 1995, through December 31, 2011. These official records of ownership are maintained by the clearinghouse and are hence reliable. The database contains demographic statistics such as the gender, age, postal code, and language of each investor. We complement investor accounts with information on postcode population, income, and education levels from the Finnish public authority source of statistics, Statistics Finland. This leaves us with a total of 322,578 individual investor accounts holding 22% of the total market capitalization of listed companies at the end of the sample period.[9]

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[9]In terms of the holdings of other categories, 46% of total equity is held by foreign investors, 16% by corporations, 9% by public sector organizations, 4% by financial sector companies, and 3% by non-profit organizations.

The securities depository data includes a reference code that categorizes trades into limit order book trades, negotiated trades, capitalization changes, division of property, inheritance, and a number of other transaction categories. Using transaction reference code 9 for the division of property between spouses, we identify investors who give up or receive stocks in a divorce settlement to create our first dataset. We only include investors with share transfers related to a split of assets between spouses and exclude investors that give up or receive stocks as inheritance, code 7, or due to change in legal type from 11 (natural person) to 12 (deceased estate).

We focus on two subsets of data drawn from all household investors, investor subjected to division of property, and a peer group of households not subjected to division of property. Out of 322,578 households, 1,590 (0.49%) are subjected to a divorce related division of property transactions. The remaining 320,988 households are used as a peer (control) sample. The sample of investors subjected to a divorce settlement represents approximately 1% of all divorced investors during the period.

1.2 Descriptive Statistics

Table 1 reports the age, gender, and marital status for the population of Finland over the period 1990–2011 as provided by Statistics Finland. The rate of divorce across the whole adult population has remained stable over the studied period, at about 0.3% per year, which translates to 4.9% during our 17-year sample period, from 1995 to 2011. The relatively low number of divorces resulting in the division of stockholdings (see Figure 1, which plots divisions over time), can be explained as follows: a) Only a significantly large portfolio would justify a court-ordered division of stockholdings

and, since most households hold a significant part of their wealth in their family home, only a minority is be able to invest a large proportion of their wealth in stocks. b) A minority of the population have direct stockholdings (13% in 2008; see Keloharju et al. (2012)), further lowering the number of households for which divorce results in the division of stockholdings. c) Stockholdings are highly concentrated in Finland (49% of the market capitalization is held by 1% of the stockholder population; see Keloharju et al. (2012)), hence many of these highly wealthy individual stockholders are likely to have a prenuptial agreement, further decreasing the divisions of stockholdings. While these caveats should be noted, there are no obvious biases induced by the above observations that could confound the interpretation of the results.

Next, in Table 2, we provide descriptive statistics for the two samples, namely, divorced household investors and the control group. The variables reported are defined as follows. *Investors* is the number of unique investor accounts (individuals) for all individuals, all women, all men, and different age samples; *Transactions* is the total number of transactions (buys or sells) by the above investor accounts (individuals) for all individuals, all women, all men, and different age samples. For the divorce sample, *age* is the age at the time of the first divorce-related share transaction, computed as the year of the transaction minus the year of birth of the investor. For the peer sample, the mean *Age* is computed for each transaction at the time of the transaction, averaged for each investor across all transactions and then averaged for all investors and each investor category. For the median age the time of each transaction, the age is computed as above, then the median age is determined for each investor and the median across all investor medians is reported; other quantiles are computed similarly.

To control for demographic characteristics, we determine the variable *Salary Earners* based on the business sector code reported in the original data, classifying each investor according to source of income. For example, households relying on salary for income have the business sector code 520 in earlier versions of the data and 143000 in later versions of the data. Similarly, *Entrepreneurs*, *Pensioners/Benefits* (i.e., those who receive pensions or other social benefits), and *Farmers* are determined based on the business sector code. For our regression analysis to follow, we create a dummy for each income category that takes on the value one for each investor who belongs to a category and zero otherwise. The original data also provide the postal code for each investor. The city or municipality of residence can be determined for each investor based on the first three digits of the postal code. We use this information to categorize investors by three additional variables: average annual income, population, and the number of persons with a university education in the postal code area. For brevity, we do not report statistics for these variables; however, they are used in the regression analysis to follow later.

Table 2 indicates that there are 1,590 divorced investors, 750 women and 840 men, 99% older than 25, and 320,988 household investors that who have not been subjected to division of property (also excluding investors that who have shared property due to the passing on of one of the partners), 101,167 women and 219,821 men, 86% older than 25. Men place more trades than women, with 3,797 transactions vs. versus 2,592 (see Table 2, Columns 3 and 4). Investors in the sample of divorced investors have an average age at divorce of 53 for men and 55 for women, and the largest sources of income are salary (71.5%) and pension or benefits (17%). The control group of investors has an average age of 49 for men and 51 for women, and the largest sources

of income are salary (68.4%) and pension or benefits (15.1%). Interestingly, there are 3.9% divorced entrepreneurs, while the peer sample has 2.7% male entrepreneurs (0.6% versus 0.9% for women).

Table 3 contrasts the portfolio sizes and turnover rates for the sample of divorced investors to the peer sample of investors. *Position Value Beginning of Year* is the total holding by investor position value at the beginning of year, averaged by investor by year; and *Turnover Rate Per Year* is half the value of buy trades plus half the value of sell trades, divided by the value of stocks held at the beginning of the year, consistent with Barber and Odean (2001). In our sample of divorced investors, there are no material differences in turnover rates between men and women (49.1% vs. 47.9%) and men have larger average portfolios, €1,053,825 versus €894,032. After the turnover rate and number of trades are standardized by portfolio size, the differences remain negligible. Older investors have lower turnover rates but place a relatively high number of trades since their portfolios are larger. Investors in the 25–49 age bracket have the largest average portfolio size: €1,273,827. The relatively high number of transactions for women and older investors in the divorce sample is likely due to the notion that the divorce event triggers stock transfers between the former spouses.

The aggregated stock transactions of the control group indicate that while the age distribution in this sample is similar to or slightly lower compared to that of the sample of divorced investors, the average portfolio size is significantly smaller: an average of €120,546 versus €987,868. The average portfolio turnover rate for the control sample is also higher, at 69.7%, compared to 48.2% for the divorced households. Hence, the average investor in the market tends to be both a less wealthy and a more active

trader in comparison to the average investor in the sample of divorced households. In robustness checks, we use a matched paired sample of investors with similarly sized portfolios and the same age and gender.

2 The performance of divorced investors

In this section, we present our central results on how trading performance is altered around divorce using tests involving differences in means and medians. In the next section we present a regression analysis.

