The Effects of Marriage and Divorce on Financial Investments

Charlotte Christiansen[*]

CREATES, Aarhus University

Juanna Schröter Joensen[§]

Stockholm School of Economics

Jesper Rangvid[‡]

Copenhagen Business School

July 15, 2011

[*]CREATES, Department of Economics and Business, Business and Social Sciences, Aarhus University, Bartholins Alle 10, 8000 Aarhus C, Denmark, +45 8942 5477 (phone), cchristiansen@creates.au.dk.

[§]Department of Economics, Stockholm School of Economics, Sveavägen 65, Box 6501, SE 113 83 Stockholm, Sweden, +46 (8) 736 9252 (phone), Juanna.Joensen@hhs.se

[‡]Department of Finance, Copenhagen Business School, Solbjerg Plads 3, 2000 Frederiksberg, Denmark, +45 3815 3615 (phone), jr.fi@cbs.dk.

The Effects of Marriage and Divorce on Financial Investments

Abstract: We investigate how changes in marital status affect the decision to take on financial risks. As an alternative to the traditional approach of comparing different groups of investors (singles, married and divorced) at each point in time, we use a difference-in-differences estimation strategy to compare how the same individual invests at different points in time (before and after marriage or divorce) compared to a benchmark investor (not making this transition), thereby controlling for systematic unobserved differences as well as various background characteristics. We investigate both the propensity to participate in the stock market and the propensity to invest in more risky portfolios. We find that women increase the fraction of wealth invested in stocks after marriage and decrease it after divorce, whereas men show the opposite investment behavior. This indicates that men are more risk averse than women, but also that the members of a married couple adjust the profile of their risky investments towards that of their partner. We also find that marriage increase the likelihood of holding stocks for both men and women. This indicates that the freeing up of economic resources in a household while married, due to economics of scale, makes investors more willing to pay participation costs in the stock market.

1   Introduction

What determines gender differences in portfolio allocations and how does martial status affect portfolio allocations? We provide answers to these questions by investigating the causal relation between changes in martial status and the portfolio decisions of men and women.

As is well-known from the household finance literature, women tend to make financial investments that are less risky than men, differences between men and women are more pronounced for single investors, and married investors take on more risk than single investors. For instance, Sunden and Surette (1998), Agnew, Balduzzi and Sunden (2003), and Jianakoplos and Bernasek (1998) find that women, and in particular single women, hold portfolios that are less risky than men, Love (2010) finds that married investors (both men and women) hold more risky portfolios than single investors, and Bertaut and Halliasos (1995), Bertaut (1998), and Guiso, Haliassos and Jappelli (2003) report that marriage tends to increase stock market participation.[1]

In the currently available studies, the impact of gender and marital status on portfolio allocations is investigated by comparing one group of investors (e.g. single women) to the behavior of another group of investors (e.g. married women) at each point in time. There are mainly two potential concerns with such static cross-gender or cross-martial status estimators. The first is that single investors might differ from married investors in some unobserved systematic way (for instance in their abilities or preferences), such that unobserved differences influence both the marriage propensity and the outcome of interest (portfolio allocation). The second is that some singles have never been married whereas others have been married but live on their own due to a divorce, which confounds the comparison due to different prior histories and information sets.

In this paper, we tackle these concerns by using empirical strategies that allow us to identify the causal effects of changes in marital status on portfolio-choice decisions of men and women. We do so by comparing the changes in the financial portfolio of the same individual over time, i.e. before and after marriage/divorce, while properly

---

[1]Other papers, not focusing on gender differences or the impact of marital status but nevertheless include a gender or marriage dummy, find it to be significantly and positively related to stock market participation and/or the riskiness of the financial portfolio, cf. Guiso and Jappelli (2005), Guiso, Sapienza and Zingales (2008), and Van Rooij, Lusardi and Alessie (2007). In their seminal paper, Barber and Odean (2001) provide evidence that single young men trade more in risky assets, and conclude that men are overconfident.

benchmarking to any other common influences by similar investors not changing marital status and hereby taking systematic unobserved background differences into account. We thus isolate the causal effect of changes in marital status on financial investments of men and women using a difference-in-differences (DID) estimation strategy.

We use a very detailed data set consisting of a random sample of 10% of the total Danish adult population for the period 1997-2003. We focus on those individuals who get married ($\approx 143,000$) or divorced ($\approx 89,000$) during the sample period, and compare their behavior with those investors who stay single ($\approx 370,000$) or married ($\approx 850,000$), respectively.

The main question we are interested in is whether changes in marital status affect portfolio allocations, and if they do, whether they affect men and women differently. Our starting point is that if investments are taken by individuals who only care about their own utility and changes in martial status have no impact on economic resources in the household, then a change in marital status should *not* affect portfolio allocations. However, we do find effects on portfolio allocations after marriage and divorce.

We analyse both the stock-market participation decision and the proportion of stocks in the financial wealth portfolio (denoted the risky share), once participating in the stock market. We find that marriage causes men to reduce the fraction of wealth held in stocks, whereas divorce increases this fraction. For women, it is the other way around: The effect of marriage on the risky share is positive (but insignificant), whereas divorce makes women reduce the risky share. Regarding participation on the stock market, we find that marriage makes both men and women participate more in the stock market.

What can explain the findings? There are mainly two channels through which marriage and divorce might affect portfolio allocations: Via changes in economic resources and changes in household risk preferences (we discuss these channels more thoroughly in the following section). Our finding that men adjust their risky share downwards and women their's upwards while being married indicates that men have lower risk aversion than women and vice versa, but also that they (men and women) adjust their risky profile towards that of their partner while being married. In other words, financial investments are not taken by individuals who only care about own utility, but rather reflect altruism towards their partner too. Thus, the preferences of members in the two-headed household cannot be viewed separately as aggregations of each unit of household member preferences. When it comes to the decision of whether to participate

in the stock market, the freeing up of economic resources during marriage, because of economics of scale during marriage, helps pay the participation costs that are often proposed as an explanation of the stock-market participation puzzle; see Haliassos and Bertaut (1995) and Vissing-Jorgensen (2004).

In our estimations, we treat marriage and divorce as an (exogenous) "event". We pay special attention to carefully documenting that the identifying assumptions hold, i.e. that the "exogeneity" and "common trend" assumptions hold and thus the main event triggering differences in portfolio allocations around changes in marital status is indeed the change in marital status.

The paper closest to ours is probably Love (2010). Love (2010) splits his sample into married and divorced investors and again into men and women when conducting regressions. The estimation strategy of our paper has some advantages compared to that of Love. First, and probably most important, we focus on changes in portfolio holdings of the same individual over time, and compare the decisions of the individuals who change status to decisions of individuals who do not. This helps us getting closer to identifying the causal effect of changes in civil status on portfolio decision. In addition, we analyze both the risky share and the decision to participate in the stock market whereas Love (2010) exclusively models the risky share decision. We notice at the same time, however, that Love (2010) provides a theoretical model of demographics that is largely consistent with the empirical findings in our paper. In addition, and more broadly, the paper is obviously related to the general literature on stock market participation and the literature on portfolios choice of individuals.[2]

The remainder of the paper is organized as follows. Section 2 provides some theoretical considerations. Section 3 introduces the data. Section 4 explains the DID estimation procedure. Section 5 gives our main results. Section 6 looks closer at those investors with an economics education. Section 7 provides some specification tests. Section 8 contains further insights. Finally, Section 9 concludes.

---

[2]In addition to those papers already mentioned, a partial list of newer analyses of stock market participation include Brown, Ivkovi, Smith and Weisbenner (2008), Brunnermeier and Nagel (2008), Calvet and Sodini (2010), Andersen and Nielsen (2010), and Grinblatt, Keloharju and Linnainmaa (2011). These analyses do not deal with the issue of gender or marital status, though. Newer analyses of the determinants of the risky share include Brunnermeier and Nagel (2008), Calvet, Campbell and Sodini (2007), and Calvet and Sodini (2010).

2   Theoretical Considerations

Marriage and divorce are expected to affect investments in risky assets via their impact on investors' economic resources or preferences mainly. The effects are considered "all else equal". There might also be other channels at work, for instance learning while being married and effects arising due to credit market imperfections. We discuss these additional channels in the conclusion of our paper.

2.1   Economic Resources

There are (at least) two ways in which the changes in economic resources that follow marriage or divorce might affect investments in risky asset. First, marriage and divorce affect the labor income process. Labor income is risky. A marriage between two individuals whose income profiles are not perfectly correlated will make the combined household income less risky; see Hess (2004). As labor income is non-tradeable and impossible to insure on financial markets, a lower volatility of labor income makes the wealth portfolio less risky. In general, this implies that the fraction of wealth in risky financial assets increase.[3] If the riskiness of the combined labor income profile of the household is reduced while being married, marriage might influence investments in risky assets positively. Hence, we expect both men and women to increase their participation rate in the stock market and their risky share after marriage, holding everything else constant. Divorce, on the other hand, should reduce investments in risky assets of both men and women.

Second, marriage affects the costs of running a household due to economics of scale; see Blow, Browning and Ejrnaes (2009) or, for a survey, Weiss (1997). As an example, consider a household that needs, say, a car. The expenses of the car are shared with the partner while being married, whereas an individual living alone must bear the full cost. Everything else equal, a married individual therefore has the opportunity to save more, and, indeed, there is amble evidence that married individuals have higher savings and wealth than unmarried individuals (Guner and Knowles (2004); Zagorsky (2005)) and very different consumption streams too. What is not known, though, and this is the contribution of this paper, is whether marriage also affects the composition of savings, i.e. whether married investors also have a higher tendency to hold risky assets.

---

[3]For instance, Viceira (2001), Bodie, Merton and Samuelson (1992), and Cocco, Gomes and Maenhout (2005) find that a more risky labor income reduces the risky share in the financial portfolio.

Finally, participation costs could play a role: If some investors cannot afford to enter the stock market due to participation costs on the stock market (Vissing-Jorgensen (2004)), marriage might introduce new investors to the stock market because of their higher wealth and savings after marriage. If economies of scales matter, we expect that both men and women increase their risky investments after marriage, and reduce them after divorce.

