

# Equity Premium Puzzle, Expectations and Covid-19: Evidence from Germany

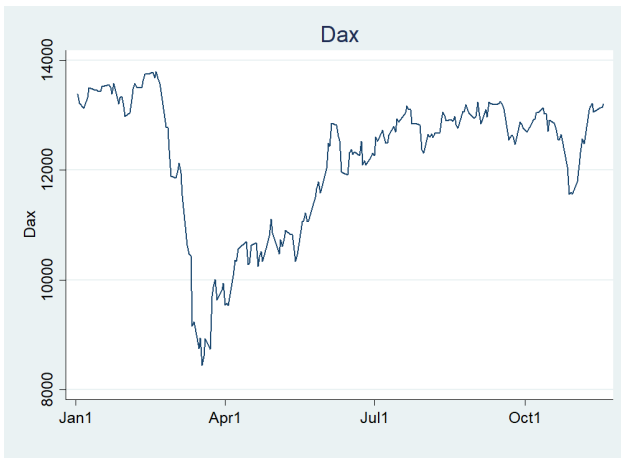
*– work in progress –*

Adrian Monninger<sup>1</sup>

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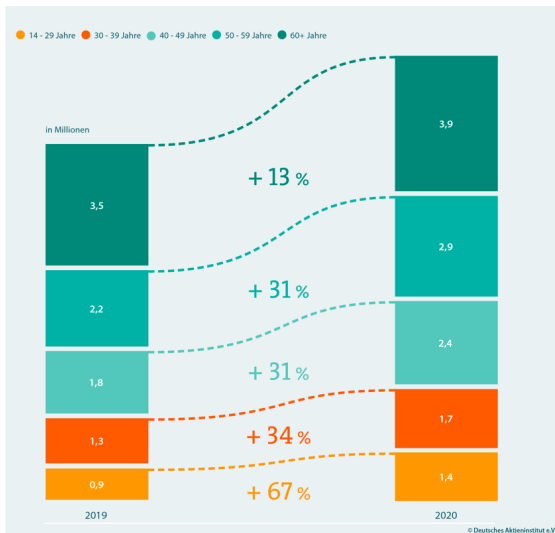
# Motivation: Stock market turbulence due to Covid-19



S &amp;P 500

Eurostoxx 50

# Motivation: Change of Equity Holders



# This paper

## Research Question

- ① What prevents households from investing?
- ② What make them invest?
- ③ How are expectations and financial investments connected?

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## Research Question

- ① What prevents households from investing?
- ② What make them invest?
- ③ How are expectations and financial investments connected?

Inserting questions in the *Bundesbank Online Pilot (BOP)* I find that...

- ① **Participation costs:** lack of information and interest
- ② **Adjustment costs:** risk and time constraint
- ③ **Buyers** invested either because of opportunity or savingsplan.
- ④ Higher house price and inflation **expectations** reduce the likelihood to invest

# Gap in the Literature

- ① Equity Premium Puzzle: Comparing mechanisms  
In spirit of Choi and Robertson (2020); Bender, Choi, Dyson, and Robertson (2019)
- ② Adjustment Costs and how to overcome them  
Bonaparte, Cooper, and Zhu (2012)
- ③ Expectations and Financial Asset investments  
Giglio, Maggiori, Stroebel, and Utkus (2019); Manski (2018)

# Bundesbank Online Panel

- Bundesbank Online Pilot Survey on Consumer Expectations (BOP)
- Online survey of German citizens aged 16 years or older
- Monthly survey with 2,000 households
- Representative sample
- Individuals' expectations and socio-demographic characteristics

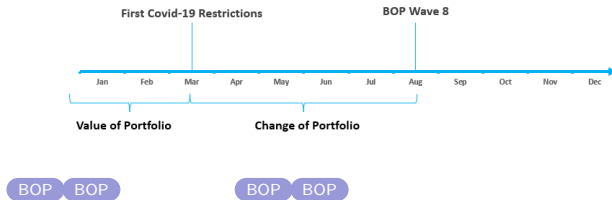


# Bundesbank Online Panel

- Bundesbank Online Pilot Survey on Consumer Expectations (BOP)
- Online survey of German citizens aged 16 years or older
- Monthly survey with 2,000 households
- Representative sample
- Individuals' expectations and socio-demographic characteristics
- **Additional questions on financial asset investments**

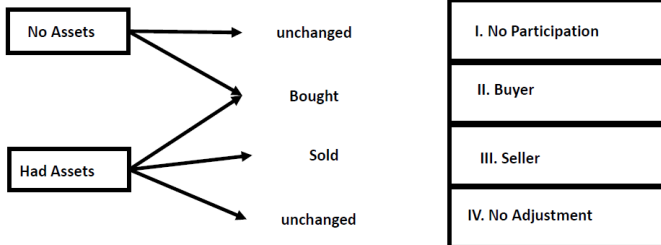
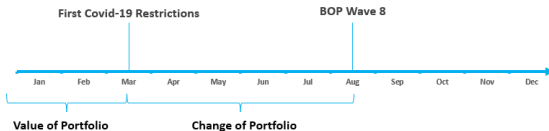
# Bundesbank Online Panel

## Time Line



# Bundesbank Online Panel

## Time Line



# Bundesbank Online Panel

No Participation BOP	No Adjustment BOP	Bought BOP	Sold BOP
prices fall	prices fall	prices rise	prices fall
too risky shock distrust	too risky		too risky shock
no savings costs	no savings costs	costs less consumption more income	no savings need for consumption need debt obligations
peer-effect	peer-effect	peer-effect	peer-effect
no time	no time	time	no time
information no interest moral		information savings plan	re-balancing

# General Results

		no participation (I)	no adjustment (II)	bought (III)	sold (IV)
Total	%	<b>55.1</b>	<b>23.0</b>	<b>20.0</b>	<b>5.8</b>
	€			5,100	-3,100
Funds	%			69.5	57.3
	€			2,100	-1,900
Bonds	%			51.5	68.4
	€			2,300	0
Stocks	%			8.3	13.2
	€			0	-200
Other	%			17.8	29.3
	€			600	-1,100
n		1,013	513	454	133