2.1 Investor performance during the three years around the divorce relative to their peers

To provide a benchmark adjustment for how the trading behavior of investors is affected by the stressor of divorce, we relate the trading performance of the divorced sample and of the control group to the performance of the stocks they hold, should they have elected to hold the portfolio at the beginning of each year without adjustment throughout the year. We hence obtain annual abnormal own-benchmark returns for each investor in similar fashion to Barber and Odean (2001), who compute monthly abnormal benchmark returns for their sample of customers of a discount brokerage house. We compute own-benchmark returns at an annual frequency to ensure that most annual observations include realized returns. Since the typical holding period for household investors is approximately one and a half years (corresponding to a turnover rate of 69.7%, which is similar to what Barber and Odean find), a higher frequency would include a large number of periods with no realized returns.

The mean annual abnormal own-benchmark abnormal return is computed as follows:
Mean Annual Own-Benchmark Abnormal Return = b) - a), where a) Average own-benchmark return for each investor per year across stocks held at the start of the year,

b) Average of realized profits for each investor per year across stocks traded,

or, more specifically,

$$\text{Own Benchmark Abnormal Return}_{s,i,y} = P\&L_{s,i,y} -$$

$$(\text{Value End of Year}_{s,i,y} - \text{Value Start of Year}_{s,i,y}), \tag{1}$$

where s, i, y, respectively, indicate stock, investor, and year observations; $P\&L$ is realized profits calculated using the first-in first-out accounting method to determine purchase price and actual traded sell price to determine sell price; and the value of the profit is normalized by the value of the sold stocks at the time of their purchase to obtain a comparable fractional return that can be averaged by investor and year.[10]

We compute the mean and median annual own benchmark abnormal returns for the divorced sample and the control sample as a whole and by gender and age. We then take differences in own-benchmark abnormal returns between the two groups and test for differences in means using a Student's t-test, and differences in medians using the non-parametric Wilcoxon signed-rank test.

Our measure of abnormal returns (realized accounting profits adjusted by own-

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[10]Barber and Odean (2001) justify the own-benchmark method as follows: "The advantage of the own-benchmark abnormal return measure is that it does not adjust returns according to a particular risk model. No model of risk is universally accepted; furthermore, it may be inappropriate to adjust investors' returns for stock characteristics that they do not associate with risk. The own-benchmark measure allows each household to self-select the investment style and risk profile of its benchmark (i.e., the portfolio it held at the beginning of the year), thus emphasizing the effect trading has on performance."

benchmark portfolio returns) as per Eq. (1) is calculated trade by trade and aggregated at the annual level for each investor and then reported as aggregated means and medians for each category. Table 4 reports the number of investors, number of transactions, and mean and [median] annualized abnormal own-benchmark returns for the divorced sample and the peer sample one year before, the year of, and one year after the division of property event. Panel A reports the mean and median trading performance of divorced investors for the whole sample in the second column and then in the following columns broken down by gender (female or male), age groups (above 50, 25–49, and 18–24), and whether the investor relinquished or received stocks (holder/receiver) in the divorce transaction. Panel B reports the same statistics as Panel A for a peer sample of all household investors with no division of property due to divorce during the investigated period 1995–2011. Panel C finally reports the results from a test for differences in means and medians across all investors and comparable samples by gender and age between the divorced sample and the peer group sample.

Our main result appears in the second column of Table 4, Panel C. Our sample of households, whose performance is evaluated for three years around the divorce, realizes statistically significant abnormal returns (trading profits less own benchmark) that are on average 17.2% p.a. lower than for the peer sample of other households. The mean is likely to be skewed from the exceptional performance of some peer sample households (and the exceptionally poor performance of some divorced households); however, the median performance of divorced households is also 10.7% lower than for the peer sample. This is consistent with our hypothesis that divorce induces stress and leads to a deterioration in trading performance. Figure 2 provides a graphical

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overview of these results. The figure clearly depicts the underperformance of divorced investors, across gender and age groups.

The poor relative performance of divorced households relative to their peers is particularly interesting considering the relative size of the portfolios of divorced households. The median portfolio size of divorced households is €14,880 relative to the peer sample's €4,523 (or 3.28 times greater) and we would expect wealthier investors to have access to better advice and more diversification opportunities, making the difference in performance in the opposite direction more remarkable. The turnover rates for the divorced sample are substantially lower, which indicates that divorce-induced stress causes investors to make fewer trades and less profitable trades.

2.2 Gender differences in performance during three years around the divorce

The results in Table 4 show that during the critical years around divorce, women underperform men in terms of average own-benchmark returns, or the returns that they would have realized by simply holding their existing portfolios from the start to end of the year. Our sample of 545 divorced women shows an average own-benchmark return very close to 0% p.a., compared to their 678 male counterparts, who show an average own-benchmark return of 9.5% p.a.

In our peer sample of households, however, women outperform men when performance is measured by the mean own-benchmark return (28.5% p.a. vs. 20.7% p.a. In contrast, the median own-benchmark return for male investors is slightly higher than for women (8.9% p.a. vs. 7.7% p.a.).

We now compare the performance of divorced women and men to that of their peers (i.e., investors of the same gender in the control group). A result that stands out is the striking underperformance (by 28.5%) of women during the immediate years of the divorce compared to their peer sample. Female investors hence appear to be very negatively affected within close proximity of the divorce. Divorced men also underperform their peer sample, but the difference is smaller, 11.2%. The medians show similar results during the immediate proximity of the divorce, with divorced women performing worse than divorced men relative to their peer groups (-12.5% p.a. for women compared with -9.4% p.a. for men).

2.3   Age category differences in performance during three years around the divorce

We expect that divorced investors in younger age brackets are more likely to be motivated by liquidity needs in their trades, due to the greater likelihood of dependent children. From Table 3, we observe that investors in the above-50 bracket have a median portfolio size nearly double that of their 25- to 49-year-old counterparts, both for divorced investors and their peers, which supports this liquidity need hypothesis, assuming that the investor categories have similar asset allocations on average. In terms of trading performance, older divorced investors suffer less than their relatively younger counterparts. Divorced investors above the age of 50 underperform their peers by an average of 8.4% p.a., while those aged between 25 and 49 underperform their peers by 24.3% p.a., with extreme underperformance by very young divorced investors possibly due to the small sample size (see Table 4, Columns 5 to 7).

Those who give up stocks in the division of property underperform by 22.7%, while those who receive stocks underperform by 12.5%, figures fairly similar in magnitude to the gender-based performance measures, assuming women as the recipient of stocks in most transactions. Interestingly, receivers of stock have very neutral performance versus their benchmark of mean 0.004% p.a. (median -2.3%), indicating that any stock selection or trading skills are not inherited with the received portfolio.