2.2   Preferences

Differences in risk preferences between men and women might also affect portfolio allocations as a result of a marriage or divorce. Holding other factors constant, a higher degree of risk aversion implies a lower fraction of wealth invested in risky assets. So, if men are less risk averse, as suggested by Sunden and Surette (1998) and Jianakoplos and Bernasek (1998), single men would invest a higher fraction of their wealth in stocks and vice versa for women. How does marriage and divorce affect asset allocation via risk preferences? If married men and women are altruistic towards each other, they care not only about their own individual utility but also about their joint utility. We can illustrate this very simple. Assume that there are two agents in the household - a male and a female - that are altruistic towards each other. Each agent i maximizes social utility which is given by: $U_i(c) = u_i(c_i) + \alpha u_j(c_j)$, for $i, j = m, f$, $i \neq j$, where $0 < \alpha < 1$, since agents care for each others private utility, $u_j(\cdot)$. Abstracting from uninsurable background risks, the households' utility function will become a combination of the males' and the females'. Hence, if there are gender differences in risk aversion, for example that males are less risk averse, one would expect that the males' portfolio would become less risky and the females' portfolio will become more risky after marriage. The share invested in financial assets for each household member would now depend on the combination of risk aversion in the household and altruism, α. After divorce, the effects should be reversed. Note that this effect should not be at play for same-sex partnership formations and dissolutions.

2.3   Collecting the Hypotheses

All in all, we have the following hypotheses collected in Table 1 (top). The effects apply to both stock market participation and risky share.

3   Data

We use a very rich register-based panel data set comprising a random 10% sample of the Danish population covering end-of-year data during the period 1997-2003. The data stem from Statistics Denmark, which has gathered the data from different sources, mainly from administrative registers. Given that the data are register based and concern a large representative sample, the results are not influenced by self-selection biases. The scope and quality of the data are comparable to other studies using Scandinavian data such as Christiansen, Joensen and Rangvid (2008), Calvet et al. (2007), Calvet, Campbell and Sodini (2009), Massa and Simonov (2005), Grinblatt and Keloharju (2000), Grinblatt and Keloharju (2001), and Grinblatt et al. (2011). We restrict the sample to individuals between 20 and 60 years old.

Table 2 provides summary statistics on the variables we use in this study. We show statistics for men and women separately. Moreover, the investors are divided into four groups. The first two groups comprise the basis for investigating the effects of marriage: investors who are single throughout the sample $(212, 113$ men and $157, 333$ women) and investors who get married during the sample period $(77, 464$ men and $66, 377$ women). The last two groups comprise the basis for investigating the effects of divorce; investors who are married throughout $(406, 957$ men and $443, 209$ women) and investors who divorce during the sample period $(41, 092$ men and $47, 455$ women).

Investors who change marital status during the sample period are younger than investors who do not. Fewer men than women have children living at home. The income of men is higher than the income of women across all types of marital status, and the income of married investors is generally higher than the income of single investors, with this difference being even more pronounced for men. We include an economist dummy in the regressions, as Christiansen et al. (2008) show that economists are more likely to hold stocks than investors with any other education; slightly more men are economists.

Stock holdings are the combined values of directly held stocks and stocks held indirectly via equity mutual funds at year end; Statistics Denmark does not separately report the direct holdings of stocks. Likewise, bond holdings are directly held bonds and bonds held indirectly via fixed income mutual funds. We investigate both the stock market participation decision and the risky share. We follow Brunnermeier and Nagel (2008), Calvet and Sodini (2010), and Love (2010) and measure the risky share by the fraction of financial wealth held in stocks, i.e. stock holdings dividend by financial

wealth, where financial wealth is the sum of stock holdings, bond holdings, and cash. Doing so, we focus on liquid assets, and exclude real estate and pension contributions from our definition of "wealth".

The stock market participation rate varies between 16.6% and 29.6% with married investors participating more than single investors, and men participating more than women. The same goes for the riskiness of the investors' portfolios: Men invest a higher fraction of their financial wealth in stocks, and married investors also hold more risky portfolios.

The stylized facts of our Danish data set are comparable to those in U.S. data.

3.1 Definition of Marriage and Divorce

Our definition of married investors includes both lawfully married and unmarried co-habiting couples. Getting married thus includes both getting lawfully married and moving in together and it does not include couples that already live together that get lawfully married. Similarly, getting divorced includes both divorce of lawfully married individuals and cohabiting individuals moving apart.[4]

In Denmark, legislation does not distinguish between lawfully married and cohabiting couples. Svarer (2004) finds that there is no negative selection into cohabiting, rather cohabiting is considered a trial marriage before actual marriage. We also directly estimate the effects on stock market participation and risky share when investors change civil status from cohabiting to lawfully married. We find no significant effects on investment behavior.[5] Thus, empirically it is also unimportant to distinguish between cohabiting and lawfully married investors.

If there are tax benefits associated with one part of a married couple owning the financial assets, the holdings of married men and women might not reflect the "true" preferences towards risk of each individual. Conveniently, there is no tax-advantage from "transferring" ownerships of stocks to the partner in Denmark, as taxation of

---

[4]We delete individuals who make more than one marital status transition in the sample period. Consequently, the control groups consist of individuals who are single and married, respectively, during the whole sample period.

[5]We apply the same DID estimation strategy as in the remainder of the paper. Here the investors making the civil status transition from being unmarried cohabiting to being lawfully married are benchmarked by those staying unmarried cohabiting throughout the sample period.

financial income is done at the household level for both married and cohabiting couples.[6]

4   Difference-in-Differences Estimation

We make primarily two empirical investigations both based on panel-data estimations: One where the outcome variable is the stock market participation and another where the outcome variable is the risky share. The outcome variable for individual i at time t is denoted Y_{it}. Both types of estimations are conducted as DID estimation strategies.

When considering the effect of marriage we select all individuals who are single at the end of year $t-1$. Then we distinguish between those who are also single at the end of year t and those who are married at the end of year t. We let $T_j = 1$ for those individuals who get married at $t_0 \in \{1998, ..., 2002\}$ and $T_j = 0$ for the remaining individuals.[7] We are interested in estimating the average effect on the outcome variable for the investors who get married: $E\left[Y_{it}^1 - Y_{it}^0 | T_j = 1\right]$ for $t > t_0$, where Y_{it}^1 is the outcome for investor i at time t when the investor is married and Y_{it}^0 is the outcome the investor would have had if staying single. Since an investor's outcome cannot be observed both when the investor gets married and does not get married, the central problem of evaluating this effect is the construction of counterfactuals.

The simple DID estimator compares the change in the outcome variable for investors who get married with the change in the outcome variable for investors who stay single. The implicit identifying assumption is that if none of the investors had married, the change in the outcome variable would have been the same for both groups of investors.[8] The simple unconditional DID estimator is consequently calculated as:

$$E[Y_{i,t>t_0}^1 - Y_{i,t<t_0}^0 | T_j = 1] - E[Y_{i,t>t_0}^0 - Y_{i,t<t_0}^0 | T_j = 0]. \tag{1}$$

We control for additional background variables using a regression framework to gen-

---

[6]The tax incentives to buy stocks can change after marriage as the marginal tax rate might change.

[7]The earliest changes in marital status that we consider pertain to 1998 (the second year of the sample) such that we have observations for the year before the change. Similarly, the latest changes in marital status happen in 2002 (the penultimate year of the sample) such that we have observations for the year after the change.

[8]Formally, this identifying assumption is $E[Y_{i,t>t_0}^0 - Y_{i,t<t_0}^0 | T_j = 1] = E[Y_{i,t>t_0}^0 - Y_{i,t<t_0}^0 | T_j = 0]$. This assumption cannot be tested directly since $Y_{i,t>t_0}^0$ is unobserved for $T_j = 1$. However, we establish the credibility of this "common trends" assumption by testing whether there are any marriage group-specific trends in Section 7.2.

eralize specification (1). Let $After_{it} = \mathbf{1}\,[t > t_0]$ denote the indicator of whether the observation is after the individual married. The DID estimator of the effect of marriage is the estimated coefficient (γ_{DID}) to $After_{it} * T_j$ in the following OLS regression of the outcome variable Y_{it} on T_j, $After_{it} \cdot T_j$, and various additional control variables; see e.g. Heckman, LaLonde and Smith (1999) for details:

$$Y_{it} = \gamma_0 + \gamma_1 T_j + \gamma_{DID} After_{it} \cdot T_j + d_t + X_{it}\delta + \epsilon_{ijt}. \qquad (2)$$

where X_{it} is the vector of additional control variables and $\epsilon_{ijt} \sim N(0, \sigma^2)$ is the unobserved idiosyncratic variation in outcomes across individuals, marriage, and year. One potential problem - with no straightforward solution - is if some of this variation is common to individuals in the same year and marriage group; e.g. $\epsilon_{ijt} = u_{jt} + \varepsilon_{ijt}$. To accommodate the inference problem arising in the presence of marriage-year specific random effects, u_{jt}, we show two kinds of standard errors: First, assuming ϵ_{ijt} are i.i.d., OLS standard errors provide valid inference. Second, assuming errors are independent across years and marriage groups; thus clustering standard errors by marriage and year $(T_j \times t)$ generate valid inference.[9]

4.1 Stock Market Participation

First, the outcome variable is the stock market participation $(Y_{it} = S_{it})$. At the end of each year t we observe the amount held in stocks by individual i, denoted by S_{it}^*, $i = 1, ..., N$ and $t = 1, ..., T_j$. We focus on the binary choice variable $S_{it} = \mathbf{1}\,[S_{it}^* > 0]$, where S_{it} is an indicator for participation in the stock market of individual i at time t.

For robustness, we also estimate the corresponding probit model to calculate the DID estimator that takes into account that the participation variable is binary.

4.2 Portfolio Riskiness

Second, the outcome variable is the risky share $(Y_{it} = \frac{S_{it}^*}{W_{it}})$. As mentioned, we use the proportion of financial wealth invested in stocks, $\frac{S_{it}^*}{W_{it}}$ to measure the portfolio riski-

---

[9]See Angrist and Pischke (2008) for a more detailed discussion of these issues. We do not allow for arbitrary correlations in errors within marriage groups by clustering by marriage. This should in principle generate valid inference in the case of serial correlation in the random effects. Yet, the caveat is that we only have a fairly small number of clusters and inference relies on having a large number of clusters (and not only on cluster size).

ness like in e.g. Brunnermeier and Nagel (2008), Calvet and Sodini (2010), and Love (2010). The first set of DID estimates for the risky share is based only on individuals participating in the stock market and are calculated using the OLS regression in Eq. (2).

We correct for potential self-selection bias arising from limited stock market participation using the equivalent tobit model instead of the OLS regression of Eq. (2). Comparing the OLS and tobit DID estimates we can evaluate whether it is important to account for limited stock market participation.

4.3   Control variables

We use a standard set of control variables in our analyses. We expand our regressions in multiple steps, adding additional controls variables in each step in order to see whether some of the control variables have particular effects on our results. In specification (i) we include year dummies. In specification (ii) we also include age, an indicator for children living at home, the length of education, and an indicator for economics education. In specification (iii) we add log non-financial income. In specification (iv) we add the financial wealth.

5   Main Results

We structure the discussion so that we first present the results and afterwards discuss how they can be interpreted in relation to the hypothesis laid out in Section 2.

