MiFID questionnaire answers: stock market participation, appetite for information and investor's sentiment.

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MiFID

- Markets in Financial Instruments Directive
- Since 2007: **MiFID I (2004/39/EC)** aims at protecting investors according to their level of financial knowledge.
- From January 2018: **MiFID II (2014/65/UE)**

- Requirements: the use of MiFID questionnaire allows providing advices and financial products suited to clients' situation

3 papers for MiFID data over 2 EU countries

- FRANCE

Two matched datasets provided by a large **French commercial bank** over 2007-2015, more than 70,000 retail clients:

- MiFID questionnaire answers
- Banking records

-> Paper 1 (with H. Orküt): Stock market participation

- BELGIUM

Large dataset from an online **Belgian brokerage house**: questionnaire answers and trades on stocks over 2008-2012, more than 45,000 retail investors.

- Appropriateness test: A-test (execution and order transmission)
- Suitability test: S-test (before getting general financial advice).

-> Paper 2 (with A. Bellofatto): Appetite for information

-> Paper 3 (C. D'Hondt and P. Roger): Investor sentiment and stock return predictability

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Paper 1 (with H. Orküt)

Do MiFID questions answer explain retail clients' stock investment decision?

Two matched datasets provided by a big French commercial bank:

- MiFID questionnaire answers (Dataset 1 -> declared)
- Banking records (Dataset 2 -> real)

Sample size (N): More than **70,000** retail clients

Questionnaire administration period: 04/30/2007 to 07/18/2015

Date of extraction of banking records: 07/31/2015

Questionnaire presentation (Dataset 1)

- **Socio-demographic characteristics:** gender, age, marital status, children
- **Income:** net monthly income, income sources,…
- **Patrimony:** real estate, movable patrimony
- **Credit:** remaining loan amount
- **Investment objectives:**
  - Main investment objectives
  - **Risk tolerance**
  - Experience and knowledge of financial products (shares, bonds, warrants,…)
  - **Attitudes towards losses**

-> There is no standard questionnaire: each bank is free to prepare and organize its own questionnaire.

- This questionnaire has been administered at most 3 times over 2007-2015
  - Same questionnaire all over the period
  - Clients self assess their attitudes (*revealed preference approach*)
  - Interaction with a bank advisor
  - We only use the more recent answers, i.e. close and prior to the 07/31/2015 (extraction of Dataset 2), for **Risk tolerance** and **Attitudes towards losses**.

Main questions

- **Risk tolerance**

As a general rule, which assertion best describes you?

Modalities	Category variables	Proposals
0	Accepting	Accepting lower remuneration by taking no risk on the invested capital.
1	SeekBetter	Seeking better remuneration by taking a capital risk.
2	SeekHigh	Seeking high performance by accepting a significant part of capital risk.

- **Attitudes towards losses**

If in the coming months, your investments value would decrease by 15%, what would you do?

1	SellingAll	Selling all.
2	SellingPart	Selling a part of your portfolio.
3	Waiting	Waiting until values increase.
4	Investing	Taking advantage of a lower price to invest again.

Risk tolerance

« As a general rule, which assertion best describes you?»

	Affirmation	Accepting lower remuneration by taking no risk on the invested capital	Seeking better remuneration by accepting a capital risk	Seeking high performance by accepting a significant part of capital risk	unreported	TOTAL
Q1	**Questionnaire 1**					
	Number	43 216	10 067	546	10 643	64 472
	Proportion	67,03%	15,61%	0,85%	16,51%	100%
Q2	**Questionnaire 1**					
	Number	14 322	5 325	306	3 463	23 416
	Proportion	61,16%	22,74%	1,31%	14,79%	100%
	Questionnaire 2					
	Number	15 525	6 933	407	551	23 416
	Proportion	66,30%	29,61%	1,74%	2,35%	100%
Q3	**Questionnaire 1**					
	Number	6 651	4 600	306	1 145	12 702
	Proportion	52,36%	36,21%	2,41%	9,01%	100%
	Questionnaire 2					
	Number	6 700	5 381	392	229	12 702
	Proportion	52,75%	42,36%	3,09%	1,80%	100%
	Questionnaire 3					
	Number	6 066	6 122	475	39	12 702
	Proportion	47,76%	48,20%	3,74%	0,31%	100%

Losses

« If in the coming months, your investments value would decrease by 15%, what would you do?»

