

Risk-Taking under Limited Liability: Quantifying the Role of Motivated Beliefs

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Motivation

Limited liability has been identified as one of the main reasons for **excessive risk-taking** in the financial sector

Two potential channels for effect of limited liability on risk-taking:

1. **Incentives:** Due to implicit and explicit guarantees in financial sector, bankers do not fully internalize losses of failed investments (Hakenes and Schnabel, 2014)
2. **Motivated Beliefs:** Due to limited liability *and self-image concerns*, bankers might distort their beliefs about downside risks of investments (Barberis, 2013; Bénabou, 2015)

Motivation

*A fundamental idea in social psychology is that people do not only want to make money – they also want to feel good about themselves, and **it is hard to feel good about oneself if one is knowingly doing something that is potentially ruinous to others.** [...] However, by manipulating their beliefs, [the investors with limited liability] deluded themselves into thinking that their business model was not risky, but rather, worth pursuing.*

—Nicholas Barberis, *Psychology and the Financial Crisis of 2007-2008*

Research Question

Does limited liability (*and moral hazard*) lead to motivated beliefs?

Do these biased beliefs result in higher risk-taking?

Elevator Pitch

Laboratory experiment in which subjects receive **noisy signal** about whether a binary **risky asset** will succeed or fail

Based on this signal, subjects

- ▶ form **beliefs** about the success probability of risky asset
- ▶ decide how much to **invest** in risky asset

Treatments only differ in how losses from **failed investments** are distributed

- ▶ *Full liability*
- ▶ *Limited liability & Moral Hazard*
- ▶ *Limited liability & No Moral Hazard*

Main Results:

1) We detect Motivated Beliefs

Under limited liability and moral hazard, **subjects bias their beliefs upwards** regarding the success probabilities of investments.

2) Motivated Beliefs Matter

Motivated beliefs account for **one-third of the increase in investment under limited liability**.

3) Motivated Beliefs Channel

Self-image concerns drive the formation of motivated beliefs.

4) Motivated Beliefs Backfire

Motivated beliefs result in **higher investments when there is moral hazard** than when there isn't.

Experimental Design

Design Overview II

Payoffs:

- ▶ If the investment succeeds, it yields a **gain of 0.75X**.
- ▶ If the investment fails, **[treatment]**

Treatments:

- ▶ **Baseline (BL)**: investor covers 100% losses
- ▶ **Matched (MA)**: investor covers 25% of the losses, the remaining 75% is covered by **one matched loss-taker**
- ▶ **Diffusion (DF)**: investor covers 25% of the losses, the remaining 75% is split up equally among **all loss-takers in the session**
- ▶ **No Match (NM)**: investor covers 25% of the losses

Signal

Example: Dot Spot

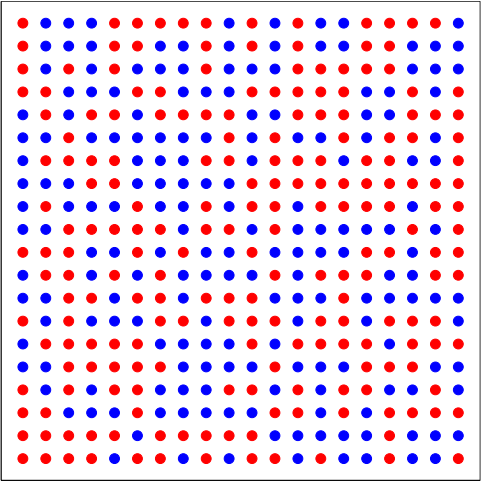


Figure: A Dot Spot with 210 red dots and 190 blue dots.