5.1   Participation Results

Table 3 presents the DID estimates of the change in the stock market participation rate due to marriage and divorce. We find that marriage increases the stock market participation rate for men. In order to explain the numbers, consider model (iv) where the DID estimator is 0.006. This implies that the average change in participation rate due to marriage is 0.6 percentage points. The 0.6 percentage points is compared to the overall unconditional rate of stock market participation of 20% for men staying single. Marriage also increases the stock market participation rate of women. In addition, the effect of marriage is larger for women than for men: According to model (iv) marriage makes the participation probability of women increase by 1.6 percentage points.

Divorce decreases the stock market participation rate for men by 1.2 percentage points (model iv). The effect of divorce is more or less unaffected by adding control variables. Divorce also makes women's participation rate increase by 1.4 percentage points.

Overall, the inference is neither affected by choice of standard errors nor by estimation method.

5.2 Risky Share Results

In Table 4, we show the results from the DID estimations for the fraction of financial wealth held in stocks. The main point to notice is that marriage makes men invest less risky. The effect from marriage upon the risky share held by women is positive, but insignificant. Hence, for men, marriage acts as a "risk-reducer" whereas marriage acts as a weak "risk-increaser" for women. More specifically, we see in model (iv) that on average marriage increases men's risky share by 1.3 percentage points. On the other hand, divorce makes men hold 1.8 percentage points more risky shares, whereas for women divorce reduces their risky share by 4.0 percentage points.

Overall, the conclusions are identical whether they are based upon OLS or clustered standard errors. We also note that there are only minor differences between the DID estimates from OLS and tobit models. This means that it is not very important to account for the stock market participation decision when analyzing how the portfolio riskiness changes in relation to marital status.

5.3 Interpreting the Effects

Marriage makes men participate more in the stock market, but hold less risky assets in their financial portfolio. Divorce makes men participate less in the stock market and hold more risky assets. On the other hand, marriage makes women participate more in the stock market and increases (insignificantly, though) the share in risky assets, whereas divorce makes women participate more but reduce their risky share. We collect the signs of the effects in Table 1 (bottom).

Concerning the risky share, the sign of the effects line up very well against those we expect if women are more risk averse than men, but marriage and divorce causes the investors to adjust their portfolio riskiness towards that of the partner. In other words,

financial allocations in two-headed households seem to reflect social preferences of the household - not decisions taken by individuals who invest on the basis of their private risk preferences only. Concerning stock market participation our results are mainly consistent with the effects stemming from economic resources: Marriage makes both men and women increase participation, as one would expect when economic resources are increased after marriage and there are fixed entrance costs to the stock market. Divorce makes men - but not women - reduce their participation rate, which could also be due to a reduction in economic resources. It is important to say that we of course control for income in the participation estimation. For this reason, it is the freeing up of economic resource because of economics of scale during marriage that make investors participate more, and not the level of income.

6 Economists

We investigate in detail the role of investors having an economics education as this is known to be highly important for investors' stock market participation decisions, cf. Christiansen et al. (2008). Table 5 and 6 show the results regarding stock market participation and risky share, respectively.

For economists the effects of marriage and divorce upon stock market participation have the same signs as those for all investors. One exception though, marriage does not change the stock market participation of female economists. For male economists the effects of marriage upon stock market participation are much stronger than for other types of investors; the interaction effect of the economist indicator and the DID estimator ($T_j \cdot After_{it} * I[economist]_{it}$) is significantly positive, 0.066. For women, the effects from marriage upon stock market participation are not significantly different for economists. The effects from divorce upon stock market participation are not significantly different for economists (men and women) than for investors with other types of educations.

Economist also show independence in their financial decision making when considering the effect of marriage and divorce upon their risky share. For neither men nor women does marriage or divorce influence the risky share significantly. This is also evident, in that the effects of marriage and divorce are significantly different for economist than for others; the coefficients to $T_j \cdot After_{it} * I[economist]_{it}$ are significant, except for the effect of women's divorce.

So, for investors who are educated in economics and thereby have knowledge about the stock market, the financial decisions are taken more independently from their spouses than for other investors. Thus, the effects of changes in marital status are of much less importance for economists' behavior in the stock market than for investors with other types of educations.

7 Identifying Assumptions and Specification Tests

We compare the choices of those individuals who change marital status (the treatment group) with the choices of those who do not change marital status (the control group). As it is not possible to observe what the individuals in the treatment group would have done, had they not been treated, we can instead illustrate how the individuals in the control group compare with those that were treated late respectively early in the sample period. The idea is that if the dynamics of responses of those being treated late differ from the responses of the individuals in the control group, the identifying assumptions of those getting treated might be problematic. In this section, we first illustrate graphically the robustness of the identifying assumptions, then we present the results from formal specification tests.

7.1 Graphical Illustrations

Figure 1a shows the stock market participation rate of those men who stay single during the whole sample period, those who get married early in the sample period, and those who get married late in the sample period. There are some noteworthy patterns: For all three groups of individuals, the participation rate increases over time. However, the participation rate of those who get married early in the sample period increases more than the participation rate of those who stay single during the sample period, and it also increases more than the participation rate of those who get married late in the sample period. In itself, this indicates a positive impact on stock market participation from getting married (unconditionally, i.e. not taking into account other changes in background characteristics, which we do). But are those investors different from those investors not getting married? We can get a sense of this by comparing the dynamics of the participation rates of the investors in the control group (those who stay single) and the investors getting married late in the sample period. These trends are almost identical, indicating that individuals who stay single do not behave very differently

from singles who marry, but marry late. In other words, the identifying assumptions are reasonable.

Figures 1b, 1c, and 1d are structured in the same way. Figure 1b concern women who get married, 1c men who get divorced, and 1d women who get divorced. The trends in the stock market participation rate of those who get treated late and the control group are more or less parallel, i.e. the identifying assumptions are reasonable.

Figure 2 describes the same patterns for the risky share. The trends in risky share for the late-treatment and control group are parallel. Second, Figure 2 also illustrates that there is a clear spike in risky share around year 2000 associated with the stock market boom up until 2000 and the drop after 2001. We will pay special attention to this particular feature of the data in Section 7.7.

Figure 3 shows the results for income. Regarding women, income of the women in the reference group and those treated late is more or less parallel. In other words, there can be a level difference, but the movements over time is the same. For those getting treated early, on the other hand, there seems to be an effect from getting treated (married or divorced) as income develops differently over time than for the control groups. For men, the income of those not being treated and those being treated late seems to be developing similar between 1997 and 2000, after which they seem to differ a little.

Figure 4 shows the financial wealth. The stock market drop in 2001 is reflected in these graphs. The trends in the financial wealth are similar for the treatment and control groups.

Overall, we find no need to worry about the identifying assumptions being reasonable.

7.2 Group Specific Trends

We can test the credibility of the identifying assumption (that the change in financial market behavior would have been the same for the control and the treatment group, had there been no change in marital status for the treatment group) by testing for "common trends" in the treatment and control groups. We do this by extending the DID regressions with the following variable: $T_j * t$ where t is simply the year of the observation. If the identifying assumption holds, then $T_j * t$ is insignificant. We show

the results using the subgroup of investors who change marital status in 2002. The results (p-values) are shown in Table 7 in rows "H_0: No group-specific trend, only 2002 transitions". We accept the null hypotheses in most cases. Reassuringly, for those investors in the treatment group that we observe for the longest time before changing marital status, we cannot reject that the identifying assumption is satisfied.

7.3   No Anticipatory Effects

Do investors change marital status because they anticipate that this will lead to a change in their exposure to the stock market? Hence, we would like to test for reverse causality; i.e. whether the effects we identify run from changes in marital status to financial market behavior, and not vice versa.

We test whether the results are driven by anticipatory effects by including leads of $After_{it} * T_j$ in the regressions. The leads of $After_{it} * T_j$ should be insignificant if the model is well specified. We show the results using the subgroup of investors who change marital status in 2002. The results (p-values) are shown in rows "H_0: No leads, only 2002 transitions". The null hypotheses that the leads are insignificant in general cannot be rejected. Hence, we conclude that changes in marital status do not occur because individuals anticipate that it will change their stock market behavior, but that the changes in financial market behavior we observe can be attributed to the change in marital status.

7.4   Time Patterns

In the final specification test we include lags of $After_{it} * T_j$ in the DID regressions. The pattern of the estimated coefficients to these lags tell us something about changes over time in the effects on financial market behavior resulting from changes in marital status, for instance whether there is learning going on such that the effects become stronger or weaker over time. We conduct this analysis for those investors who change marital status early in the sample (1998). In Table 7 we show the estimated coefficients to the different lags of $After_{it} * T_j$. The lagged effects are not significant for the stock market participation regressions. For the risky share, the lagged effects are not significant for marriage. For divorce, however, there is some significant time patterns. For men, the second lag is significantly positive, which indicates that men invest more risky already the year following the divorce. For women, the change in risky share is after two years.

So, the change in risky share brought about by divorce takes place with a slight lag.

All in all, we conclude that our assumption that marriage and divorce is an "event" seems supported in the data.

8 Further Insights

8.1 Effect of Financial Wealth

We show all the estimated coefficients in Tables 1A and 2A in the appendix for model (iv) for stock market participation and risky share, respectively. We include financial wealth not only as a control variable but also to explore if investors have constant relative risk aversion. Brunnermeier and Nagel (2008) and Calvet and Sodini (2010) both investigate this issue. Brunnermeier and Nagel (2008) find that higher wealth increases stock market participation but also that there is no (if anything, a negative) relation between wealth and the risky share, suggesting that risk aversion is constant, whereas Calvet and Sodini (2010) find a positive relation between wealth and the risky share, suggesting that risk aversion is time-varying.

Our results are similar to Brunnermeier and Nagel (2008): Higher wealth increases stock market participation (for both men and women), as documented by the positive coefficient to wealth, whereas the effect is negative in the risky share regressions. Brunnermeier and Nagel (2008) notice that the positive effects from the financial wealth upon the stock market participation does not necessarily imply time-varying risk aversion, as the reason why wealth influences stock market participation could also be that investors with higher wealth are more able to pay entry costs to the stock market; see Vissing-Jorgensen (2004).

We find the effect of financial wealth on the risky share to be negative but small: if wealth increases with DKK $1,000,000$ (a very large change given that the average stock holding of a married man is DKK $28,900$), the drop in the risky share is at most 1.9 percentage points. The effect is significantly negative, but economically small, like in Brunnermeier and Nagel (2008). This indicates that risk aversion is basically constant.

16

8.2 Remaining Control Variables

The estimated coefficients to the other control variables in the participation models are exactly as in the stock market participation literature (see again Tables 1A and 2A): Stock market participation is positively influenced by income, the level of education, age, and being an economist. Stock market participation is negatively influenced by children. These results are independent of whether we look at investors who get married or divorced, or whether we look at men or women.