# General Results

	(1) No Participation	(2) No Adjustment	(3) Has Bought	(4) Has Sold
college	-0.318*** (0.086)	0.089 (0.096)	0.292*** (0.094)	0.219* (0.124)
female	0.287*** (0.082)	0.069 (0.096)	-0.467*** (0.087)	-0.370*** (0.123)
< 30	-0.052 (0.129)	-0.216 (0.176)	0.360*** (0.128)	0.183 (0.176)
owner	-0.381*** (0.086)	0.307*** (0.101)	0.240*** (0.092)	-0.116 (0.134)
fin illiterate	0.457*** (0.153)	-0.218 (0.190)	-0.596*** (0.157)	-0.047 (0.190)
Observations	2022	2022	2022	2022
Controls	Yes	Yes	Yes	Yes

# General Results

	(1) No Participation	(2) No Adjustment	(3) Has Bought	(4) Has Sold
full-time	-0.236 (0.145)	-0.034 (0.173)	0.402** (0.162)	0.375* (0.218)
part-time	-0.120 (0.185)	0.014 (0.237)	0.254 (0.204)	0.401 (0.273)
retired	-0.102 (0.159)	0.019 (0.185)	0.132 (0.177)	0.405* (0.244)
self-employed	-0.075 (0.226)	-0.086 (0.245)	0.190 (0.228)	0.626** (0.289)
< 1500€	0.420*** (0.141)	-0.279* (0.148)	-0.568*** (0.183)	0.033 (0.209)
Observations	2022	2022	2022	2022
Controls	Yes	Yes	Yes	Yes

# No Participation



# No Participation

	Fully agree (I)	At least rather agree (II)	Mean (III)	Standardized (III)
<b>information</b>	<b>50.52%</b>	72.80%	3.25	0.58
<b>no interest</b>	<b>47.49%</b>	69.88%	3.17	0.47
distrust	37.99%	63.03%	3.00	0.27
too risky	34.77%	59.35%	2.88	0.17
no time	33.37%	57.89%	2.83	0.09
peer-effect	30.22%	51.31%	2.70	-0.08
no savings	30.32%	53.92%	2.73	-0.12
prices fall	17.52%	51.77%	2.61	-0.15
shock	23.91%	46.28%	2.53	-0.22
costs	19.95%	42.88%	2.44	-0.34
moral	16.27%	32.39%	2.17	-0.70

# No Participation: PCA

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Comp 1

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Comp 2

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Comp 3

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# No Participation: PCA

	Comp 1	Comp 2	Comp 3
	risk aversion		
too risky	0.42		
distrust	0.42		
shock	0.37		
prices fall	0.35		

# No Participation: PCA

Comp 1		Comp 2		Comp 3
risk aversion		lack of resources		
too risky	0.42	no interest	0.47	
distrust	0.42	information	0.40	
shock	0.37	no time	0.40	
prices fall	0.35	no savings	0.34	
		shock	-0.33	

# No Participation: PCA

Comp 1 risk aversion		Comp 2 lack of resources		Comp 3 lack of savings	
too risky	0.42	no interest	0.47	no savings	0.64
distrust	0.42	information	0.40	moral	-0.60
shock	0.37	no time	0.40		
prices fall	0.35	no savings	0.34		
		shock	-0.33		

# No Participation: PCA

	(1) Risk Aversion	(2) Lack of Resources	(3) Lack of Savings
age	0.006*** (0.002)	-0.009*** (0.002)	-0.002 (0.003)
< 1500	-0.073 (0.058)	0.029 (0.064)	0.261*** (0.096)
Observations	811	823	827
Adjusted $R^2$	0.073	0.103	0.059
Controls	Yes	Yes	Yes

Controls

# No Participation

## Takeaway #1: No Participation

- 1 Lack of information and interest are dominant factors
- 2 Importance of risk increases with age, lack of resources decrease in age, and lack of savings decreases with income

# No Adjustment



# No Adjustment

	Fully agree (I)	At least rather agree (II)	Mean (III)	Standardized (III)
too risky	20.47%	55.52%	2.53	0.31
no time	17.05%	49.39%	2.38	0.11
prices fall	9.47%	48.62%	2.39	0.09
no savings	18.25%	42.20%	2.30	-0.06
peer-effect	17.24%	36.07%	2.12	-0.19
costs	10.67%	32.40%	2.09	-0.28

[Demo](#)

## No Adjustment: PCA

Comp 1		Comp 2	
bad timing		time constraint	
too risky	0.63	no savings	-0.70
prices fall	0.58	peer effect	0.55
costs	0.49	no time	0.45

# No Adjustment

## Takeaway #2: No Adjustment

- ① Risk, time, and prices fall are dominant factors
- ② Either bad timing or time constraint
- ③ Needs more research

# Buyer

# Buyer

	Fully agree (I)	At least rather agree (II)	Mean (III)	Standardized (III)
<b>plan</b>	<b>43.54%</b>	62.07%	2.76	0.92
<b>prices rise</b>	<b>38.74%</b>	64.08%	2.79	0.90
time	8.09%	26.59%	1.77	-0.07
information	7.60%	24.22%	1.70	-0.15
less consumption	3.88%	18.73%	1.58	-0.29
more income	4.33%	19.88%	1.57	-0.31
peer-effect	4.15%	13.87%	1.49	-0.36
bank fees	0.38%	3.52%	1.21	-0.65

## Buyer: active vs passive

	(1) active	(2) passive
owner	<b>0.565***</b> (0.196)	-0.401** (0.192)
< 30	<b>0.624**</b> (0.254)	-0.347 (0.261)
first time	<b>0.627*</b> (0.351)	-0.744** (0.353)
bought & sold	<b>0.669***</b> (0.206)	-0.818*** (0.206)
Observations	454	454
Controls	Yes	Yes

# Buyer: active vs passive

	(1) active	(2) passive
owner	<b>0.565***</b> (0.196)	-0.401** (0.192)
< 30	<b>0.624**</b> (0.254)	-0.347 (0.261)
first time	<b>0.627*</b> (0.351)	-0.744** (0.353)
bought & sold	<b>0.669***</b> (0.206)	-0.818*** (0.206)
Observations	454	454
Controls	Yes	Yes

	(1) active	(2) passive
time	<b>0.703***</b> (0.126)	-1.152*** (0.136)
information	<b>0.206*</b> (0.121)	-0.899*** (0.128)
less consumption	0.224 (0.170)	-0.820*** (0.167)
more income	<b>0.415**</b> (0.172)	-1.120*** (0.157)
costs	<b>0.871***</b> (0.270)	-2.069*** (0.301)
peer effect	<b>0.742***</b> (0.166)	-1.534*** (0.170)
Observations	431	431
Controls	Yes	Yes

## Buyer: By asset type

	(1) Funds	(2) Bonds	(3) Stocks	(4) Other
has Funds				
has Bonds				
has Stocks				
has Other				
first time				
bought & sold				
Observations	454	454	430	454
Controls	Yes	Yes	Yes	Yes