Results

Overview of Experiment

286 subjects recruited through ORSEE (Greiner, 2015)

Conducted at Technical University of Berlin

9 sessions, 3 treatment orders

(1. *BL, MA, DF*; 2. *MA, DF, BL*; 3. *DF, MA, BL*)

10 sessions, 2 treatment order

(1. *MA, NM, BL*; 2. *BL, MA, NM*)

Average earning €38

Programmed in oTree (Chen et al., 2016)

Treatment Effects

Treatment Effects: Hypotheses

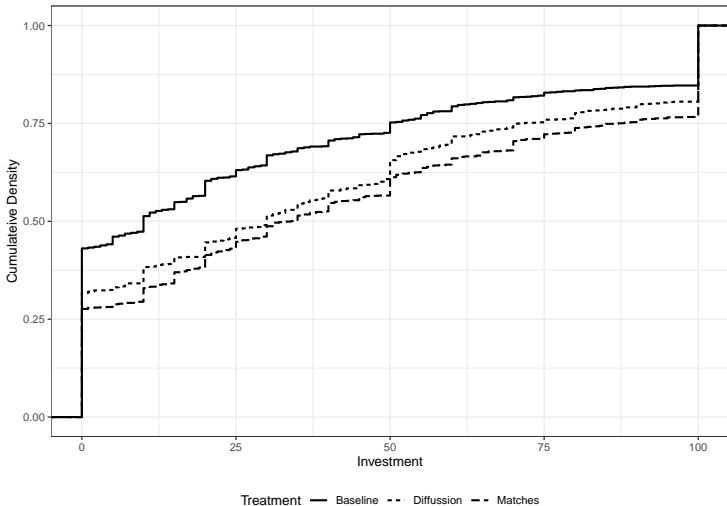
Hypothesis 1 (Exploitation of Limited Liability): Investors care more about own monetary payoffs than payoffs of others

→ **Investments in *Matched* and *Diffusion* > *Baseline***

Hypothesis 2 (Diffusion of Responsibility): Investors invest more when concerns for the agents covering the losses get diluted. Diffusion of responsibility leads to more selfish and immoral outcomes.

→ **Investment *Diffusion* > Investment *Matched***

CDF Investment



Treatment Effects

Dep. var: <i>Investment</i>	(1)	(2)	(3)	(4)
MA	12.76*** (1.402)	12.76*** (1.405)	13.23*** (1.470)	
DF	9.095*** (1.562)	10.57*** (1.363)	10.81*** (1.458)	-1.789 (1.353)
Constant	-3.797*** (1.206)	-1.066 (18.21)	-9.140 (18.64)	0.673 (21.43)
<i>N</i>	3750	3750	3480	2140
adj. R^2	0.359	0.373	0.368	0.353
Controls	No	Yes	Yes	Yes
Gender	No	No	Yes	Yes
All treatments	Yes	Yes	Yes	No

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Treatment Effects: Main Result

Hypothesis 1 (Exploitation of Limited Liability) ✓

Investments in the limited liability treatments, *Matched* and *Diffusion*, are both significantly higher than in *Baseline*.

Hypothesis 2 (Diffusion of Responsibility) ✗

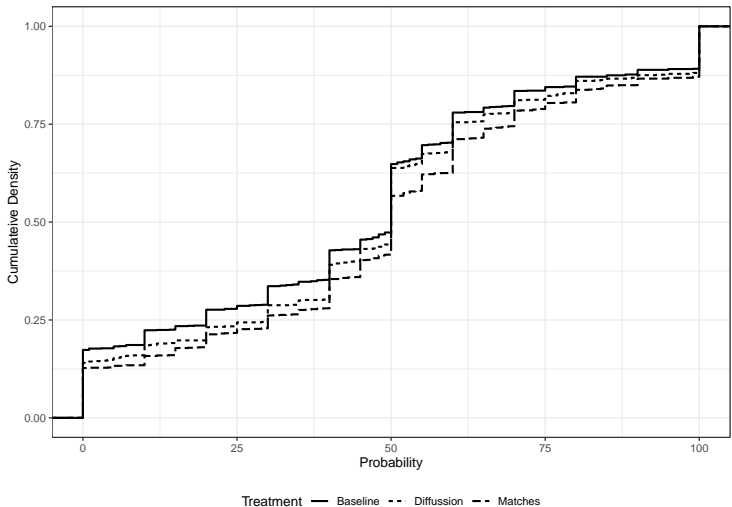
Investment levels in both limited liability treatments are similar, and we cannot reject the null hypothesis of no differences between *MA* and *DF*.