For the risky share regressions we find that age, children, and being an economist affects the risky share positively. The length of education most often tend to make the risky share smaller. Thus, investors with longer educations tend to invest safer than other investors. The income is either insignificant (in divorce regression) or negative (marriage regression). The signs of the length of education and income are counter intuitive, but the effects are very small.

8.3 Same-Gender Marriage

We consider marriage and divorce of same-gender investors (results not tabulated). As there are few same-gender marriages and divorces the results should be interpreted with caution. The DID estimators are never significant which indicates that same-gender marriage and divorce have no effects upon stock market behavior. This is tentative evidence that the changes brought about by marriage and divorce are driven by gender differences in risk aversion.

8.4 Age

To investigate further whether age plays a role for the effects of changes in marital status on financial market behavior, we now interact $After_{it} * T_j$ with age. The interaction term is shown in Table 8.

The interaction terms are generally very small compared to the DID estimators (and often insignificant). Hence, we conclude that the effects of changes in marital status on financial market behavior are independent of the age of the investor experiencing the change in marital status.

8.5   Length of Education

We investigate the role of education further by interacting $After_{it} * T_j$ with the length of education of the investor (Table 8). The estimated education interactions are very small compared to the DID estimators themselves and are often insignificant. Education does not seem to influence the results we have reported above. So, the changes in financial behavior in relation to changes in marital status appear independent of length of education. However, the type of education is important, cf. the discussion of economists above.

8.6   2001 Stock Market Drop

From its peak in late 2000, the Danish stock market drop by around 30% in late 2001. It is possible that this could cause some investors who change marital status after the drop in the stock market (i.e. after 2001) to behave differently than other investors. To see whether this is the case, we estimate separate DID models for investors changing marital status in 1999 and 2002. From Table 8 it is evident that the DID estimates lead to similar conclusions when considering 1999 and 2002 changes in marital status (except for divorcing women's risky share). Thus, the 2000-2001 stock market drop does not seem to have influenced the effects of marriage and divorce upon investors' financial decisions.

9   Conclusion

Using a very comprehensive dataset, we have investigated how changes in marital status affect the stock market behavior of men and women. We have made extensive use of panel data estimators that compare how the same investor changes behavior after a change in marital status, compared to investors who do not experience a change in marital status. This allows us to properly benchmark other changes in background characteristics and to evaluate how marriage and divorce differ in their influence on portfolio choice.

We find that marriage causes men to reduce the fraction of wealth they hold in risky assets (indicating that marriage makes men invest less risky), whereas they increase risk after divorce. For women, it is the other way around. Hence, marriage acts as a "financial risk-reducer" for men and a "financial risk-increaser" for women. In other

words, while living together, financial decisions are adjusted towards the preferences of the partner. We also study how changes in marital status affect the likelihood of holding stocks at all. Here we find that both men and women increase their participation rate after marriage, whereas men reduce their rate of participation after divorce, though women do not. This indicates that marriage frees up economic resources and therefore makes individuals more likely to pay the stock-market participation costs.

We have investigated the effect of changes in marital status on the choices of the levels of risk in men's and women's portfolios. It could be interesting to extend the analysis and see whether changes in marital status has consequences for the degree of diversification of men's and women's portfolios, or the amount of trading, using the same identification strategies pursued in this paper. To study such effects, more detailed data on the portfolio holdings of the investors are required.

Finally, it would be interesting to open the black box of how couples make financial investment decisions, as well as what determines the differences in background risks. In this paper, we have quantified the total effects of marriage and divorce on stock investments and contrasted those one would expect if there are gender differences in risk aversion or changes in family status affect economic resources in the household. We have focused our analysis on the effects of marriage and divorce on implicit household preferences and economic resources. There might be additional channels, though, that could be interesting to study. For instance, learning about risky assets can affect the tendency to take on financial risk: If single men are more willing to take on financial risk (perhaps because of lower risk aversion, as mentioned above), men learn more about the characteristics of risky financial assets while being single. While being married, the woman might learn about risky assets from her husband; Hong, Kubik and Stein (2004) show how learning from peers affect financial risk taking of individuals. Another effect might arise from credit market imperfections. When credit markets are imperfect, an economic reason to marry could be to extend credit by coordinating investments. The pooling of income, information, and other resources as well as risk sharing and bargaining in the household complicates this issue. Division of labor in the household, e.g. to exploit comparative advantages, may further alter the labor supply, hence the labor income, of each of the individuals in the household. Basically, a full analysis of these issues has to both quantify the gains of marriage and take a stance on how these gains are distributed in the household. We leave these interesting extensions to future

work.[10]

_____

[10]See e.g. Weiss (1997) for an excellent survey on the economic reasons for marriage, how families solve their economic problems, and the economic consequences of divorce.

References

Agnew, J., Balduzzi, P. and Sunden, A.: 2003, Portfolio Choice and Trading in a Large 401(k) Plan, *American Economic Review* **93**(1), 193–215.

Andersen, S. and Nielsen, K.: 2010, Participation constraints in the stock market: Evidence from unexpected inheritance due to sudden death, *Review of Financial Studies, forthcoming* .

Angrist, J. D. and Pischke, J. S.: 2008, *Mostly Harmless Econometrics: An Empiricists Companion*, Princeton University Press.

Barber, B. M. and Odean, T.: 2001, Boys will be Boys: Gender, Overconfidence, and Common Stock Investments, *Journal of Economics* **116**(1), 261–289.

Bertaut, C.: 1998, Stockholding Behavior of U.S. Households: Evidence from the 1983-1989 Survey of Consumer Finances, *Review of Economics and Statistics* **80**(2), 263–275.

Bertaut, C. and Halliasos, M.: 1995, Why do so Few Hold Stocks?, *Economic Journal* **105**(432), 1110–1129.

Blow, L., Browning, M. and Ejrnaes, M.: 2009, Marriage and Consumption, *Working paper*, University of Oxford.

Bodie, Z., Merton, R. and Samuelson, P.: 1992, Labor Supply Flexibility and Portfolio Choice in a Life-Cycle Model, *Journal of Economic Dynamics and Control* **16**(3-4), 427–449.

Brown, J., Ivkovi, Z., Smith, P. and Weisbenner, S.: 2008, Neighbors Matter: Causal Community Effects and Stock Market Participation, *Journal of Finance* **63**(3), 1509–1531.

Brunnermeier, M. and Nagel, S.: 2008, Do Wealth Fluctuations Generate Time-Varying Risk Aversion? Micro-Evidence on Individuals' Asset Allocation, *American Economic Review* **93**(3), 713–736.

Calvet, Campbell and Sodini: 2007, Down or Out: Assessing the Welfare Costs of Household Investment Mistakes, *Journal of Political Economy* **115**, 707–747.

Calvet, Campbell and Sodini: 2009, Fight or Flight? Portfolio Rebalancing by Individual Investors, *Quarterly Journal of Economics* **124**, 301–348.

Calvet, L. and Sodini, L.: 2010, Twin Picks: Disentangling the Determinants of Risk-Taking in Household Portfolios, *NBER WP 15859* .

Christiansen, C., Joensen, J. S. and Rangvid, J.: 2008, Are Economists more Likely to Hold Stocks?, *Review of Finance* **12**(3), 465–496.

Cocco, J., Gomes, F. and Maenhout, P.: 2005, Consumption and Portfolio Choice Over the Life-Cycle, *Review of Financial Studies* **18**(2), 491–533.

Grinblatt, M. and Keloharju, M.: 2000, The Investment Behavior and Performance of Various Investor Types: A Study of Finland's Unique Data Set, *Journal of Financial Economics* **55**, 43–67.

Grinblatt, M. and Keloharju, M.: 2001, How Distance, Language, and Culture Influence Stockholdings and Trades, *Journal of Finance* **56**, 1053–1073.

Grinblatt, M., Keloharju, M. and Linnainmaa, J.: 2011, IQ and Stock Market Participation, *Journal of Finance, forthcoming* .

Guiso, L., Haliassos, M. and Jappelli, T.: 2003, Household Stockholding in Europe: Where Do We Stand and Where Do We Go?, *Economic Policy* **18**, 123–170.

Guiso, L. and Jappelli, T.: 2005, Awareness and Stock Market Participation, *Review of Finance* **9**(4), 537–567.

Guiso, L., Sapienza, P. and Zingales, L.: 2008, Trusting the Stock Market, *Journal of Finance* **63**(6), 2557–2600.

Guner, N. and Knowles, J.: 2004, Marital Instability and the Distribution of Wealth, *Working paper*, Universitat Autonoma de Barcelona.

Haliassos, M. and Bertaut, C. C.: 1995, Why Do so few Hold Stocks?, *Economic Journal* **105**, 1110–1129.

Heckman, J., LaLonde, R. and Smith, J.: 1999, The Economics and Econometrics of Active Labor Market Programs, *in* O. Ashenfelter and D. Card (eds), *Handbook of Labor Economics*, Elsevier, Amsterdam.

Hess, G.: 2004, Marriage and Consumption Insurance: What?s Love Got to Do with It?, *Journal of Political Economy* **112**(2), 290–318.

Hong, H., Kubik, J. D. and Stein, J. C.: 2004, Social Interaction and Stock-Market Participation, *Journal of Finance* **59**(1), 137–164.

Jianakoplos, N. A. and Bernasek, A.: 1998, Are Women more Risk Averse?, *Economic Inquiry* **36**, 620–630.

Love, D. A.: 2010, The Effects of Marital Status and Children on Savings and Portfolio Choice, *Review of Financial Studes* **23**, 385–432.

Massa, M. and Simonov, A.: 2005, Behavioral Biases and Investment, *Review of Finance* **9**(4), 483–507.

Sunden, A. E. and Surette, B. J.: 1998, Gender Differences in the Allocation of Assets in Retirement Savings Plans, *American Economic Review* **88**(2), 207–211.

Svarer, M.: 2004, Is Your Love in Vain? Another Look at Premarital Cohabitation and Divorce, *Journal of Human Resources* **39**(2), 523–536.

Van Rooij, M., Lusardi, A. and Alessie, R.: 2007, Financial Literacy and Stock Market Participation, *Ssrn working paper*.

Viceira, L. M.: 2001, Optimal Portfolio Choice for Long-Horizon Investors with Non-tradable Labor Income, *Journal of Finance* **56**(2), 433–470.

Vissing-Jorgensen, A.: 2004, Perspectives on Behavioral Finance: Does Irrationality Disappear with Wealth? Evidence from Expectations and Actions, *in* M. Gertler and K. Rogoff (eds), *NBER Macroeconomics Annuals*, MIT Press.