2.4 Performance of divorced investors before they are impacted by divorce

A potential concern is that our sample of divorced investors consists of a unique group of investors that deviate from the whole population of investors, for example with regards to background risk or risk aversion. Table 5 reports $OBARDIFF$, which is the average and median of each investor's difference in mean and [$median$] of the own-benchmark return during the divorce period (1 year before through 1 year after divorce) $OBARD$, and a control period of similar length, 4 years through 2 years before divorce $OBARPRE$. The results show that during the critical years around divorce, the mean, and median own benchmark return of divorced investors is significantly lower at the 5% level compared to the pre-period. The mean return falls by 19.4% and the median return falls by 8.1%.

3 Determinants of own benchmark abnormal return for investors

We next estimate a regression model explaining investors' annual own-benchmark abnormal returns, using two different samples: a) all transactions for divorced investors during 1995–2011, excluding those whose division of property event occurred in 1995 or 2011, hence the same as in descriptive Tables 2 and 3, and b) all transactions for peer sample investors aged between 18 and 24 at the time of the transaction, excluding the 13 accounts that had division of property transactions at the ages of 18 to 24. The estimated regression model is

$$Own\ Benchmark\ Abnormal\ Return = \alpha + \beta_1 Divorce1YearPrePost +$$

$$\beta_2 Divorce2YearPost + \beta_3 Woman + \beta_4 Divorce2YearPost \times Woman + \beta_5 Age +$$

$$\beta_6 SocialBenefits + \beta_7 SalaryEarner + \beta_8 Entrepreneur +$$

$$\beta_9 AnnualIncome + \beta_{10} Population +$$

$$\beta_{11} UniversityEducation + \sum_{t=2}^{t=n} \gamma_t D_t + \epsilon_{it}, \tag{2}$$

where the dependent variable is the own-benchmark abnormal return for each investor and year. The variable $Divorce1YearPrePost$ is an indicator variable that equals one during the one year before and one year after the first division of property transaction and zero otherwise (the notion is that a troubled relationship leading to a divorce is a stressor one year before the divorce to one year after), $Divorce2YearPost$ is an indicator that equals one two years and beyond the first division of property transaction and zero otherwise, $Woman$ is an indicator that equals one for women and zero otherwise, $Divorce2YearPost \times Woman$ is an interaction variable between $Divorce2YearPost$ and $Woman$, Age is the investor's specific age in years at the time

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of the investor's first division of property transaction (year of transaction minus the year of birth), *SalaryEarner* is an indicator that equals one if the investor earns a salary and zero otherwise, *SocialBenefits* is an indicator variable that equals one if the investor receives social benefits and zero otherwise, *Entrepreneur* is an indicator that equals one if the investor is an entrepreneur and zero otherwise, *AnnualIncome* is the average annual income in euros for the postal code area (annual data), *Population* is the average population for the postal code area (annual data), *UniversityEducation* is the number of persons with a university education in the postal code area (annual data), and D_t capture time fixed effects by representing indicator variables for each year between 1996 to 2011, taking the value one for annual investor observations for each respective year and corresponding year dummy and zero otherwise. The year 1995 forms the base case.

3.1 Sample of divorced investors before and after divorce

We estimate Eq. (2), allowing for year fixed effects. Table 6 (Columns 2 to 5) presents these results for the sample of divorced households. The adjusted R^2 for these estimations is about 21%. Including all observation years for all divorced investors, before and after divorce, the own-benchmark abnormal return is adversely affected around the year of the division of property, with a statistically and economically significant coefficient of -0.1649 for the indicator variable *Divorce1YearPrePost* (see Table 6, Column 2). The coefficient for two years after and beyond division of property (*Divorce2YearPost* is smaller and less significant, at -0.0807. Hence, as a group, the performance of divorced investors deteriorates after divorce and the effect appears to disappear after about two years after the division of property event.

Abnormal returns are significantly and negatively affected for both men and women one year before and after divorce. After the divorce, abnormal returns are significantly and negatively affected for men two years and beyond (coefficient -0.173, $t=-3.1$), while the coefficient is insignificant (-0.0360, $t=0.54$) for women (see Table 6, Columns 3 and 4). An indicator variable for women interacted with the two-year post-divorce indicator is positive and significant (coefficient 0.213, $t=3.26$; see Table 6, Column 5). Of the control variables, older and entrepreneurial households perform better for men, while the corresponding variables are insignificant for women. Overall, women's performance is not affected by divorce two years after the divorce settlement, while men's performance is still negatively affected. Women thus clearly outperform men from two years after the divorce and their performance is more in line with the control sample of other household investors, indicating that the effect of divorce subsides two years afterward.

Our findings are in line with the psychology literature cited in the introduction and, specifically, the literature on marriage and divorce that argues that men are more affected by divorce and that their grieving process starts later and is more persistent. Our findings also support this literature in that it takes approximately two years for the full effect of the divorce to carry through. It is interesting to note that older divorced men are less negatively affected by divorce than younger men, while the age variable is not significant for women, indicating that the family unit is possibly less important for men in later stages of life. It is also intriguing that when entrepreneurial households break up, men are significantly less affected than those in households with other types of income, while there are no such effects for women. Although there are more male than female entrepreneurial households (3.2%

vs. 0.6%; see Table 2), possibly explaining the lower effect for women, it appears that the higher risk tolerance of entrepreneurs helps them to make better investment choices even under the stress caused by divorce.

3.2 Sample of never-divorced (single and just married) investors

Columns 6 to 8 of Table 6 report regression results for young, never-divorced investors from the control sample of all households. In this sample the indicator variable for woman is only weakly positively related to abnormal returns at the 10% level (coefficient 0.0435 in Table 6, Column 8). The control variables have similar signs as for the divorced sample, but are generally weaker in significance. Hence, for the sample of never-divorced and less likely to be married young adults, performance does not differ significantly between men and women. This, combined with the evidence in Table 2 that women's trading performance is more adversely affected than men around divorce, indicates that the gender difference in trading performance documented in Barber and Odean (2001) using U.S. accounts, may, at least, in part be due to men's and women's differential responses to the divorce stressor.

4 Robustness tests

A potential concern with our study is that the control sample is significantly larger than the sample of divorced investors. We address this concern by drawing samples of similar size as the divorced sample, where, first, we match each divorced investor to a peer sample investor with a similar average portfolio size and then, as above,

we compare the difference in the samples across all investors, women, men and the age brackets 50 years and older, 25–49 years, and 18–24 years. Specifically, the average portfolio size during the period is matched with an accuracy of €1000 for portfolios below €100,000, an accuracy of €100,000 for portfolios above €100,000, and an accuracy of €1 million for portfolios above €1 million. Matched pairs are drawn randomly without replacement from the stratum of eligible control investors, with an average portfolio size within the above ranges of the average portfolio size of the matched divorced investor during 1995–2011. The control sample obtained has the exact same number of investors and slightly more transactions than the divorced sample. A t-test is conducted for differences in means and a Wilcoxon signed-rank test for differences in medians.