Motivated Beliefs

Motivated Beliefs

Hypothesis 3 (Motivated Beliefs): Under limited liability and moral hazard, subjects bias upward their beliefs regarding the success probabilities of investments.

Treatment Effects



Motivated Beliefs: Regression

Dep. Variable: <i>Prob</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MA	4.174*** (0.855)	4.170*** (0.855)	4.114*** (0.892)				
DF	1.774* (1.019)	2.792*** (1.047)	3.171*** (1.129)	-0.875 (1.224)			
MH					3.255*** (0.760)	3.697*** (0.772)	3.802*** (0.813)
Constant	7.608*** (1.498)	7.015 (10.43)	2.156 (10.81)	5.261 (11.26)	7.595*** (1.495)	6.873 (10.42)	2.053 (10.79)
<i>N</i>	3750	3750	3480	2140	3750	3750	3480
adj. <i>R</i> ²	0.441	0.444	0.444	0.459	0.440	0.444	0.444
Controls	No	Yes	Yes	Yes	No	Yes	Yes
Gender	No	No	Yes	Yes	No	No	Yes
All treatments	Yes	Yes	Yes	No	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Motivated Beliefs

Hypothesis 3 (Motivated Beliefs): ✓

Under limited liability, subjects bias upwards their beliefs regarding the success probabilities of investments.

- ▶ Incentives on beliefs do not impact the result

▶ Robustness

Quantifying Motivated Beliefs

▶ Skip

Quantifying Motivated Beliefs: Identification Problem

Problem: Randomization of treatment not sufficient to uncover causal effect of limited liability *through* beliefs. See **not yet fully complete benchmark IV** regression:

$$Prob_{i,r} = \gamma_0 + \gamma_1 \times Treatment_{i,r} + \rho_{i,r}, \quad (1)$$

$$Investment_{i,r} = \delta_0 + \delta_1 \times \widehat{Prob}_{i,r} + \mu_{i,r}. \quad (2)$$

$Prob_{i,r}$: investor i 's belief about success prob. in round r

$Treatment_{i,r}$: dummy variable equal 1 for *MA* and *DF*

$Investment_{i,r}$: perc. of endowment invested in risky asset

⚠ Specification assumes that treatment impacts investments *only* through beliefs → unlikely

Motivated Beliefs: Empirical Strategy

Solution: We include a source of exogenous variation in beliefs, the number of red dots in the Dot Spots, $Dots_{i,r}$:

$$Prob_{i,r} = \alpha_0 + \alpha_1 \times Treatment_{i,r} + \alpha_2 \times Dots_{i,r} + \epsilon_{i,r}, \quad (3)$$

$$Investment_{i,r} = \beta_0 + \beta_1 \times \widehat{Prob}_{i,r} + \beta_2 \times Treatment_{i,r} + u_{i,r}. \quad (4)$$

Effect of beliefs on investment not only identified by variation in beliefs due to $Treatment_{i,r}$ but also by variation in beliefs due to $Dots_{i,r}$

→ We can now include $Treatment_{i,r}$ in second stage

⇒ This isolates effect of lim. liab. through beliefs (“indirect effect”) from all other effects of lim. liab. (“direct effects”)

Main identifying assumption: $Dots_{i,r}$ affects investment decision only through shift in beliefs