Weiss, Y.: 1997, The formation and dissolution of families: Why marry? Who marries whom? And what happens upon divorce, *in* M.R.Rosenzweig and O. Stark (eds), *Handbook of Population and Family Economics*, Elsevier, Amsterdam, chapter 3, pp. 81–123.

Zagorsky, J.: 2005, Marriage and divorces impact on wealth, *Journal of Sociology* **41**(4), 406–424.

Table 1: Expected and Estimated Effects on Exposures to Risky Assets.

Expected Effects	Marriage		Divorce	
	Men	Women	Men	Women
Economic resources	+	+	−	−
Risk aversion	−	+	+	−

Estimated Effects	Marriage		Divorce	
	Men	Women	Men	Women
Stock market participation	+	+	−	+
Risky share	−	None	+	−

The top panel shows the sign of the expected effects due to economic resources and risk aversion upon investors stock holdings due to marriage and divorce for men and women separately. The bottom panel shows the estimated signs of the stock market participation and the risky share due to marriage and divorce for men and women separately.

Table 2: Summary Statistics

Variable	Men Always single	Men Marriage	Men Always married	Men Divorce	Women Always single	Women Marriage	Women Always married	Women Divorce
I[Children]	1.7%	19.7%	51.2%	28.8%	18.0%	26.1%	46.8%	44.6%
Age	37.0	32.1	45.8	40.8	40.2	31.6	44.6	40.8
Length of education	11.3	12.0	12.2	11.8	11.8	12.2	11.9	11.9
I[Economist]	3.0%	4.1%	4.6%	3.4%	2.5%	3.3%	3.5%	3.1%
Noncapital income (DKK)	220,490	265,872	387,376	310,095	208,811	197,781	239,330	235,898
Financial wealth (DKK)	102,744	82,718	183,167	97,052	120,178	68,055	85,292	113,301
I[Stock market participation]	20.0%	20.1%	29.6%	19.9%	18.4%	16.6%	22.8%	18.7%
Stock value (DKK)	17,146	10,486	28,900	13,733	23,554	8,834	13,611	12,412
Risky share	33.2%	33.8%	33.9%	34.2%	30.1%	29.6%	33.9%	30.4%
Observations	212,113	77,464	406,957	41,092	157,333	66,377	443,209	47,455

The table shows the average/proportion for the relevant variables for investors dividend into groups according to gender and marital status.

Table 3: Stock Market Participation

Additional explanatory variables	Marriage				Divorce			
	(i)	(ii)	(iii)	(iv)	(i)	(ii)	(iii)	(iv)
Socioeconomic		+	+	+		+	+	+
Log noncapital income			+	+			+	+
Financial wealth				+				+
Men								
DID estimator	0.011	0.011	0.005	0.006	-0.013	-0.016	-0.012	-0.012
Std. error (OLS)	(0.003) **	(0.003) **	(0.003)	(0.003) *	(0.005) **	(0.005) **	(0.005) **	(0.005) **
Std. error (clustering)	(0.004) *	(0.003) **	(0.003)	(0.003) *	(0.003) **	(0.004) **	(0.005) *	(0.000) **
Probit DID estimator (marg effect)	0.011	0.011	0.005	0.009	-0.011	-0.013	-0.011	-0.012
Std. error (probit)	(0.003) **	(0.003) **	(0.003)	(0.003) *	(0.005) *	(0.005) **	(0.005) *	(0.005) *
Observations	289,065	279,171	276,986	276,986	447,142	439,078	437,462	437,462
Women								
DID estimator	0.020	0.018	0.016	0.016	0.019	0.019	0.017	0.014
Std. error (OLS)	(0.003) **	(0.003) **	(0.003) **	(0.003) **	(0.004) **	(0.004) **	(0.004) **	(0.004) **
Std. error (clustering)	(0.004) **	(0.004) **	(0.004) **	(0.004) **	(0.006)	(0.007)	(0.006)	(0.005)
Probit DID estimator (marg effect)	0.021	0.020	0.018	0.018	0.023	0.024	0.021	0.006
Std. error (probit)	(0.003) **	(0.003) **	(0.003) **	(0.004) **	(0.004) **	(0.004) *	(0.004) **	(0.004)
Observations	223,109	216,787	215,222	215,222	490,101	481,586	475,331	475,331

Notes: The table shows the DID estimates (based on OLS and probit estimations) for the stock market participation when investors change marital statues. OLS, clustering, and probit standard errors are shown. */** indicates significance at the 5%/1% level of significance.

Table 4: Risky Share

Additional explanatory variables	Marriage				Divorce			
	(i)	(ii)	(iii)	(iv)	(i)	(ii)	(iii)	(iv)
Socioeconomic		+	+	+		+	+	+
Log noncapital income			+	+			+	+
Financial wealth				+				
Men								
DID estimator	0.000	-0.014	-0.012	-0.013	0.010	0.018	0.018	0.018
Std. error (OLS)	(0.005)	(0.006) *	(0.006) *	(0.006) *	(0.007)	(0.007) *	(0.007) *	(0.007) *
Std. error (clustering)	(0.003)	(0.004) **	(0.004)	(0.004) **	(0.006) *	(0.008) **	(0.008) **	(0.008) **
Tobit DID	0.000	-0.009	-0.008	-0.008	0.006	0.012	0.012	0.012
Std. error (tobit)	(0.005)	(0.006) *	(0.006) *	(0.006) *	(0.007)	(0.007) *	(0.007) *	(0.007) *
Coefficient to financial wealth (millions)				-0.012 **				-0.001 **
Observations	57,792	57,138	56,860	56,860	128,354	127,149	126,826	126,826
Women								
DID estimator	0.022	0.010	0.010	0.010	-0.044	-0.042	-0.042	-0.040
Std. error (OLS)	(0.006) **	(0.006)	(0.006)	(0.006)	(0.007) **	(0.007) **	(0.007) **	(0.007) **
Std. error (clustering)	(0.007) **	(0.006)	(0.006)	(0.006)	(0.016)	(0.015)	(0.015)	(0.014)
Tobit DID	0.014	0.006	0.007	0.007	-0.029	-0.027	-0.027	-0.026
Std. error (tobit)	(0.006) **	(0.006)	(0.006)	(0.006)	(0.007) **	(0.007) **	(0.007) **	(0.007) **
Coefficient to financial wealth (millions)				-0.001 **				-0.007 **
Observations	39,799	39,342	39,135	39,135	109,699	108,898	107,812	107,812

Notes: The table shows the DID estimates (based on OLS and tobit estimations) for the risky share when investors change marital statues. OLS, clustering, and tobit standard errors are shown. */** indicates significance at the 5%/1% level of significance.

Table 5: Stock Market Participation - Economists

Additional Explanatory Variables	Single to Married				Married to Single			
	(i)	(ii)	(iii)	(iv)	(i)	(ii)	(iii)	(iv)
Socioeconomic		+	+	+		+	+	+
Log Noncapital Income			+	+			+	+
Financial Wealth				+				+
Males								
DID economists	0.053 **	0.065 **	0.057 **	0.059	-0.030	-0.034	-0.028	-0.028
I[marriage/divorce]	-0.005 **	-0.001	-0.012 **	-0.011 **	-0.090 **	-0.055 **	-0.037 **	-0.037 **
I[marriage/divorce]*After	0.007 **	0.008 *	0.002	0.003	-0.014 **	-0.017 **	-0.013 **	-0.013 **
I[economist]	0.236 **	0.146 **	0.140 **	0.131 **	0.199 **	0.165 **	0.133 **	0.132 **
I[marriage/divorce]*After*I[economist]	0.048 **	0.059 **	0.060 **	0.066 **	0.050 **	0.028	0.032	0.033
Females								
DID economists	-0.014	0.001	-0.006	-0.013	0.040	0.057 *	0.057 *	0.055 *
I[marriage/divorce]	-0.028 **	0.005 *	0.003	0.003	-0.046 **	-0.022 **	-0.021 **	-0.022 **
I[marriage/divorce]*After	0.018 **	0.018 **	0.016 **	0.016 **	0.018 **	0.019 **	0.017 **	0.014 **
I[economist]	0.220 **	0.179 **	0.170 **	0.166 **	0.273 **	0.268 **	0.260 **	0.254 **
I[marriage/divorce]*After*I[economist]	-0.006	-0.003	-0.002	-0.002	0.011	0.005	0.004	0.002

Notes: First, the table shows the DID estimators for the effect of marriage and divorce upon the stock market participation when the investor holds an economics education. Second, the table shows the DID regression which includes an interaction term for the DID estimator and the investor being an economist. */** indicates significance at the 5%/1% level of significance.

Table 6: Risky Share Economists

Additional Explanatory Variables	Single to Married				Married to Single			
	(i)	(ii)	(iii)	(iv)	(i)	(ii)	(iii)	(iv)
Socioeconomic		+	+	+		+	+	+
Log Noncapital Income			+	+			+	+
Financial Wealth				+				+
Males								
DID economists	-0.012	-0.020	-0.018	-0.018	0.018	0.029	0.026	0.026
I[marriage/divorce]	0.005	0.004	0.006	0.006	-0.001	-0.002	-0.002	-0.002
I[marriage/divorce]*After	0.001	-0.011	-0.010	-0.010	0.009	0.017 *	0.016 *	0.016 *
I[economist]	0.074 **	0.071 **	0.072 **	0.073 **	0.065 **	0.064 **	0.064 **	0.065 **
I[marriage/divorce]*After*I[economist]	-0.029 *	-0.025	-0.025	-0.027 *	0.020	0.025	0.022	0.022
Females								
DID economists	0.000	-0.009	-0.011	-0.007	0.010	0.020	0.017	0.018
I[marriage/divorce]	-0.012 **	-0.009 *	-0.008	-0.008	-0.014 **	-0.013 **	-0.012 **	-0.011 *
I[marriage/divorce]*After	0.019 **	0.007	0.007	0.007	-0.050 **	-0.048 **	-0.048 **	-0.046 **
I[economist]	0.029 **	0.034 **	0.036 **	0.036 **	0.026 **	0.025 **	0.026 **	0.027 **
I[marriage/divorce]*After*I[economist]	0.030	0.034 *	0.035 *	0.036 *	0.068 **	0.079 **	0.077 **	0.077 **

Notes: First, the table shows the DID estimators for the effect of marriage and divorce upon the risky share when the investor holds an economics education. Second, the table shows the DID regression which includes an interaction term for the DID estimator and the investor being an economist. */** indicates significance at the 5%/1% level of significance.