# Buyer: By asset type

	(1) Funds	(2) Bonds	(3) Stocks	(4) Other
has Funds	<b>2.527***</b> (0.317)	-0.699** (0.327)	1.219** (0.553)	-0.771* (0.408)
has Bonds	0.063 (0.341)	<b>1.432***</b> (0.263)	0.538 (0.399)	0.036 (0.382)
has Stocks	-0.241 (0.380)	0.203 (0.389)	<b>2.192***</b> (0.395)	-0.057 (0.490)
has Other	-0.321 (0.329)	0.901*** (0.325)	0.150 (0.427)	<b>2.027***</b> (0.349)
first time	0.570 (0.414)	1.098*** (0.379)	0.000 (.)	0.900* (0.461)
bought & sold	-0.419* (0.222)	0.452 (0.276)	-0.598* (0.326)	-0.139 (0.316)
Observations	454	454	430	454
Controls	Yes	Yes	Yes	Yes

# Buyer: By asset type

	Funds	Bonds	Stocks	Other
value funds	<b>0.108**</b> (0.047)	-0.085* (0.051)	-0.127* (0.070)	-0.021 (0.059)
value bonds	-0.143** (0.061)	<b>0.206***</b> (0.051)	-0.040 (0.075)	-0.191*** (0.067)
value stocks	0.010 (0.079)	-0.032 (0.079)	0.045 (0.067)	-0.035 (0.104)
value other	-0.088 (0.062)	-0.142** (0.062)	-0.170 (0.112)	<b>0.193***</b> (0.071)
Observations	454	454	430	454
Controls	Yes	Yes	Yes	Yes

# Buyer

## Takeaway #3: Buyer

- ① Active vs Passive buyers
- ② Active buyers are younger, richer and respond to additional information, time, income, costs, and peer effects.
- ③ Respondents bought the asset type they already held

# Expectations and Buyer

Here is a equation: I run probit regressions of the form:

$$y_i = \beta X + \gamma Z + \epsilon \quad (1)$$

# House Price Expectations and Buyer

	(1) All	(2) Owner	(3) Renter	(4) All	(5) Owner	(6) Renter
housing quali						
prop quali						
rent quali						
house price PE						
Observations	2019	1263	759	1880	1176	704
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Conditional on Stockholdings

# House Price Expectations and Buyer

	(1) All	(2) Owner	(3) Renter	(4) All	(5) Owner	(6) Renter
housing quali	-0.195*** (0.050)					
prop quali						
rent quali						
house price PE						
Observations	2019	1263	759	1880	1176	704
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Conditional on Stockholdings

# House Price Expectations and Buyer

	(1) All	(2) Owner	(3) Renter	(4) All	(5) Owner	(6) Renter
housing quali	-0.195*** (0.050)					
prop quali		-0.146*** (0.055)				
rent quali			-0.150* (0.079)			
house price PE						
Observations	2019	1263	759	1880	1176	704
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Conditional on Stockholdings

# House Price Expectations and Buyer

	(1) All	(2) Owner	(3) Renter	(4) All	(5) Owner	(6) Renter
housing quali	-0.195*** (0.050)					
prop quali		-0.146*** (0.055)				
rent quali			-0.150* (0.079)			
house price PE				-0.026*** (0.008)	-0.011 (0.010)	-0.049*** (0.014)
Observations	2019	1263	759	1880	1176	704
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Conditional on Stockholdings



# Inflation Expectations and Buyer

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
inflation quali								
inflation PE								
fin illiterate:								
inflation >  30								
fin illiterate:								
inflation >  10								
$0 < \text{inflation} < 10$								
$0 < \text{inflation} < 5$								
inflation prob exp								
inflation prob std								
Observations	2018	1883	1883	1883	1827	1663	1720	1720
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

# Inflation Expectations and Buyer

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
inflation quali	-0.235***							
	(0.073)							
inflation PE								
fin illiterate:								
inflation >  30								
fin illiterate:								
inflation >  10								
0 < inflation < 10								
0 < inflation < 5								
inflation prob exp								
inflation prob std								
Observations	2018	1883	1883	1883	1827	1663	1720	1720
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

# Inflation Expectations and Buyer

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
inflation quali	-0.235*** (0.073)							
inflation PE		-0.098*** (0.019)						
fin illiterate: inflation >  30								
fin illiterate: inflation >  10								
0 < inflation < 10								
0 < inflation < 5								
inflation prob exp								
inflation prob std								
Observations	2018	1883	1883	1883	1827	1663	1720	1720
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

# Inflation Expectations and Buyer

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
inflation quali	-0.235*** (0.073)							
inflation PE		-0.098*** (0.019)	-0.097*** (0.018)	-0.093*** (0.020)				
fin illiterate: inflation >  30			-0.366 (0.227)					
fin illiterate: inflation >  10				-0.183 (0.214)				
0 < inflation < 10								
0 < inflation < 5								
inflation prob exp								
inflation prob std								
Observations	2018	1883	1883	1883	1827	1663	1720	1720
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

# Inflation Expectations and Buyer

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
inflation quali	-0.235*** (0.073)							
inflation PE		-0.098*** (0.019)	-0.097*** (0.018)	-0.093*** (0.020)				
fin illiterate: inflation >  30			-0.366 (0.227)					
fin illiterate: inflation >  10				-0.183 (0.214)				
0 < inflation < 10					-0.116*** (0.025)			
0 < inflation < 5						-0.141*** (0.034)		
inflation prob exp								
inflation prob std								
Observations	2018	1883	1883	1883	1827	1663	1720	1720
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

# Inflation Expectations and Buyer

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
inflation quali	-0.235*** (0.073)							
inflation PE		-0.098*** (0.019)	-0.097*** (0.018)	-0.093*** (0.020)				
fin illiterate: inflation >  30			-0.366 (0.227)					
fin illiterate: inflation >  10				-0.183 (0.214)				
0 < inflation < 10					-0.116*** (0.025)			
0 < inflation < 5						-0.141*** (0.034)		
inflation prob exp							-0.049*** (0.017)	-0.088*** (0.019)
inflation prob std								-0.564*** (0.191)
Observations	2018	1883	1883	1883	1827	1663	1720	1720
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

# Expectations and Buyer

## Takeaway #4: Expectations

- ➊ Higher houseprice expectations crowds out financial asset investments
- ➋ Higher inflation expectations reduces probability to buy