Motivated Beliefs: First Stage Results

Dep. Variable: <i>Prob</i>	(1)	(2)	(3)
MH	3.255*** (0.760)	3.697*** (0.772)	3.802*** (0.813)
185.dots	19.35*** (1.491)	19.31*** (1.519)	19.49*** (1.574)
190.dots	30.03*** (1.684)	29.79*** (1.711)	29.03*** (1.788)
195.dots	32.60*** (1.983)	32.53*** (1.994)	33.12*** (2.063)
199.dots	34.51*** (1.975)	34.28*** (1.975)	33.31*** (2.011)
201.dots	43.60*** (2.115)	43.68*** (2.116)	42.38*** (2.143)
205.dots	41.56*** (1.922)	41.49*** (1.928)	41.02*** (2.044)
210.dots	44.89*** (2.095)	45.00*** (2.093)	44.59*** (2.174)
215.dots	54.32*** (2.350)	54.22*** (2.355)	52.54*** (2.413)
280.dots	80.77*** (2.082)	80.61*** (2.092)	79.56*** (2.225)
Constant	7.595*** (1.495)	6.873 (10.42)	2.053 (10.79)
<i>N</i>	3750	3750	3480
adj. <i>R</i> ²	0.440	0.444	0.444
Number of Bankers	125	125	116
Gender	No	No	Yes
Controls	No	Yes	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Motivated Beliefs: Second Stage Results

Dep. Variable: <i>Investment</i>	(1)	(2)	(3)
<i>Treatment</i>	6.971*** (1.344)	6.970*** (1.341)	7.258*** (1.460)
<i>Prob (instrumented)</i>	1.091*** (0.0442)	1.092*** (0.0456)	1.106*** (0.0503)
<i>Constant</i>	-19.18*** (2.176)	-39.25* (20.95)	-41.11* (22.87)
<i>N</i>	3750	3750	3480
Number of Bankers	125	125	116
adj. R^2	0.351	0.365	0.358
Gender	No	No	Yes
Controls	No	Yes	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Indirect (CACME) and Direct Treatment Effects (CADE)

Dep. Variable: <i>Investment</i>	(1)	(2)	(3)
<i>Indirect Treatment Effect (CACME)</i>	3.567***	4.055***	4.212***
	(0.834)	(0.846)	(0.902)
<i>Direct Treatment Effects (CADE)</i>	7.844***	7.984***	8.246***
	(1.298)	(1.254)	(1.317)
Observations	2670	3750	3480
Number of Bankers	125	125	116
Gender	No	No	Yes
Controls for Treatment Order	No	Yes	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Bootstrap standard errors in parentheses.

Result: Effect on Investment

Quantifying Motivated Beliefs:

≈ One third of the increase in investment under limited liability is due to motivated beliefs.

Identifying the Channel for Motivated Beliefs

Two Channels

Two potential channels that might explain our results:

1. **Anticipatory Utility:** subjects derive utility from future utility flows. In such case, subjects derive utility from imagining good future outcomes.
2. **Self-image:** investors do not care only about monetary gains, but are also concerned about positive self-image.

Channels

Hypothesis 4 (Self-image): If motivated beliefs are formed due to self-image concerns, we should see:

1. Same beliefs between *No Matches* and *Baseline*
2. Higher investment in *No Matches* than in *Baseline*

Motivated Beliefs: Same beliefs in NM and BL, but more optimistic beliefs in MA than BL

Dep. Var.: <i>Prob</i>	(1)	(2)	(3)	(4)
<i>MA</i>	4.505*** (1.349)	4.508*** (1.355)		
<i>NM</i>	0.643 (1.130)	0.652 (1.133)	-3.942*** (1.238)	-3.934*** (1.240)
<i>Constant</i>	8.410*** (1.719)	3.040 (11.30)	12.90*** (1.590)	-0.322 (13.20)
<i>N</i>	1620	1620	1080	1080
<i>Controls</i>	No	Yes	No	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Channels Result I

Hypothesis 4 (Self-image): If motivated beliefs are formed due to self-image concerns, we should see:

1. Same beliefs between *No Matches* and *Baseline* ✓
2. Higher investment in *No Matches* than in *Baseline*

Motivated Beliefs: Higher investment in NM than BL, but higher in MA than NM

Dep. Var.: <i>Invest</i>	(1)	(2)	(3)	(4)
<i>MA</i>	15.25*** (2.665)	15.25*** (2.671)		
<i>NM</i>	10.77*** (2.471)	10.79*** (2.476)	-3.942*** (1.238)	-4.598** (1.744)
<i>Constant</i>	-6.654*** (1.639)	-34.96 (23.83)	12.90*** (1.590)	-17.61 (30.86)
<i>N</i>	1620	1620	1080	1080
Controls	No	Yes	No	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Channels Result II