Table 7: Specification Tests

Additional explanatory variables	Marriage				Divorce			
	(i)	(ii)	(iii)	(iv)	(i)	(ii)	(iii)	(i)
Socioeconomic		+	+	+		+	+	+
Log noncapital income			+	+			+	+
Financial Wealth				+				+
Men: stock market participation								
H0: No group-specific trend, only 2002 transitions	0.950	0.615	0.311	0.320	0.790	0.878	0.977	0.981
H0: No leads, only 2002 transitions	0.953	1.000	0.972	0.970	0.169	0.801	0.567	0.572
Only 1998 transitions:								
Lag 1	0.004	0.007	0.005	0.006	-0.011	-0.015	-0.014	-0.014
Lag 2	0.007	0.007	0.006	0.006	0.001	0.001	0.000	0.000
Lag 3	0.012	0.014	0.012	0.013	0.011	0.007	0.004	0.004
Lag 4	0.002	0.000	0.000	0.001	-0.004	-0.004	-0.002	-0.002
Lag 5	0.007	0.008	0.007	0.007	0.003	0.002	0.008	0.008
Women: stock market participation								
H0: No group-specific trend, only 2002 transitions	0.056	0.230	0.247	0.252	0.053	0.021 *	0.026 *	0.046 *
H0: No leads, only 2002 transitions	0.209	0.776	0.767	0.773	0.037 *	0.140	0.205	0.378
Only 1998 transitions:								
Lag 1	0.009	0.013	0.012	0.012	0.024	0.020	0.017	0.015
Lag 2	0.013	0.013	0.013	0.013	0.005	0.002	0.002	0.002
Lag 3	0.019	0.018	0.017	0.017	-0.016	-0.018	-0.017	-0.017
Lag 4	0.000	-0.002	-0.002	-0.003	-0.001	-0.001	-0.002	-0.001
Lag 5	0.006	0.003	0.003	0.002	-0.006	-0.006	-0.005	-0.004

Men: risky share

H0: No group-specific trend, only 2002 transitions	0.025 *	0.715	0.820	0.840	0.826	0.533	0.530	0.536
H0: No leads, only 2002 transitions	0.783	0.666	0.663	0.638	0.730	0.874	0.587	0.890
Only 1998 transitions:								
Lag 1	-0.023	0.001	-0.034	-0.034	-0.034	-0.032	-0.030	-0.030
Lag 2	0.045 *	0.002	0.043	0.043	0.066 *	0.069 *	0.069 *	0.069 *
Lag 3	0.019	0.035	0.012	0.011	-0.011	-0.010	-0.013	-0.013
Lag 4	-0.017	0.000	-0.018	-0.018	0.007	0.006	0.008	0.008
Lag 5	-0.018	0.015	-0.021	-0.020	-0.016	-0.017	-0.015	-0.015

Women: risky share

H0: No group-specific trend, only 2002 transitions	0.025 *	0.038 *	0.043 *	0.042 *	0.002 **	0.003 **	0.001 **	0.002 **
H0: No leads, only 2002 transitions	0.197	0.250	0.265	0.264	0.001 **	0.001 **	0.001	0.001 **
Only 1998 transitions:								
Lag 1	0.005	0.001	0.001	0.001	0.017	0.020	0.019	0.019
Lag 2	0.005	0.002	0.002	0.002	0.014	0.011	0.011	0.011
Lag 3	0.043	0.035	0.035	0.035	-0.062 *	-0.063 *	-0.063 *	-0.062 *
Lag 4	0.001	0.001	0.000	0.000	0.027	0.030	0.032	0.032
Lag 5	0.018	0.015	0.015	0.015	0.020	0.014	0.014	0.013

Notes: The first two rows of each sub-table show the p-values of the specificaton tests. The last five rows of each sub-table shows the DID estimator for 1998 transitions as well as the parameter estimates for the lags. */** indicates significance at 5%/1% level of significance.

Table 8: Robustness Analysis

| Additional explanatory variables	Marriage				Divorce			
	(i)	(ii)	(iii)	(iv)	(i)	(ii)	(iii)	(iv)
Socioeconomic		+	+	+		+	+	+
Log noncapital income			+	+			+	+
Financial Wealth				+				+
Men: Stock Market Participation								
DID interaction with age	-0.0004	0.0000	0.0004	0.0002	-0.0009 *	-0.0009 *	-0.0014 **	-0.0014 **
DID interaction with education length	0.0017	0.0007	0.0012	0.0016	0.0081 **	0.0066 **	0.0060 **	0.0061 **
DID, only 1999 transitions	0.0137	0.0205	0.0186	0.0187	0.0037	-0.0052	-0.0114	-0.0115
DID, only 2002 transitions	0.0034	0.0017	-0.0002	0.0007	-0.0087	-0.0190	-0.0246	-0.0246
Women: Stock Market Participation								
DID interaction with age	0.0001	0.0003	0.0005 *	0.0006 *	0.0011 **	0.0013 **	0.0009 **	0.0005
DID interaction with education length	0.0010	0.0002	0.0002	0.0003	0.0053 **	0.0029 **	0.0030 **	0.0031 **
DID, only 1999 transitions	0.0142	0.0184	0.0166	0.0162	0.0492 **	0.0505 **	0.0484 **	0.0443 **
DID, only 2002 transitions	0.0121	0.0087	0.0080	0.0076	0.0313	0.0293	0.0251	0.0136
Men: risky share								
DID interaction with age	0.0008	0.0009 *	0.0008 *	0.0009 *	-0.0024 **	-0.0033 **	-0.0034 **	-0.0035 **
DID interaction with education length	-0.0056 **	-0.0066 **	-0.0068 **	-0.0069 **	0.0007	0.0013	0.0013	0.0013
DID, only 1999 transitions	-0.0425	-0.0542 *	-0.0495 *	-0.0335	0.0078	0.0172	0.0181	0.0182
DID, only 2002 transitions	-0.0272	-0.0407 *	-0.0424 *	-0.0432 *	-0.0071	0.0102	0.0072	0.0071
Women: risky share								
DID interaction with age	-0.0003	-0.0001	-0.0003	-0.0003	-0.0021 **	-0.0030 **	-0.0029 **	-0.0027 **
DID interaction with education length	0.0003	-0.0007	-0.0007	-0.0007	0.0002	0.0005	0.0005	0.0003
DID, only 1999 transitions	-0.0318	-0.0352	-0.0335	-0.0499 *	0.0077	0.0089	0.0060	0.0069
DID, only 2002 transitions	0.0080	0.0030	0.0022	0.0023	-0.0811 **	-0.0783 **	-0.0771 **	-0.0708 **

Notes: The table shows the DID interactions with age and education length and the DID estimates (OLS estimations) for the stock market participation and risky share when investors change marital statues. */** indicates significance at 5%/1% level of significance.
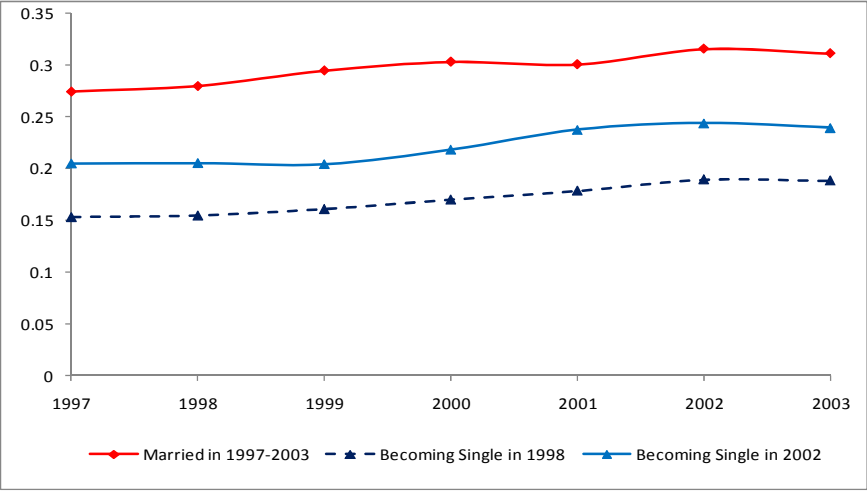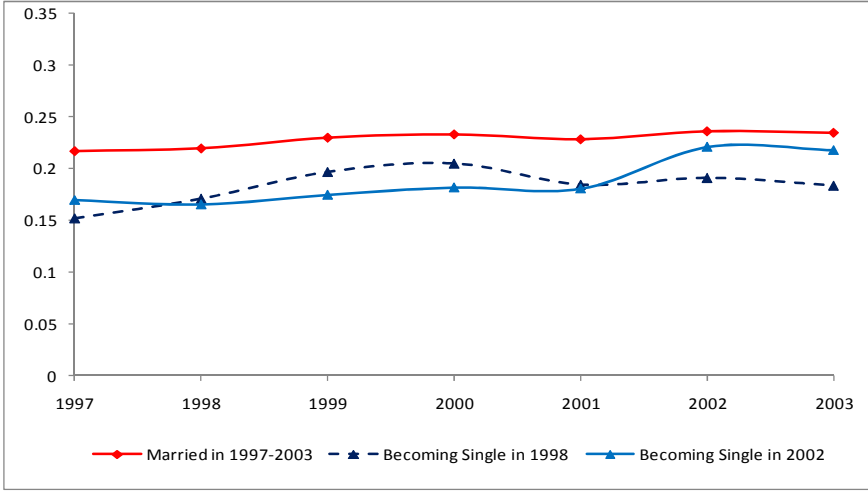
Figure 1: Stock Market Participation