# Conclusion

This paper asks households about their financial investment behavior during the covid-19 pandemic and finds:

- ① **Participation costs:** lack of information and interest
- ② **Adjustment costs:** risk and time constraint
- ③ **Buyers** invested either because of opportunity or savingsplan.
- ④ Higher house price and inflation **expectations** reduce the likelihood to invest



**THANKS for your attention**

I am grateful for comments and suggestions

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## Seller

	Fully agree (I)	At least rather agree (II)	Mean (III)	Standardized (III)
<b>prices fall</b>	12.46%	40.94%	2.29	0.84
<b>re-balancing</b>	23.93%	44.36%	2.25	0.71
shock	6.83%	26.54%	1.79	0.15
too risky	6.96%	23.06%	1.72	0.06
need consumption	6.84%	17.60%	1.55	-0.17
need debt obligations	5.94%	13.38%	1.43	-0.31
no time	4.02%	11.68%	1.38	-0.35
peer-effect	0.25%	10.79%	1.34	-0.39
need support friends/family	1.60%	6.79%	1.23	-0.54

Demo

Seller

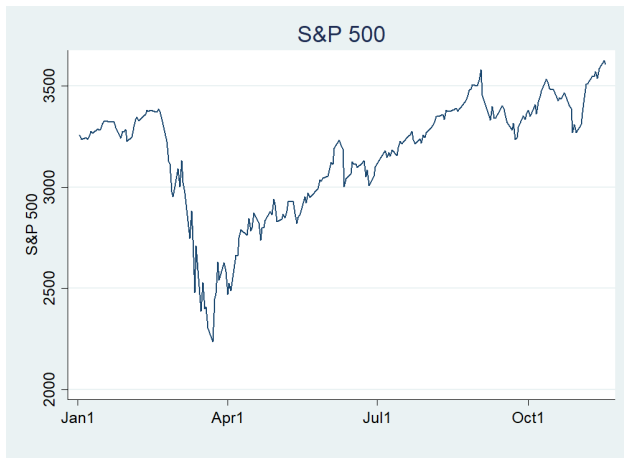
Comp 1 Crisis		Comp 2 Lack of Resources		Comp 3 Social Component		Comp 4 Rebalancing	
too risky	0.59	need debt obligations	0.66	peer effect	0.75	rebalancing	0.94
shock	0.56	need consumption	0.65	need support friends and family	0.56		
no time	0.44						
prices fall	0.34						

# Seller

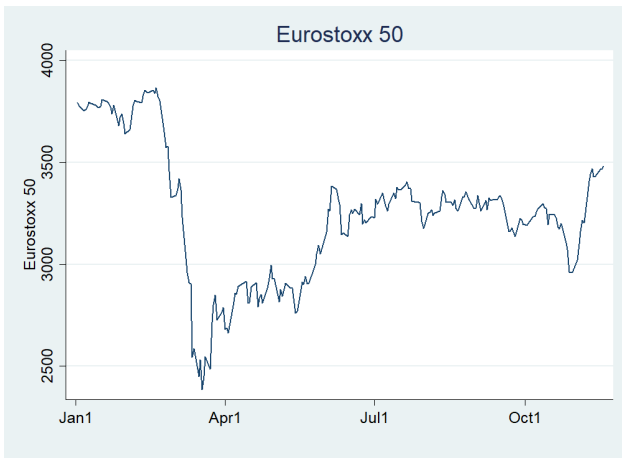
## Takeaway #5: Seller

- ① prices fall and re-balancing seem to be most important
- ② Shock and riskiness drives some households out

## Motivation (2): Stock market turbulence due to Covid-19

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## Motivation (2): Stock market turbulence due to Covid-19

[back](#)

# BOP Questions (1)

816A	PRO A1	Stock market 1	has_portfolio_[a-d]
<p>Info box with the following text:</p> <p>A) A fund is a "basket" of many, sometimes very different, securities. A fund share denotes a share in this basket and its income. In some cases, the fund finances only individual projects, such as real estate, ship building or films. Examples of common types of funds are share-based funds, bond-based funds, money market funds, funds of funds, hedge funds, exchange-traded funds (ETFs), shipping funds and media funds.</p> <p>B) Fixed income securities are assets which entitle the bearer to a pre-determined rate of interest. Depending on who issued these securities, they could be government bonds (such as Federal bonds, Federal savings notes, Federal Treasury financing paper, Federal Treasury notes, municipal bonds, Pfandbriefe issued by central, state or local government), corporate bonds or other debt securities (e.g. bank bonds).</p> <p>C) A listed share is a security that is traded on the stock exchange which shows the shareholder (owner of the security) as being a co-owner of a public limited company. This type of security therefore usually entitles the bearer to a share of the company's income. The share constitutes a certificate which securitises a share in the capital of a public limited company.</p> <p><b>QUESTION:</b> <u>Prior to the coronavirus pandemic</u>, did you hold the following financial assets directly in your safe custody account?</p> <p>1 = Yes 2 = No</p> <p>a) Fund shares b) Fixed income securities (such as government bonds, corporate bonds and bank bonds) c) Listed shares d) Other financial products (such as foreign exchange, gold, cryptocurrency)</p>			

back



# BOP Questions (2)

816B	PRO A1	Stock market 1	value_portfolio_[a-d]
Input filter: if has_portfolio_a = 1 OR has_portfolio_b = 1 OR has_portfolio_c = 1 OR has_portfolio_d = 1			
Info box with the following text:			
<p>A) A fund is a "basket" of many, sometimes very different, securities. A fund share denotes a share in this basket and its income. In some cases, the fund finances only individual projects, such as real estate, ship building or films. Examples of common types of funds are share-based funds, bond-based funds, money market funds, funds of funds, hedge funds, exchange-traded funds (ETFs), shipping funds and media funds.</p> <p>B) Fixed income securities are assets which entitle the bearer to a pre-determined rate of interest. Depending on who issued these securities, they could be government bonds (such as Federal bonds, Federal savings notes, Federal Treasury financing paper, Federal Treasury notes, municipal bonds, Pfandbriefe issued by central, state or local government), corporate bonds or other debt securities (e.g. bank bonds).</p> <p>C) A listed share is a security that is traded on the stock exchange which shows the shareholder (owner of the security) as being a co-owner of a public limited company. This type of security therefore usually entitles the bearer to a share of the company's income. The share constitutes a certificate which securitises a share in the capital of a public limited company.</p>			
<p>QUESTION: What is your rough estimate of the market value of your financial assets prior to the coronavirus pandemic?</p> <p>a Fund shares [only show item if portfolio_a = 1]</p> <p>b Fixed income securities (such as government bonds, corporate bonds and bank bonds) [only show item if portfolio_b = 1]</p> <p>c Listed shares [only show item if portfolio_c = 1]</p> <p>d Other financial products (such as foreign exchange, gold, cryptocurrency) [only show item if portfolio_d = 1]</p>			
<p>Show brackets:</p> <p>1 = €1 to less than €500</p> <p>2 = €500 to less than €1,000</p> <p>3 = €1,000 to less than €3,000</p> <p>4 = €3,000 to less than €5,000</p> <p>5 = €5,000 to less than €10,000</p> <p>6 = €10,000 to less than €20,000</p> <p>7 = €20,000 to less than €30,000</p> <p>8 = €30,000 to less than €50,000</p> <p>9 = €50,000 or more</p>			