Hypothesis 4 (Self-image): If motivated beliefs are formed due to self-image concerns, we should see:

1. Same beliefs between *No Matches* and *Baseline* ✓
2. Higher investment in *No Matches* than in *Baseline* ✓

⚠ Extra result: motivated beliefs backfire. When subjects can form motivated beliefs, they invest more when there is moral hazard and limited liability than when there is only limited liability ⚠

Conclusion

Summary

We compare the decisions and beliefs of subjects under limited liability with and without moral hazard.

1. **Treatment Effects:** Limited liability increases risk-taking
2. **Motivated Beliefs:** Limited liability and moral hazard result in motivated beliefs
3. **Impact:** Motivated beliefs can explain around 1/3 of the increase in investment under limited liability with moral hazard
4. **Channel:** Motivated beliefs result from self-image concerns
5. **Backfire:** Motivated beliefs result in higher investment when an investment has negative externalities

Fin

Motivated Beliefs: Regression

Dep. Variable: <i>Prob</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MA	4.174*** (0.855)	4.170*** (0.855)	4.114*** (0.892)				
DF	1.774* (1.019)	2.792*** (1.047)	3.171*** (1.129)	-0.875 (1.224)			
MH					3.255*** (0.760)	3.697*** (0.772)	3.802*** (0.813)
185.dots	19.35*** (1.491)	19.32*** (1.518)	19.50*** (1.574)	21.70*** (2.026)	19.35*** (1.491)	19.31*** (1.519)	19.49*** (1.574)
190.dots	29.98*** (1.686)	29.78*** (1.711)	29.03*** (1.787)	28.10*** (1.978)	30.03*** (1.684)	29.79*** (1.711)	29.03*** (1.788)
195.dots	32.64*** (1.981)	32.56*** (1.993)	33.14*** (2.064)	34.37*** (2.370)	32.60*** (1.983)	32.53*** (1.994)	33.12*** (2.063)
199.dots	34.47*** (1.975)	34.28*** (1.976)	33.30*** (2.012)	35.38*** (2.365)	34.51*** (1.975)	34.28*** (1.975)	33.31*** (2.011)
201.dots	43.61*** (2.115)	43.69*** (2.116)	42.39*** (2.142)	42.68*** (2.359)	43.60*** (2.115)	43.68*** (2.116)	42.38*** (2.143)
205.dots	41.51*** (1.921)	41.46*** (1.928)	41.00*** (2.044)	41.40*** (2.593)	41.56*** (1.922)	41.49*** (1.928)	41.02*** (2.044)
210.dots	44.92*** (2.092)	45.01*** (2.092)	44.60*** (2.173)	47.81*** (2.455)	44.89*** (2.095)	45.00*** (2.093)	44.59*** (2.174)
215.dots	54.29*** (2.352)	54.21*** (2.357)	52.54*** (2.414)	55.10*** (2.698)	54.32*** (2.350)	54.22*** (2.355)	52.54*** (2.413)
280.dots	80.74*** (2.083)	80.61*** (2.092)	79.56*** (2.224)	79.51*** (2.400)	80.77*** (2.082)	80.61*** (2.092)	79.56*** (2.225)
Constant	7.608*** (1.498)	7.015 (10.43)	2.156 (10.81)	5.261 (11.26)	7.595*** (1.495)	6.873 (10.42)	2.053 (10.79)
<i>N</i>	3750	3750	3480	2140	3750	3750	3480
adj. <i>R</i> ²	0.441	0.444	0.444	0.459	0.440	0.444	0.444
Controls	No	Yes	Yes	Yes	No	Yes	Yes
Gender	No	No	Yes	Yes	No	No	Yes
All treatments	Yes	Yes	Yes	No	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Motivated Beliefs: Investment Regression