a. Men, marriage
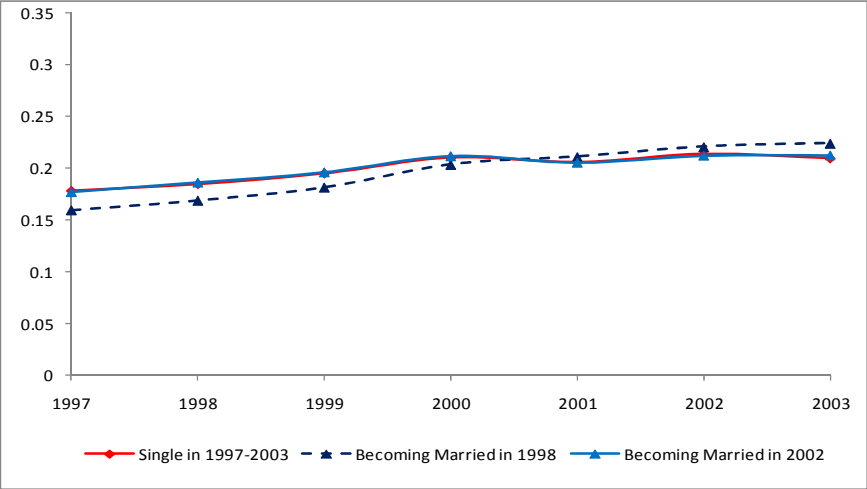
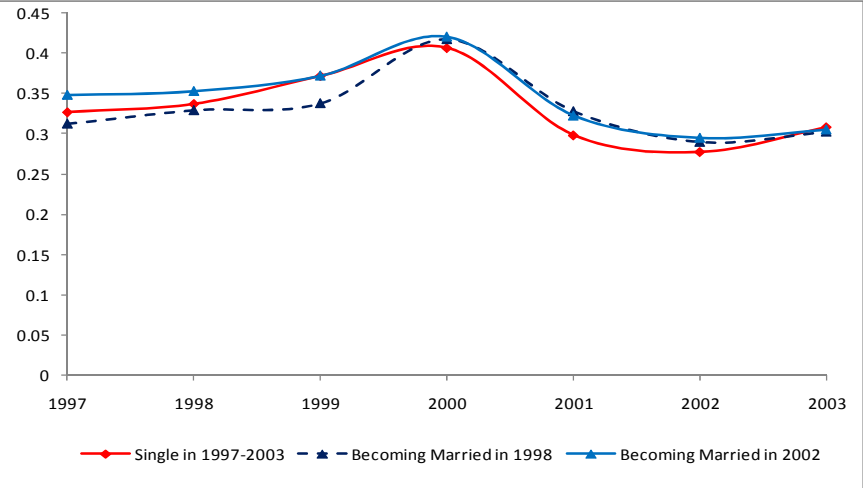b. Women, marriage
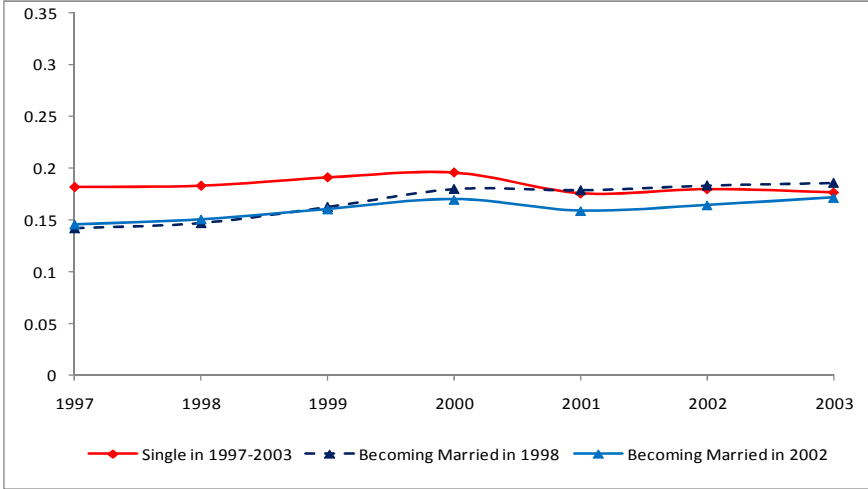
c. Men, divorce

d. Women, divorce

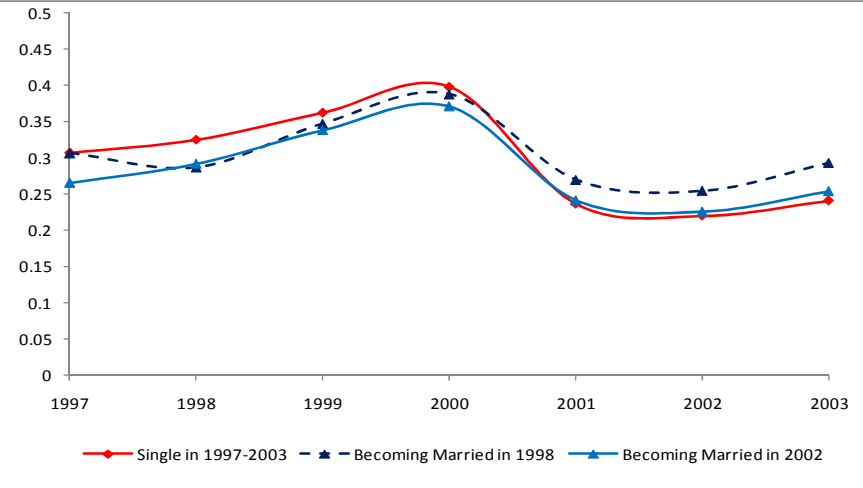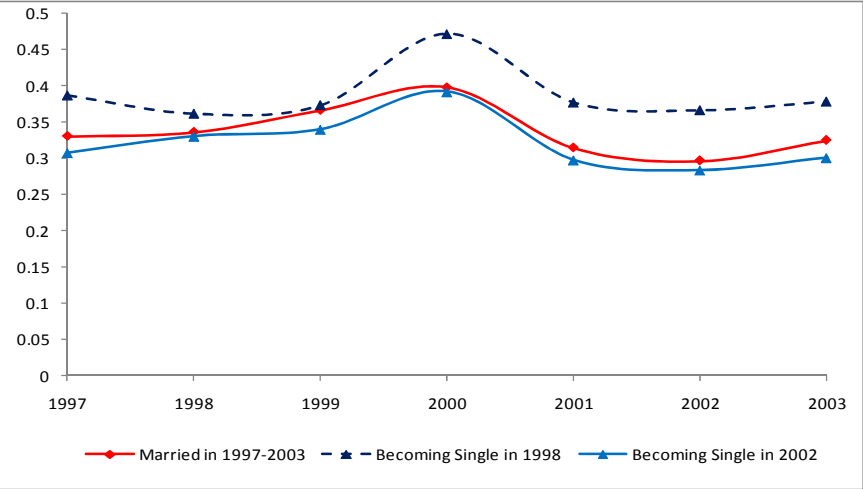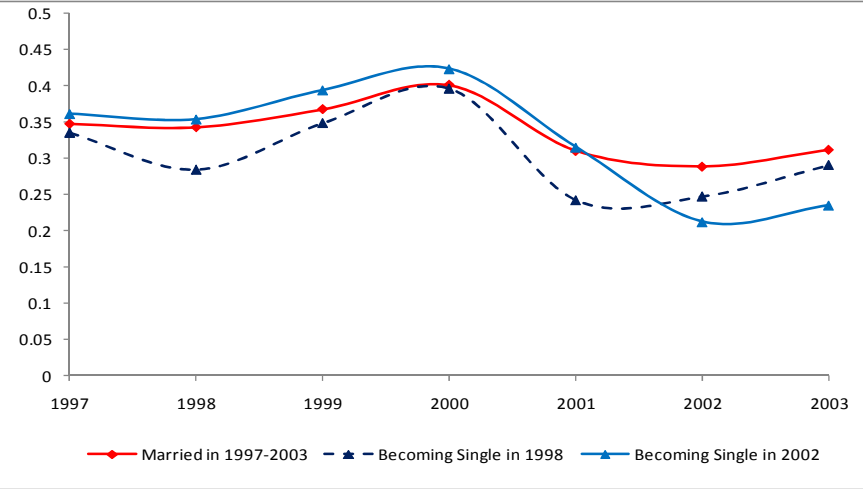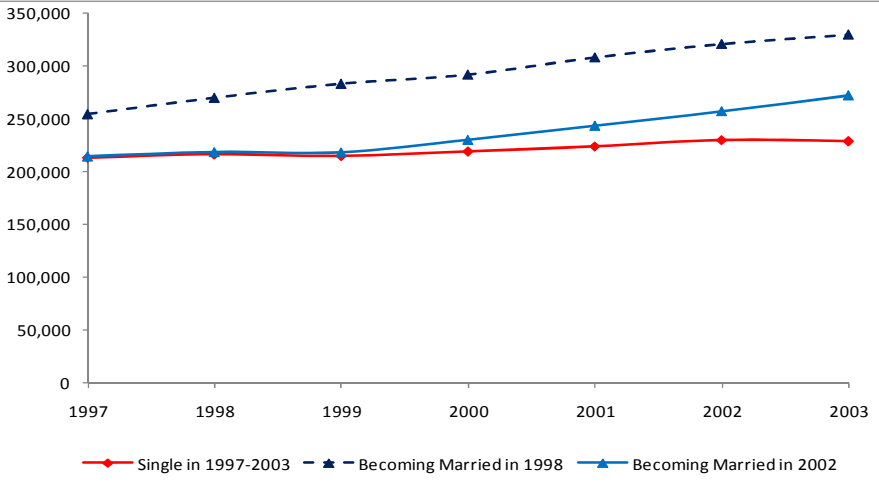# Figure 2: Risky Share