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## BOP Questions (3)

817A	PRO A1	Stock market 2 – change	portfolio_bought_[a-d] portfolio_sold_[a-d] portfolio_unchanged_[a-d]																				
<p><b>QUESTION:</b> Have you bought or sold the following financial assets <u>since the start of the coronavirus pandemic?</u></p> <table border="1"> <thead> <tr> <th></th> <th>1 – Bought</th> <th>2 – Sold</th> <th>3 – Neither bought nor sold</th> </tr> </thead> <tbody> <tr> <td>a) Fund shares</td> <td></td> <td></td> <td></td> </tr> <tr> <td>b) Fixed income securities</td> <td></td> <td></td> <td></td> </tr> <tr> <td>c) Listed shares</td> <td></td> <td></td> <td></td> </tr> <tr> <td>d) Other financial products (such as foreign exchange, gold, cryptocurrency)</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					1 – Bought	2 – Sold	3 – Neither bought nor sold	a) Fund shares				b) Fixed income securities				c) Listed shares				d) Other financial products (such as foreign exchange, gold, cryptocurrency)			
	1 – Bought	2 – Sold	3 – Neither bought nor sold																				
a) Fund shares																							
b) Fixed income securities																							
c) Listed shares																							
d) Other financial products (such as foreign exchange, gold, cryptocurrency)																							

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# BOP Questions (4)

817B	PRO A1	Stock market 2 – value	portfolio_value_bought_[a-d] portfolio_value_sold_[a-d]
Input filter: if portfolio_unchanged_a == 2 OR portfolio_unchanged_b == 2 OR portfolio_unchanged_c == 2 OR portfolio_unchanged_d == 2			
QUESTION: Please indicate the amount for which you have bought or sold financial assets <u>since</u> <u>the start of the coronavirus pandemic</u> .			
		1 – Bought	2 – Sold
a) Fund shares {only show item if portfolio_bought_a =1 OR portfolio_sold_a = 1}		_euro	_euro
b) Fixed income securities {only show item if portfolio_bought_b =1 OR portfolio_sold_b = 1}		_euro	_euro
c) Listed shares {only show item if portfolio_bought_c =1 OR portfolio_sold_c = 1}		_euro	_euro
d) Other financial products (such as foreign exchange, gold, cryptocurrency) {only show item if portfolio_bought_d =1 OR portfolio_sold_d = 1}		_euro	_euro

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# BOP Questions (5)

818A	PRO A1	Stock market 3a	portfolio_reason_bought[a-h]
Input filter: if portfolio_bought_a == 1 OR portfolio_bought_b == 1 OR portfolio_bought_c == 1 OR portfolio_bought_d == 1			
Order of the categories a to h is generated randomly for each respondent.			
<p><b>QUESTION:</b> Why did you decide to buy the asset(s) after the coronavirus pandemic began?</p> <p>1 = Strongly agree            2 = Mostly agree            3 = Mostly disagree            4 = Strongly disagree</p> <p>Please select an answer for each row.</p> <p>a The prices are/were low at the time.            b I (finally) found time for it.            c I received additional information (e.g. from your bank, social media, television).            d Since my consumption expenditure has fallen, I have money to invest.            e Since my income has risen, I have money to invest.            f My bank has (temporarily) lowered its safe custody account costs.            g People in my circle of (close) family and friends have also bought assets.            h I have a fixed savings plan.</p>			

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# BOP Questions (6)

818B	PRO A1	Stock market 3b	portfolio_reason_sold[a-i]
Input filter: if portfolio_sold_a == 1 OR portfolio_sold_b == 1 OR portfolio_sold_c == 1 OR portfolio_sold_d == 1			
Order of the categories a to i is generated randomly for each respondent.			
<p><b>QUESTION:</b> Why did you decide to sell the asset(s) after the coronavirus pandemic began?</p> <p>1 = Strongly agree            2 = Mostly agree            3 = Mostly disagree            4 = Strongly disagree</p> <p>Please select an answer for each row.</p> <p>a Prices will fall again or fall lower.            b I have no time for it (anymore).            c The recent collapse in financial market prices put me off.            d Financial assets are too risky for me at the moment.            e I needed the money to pay my bills.            f I needed the money to support friends and relatives.            g I needed the money for other consumption expenditure.            h People in my circle of (close) family and friends have also sold assets.            i I preferred to invest in other financial assets.</p>			

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# BOP Questions (7)

818C	PRO A1	Stock market 3c	portfolio_reason_nostocks[a-k]
Input filter: if has_portfolio_a==2 AND has_portfolio_b==2 AND has_portfolio_c==2 AND has_portfolio_d==2 AND portfolio_unchanged_a == 1 AND portfolio_unchanged_b == 1 AND portfolio_unchanged_c == 1 AND portfolio_unchanged_d == 1			
<p>QUESTION: Why did you decide not to buy any asset(s) during the coronavirus pandemic?</p> <p>1 = Strongly agree          2 = Mostly agree          3 = Mostly disagree          4 = Strongly disagree</p> <p>Please select an answer for each row.</p> <p>a Prices will fall again or fall lower.          b I have no time for it (anymore).          c I do not know enough about the financial market or how to buy assets.          d The recent collapse in financial market prices puts me off.          e Financial assets are too risky for me at the moment.          f I have no money to save.          g The costs of safe custody accounts and transactions are too high for me.          h No one in my circle of (close) family and friends holds assets.          i I do not trust the stock market.          j I have moral concerns.          k I have no interest in it.</p>			

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# BOP Questions (8)