		Selling all	Selling a part of the portfolio	Waiting until values increase	Taking advantage of lower price to invest again	unreported	TOTAL
Q1	**Questionnaire 1**						
	Number	9 925	3 218	38 964	2 155	10 210	64 472
	Proportion	15,39%	4,99%	60,44%	3,34%	15,84%	100%
Q2	**Questionnaire 1**						
	Number	2 845	1 108	14 976	1 208	3 279	23 416
	Proportion	12,15%	4,73%	63,96%	5,16%	14%	100%
	Questionnaire 2						
	Number	3 038	1 333	17 149	1 357	539	23 416
	Proportion	12,97%	5,69%	73,24%	5,80%	2,30%	100%
Q3	**Questionnaire 1**						
	Number	1 215	622	8 834	945	1 086	12 702
	Proportion	9,57%	4,90%	69,55%	7,44%	8,55%	100%
	Questionnaire 2						
	Number	1 188	664	9 636	1 018	196	12 702
	Proportion	9,35%	5,23%	75,86%	8,01%	1,54%	100%
	Questionnaire 3						
	Number	1 078	699	9 840	1 054	31	12 702
	Proportion	8,49%	5,50%	77,47%	8,30%	0,24%	100%

Stock market participation determinants

- **Socio-demographics:**
  - **Gender:**
    - Women hold less risky assets (Dwyer et al., 2002, Agnew et al., 2003, Charness et al., 2012) are less risk seeking (Booij & Van de Kuilen, 2009, Booth & Nolen, 2012) than men.
    - They are less likely to invest in stock market than men (van Rooij et al., 2011, Almenberg & Dreber, 2015), allocate a smaller percentage of their financial assets to stocks than to bonds (Bajtelsmit et al., 1999)
  - **Age:**
    - Low proportion of risky assets held by older individuals (Bodie and Crane, 1997).
    - Risk aversion increases with population' age (Bakshi and Chen, 1994)
    - Impact on the mix of risky assets (Ackert et al., 2002): young households prefer stocks over bonds, older and experienced investors -> risky portfolios
    - Age vs. Experience: cognitive aging (i.e. the weakening of memory with age) vs. accumulation of greater investment knowledge with age (Korniotis & Kumar, 2011) -> Account tenure (Bauer et al., 2009, Hoffman et al., 2015)
  - **Marital status:**
    - Married investors hold more stocks than single ones (Agnew et al., 2003)
    - Married individuals are more risk tolerant (Grable, 2000), marriage -> safe asset (Bertocchi et al, 2011)
    - Children: Jianakoplos & Bernasek, 1998, Chaulk et al., 2003.
  - **Place of birth (US):**
    - Immigrants hold less financial assets, such as stocks and mutual funds compared to natives (Osili & Paulson, 2004, Chatterjee, 2009, 2011). Their risky holdings increase with the number of years of residence in the US (Love & Schmidt, 2015)
  - **Occupations:**
    - Self-employed take more risk compared to salaried workers (Maccrimmon & Wehrung, 1986) and are more risk tolerant (Sung & Hanna, 1996)
    - Stock allocations are higher among investors with more seniority on the job (Agnew et al., 2003)
  - **Education/IQ:**
    - Educated investors are more likely to hold better diversified equity portfolios (Fuertes et al., 2014) / QI (Grinblatt et al., 2011).
- **Wealth & patrimony:**
  - Stock ownership is positively associated to different measure of wealth such as **financial net worth** and **labour income** (Shum & Faig, 2006**)**.
  - Higher income individuals are more risk tolerant (Maccrimmon & Wehrung, 1986, McInish et al., 1993, Bernheim et al., 2001).
  - **Credit-constrained** households have a low tendency to hold risky assets (Guiso et al., 1996, Constantinides et al., 2002, Cardak & Wilkins, 2009).
  - **Mortgage debt** result in less stocks and bonds ownership (Thomas & Reza, 2010). Outstanding debt explains households' asset market non-participation.
  - **Homeownership** (Cardak & Wilkins, 2009)

Stock market participation determinants

Independent variables

Panel A MiFID indicators	Panel B Socio-demographics	Panel C Wealth & patrimony
Risk tolerance	**Gender**	**Income**
Accepting	**Age**	0€
Seek better	**Native**	<1,500€
Seek high	**Paris**	[1,500€;3,000€[
Losses	**Matrimonial**	[3,000€;5,000€[
Selling all	**Occupations**	[5,000€;10,000€]
Selling part	Self-employed	>10,000€
Waiting	Salaried	**Credit**
Investing	Retired	0€
	No occupation	<10,000€
		[10,000€;100,000€[
		>100,000€
		Annuities
		Retirement