Panel A of Table 7 reports the mean and median abnormal own-benchmark trading returns of divorced investors one year before, the year of, and one year after the division of property event. Panel B reports statistics for the peer sample of investors who have portfolios of similar size as their matched divorced investors. The results are different between divorced investors and all other households. The sample of divorced investors with portfolios large enough to trigger a division of property has significantly larger positions than the average household. In this comparison of similarly sized investors, we observe that the own-benchmark performance of the divorced sample, previously observed to deteriorate after divorce, is not as drastically worse than the matched sample performance measured by the mean difference of -1.3% for all investors, -4.6% for women, and -3.3% for men (Table 7, Panel C, Columns 2 to 4); the differences in medians are, respectively, -1.3%, -4.6%, and -3.3%. Overall, divorced investors do underperform the more exactly matched sample. While older

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divorced investors outperform the matched sample in terms of the mean return, their median return is below that of the peer group. Younger investors underperform compared to the matched sample in terms of mean as well as median return. Overall, these tests leave the central conclusions unchanged.

The death of a spouse can be considered a stressor similar to divorce. In Appendices A and B we compare the own-benchmark returns of the spouses of deceased investors during the period more than two years before the death to the returns during the immediate three years around the death. For these spouses, we find weak results indicating that the own-benchmark return is negatively affected for women and positively affected for men during the period immediately around the death of the spouse, compared to the period more than two years before the death of the spouse. In a regression reported in Table 8, we add the sample of spouses of deceased investors to our original sample of divorced investors and indicate these observations with a dummy variable. This indicator variable for spouses of deceased investors takes a significantly negative value, showing that death in the family has the expected negative effect on realized returns versus investors' own benchmark when other fixed effects are controlled for. The other coefficients reported in Table 8 are virtually unaffected by the addition of the sample of deceased investors. Overall, these results thus support our findings for divorced investors.

5   Conclusions

To complement what is known about how relatively fixed attributes such as overconfidence and gender affect trading performance, it is desirable to examine the effect of

temporary stressors that can influence individual investors' trading activity. In this paper, we consider divorce, a common stressful life event, and investigate the trading performance of investors who divorced and compare this with the performance of individual investors who have not divorced. While attributes such as endowment and education have an impact on performance for the peer group of non-divorced households, for the divorced households divorce appears to be a stressor that significantly and negatively affects performance and possibly dominates other attributes, more so and more persistently for men. This, and the small difference in performance between never-married and divorced young males and females, show that a material contributor to the difference in performance between women and men documented in the literature is potentially the stress induced by marital separation and troubled relationships.

Our analysis suggests several possibilities for future research. There are several stressors faced by individuals in their daily lives. For example, the loss of a job, natural disasters, and temporary disability due to an accident, are just some of the stressful events possibly faced by individuals during their lifespans. How such events affect portfolio choice and trading would seem to be interesting arenas for future investigation. There also is an interesting issue of reverse causality: whether the poor performance of investors in financial markets affects their behavior in other spheres of life. Whether increased stress after realizing one's trades have lost money leads to a greater tendency to alleviate stress via risky activity such as excessive imbibing of alcohol or reckless speeding, for example, would also seem to be a worthwhile investigation. These and other related questions are left for future research.

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Figure 1: **Number of divorces in our sample and stock market development.**
This figure shows the annual number of divorce events during the period 1995 to 2011
that resulted in a division of stock portfolio between former spouses on the left y -axis.
The right-hand y -axis shows the month end value of the entire stock value weighted
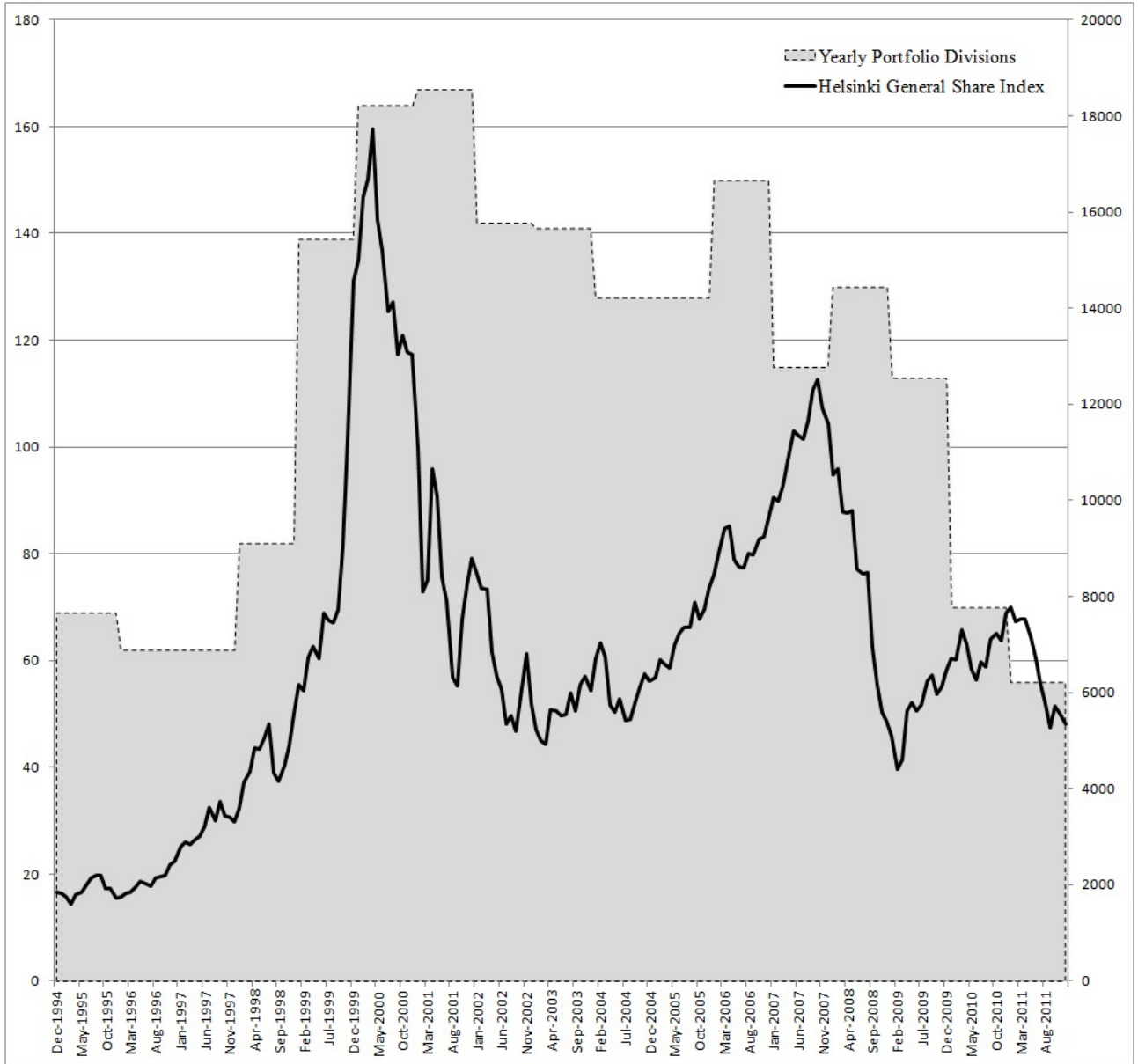index, including all shares on the Helsinki Exchange.