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818D	PRO A1	Stock market 3d	portfolio_reason_unchange[a-f]
Input filter: if (has_portfolio_a==1 OR has_portfolio_b==1 OR has_portfolio_c==1 OR has_portfolio_d==1) AND (portfolio_unchanged_a == 1 AND portfolio_unchanged_b == 1 AND portfolio_unchanged_c == 1 AND portfolio_unchanged_d == 1)			
<p><b>QUESTION: Why did you decide not to buy any more assets during the coronavirus pandemic?</b></p> <p>1 = Strongly agree          2 = Mostly agree          3 = Mostly disagree          4 = Strongly disagree</p> <p>Please select an answer for each row.</p> <p>a Prices will fall again or fall lower.          b I have no time for it (anymore).          c Financial assets are too risky for me at the moment.          d I have no money to save.          e The transaction costs are too high for me.          f People in my circle of (close) family and friends have not bought assets either.</p>			

	(1) no information	(2) no interest	(3) distrust	(4) too risky	(5) no time	(6) peer-effect	(7) no savings	(8) prices fall	(9) shock	(10) cost	(11) moral
college	0.021 (0.082)	0.163 (0.100)	-0.051 (0.078)	0.032 (0.081)	0.163* (0.096)	-0.113 (0.110)	-0.107 (0.133)	-0.076 (0.085)	-0.074 (0.093)	-0.012 (0.098)	0.061 (0.099)
full-time	0.119 (0.117)	0.044 (0.159)	-0.013 (0.121)	0.077 (0.129)	0.294** (0.131)	0.228 (0.164)	-0.260 (0.193)	-0.045 (0.134)	-0.079 (0.136)	0.030 (0.125)	-0.373** (0.154)
part-time	0.095 (0.134)	0.244 (0.162)	-0.036 (0.136)	0.038 (0.131)	0.092 (0.179)	0.137 (0.186)	-0.329 (0.224)	-0.083 (0.146)	-0.115 (0.144)	0.051 (0.139)	-0.058 (0.168)
retired	0.072 (0.179)	0.222 (0.198)	-0.100 (0.142)	-0.078 (0.184)	0.029 (0.179)	0.136 (0.208)	-0.126 (0.229)	0.248 (0.156)	-0.085 (0.177)	0.122 (0.177)	-0.385** (0.191)
self-employed	-0.300 (0.229)	0.001 (0.281)	-0.248 (0.171)	0.005 (0.180)	0.391** (0.196)	0.079 (0.211)	-0.300 (0.432)	0.488** (0.229)	0.116 (0.215)	0.102 (0.239)	-0.301 (0.239)
female	0.071 (0.079)	0.161* (0.088)	-0.015 (0.078)	-0.078 (0.078)	0.139* (0.081)	-0.135 (0.101)	-0.006 (0.118)	-0.047 (0.082)	0.018 (0.084)	-0.029 (0.082)	-0.108 (0.093)
short-time work	0.241* (0.137)	0.249 (0.197)	0.092 (0.149)	-0.143 (0.165)	-0.226 (0.177)	-0.129 (0.167)	-0.392 (0.291)	0.152 (0.133)	0.298 (0.217)	-0.284 (0.188)	0.183 (0.217)
children	-0.119 (0.087)	0.092 (0.111)	0.124 (0.092)	-0.167* (0.098)	0.157 (0.107)	0.001 (0.123)	0.242* (0.139)	-0.139 (0.103)	-0.067 (0.098)	-0.155 (0.102)	-0.024 (0.115)
1500-3000	-0.079 (0.118)	0.226* (0.133)	-0.067 (0.115)	0.207* (0.117)	0.060 (0.129)	0.026 (0.148)	-0.199 (0.186)	0.129 (0.111)	-0.030 (0.124)	-0.050 (0.124)	-0.202 (0.156)
3000-5000	-0.047 (0.126)	0.246 (0.149)	-0.019 (0.127)	0.269** (0.118)	0.050 (0.140)	0.049 (0.149)	-0.589*** (0.221)	0.138 (0.118)	-0.028 (0.117)	-0.000 (0.135)	-0.045 (0.177)
5000-8000	0.069 (0.153)	0.427** (0.187)	-0.009 (0.150)	0.092 (0.138)	0.082 (0.177)	-0.170 (0.193)	-0.695*** (0.255)	0.269 (0.168)	0.108 (0.137)	0.028 (0.150)	-0.161 (0.179)
8000+	-0.278 (0.177)	0.522** (0.204)	0.151 (0.171)	0.452*** (0.151)	-0.032 (0.279)	-0.410 (0.326)	-0.458 (0.278)	0.077 (0.186)	0.139 (0.209)	0.204 (0.218)	-0.413* (0.211)
owner	-0.038 (0.075)	0.035 (0.094)	-0.003 (0.075)	0.028 (0.082)	0.010 (0.089)	-0.009 (0.099)	-0.065 (0.125)	0.089 (0.085)	0.051 (0.082)	-0.074 (0.085)	-0.035 (0.105)
age	-0.014*** (0.003)	-0.001 (0.004)	0.010*** (0.003)	0.009** (0.004)	-0.014*** (0.004)	0.003 (0.004)	-0.005 (0.005)	-0.003 (0.004)	0.010** (0.004)	0.003 (0.003)	0.001 (0.004)
fin illiterate	0.261** (0.103)	0.035 (0.119)	-0.133 (0.112)	-0.067 (0.127)	0.005 (0.129)	-0.052 (0.172)	-0.292** (0.129)	-0.041 (0.119)	0.129 (0.155)	0.029 (0.144)	0.121 (0.139)
Observations	838	837	833	824	829	831	837	817	819	812	829
Adjusted R <sup>2</sup>	0.087	0.031	0.022	0.049	0.109	0.015	0.054	0.031	0.031	0.012	0.023



	(1) Risk Aversion	(2) Lack of Resources	(3) Lack of Savings
college	-0.034 (0.049)	0.060 (0.048)	-0.053 (0.070)
female	-0.034 (0.044)	0.089* (0.046)	-0.049 (0.063)
children	-0.046 (0.058)	0.086 (0.056)	0.090 (0.078)
owner	0.057 (0.046)	-0.033 (0.047)	-0.103 (0.063)
fin illiterate	-0.025 (0.078)	0.007 (0.060)	-0.080 (0.088)
full-time	-0.027 (0.077)	0.052 (0.076)	-0.313*** (0.101)
part-time	-0.052 (0.078)	0.034 (0.086)	-0.201 (0.126)
retired	-0.025 (0.092)	0.071 (0.104)	-0.223 (0.138)
self-employed	0.076 (0.110)	-0.052 (0.138)	-0.296 (0.201)
short-time work	0.081 (0.109)	-0.021 (0.110)	-0.049 (0.154)
age	0.006*** (0.002)	-0.009*** (0.002)	-0.002 (0.003)
< 1500	-0.073 (0.058)	0.029 (0.064)	0.261*** (0.096)
Observations	811	823	827
Adjusted $R^2$	0.073	0.103	0.059