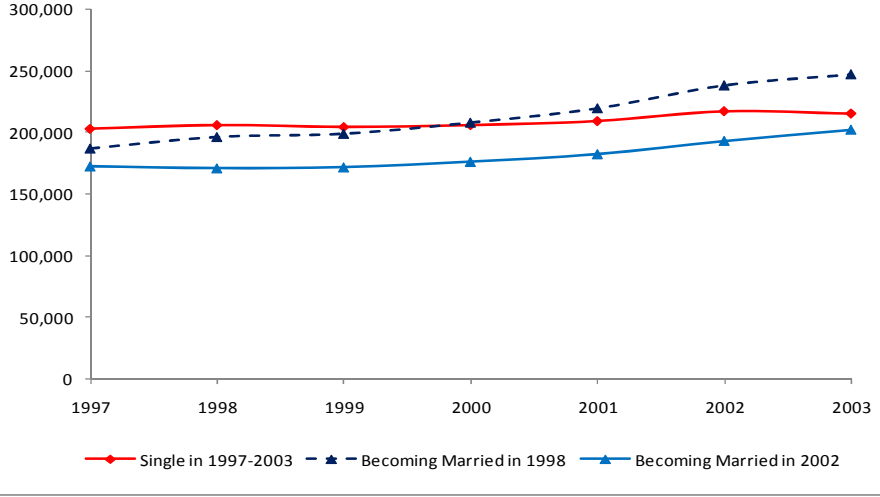a. Men, marriage

b. Women, marriage
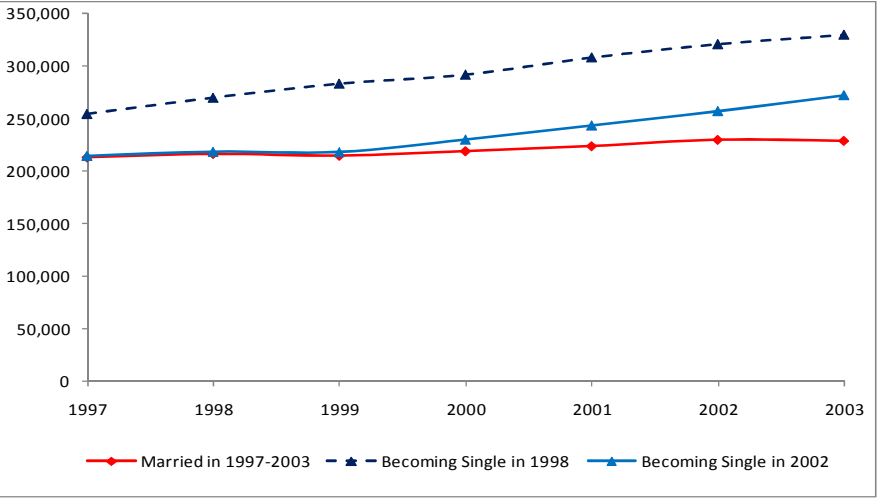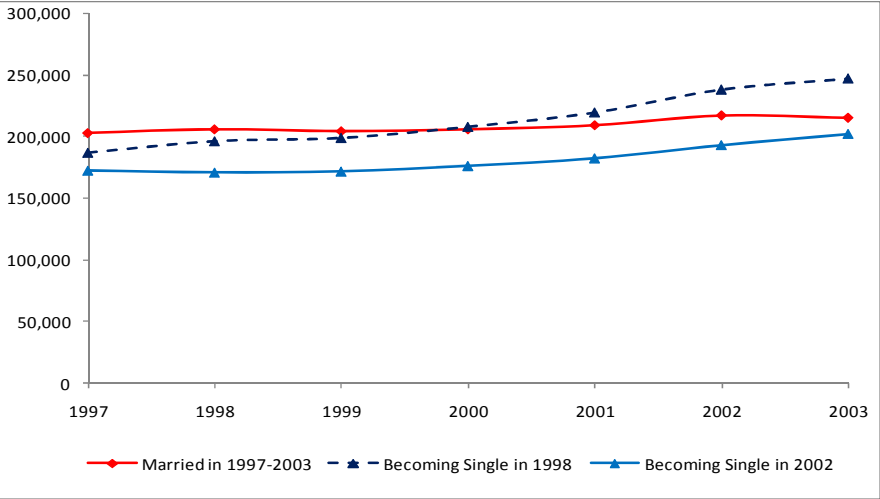
c. Men, divorce

d. Women, divorce

Figure 3: Income
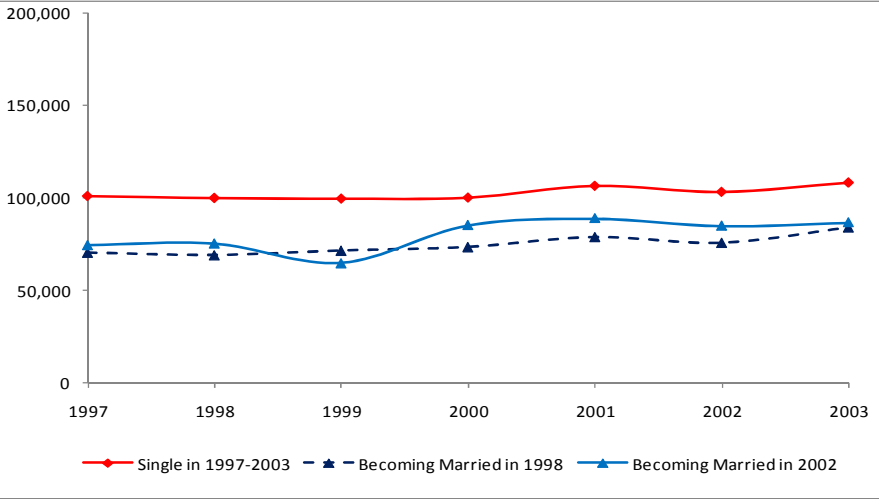
a. Men, marriage

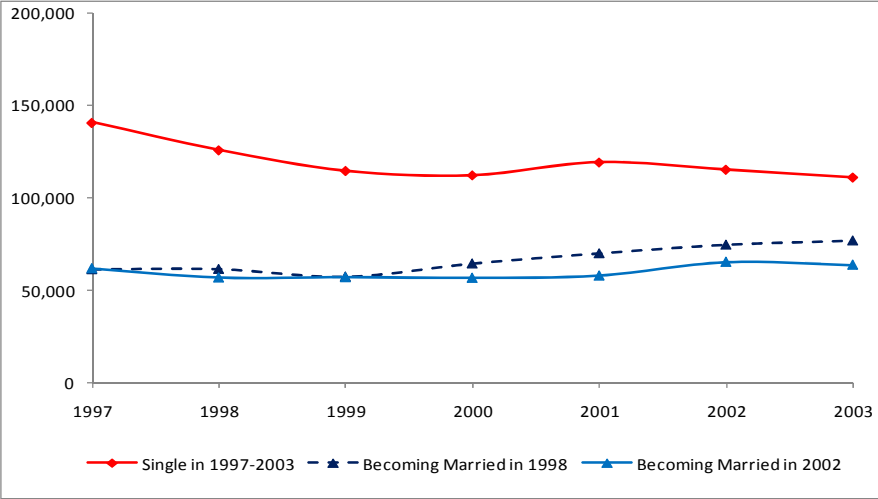b. Wome, marriage

c. Men, divorce

d. Wome, divorce

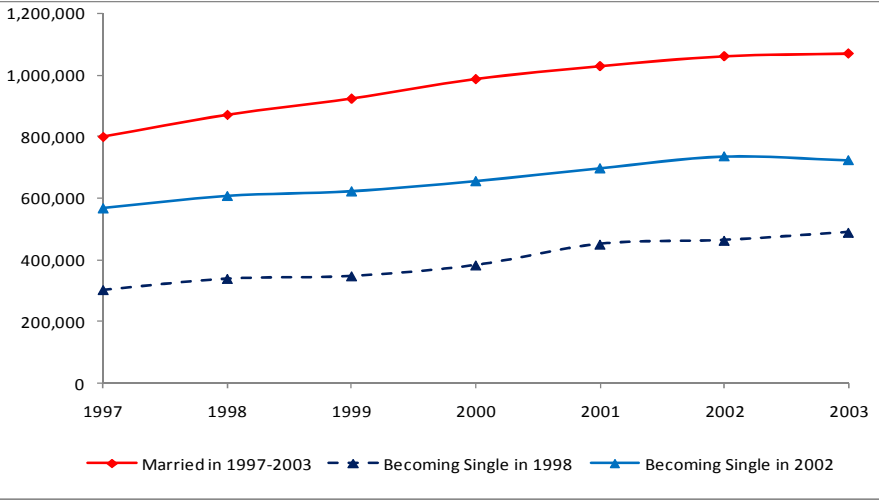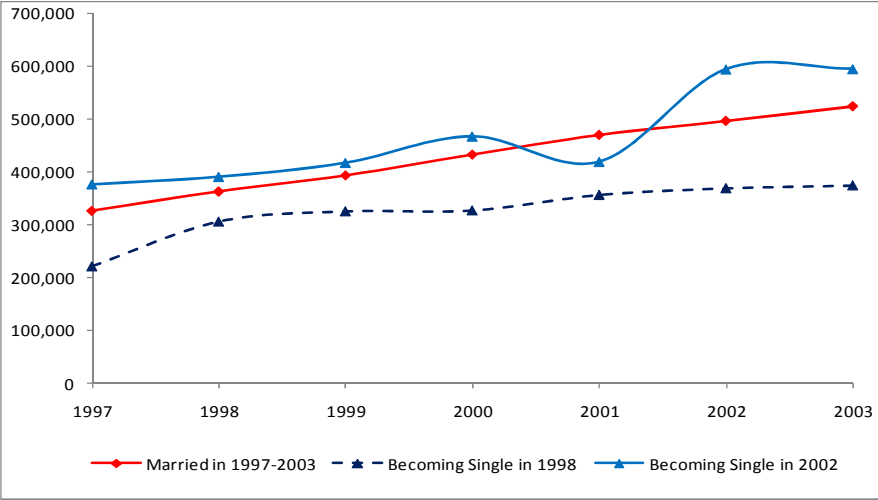# Figure 4: Financial Wealth

a. Men, marriage

b. Women, marriage

c. Men, divorce

d. Women, divorce

Appendix: Table 1A: Stock Market Participation Model (iv)

	Marriage		Divorce	
	Men	Women	Men	Women
Constant	-0.764 **	-0.541 **	-1.514 **	-0.575 **
1998 dummy	0.005	-0.001	-0.002	-0.004
1999 dummy	0.015 **	0.006 *	0.007 **	0.002
2000 dummy	0.029 **	0.011 **	0.011 **	0.001
2001 dummy	0.022 **	-0.009 **	0.004	-0.010 **
2002 dummy	0.028 **	-0.007 *	0.008 **	-0.008 **
2003 dummy	0.023 **	-0.012 **	0.002	-0.015 **
I[marriage/divorce]	-0.011 **	0.003	-0.037 **	-0.022 **
DID estimator	0.006 *	0.016 **	-0.012 **	0.014 **
Age	0.001 **	0.003 **	0.006 **	0.006 **
I[children]	-0.057 **	-0.076 **	-0.031 **	-0.022 **
Lenght of education	0.017 **	0.012 **	0.008 **	0.007 **
I[economist]	0.142 **	0.165 **	0.133 **	0.254 **
Log nonfinancial income	0.059 **	0.039 **	0.115 **	0.037 **
Financial wealth (mio)	0.109 **	0.038 **	0.003 **	0.060 **
Observations	276,986	215,222	437,462	475,331

Notes: The table shows the DID estimates (based on OLS) for the stock market participation when investors change marital statues. */** indicates significance at the 5%/1% level of significance.

Appendix: Table 2A: Portfolio Riskiness Model (iv)

	Marriage		Divorce	
	Men	Women	Men	Women
Constant	0.516 **	0.465 **	0.338 **	0.358 **
1998 dummy	0.010	0.017 **	0.006	-0.004
1999 dummy	0.038 **	0.053 **	0.035 **	0.020 **
2000 dummy	0.077 **	0.085 **	0.068 **	0.054 **
2001 dummy	-0.027 **	-0.067 **	-0.018 **	-0.041 **
2002 dummy	-0.050 **	-0.081 **	-0.035 **	-0.062 **
2003 dummy	-0.020 **	-0.056 **	-0.007 *	-0.037 **
I[marriage/divorce]	0.006	-0.008	-0.001	-0.011 *
DID estimator	-0.013 *	0.010	0.018 *	-0.040 **
Age	0.001 **	0.001 **	-0.001 **	0.001 **
I[children]	0.050 **	0.065 **	0.026 **	0.043 **
Lenght of education	0.003 **	-0.002 **	-0.001 **	-0.003 **
I[economist]	0.069 **	0.043 **	0.065 **	0.030 **
Log nonfinancial income	-0.020 **	-0.014 **	0.001	-0.001
Financial wealth (mio)	-0.019 **	-0.002 **	-0.001 **	-0.011 **
Observations	56,860	39,135	126,826	107,812

Notes: The table shows the DID estimates (based on OLS) for the risky share when investors change marital statues. */** indicates significance at the 5%/1% level of significance.