Figure 2: **Differences in abnormal own benchmark returns for investors 1 year before and 1 year after divorce compared with their peer group.**
The figure shows mean and median annual own benchmark abnormal returns, $OBAR$, for the divorced sample during one year before, the year of the event, and one year after the first division of property transaction, and for the peer sample of the entire population of household investors not subjected to division of property during the 1995-2011 period.
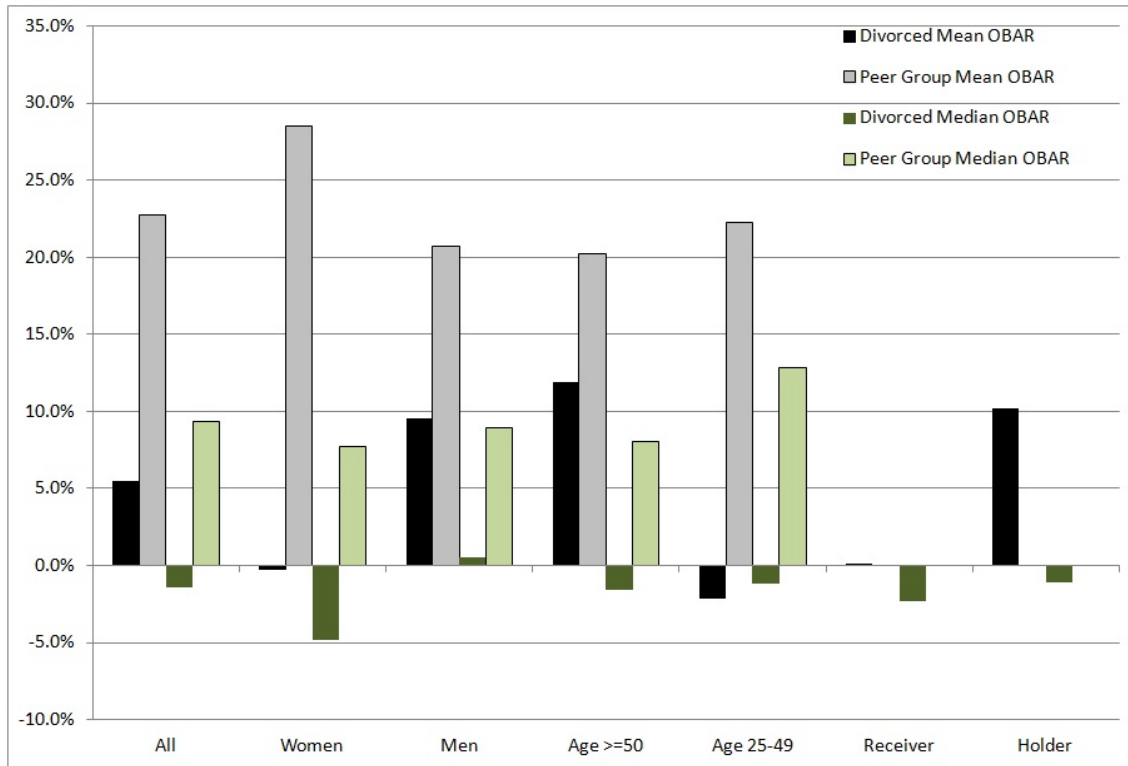
Table 1: **Population structure, marriages, and divorces in Finland.**
This table shows summary statistics for the Finnish population as a whole, over
the period 1990-2011, using data provided by Statistics Finland. Panel A provides
statistics on the population by gender, in thousands. Panel B reports statistics on
the age of the general Finnish population by year, sorted into people aged 0-14 years,
15-64 years, and 65 years and above. Panel C reports the percentage of the general
Finnish population by marital status (single, married, or divorced) and by year and
gender. Panel D reports the numbers of marriages and divorces in the general Finnish
population by year.

	1990	2000	2005	2006	2007	2008	2009	2010	2011
Panel A: Population of Finland ('000s)									
Men	2,426	2,529	2,572	2,584	2,597	2,612	2,625	2,638	2,652
Women	2,572	2,652	2,683	2,693	2,704	2,715	2,726	2,737	2,749
Total	4,998	5,181	5,256	5,277	5,300	5,326	5,351	5,375	5,401
Panel B: Age Descriptive Statistics (Percentage of Population)									
0-14 years	19.3%	18.1%	17.3%	17.1%	16.9%	16.7%	16.6%	16.5%	16.5%
15-64 years	67.2%	66.9%	66.7%	66.5%	66.6%	66.5%	66.4%	66.0%	65.4%
65+ years	13.5%	15.0%	16.0%	16.5%	16.5%	16.7%	17.0%	17.5%	18.1%
Panel C: Marital Status Descriptive Statistics (Percentage of Population)									
Single	45.5%	47.1%	47.2%	47.3%	47.3%	47.3%	47.3%	47.4%	47.5%
Men	49.5%	51.1%	51.2%	51.2%	51.3%	51.3%	51.3%	51.3%	51.4%
Women	41.7%	43.2%	43.4%	43.5%	43.5%	43.5%	43.6%	43.6%	43.7%
Married	41.6%	38.3%	37.8%	37.7%	37.6%	37.6%	37.5%	37.5%	37.3%
Men	42.8%	39.2%	38.5%	38.4%	38.3%	38.3%	38.2%	38.1%	38.0%
Women	40.5%	37.5%	37.0%	36.9%	36.9%	36.9%	36.9%	36.8%	36.7%
Divorced	12.9%	14.6%	15.0%	15.1%	15.1%	15.1%	15.1%	15.2%	15.2%
Men	7.6%	9.7%	10.3%	10.4%	10.4%	10.4%	10.5%	10.5%	10.5%
Women	17.8%	19.3%	19.6%	19.6%	19.6%	19.6%	19.6%	19.6%	19.6%
Panel D: Marriages and Divorces									
Marriages	24,997	26,150	29,283	28,236	29,497	31,014	29,836	29,952	28,408
Divorces	13,127	13,913	13,383	13,255	13,224	13,471	13,527	13,619	13,469

Table 2: **Sample descriptive statistics: Divorced investors and their peer group.**
This table reports descriptive statistics for all households that have at least one divorce-related division of property transaction during 1996–2010 and for a peer sample of investors who did not experience a divorce-related transaction. Panel A reports the number of transactions for each group of investors, by gender and age. Panel B reports the age distributions (mean, standard deviations, and quartiles) for the two investor groups. Panel C reports the proportion of households in categories based on their profession (salary earners, pensioners or on other benefits, entrepreneurs, farmers, and a group of investors for which profession is not reported).