	(1) too risky	(2) no time	(3) prices fall	(4) no savings	(5) peer effect	(6) costs
college	-0.061 (0.116)	0.334** (0.148)	-0.151 (0.114)	0.037 (0.149)	-0.182 (0.123)	0.025 (0.101)
full-time	0.235 (0.185)	0.277 (0.237)	-0.242 (0.174)	-0.322 (0.291)	-0.007 (0.252)	0.039 (0.144)
part-time	0.128 (0.222)	0.033 (0.257)	-0.535* (0.273)	0.194 (0.389)	0.123 (0.281)	0.040 (0.181)
retired	0.107 (0.240)	-0.142 (0.274)	-0.415* (0.217)	-0.365 (0.322)	0.673** (0.264)	0.125 (0.184)
self-employed	-0.242 (0.250)	0.076 (0.338)	-0.652*** (0.226)	0.438 (0.344)	0.139 (0.266)	0.230 (0.349)
female	-0.001 (0.104)	0.084 (0.138)	-0.116 (0.137)	-0.148 (0.145)	0.038 (0.139)	0.142 (0.097)
short-time work	-0.106 (0.255)	-0.148 (0.265)	-0.542*** (0.165)	0.051 (0.242)	0.468 (0.323)	0.262 (0.334)
children	0.119 (0.150)	0.179 (0.184)	-0.244* (0.129)	0.196 (0.206)	-0.175 (0.173)	-0.073 (0.129)
1500-3000	-0.240 (0.189)	0.161 (0.274)	0.259 (0.202)	-0.714*** (0.270)	0.175 (0.245)	0.379* (0.199)
3000-5000	0.026 (0.186)	0.021 (0.272)	0.183 (0.237)	-0.862*** (0.285)	0.353 (0.244)	0.304 (0.198)
5000-8000	-0.355 (0.225)	0.220 (0.318)	0.274 (0.261)	-0.728** (0.319)	0.508* (0.260)	0.098 (0.207)
8000+	0.358 (0.264)	0.598* (0.323)	0.031 (0.269)	-1.364*** (0.385)	0.169 (0.319)	0.213 (0.285)
owner	-0.029 (0.117)	-0.088 (0.136)	0.324* (0.170)	-0.211 (0.158)	-0.166 (0.136)	0.167* (0.100)
age	0.006 (0.005)	-0.009* (0.006)	0.004 (0.005)	0.015** (0.007)	-0.019*** (0.007)	0.004 (0.004)
fin illiterate	0.292* (0.164)	0.303* (0.167)	0.209 (0.205)	-0.944*** (0.324)	0.406* (0.241)	-0.255** (0.117)
Observations	440	441	436	439	432	437
Adjusted $R^2$	0.038	0.124	0.097	0.112	0.073	0.046