Dep. Variable: <i>Invest</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MA	12.76*** (1.402)	12.76*** (1.405)	13.23*** (1.470)				
DF	9.095*** (1.562)	10.57*** (1.363)	10.81*** (1.458)	-1.789 (1.353)			
MH					11.36*** (1.261)	12.01*** (1.253)	12.43*** (1.332)
185.dots	11.83*** (1.284)	11.85*** (1.320)	12.06*** (1.352)	15.77*** (2.094)	11.82*** (1.292)	11.83*** (1.324)	12.05*** (1.356)
190.dots	21.73*** (1.925)	21.47*** (1.917)	20.91*** (1.983)	24.44*** (2.589)	21.81*** (1.934)	21.49*** (1.923)	20.92*** (1.993)
195.dots	27.12*** (2.178)	26.90*** (2.194)	27.89*** (2.275)	31.41*** (2.860)	27.07*** (2.188)	26.85*** (2.199)	27.84*** (2.280)
199.dots	25.38*** (2.199)	25.27*** (2.196)	24.64*** (2.246)	29.99*** (2.883)	25.44*** (2.204)	25.28*** (2.198)	24.65*** (2.249)
201.dots	38.42*** (2.723)	38.45*** (2.702)	37.34*** (2.749)	40.98*** (3.251)	38.40*** (2.725)	38.44*** (2.702)	37.32*** (2.752)
205.dots	38.20*** (2.409)	38.34*** (2.412)	38.44*** (2.537)	41.25*** (3.215)	38.29*** (2.422)	38.39*** (2.421)	38.48*** (2.548)
210.dots	41.09*** (2.728)	41.27*** (2.714)	41.65*** (2.836)	49.09*** (3.287)	41.04*** (2.735)	41.25*** (2.716)	41.63*** (2.840)
215.dots	52.03*** (3.045)	51.93*** (3.055)	50.91*** (3.202)	59.17*** (3.585)	52.07*** (3.046)	51.95*** (3.056)	50.92*** (3.204)
280.dots	86.89*** (2.302)	86.80*** (2.343)	86.13*** (2.491)	85.37*** (2.781)	86.93*** (2.303)	86.80*** (2.344)	86.12*** (2.491)
Constant	-3.797*** (1.206)	-1.066 (18.21)	-9.140 (18.64)	0.673 (21.43)	-3.816*** (1.206)	-1.292 (18.20)	-9.403 (18.63)
<i>N</i>	3750	3750	3480	2140	3750	3750	3480
adj. <i>R</i> ²	0.359	0.373	0.368	0.353	0.358	0.372	0.368
Controls	No	Yes	Yes	Yes	No	Yes	Yes
Gender	No	No	Yes	Yes	No	No	Yes
All treatments	Yes	Yes	Yes	No	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Incentives: no difference in beliefs when incentivized

Dep. Variable: <i>Prob</i>	Baseline		Matches	
	(1)	(2)	(3)	(4)
<i>No Incentive</i>	-0.904 (2.000)	-0.654 (2.414)	-3.917 (2.697)	-5.205* (2.851)
185.dots	16.63*** (1.596)	16.16*** (1.629)	23.19*** (2.231)	23.68*** (2.261)
190.dots	29.26*** (1.651)	28.64*** (1.735)	27.36*** (2.036)	26.89*** (2.058)
195.dots	29.63*** (1.861)	29.36*** (1.961)	35.63*** (2.800)	36.01*** (2.813)
199.dots	31.09*** (1.831)	30.08*** (1.895)	38.65*** (2.518)	37.79*** (2.555)
201.dots	41.06*** (1.951)	40.31*** (1.995)	42.55*** (2.371)	41.44*** (2.426)
205.dots	39.79*** (1.841)	39.75*** (1.926)	43.39*** (2.467)	42.56*** (2.541)
210.dots	41.36*** (2.115)	41.43*** (2.202)	49.09*** (2.506)	48.55*** (2.587)
215.dots	49.06*** (1.933)	48.59*** (2.001)	57.69*** (2.743)	56.22*** (2.814)
280.dots	79.15*** (1.699)	78.77*** (1.769)	80.25*** (2.001)	79.68*** (2.114)
Constant	15.23** (6.670)	15.27** (6.837)	12.45 (11.58)	12.06 (10.55)
<i>N</i>	2860	2680	1430	1340
Controls	Yes	Yes	Yes	Yes
Gender	No	Yes	No	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Motivated Beliefs: NM beliefs are the same as BL but different to MH