Panel A: Activity	All	Women	Men	Age≥50	Age 25-49	Age 18-24	Age<18
Sample of Divorced Investors							
Investors	1,590	750	840	962	612	16	
Transactions	6,389	2,592	3,797	3,817	2,487	85	
Peer Group of All Households							
Investors	320,988	101,167	219,821	155,738	149,839	26,313	19,201
Transactions	4,824,856	956,754	3,868,102	1,906,877	1,612,191	104,730	57,631

Panel B: Age	Mean	Std. Dev	25%	Median	75%
Sample of Divorced Investors					
All	54	14.5	44	52	62
Women	55	14.5	44	54	64
Men	53	14.4	44	51	60
Peer Group of All Households					
All	49	14.4	39	50	59
Women	51	16.2	41	52	61
Men	49	14.0	38	49	59

Panel C: Characteristics	All	Women	Men	Age≥50	Age 25-49	Age 18-24	Age<18
Sample of Divorced Investors							
Salary Earners	71.5%	74.8%	69.1%	65.5%	80.2%	57.1%	
Pensioners/Benefits	17.0%	17.6%	16.6%	22.6%	8.5%	35.7%	
Entrepreneurs	2.1%	0.6%	3.2%	2.6%	1.4%	0.0%	
Farmers	2.8%	1.2%	3.9%	2.9%	2.9%	0.0%	
Other	6.5%	5.7%	7.2%	6.3%	7.0%	7.1%	
Peer Group of all households							
Salary Earners	68.4%	69.0%	68.2%	68.9%	72.9%	56.2%	57.4%
Pensioners/Benefits	15.1%	15.6%	14.9%	15.6%	11.2%	26.9%	25.9%
Entrepreneurs	2.1%	0.9%	2.7%	3.1%	1.5%	0.2%	0.1%
Farmers	2.0%	0.9%	2.5%	2.6%	1.7%	0.4%	0.3%
Other	12.3%	13.6%	11.8%	9.8%	12.7%	16.3%	16.3%

Table 3: **Descriptive Variables: Portfolios and turnover of divorced investors and their peer group.**
This table reports the mean and [median] portfolio size in euros and mean and [median] turnover rate (where turnover rate is defined as half the value of buy trades plus half the value of sell trades divided by the value of stocks held at the beginning of the year) for divorced households and their peer group over the period 1995–2011. Panel A reports position value and turnover rates for divorced investors, for the full sample separated into gender and age demographics. Panel B reports these statistics for the peer sample of all households.

Panel A Sample of Divorced Investors	All Households	Women	Men	Age≥50	Age 25-49	Age 18-24	
Mean Position and Turnover							
Position Value Beginning of Year (€)	987,868	894,032	1,053,825	1,092,465	1,273,827	249,862	
[Median]	[14,880]	[10,592]	[20,133]	[28,960]	[15,171]	[12,597]	
Turnover Rate Per Year	48.6%	47.9%	49.1%	32.4%	47.9%	60.2%	
[Median]	[42.9%]	[41.5%]	[45.2%]	[37.5%]	[39.7%]	[55.1%]	

Panel B Peer Group of All Households	All Households	Women	Men	Age≥50	Age 25-49	Age 18-24	Age<18
Mean Position and Turnover							
Position Value Beginning of Year (€)	120,546	87,842	132,171	167,343	88,264	25,302	35,317
[Median]	[4,523]	[3,375]	[4,950]	[6,750]	[3,938]	[1,440]	[1,459]
Turnover Rate Per Year	69.7%	69.4%	70.2%	66.8%	71.4%	76.0%	75.9%
[Median]	[81.7%]	[80.4%]	[84.4%]	[75.5%]	[84.2%]	[94.4%]	[94.7%]

Table 4: **Descriptive variables: Test for differences in abnormal own-benchmark returns between investors one year before and one year after divorce and a peer sample.**

This table reports the mean and [median] number of investors and mean and [median] annual own-benchmark abnormal returns $OBAR$ for the divorced sample during the one year before, the year of the event, and one year after the first division of property transaction (three years for each divorced investor) in Panel A and for the peer sample of all household investors during the 1995–2011 period. Tests for difference in means (Student's t -test) and medians (Wilcoxon signed-rank test) are reported in Panel C. The superscript *** denotes significance at the 1% level.

Panel A				Performance 1 Year before to 1 Year after Divorce				
	All	Women	Men	Age≥50	Age 25-49	Age 18-24	Receiver	Holder
Investors	1,223	545	678	718	500	5	593	630
Transactions	3,904	1,717	2,187	2,525	1,330	14	956	1,012
Mean $OBAR$	5.5%	−0.03%	9.5%	11.9%	−2.1%	−64.0%	0.004%	10.2%
[Median]	[−1.4%]	[−4.8%]	[0.51%]	[-1.6%]	[−1.2%]	[−54.3%]	[−2.3%]	[−1.1%]

Panel B				Performance of Entire Household Peer Sample		
	All	Women	Men	Age≥50	Age 25-49	Age 18-24
Investors	320,988	101,167	219,821	155,738	149,839	26,313
Transactions	4,824,856	956,754	3,868,102	1,906,877	1,612,191	104,730
Mean $OBAR$	22.7%	28.5%	20.7%	20.2%	22.2%	33.6%
[Median]	[9.3%]	[7.7%]	[8.9%]	[8.0%]	[12.8%]	[10.0%]

Panel C				Tests of Differences				
	All	Women	Men	Age ≥50	Age 25-49	Age 18-24	Receiver (compared to entire sample)	Holder
Mean $OBAR$	−17.2%***	−28.5%***	−11.2%***	−8.4%***	−24.3%***	−97.6%***	−22.7%***	−12.5%***
[Median]	[−10.7%]	[−12.5%]	[−9.4%]	[−9.6%]	[−14.0%]	[−64.3%]	[−11.6%]	[−10.4%]

Table 5: **Difference in abnormal own-benchmark returns between the years around divorce and a previous period of same length.**
This table reports the mean and [median] number of investors and trades for the sample of divorced investors during two periods -4 to -2 years before the year of divorce (the first division of property transaction) and -1 to $+1$ years around the year of divorce. The table furthermore reports mean and [median] annual own-benchmark abnormal returns $OBARPRE$ for the divorced sample during the pre-period, and mean and [median] annual own-benchmark abnormal returns $[OBARD]$ for the same investors during the period around divorce. Finally the average of each investor's difference in mean and [median] between $OBARD$ and $OBARPRE$, is reported as $OBARDIFF$. Tests for difference in means (Student's t-test) and medians (Wilcoxon signed-rank test) are conducted and the superscript ** denotes significance at the 5% level.