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	prices rise	savingsplan	time	information	less consumption	more income	peer-effect	bank fees
college	-0.067 (0.121)	0.100 (0.150)	-0.164 (0.102)	-0.060 (0.110)	0.042 (0.084)	-0.052 (0.086)	0.196** (0.089)	0.005 (0.051)
full-time	0.096 (0.215)	0.229 (0.303)	-0.345* (0.209)	0.127 (0.236)	0.094 (0.152)	-0.117 (0.177)	0.021 (0.201)	-0.103 (0.119)
part-time	0.036 (0.268)	0.037 (0.361)	-0.480** (0.233)	0.350 (0.337)	0.203 (0.198)	-0.034 (0.225)	0.048 (0.224)	-0.158 (0.125)
retired	0.557* (0.328)	-0.492 (0.360)	-0.190 (0.272)	-0.126 (0.298)	0.421** (0.210)	-0.096 (0.202)	0.165 (0.238)	-0.236* (0.134)
self-employed	0.251 (0.284)	-0.057 (0.361)	-0.231 (0.270)	0.223 (0.297)	0.107 (0.196)	-0.224 (0.215)	0.118 (0.229)	-0.183 (0.156)
female	-0.163 (0.129)	0.187 (0.155)	-0.028 (0.101)	0.075 (0.136)	-0.084 (0.085)	-0.166** (0.082)	0.163* (0.094)	0.016 (0.044)
short-time work	-0.297 (0.301)	-0.082 (0.376)	0.079 (0.242)	-0.007 (0.172)	0.549** (0.226)	-0.016 (0.275)	-0.096 (0.218)	-0.130 (0.102)
children	-0.026 (0.166)	0.038 (0.188)	0.067 (0.105)	0.194 (0.170)	-0.126 (0.083)	-0.038 (0.111)	-0.081 (0.096)	-0.030 (0.055)
1500-3000	-0.801** (0.316)	0.695* (0.376)	0.092 (0.267)	-0.073 (0.377)	0.503*** (0.161)	0.174 (0.283)	-0.590* (0.346)	0.001 (0.211)
3000-5000	-0.594* (0.329)	0.903** (0.403)	0.142 (0.272)	-0.126 (0.376)	0.357** (0.149)	-0.094 (0.270)	-0.534 (0.345)	-0.055 (0.215)
5000-8000	-0.264 (0.327)	0.531 (0.402)	0.127 (0.286)	-0.245 (0.374)	0.335* (0.171)	0.093 (0.276)	-0.480 (0.347)	-0.097 (0.224)
8000+	-0.214 (0.359)	0.276 (0.431)	-0.139 (0.286)	-0.323 (0.419)	0.392* (0.208)	0.110 (0.305)	0.093 (0.374)	-0.193 (0.212)
owner	0.152 (0.134)	-0.340** (0.171)	0.182 (0.122)	-0.050 (0.130)	0.005 (0.089)	0.054 (0.102)	-0.010 (0.087)	0.004 (0.054)
31-40	-0.191 (0.213)	0.323 (0.249)	-0.493*** (0.168)	0.146 (0.231)	0.028 (0.162)	0.258 (0.171)	-0.340** (0.145)	0.274*** (0.073)
41-50	-0.236 (0.164)	0.650*** (0.244)	-0.355* (0.190)	-0.135 (0.175)	0.021 (0.134)	0.111 (0.142)	-0.475*** (0.138)	0.421*** (0.074)
51-60	-0.523*** (0.194)	0.463* (0.275)	-0.282 (0.206)	0.140 (0.207)	-0.035 (0.138)	0.161 (0.156)	-0.379*** (0.140)	0.453*** (0.085)
60+	-0.499* (0.270)	0.544* (0.288)	-0.264 (0.243)	0.440* (0.230)	-0.223 (0.186)	-0.039 (0.152)	-0.434** (0.175)	0.473*** (0.093)
fin illiterate	0.033 (0.323)	-0.129 (0.420)	0.176 (0.237)	-0.080 (0.176)	-0.267 (0.200)	-0.043 (0.208)	0.200 (0.341)	0.110 (0.090)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	prices fall	re-balancing	shock	too risky	need consumption	debt obligation	no time	peer-effect	need support friends and family
college	0.296 (0.273)	0.117 (0.278)	-0.255 (0.185)	0.300* (0.166)	-0.549** (0.228)	-0.354* (0.180)	0.094 (0.155)	0.510*** (0.161)	-0.160* (0.085)
full-time	0.801* (0.418)	-0.240 (0.376)	0.630* (0.354)	-0.160 (0.366)	-0.181 (0.474)	-0.162 (0.507)	-0.639* (0.380)	-0.290 (0.284)	0.240 (0.239)
part-time	0.546 (0.712)	-0.049 (0.825)	0.304 (0.425)	0.012 (0.537)	-0.407 (0.599)	0.213 (0.637)	-0.173 (0.455)	-0.323 (0.310)	-0.123 (0.286)
retired	0.638 (0.603)	-0.758 (0.656)	0.094 (0.470)	-0.269 (0.445)	0.347 (0.519)	0.122 (0.535)	-0.324 (0.457)	-0.064 (0.340)	0.214 (0.282)
self-employed	-0.027 (0.546)	0.077 (0.681)	0.359 (0.433)	-0.288 (0.462)	0.631 (0.670)	0.037 (0.508)	-0.850** (0.420)	-0.143 (0.320)	0.204 (0.261)
female	0.320 (0.338)	0.451 (0.327)	-0.336 (0.254)	-0.314* (0.189)	0.085 (0.246)	-0.145 (0.196)	-0.167 (0.136)	0.028 (0.098)	0.077 (0.083)
short-time work	-0.258 (0.491)	-1.644* (0.889)	-1.127* (0.632)	-0.353 (0.489)	1.479** (0.729)	0.982 (0.605)	-0.183 (0.484)	0.261 (0.381)	0.842 (0.585)
children	0.139 (0.304)	-0.583* (0.337)	-0.241 (0.220)	-0.014 (0.214)	0.355 (0.250)	0.140 (0.261)	0.034 (0.164)	-0.089 (0.136)	0.258** (0.104)
1500-3000	0.170 (0.478)	0.652 (0.445)	-0.136 (0.480)	0.128 (0.431)	0.386 (0.463)	0.243 (0.333)	-0.664* (0.390)	-0.570 (0.372)	-0.210 (0.264)
3000-5000	-0.087 (0.442)	0.522 (0.483)	-0.184 (0.460)	0.177 (0.425)	0.558 (0.459)	0.501 (0.387)	-0.707* (0.386)	-0.589* (0.345)	-0.192 (0.255)
5000-8000	0.539 (0.504)	0.436 (0.504)	-0.370 (0.484)	0.181 (0.457)	0.167 (0.481)	0.029 (0.366)	-0.225 (0.413)	-0.592 (0.372)	-0.165 (0.269)
8000+	0.111 (0.567)	-0.027 (0.608)	-0.149 (0.540)	0.398 (0.505)	0.495 (0.482)	0.419 (0.367)	-0.646 (0.419)	-0.598 (0.381)	-0.003 (0.264)
owner	0.194 (0.294)	-0.159 (0.352)	0.172 (0.195)	-0.181 (0.186)	-0.003 (0.249)	-0.023 (0.193)	0.157 (0.132)	-0.038 (0.128)	-0.118 (0.075)
age	0.001 (0.013)	0.000 (0.017)	0.017** (0.009)	0.019** (0.008)	-0.017 (0.011)	-0.012 (0.009)	-0.005 (0.006)	-0.002 (0.006)	-0.002 (0.004)
fin illiterate	-0.203 (0.462)	1.387*** (0.500)	0.654 (0.472)	0.097 (0.334)	-1.056** (0.493)	-0.375 (0.444)	0.188 (0.488)	-0.837*** (0.376)	0.145 (0.277)
bought & sold	0.237 (0.298)	1.409*** (0.266)	-0.343 (0.232)	-0.475** (0.216)	-0.339 (0.249)	-0.536** (0.236)	-0.115 (0.161)	0.094 (0.171)	0.068 (0.081)
Observations	117	117	117	117	117	117	117	117	117
Adjusted R <sup>2</sup>	0.073	0.205	0.100	0.123	0.091	0.109	0.248	0.229	0.216

# House Price Expectations and Buyer

	(1) All	(2) Owner	(3) Renter	(4) All	(5) Owner	(6) Renter
housing quali	-0.130** (0.059)					
prop quali		-0.127* (0.068)				
rent quali			-0.122 (0.113)			
house price wins				-0.028** (0.012)	-0.002 (0.014)	-0.066*** (0.021)
Observations	1006	714	292	974	692	282
Controls	Yes	Yes	Yes	Yes	Yes	Yes

# Inflation Expectations and Buyer

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
inflation quali	-0.262*** (0.101)							
inflation PE wins		-0.045*** (0.012)	-0.056*** (0.013)	-0.038** (0.018)				
fin illiterate: inflation >  30			0.441 (0.308)					
fin illiterate: inflation >  10				-0.203 (0.371)				
0 < inflation < 10					-0.117*** (0.030)			
0 < inflation < 5						-0.144*** (0.047)		
inflation prob exp							-0.077*** (0.020)	-0.099*** (0.026)
inflation prob sd								-0.354 (0.247)
Observations	1004	1006	1006	1006	950	884	892	892
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

# Inflation Expectations and Buyer

	(1) inflation	(2) inflation	(3) inflation	(4) Bought	(5) Bought
pess economy	0.326*** (0.090)		0.325*** (0.090)		-0.010 (0.021)
interest rates change		0.556** (0.282)	0.556** (0.277)		-0.118** (0.058)
inflation PE wins				-0.051*** (0.010)	-0.051*** (0.010)
Observations	2016	2016	2014	2018	2014
Controls	Yes	Yes	Yes	Yes	Yes

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