Dep. Var.: <i>Prob</i>	(1)	(2)	(3)	(4)
<i>MA</i>	4.505*** (1.349)	4.508*** (1.355)		
<i>NM</i>	0.643 (1.130)	0.652 (1.133)	-3.942*** (1.238)	-3.934*** (1.240)
185.dots	16.71*** (1.899)	16.85*** (1.865)	16.12*** (2.403)	15.96*** (2.395)
190.dots	30.63*** (2.109)	30.81*** (2.049)	29.09*** (2.488)	29.01*** (2.410)
195.dots	32.01*** (2.372)	31.94*** (2.317)	30.81*** (2.859)	30.50*** (2.707)
199.dots	36.41*** (2.375)	36.45*** (2.388)	37.31*** (2.799)	37.22*** (2.682)
201.dots	41.78*** (3.269)	41.77*** (3.211)	40.97*** (3.402)	40.62*** (3.266)
205.dots	47.08*** (2.929)	47.18*** (2.944)	48.18*** (3.520)	48.05*** (3.506)
210.dots	46.93*** (2.963)	46.76*** (2.937)	48.19*** (3.832)	47.83*** (3.757)
215.dots	56.01*** (3.235)	55.91*** (3.230)	57.09*** (3.560)	56.81*** (3.548)
280.dots	81.30*** (2.547)	81.33*** (2.519)	81.61*** (2.581)	81.19*** (2.510)
<i>Constant</i>	8.410*** (1.719)	3.040 (11.30)	12.90*** (1.590)	-0.322 (13.20)
<i>N</i>	1620	1620	1080	1080
Controls	No	Yes	No	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Motivated Beliefs: Investment is lower in NM than MA

Dep. Var.: <i>Invest</i>	(1)	(2)	(3)	(4)
<i>MA</i>	15.25*** (2.665)	15.25*** (2.671)		
<i>NM</i>	10.77*** (2.471)	10.79*** (2.476)	-3.942*** (1.238)	-4.598** (1.744)
185.dots	11.57*** (1.941)	11.97*** (1.847)	16.12*** (2.403)	13.87*** (2.994)
190.dots	25.96*** (3.003)	26.34*** (2.964)	29.09*** (2.488)	29.73*** (3.825)
195.dots	30.19*** (3.012)	29.58*** (2.999)	30.81*** (2.859)	31.08*** (3.774)
199.dots	33.38*** (3.294)	33.23*** (3.284)	37.31*** (2.799)	41.11*** (3.993)
201.dots	38.77*** (3.596)	38.86*** (3.566)	40.97*** (3.402)	40.61*** (4.078)
205.dots	47.64*** (3.408)	48.17*** (3.378)	48.18*** (3.520)	52.74*** (3.983)
210.dots	45.76*** (3.752)	45.24*** (3.809)	48.19*** (3.832)	51.88*** (4.664)
215.dots	58.83*** (3.936)	58.35*** (3.875)	57.09*** (3.560)	66.23*** (4.442)
280.dots	90.83*** (2.716)	90.75*** (2.851)	81.61*** (2.581)	90.39*** (3.118)
<i>Constant</i>	-6.654*** (1.639)	-34.96 (23.83)	12.90*** (1.590)	-17.61 (30.86)
<i>N</i>	1620	1620	1080	1080
Controls	No	Yes	No	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Motivated Beliefs: Lower investment with moral hazard and exogenous probabilities

Dep. Var.: <i>InvestmentR</i>	(1)	(2)
<i>NM</i>	2.180** (0.970)	2.180** (0.974)
<i>Constant</i>	-1.016** (0.481)	-4.679 (23.59)
<i>N</i>	1188	1188
adj. R^2	0.745	0.782
Controls	No	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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