Own Benchmark Abnormal Return for All Divorced Households	
$OBARPRE$ -4 to -2 years before divorce	
Investors	1,223
Number of Transactions	653
Mean	30.1%
$[Median]$	[3.2%]
$OBARD$ -1 to $+1$ years around divorce	
Investors	1,223
Number of Transactions	3,904
Mean	9.5%
$[Median]$	[-4.4%]
$OBARDIFF$	
Mean	-19.4%**
$[Median]$	[-8.2%]

Table 6: **Cross-sectional fixed effect regression of investors' own-benchmark abnormal returns for divorced and young non-divorced adults.**

This table reports the regression results of Eq. (2), where the dependent variable is the own-benchmark abnormal return for each investor and year. The variable Divorce1YearPrePost is an indicator variable that equals one at one year before and one year after the first division of property transaction (three years for each divorced investor) and zero otherwise; Divorce2YearPost is an indicator that equals one two years and beyond the first division of property transaction and zero otherwise; Woman is an indicator that equals one for women and zero otherwise; Divorce2YearPost x Woman is the interaction between the indicator variables Divorce2YearPost and Woman; Age is age in years the year of the first divorce-related transaction (year of transaction minus the year of birth); SalaryEarner, SocialBenefits, and Entrepreneur are dummy variables that equal one if the investor is respectively classified as a salary earner, social benefits recipient, or an entrepreneur, and zero otherwise; AnnualIncome is the average annual income in €; Population is the average population; and University Education is the number of persons with a university education in the postal code area. The coefficients for the year fixed effects variables are not reported. The intercept contains the year 1995. The superscripts ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. The t-values are reported in parentheses beneath the coefficients.

| | Investors who have divorced | | | | Investors who never filed for division of property | | |
	All	Women	Men	Interaction	Women Age 18-24	Men Age 18-24	All Age 18-24
Intercept	1.045***	1.257*	1.161**	1.108***	0.0244	0.397	0.488
	(2.47)	(1.77)	(2.22)	(2.62)	(0.02)	(1.19)	(1.63)
Divorce1YearPrePost	−0.165***	−0.156***	−0.171***	−0.163***			
	(−4.33)	(−2.58)	(−3.48)	(−4.29)			
Divorce2YearsPost	−0.081*	0.036	−0.173***	−0.174***			
	(−1.9)	(0.54)	(−3.1)	(−3.39)			
Woman	0.009			−0.0581			0.0435*
	(0.29)			(−1.57)			(1.79)
Divorce2YearsPost x Woman				0.213***			
				(3.26)			
Age	0.0042***	0.0029	0.0055***	0.0042***	0.0136	0.00839	0.0100*
	(3.6)	(1.62)	(3.55)	(3.58)	(1.18)	(1.27)	(1.77)
SalaryEarner	0.2915	−0.0936	0.484	0.2897	0.609	−0.139	−0.103
	(1.09)	(−0.19)	(1.53)	(1.09)	(0.68)	(−0.93)	(−0.68)
SocialBenefits	0.29	−0.1282	0.486	0.2803	0.562	-0.0705	−0.0653
	(1.07)	(−0.26)	(1.51)	(1.04)	(0.63)	(0.47)	(−0.43)
Entrepreneur	0.65674**	−0.2679	0.964***	0.66235**			
	(2.38)	(−0.52)	(2.97)	(2.41)			
AnnualIncome x 10^5	2.31	3.07	1.03	2.19	−2.45	−1.29	−1.74
	(1.82)	(1.59)	(0.63)	(1.72)	(−1.15)	(−1.05)	(−1.64)
Population x 10^5	−0.06**	−0.03	−0.10	−0.06**	−0.30	0.10**	0.80
	(−1.21)	(−0.36)	(−1.49)	(−1.11)	(−0.32)	(2.22)	(1.64)
UniversityEducation x 10^5	−0.346	−0.558	0.826	0.315	0.514	−0.80**	−0.40
	(−0.82)	(−0.83)	(1.51)	(0.74)	(0.79)	(−2.05)	(−7.80)
Observations	5,987	2,516	3,471	5,987	3,287	8,082	11,369
R^2	0.217	0.22	0.221	0.215	0.191	0.231	0.218

Table 7: **Test for differences in abnormal own-benchmark returns for investors one year before and one year after divorce, compared with matched pairs of households of similar portfolio size.**

This table reports the mean and median (in square brackets) numbers of investors and mean annual own-benchmark abnormal returns for the divorced sample during the one year before, the year of, and one year after the first division of property transaction (three years for each divorced investor) in Panel A and the peer sample of matched pairs of households of similar portfolio size as their matched pair during 1995–2011. The average portfolio size during the period is matched with an accuracy of €1000 for portfolios below €100,000, an accuracy of €100,000 for portfolios above €100,000, and an accuracy of €1 million for portfolios above €1 million. Matched pairs are drawn randomly without replacement from a stratum of eligible control investors with an average portfolio size within the above ranges of the average portfolio size of matched divorced investors during 1995–2011. We compare this matched sample of same size as in Table 4 for all investors, all women, and all men and across age categories. Tests for difference in means (Student's t-test) and medians (Wilcoxon signed-rank test) are reported in Panel C. The superscript *** denotes significance at the 1% level.

Panel A	Performance 1 Year before to 1 Year after Divorce					
	All	Women	Men	Age≥50	Age 25-49	Age 18-24
Investors	1,223	545	678	718	500	5
Transactions	3,904	1,717	2,187	2,525	1,330	14
Mean $OBAR$	5.5%	−0.03%	9.5%	11.9%	−2.1%	−64.0%
[Median]	[−1.4%]	[−4.8%]	[0.51%]	[−1.6%]	[−1.2%]	[−54.3%]

Panel B	Performance of Matched Pairs of Households of Similar Portfolio Size					
	All	Women	Men	Age≥50	Age 25-49	Age 18-24
Investors	1,223	545	678	718	500	5
Transactions	4,222	1,433	3,304	2,612	1,802	101
Mean $OBAR$	6.8%	4.5%	12.8%	10.8%	16.5%	22.5%
[Median]	[2.6%]	[0.7%]	[3.3%]	[2.4%]	[3.4%]	[9.1%]

Panel C			Tests of Differences			
	All	Women	Men	Age ≥50	Age 25-49	Age 18-24
Mean $OBAR$	−1.3%***	−4.6%***	−3.3%***	1.1%***	−18.6%***	−86.5%***
[Median]	[−4.0%]***	[−5.5%]***	[−2.8%]***	[−4.0%]***	[−4.6%]***	[−63.4%]***

Table 8: **Cross-sectional fixed effect regression of investors' own-benchmark abnormal return for divorced investors and the spouses of deceased investors.**

This table reports the regression results of Eq. (2), where the dependent variable is the own-benchmark abnormal return for each investor and year, and a variable for the spouse of a deceased person is added to the right-hand side. SpouseOfDeceased is a dummy variable that is unity if the individual is the spouse of an individual deceased one year prior to, one year after, and during, the current year, and zero otherwise; the other variables are as defined in Table 6. The coefficients for the year fixed effects variables are not reported. The intercept contains the year 1995. The superscripts ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. The t-values are reported in parentheses beneath the coefficients.

	Divorced investors and spouses of deceased investors			
	All	Women	Men	Interaction
Intercept	0.806***	0.841***	0.650***	0.827***
	(4.28)	(3.28)	(2.3)	(4.39)
Divorce1YearPrePost	−0.190***	−0.166***	−0.200***	−0.189***
	(−5.25)	(−2.85)	(−4.4)	(−5.22)
Divorce2YearPost	−0.110***	0.032	−0.207***	−0.190***
	(−2.95)	(0.54)	(−4.47)	(−4.22)
Woman	0.012			−0.027
	(0.49)			(−0.98)
SpouseOfDeceased	−0.478***	-0.399***	−0.542***	−0.467***
	(−13.39)	(−7.4)	(−11.33)	(−13.03)
Divorce2YearPost x Woman				0.189***
				(3.14)
Age	0.002***	0.001	0.004***	0.002***
	(2.34)	(0.66)	(3.01)	(2.35)
SalaryEarner	0.014	−0.018	0.118	0.014
	(0.16)	(−0.15)	(0.78)	(0.15)
SocialBenefits	−0.008	−0.059	0.111	−0.011
	(−0.09)	(−0.5)	(0.72)	(−0.12)
Entrepreneur	0.287***	−0.096	0.501***	0.293***
	(2.59)	(−0.52)	(3.03)	(2.64)
AnnualIncome x 10^5	−0.143	−0.429	0.523	−0.162
	(−0.25)	(−0.56)	(0.63)	(−0.29)
Population x 10^5	0.063	0.129***	−0.006	0.065
	(1.59)	(2.23)	(−0.12)	(1.64)
UniversityEducation x 10^5	−0.498	−1.004***	0.007	−0.512
	(−1.59)	(−2.2)	(0.02)	(−1.63)
Observations	10,389	5,385	5,004	10,389
R^2	0.1296	0.1073	0.1658	0.1304

Appendix A: Descriptive statistics: Spouses of deceased investors.
This table reports descriptive statistics for the spouses of deceased investors during 1995–2011. Panel A reports the mean and [median] numbers of investors and their total number of transactions, and their mean and [median] portfolio size and turnover rates (turnover rate is defined as half the value of buys plus half the value of sells divided by portfolio value at the beginning of the year). Panel B reports age and source of income statistics for the sample of investors in Panel A.

Panel A	All Spouses	Women	Men	Age≥50	Age 25-49	Age 18-24
Investors	1,029	739	290	933	76	20
Transactions	37,519	14,361	23,158	36,443	899	177
Mean Position and Turnover						
Position Value Beginning of Year (€)	344,911	135,557	722,653	367,070	12,996	26,727
[Median]	[5,345]	[4,809]	[6,402]	[5,710]	[1,572]	[2,778]
Turnover Rate	90.1%	87.9%	89.8%	89.9%	182.5%	386.4%
[Median]	[63.7%]	[59.7%]	[71.7%]	[61.4%]	[138.3%]	[119.5%]

Panel B	All Spouses
Average Age	68.9
[Median]]	[70]
% Salary Earners	75.0%
% Entrepreneurs	0.0%
% Pensioners and on benefits	5.0%
% Farmers	10.0%
% Other	10.0%

Appendix B: Test for differences in abnormal own-benchmark returns one year before and one year after the death of a spouse, compared with the period two years prior.

This table reports the mean and [median] numbers of investors and mean and [median] annual own-benchmark abnormal returns, $OBAR$, for the spouses of deceased investors during the one year prior to, the year of, and the one year following spouse death (three years for each divorced investor) in Panel A and annual own-benchmark abnormal returns, $OBAR$, during the period leading up to two years prior to the event. Tests for difference in means (Student's t-test) and medians (Wilcoxon signed-rank test) are reported in Panel C. The superscript *** denotes significance at the 1% level.

Panel A	Performance up to Two Years Before Loss					
	All Spouses	Women	Men	Age≥50	Age 25-49	Age 18-24
Investors	1,029	739	290	933	76	20
Transactions	8,080	4,046	4,034	7,561	419	100
Mean $OBAR$	−12.1%	−12.0%	−12.2%	−12.2%	−11.7%	−4.1%
[Median]	[−9.7%]	[−9.9%]	[−9.3%]	[−9.8%]	[−14.2%]	[−1.1%]

Panel B	Performance One Year Before to One Year After Loss					
	All Spouses	Women	Men	Age≥50	Age 25-49	Age 18-24
Investors	1,029	739	290	933	76	20
Transactions	5,791	3,551	2,240	5,353	309	129
Mean $OBAR$	−11.5%	−12.5%	−10.6%	−11.7%	−11.8%	−3.1%
[Median]	[−8.9%]	[−11.8%]	[−7.1%]	[−9.3%]	[−10.9%]	[−1.4%]

Panel C	Tests of Difference					
	All Spouses	Women	Men	Age≥50	Age 25-49	Age 18-24
Mean $OBAR$	0.6%*	−0.6%*	1.5%**	0.5%	0.1%	1.1%**
[Median]	[0.8%]	[−1.9%]	[2.2%]	[0.5%]	[3.3%]	[−0.3%]