Descriptive statistics – Panel A: MiFID indicators

	N	$\overline{X}$ / %	std	min	max
Retail clients	77,365	100%	-	-	-
Dependent variable					
Stocks	77,365	11.05%	-	-	-
Independent variables					
Panel A : MiFID indicators					
Risk tolerance	71,461	0.32	0.50	0	2
Accepting		69.35%$^{(0)}$	-	-	-
SeekBetter		28.90%$^{(1)}$	-	-	-
SeekHigh		1.75%$^{(2)}$	-	-	-
Losses	71,745	2.71	0.78	1	4
SellingAll		14.29%$^{(1)}$	-	-	-
SellingPart		6.24%$^{(2)}$	-	-	-
Waiting		73.93%$^{(3)}$	-	-	-
Investing		5.54%$^{(4)}$	-	-	-

Descriptive statistics – Panel B: Socio-demographic indicators

Panel B : Socio-demographics indicators					
Gender	77,365	51.24%	-	-	-
Age	77,365	47.97	17.55	18	105
Native	77,365	84.59%	-	-	-
Paris	77,365	12.26%	-	-	-
Matrimonial	77,365	10.30%	-	-	-
Occupations					
Self-employed	77,365	12.61%	-	-	-
Salaried	77,365	55.36%	-	-	-
Retired	77,365	15.59%	-	-	-
No occupation	77,365	16.44%	-	-	-

Descriptive statistics – Panel C: Wealth and patrimony indicators

Panel C : Wealth and patrimony indicators						
Income		77,365	2,418.07	2,192.97	0	10,000
			1.90	1.11	0	5
Income brackets :	Codes :					
0	0		7.28%(0)	-	-	-
<1,500	750		31.62%(1)	-	-	-
1,500-3,000	2,250		36.67%(2)	-	-	-
3,000-5,000	4,000		15.32%(3)	-	-	-
5,000-10,000	7,500		6.72%(4)	-	-	-
>10,000	10,000		2.39%(5)	-	-	-
Credit		77,365	28,668.91	38,960.65	0	100,000
			1.04	1.18	0	3
Credit brackets :	Codes :					
0	0		50.08%(0)	-	-	-
<10,000	5,000		13.51%(1)	-	-	-
10,000-100,000	55,000		18.70%(2)	-	-	-
>100,000	100,000		17.71%(3)	-	-	-
Annuities		77,365	16.83%	-	-	-
Retirement		77,365	1.37%	-	-	-

Results

	Model 1		Model 2		Model 3	
	AMEs	std	AMEs	std	AMEs	std
Dependent variable						
Stocks						
Independent variables						
Panel A: MiFID indicators						
SeekBetter			0.1000***	0.0022		
SeekHigh			0.1821***	0.0053		
Accepting			(omitted)			
SellingAll					-0.0817***	0.0049
SellingPart					-0.0215***	0.0048
Investing					0.0633***	0.0037
Waiting					(omitted)	
Panel B: Socio-demographic indicators						
Gender	0,0146***	0.0021	0.0086***	0.0022	0.0127***	0.0023
Age	0.0037***	0.0001	0.0036***	0.0001	0.0038***	0.0001
Native	0.0454***	0.0033	0.0398***	0.0034	0.0444***	0.0035
Paris	0.0385***	0.0029	0.0368***	0.0030	0.0352***	0.0031
Matrimonial	0.0295***	0.0029	0.0224***	0.0030	0.0281***	0.0031
Self-employed	0.0091***	0.0031	0.0086***	0.0032	0.0096***	0.0033
Retired	-0.0215***	0.0033	-0.0189***	0.0034	-0.0216***	0.0035
No occupation	0.0118***	0.0039	0.0074*	0.0041	0.0119***	0.0042
Salaried	(omitted)		(omitted)		(omitted)	
Panel C: Wealth and patrimony indicators						
ln(Income)	0.0150***	0.0010	0.0087***	0.0010	0.0133***	0.0011
ln(Credit)	-0.0006***	0.0002	-0.0010***	0.0002	-0.0009***	0.0002
Annuities	0.1320***	0.0020	0.0985***	0.0022	0.1280***	0.0021
Retirement	0.0858***	0.0058	0.0737***	0.0059	0.0839***	0.0061
N	77,365		71,461		71,745	

Results

	Model 1		Model 2		Model 3	
	AMEs	std	AMEs	std	AMEs	std
Dependent variable						
Stocks						
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Age	0.0037***	0.0001	0.0036***	0.0001	0.0038***	0.0001
Native	0.0454***	0.0033	0.0398***	0.0034	0.0444***	0.0035
Paris	0.0385***	0.0029	0.0368***	0.0030	0.0352***	0.0031
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Salaried	(omitted)		(omitted)		(omitted)	
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Retirement	0.0858***	0.0058	0.0737***	0.0059	0.0839***	0.0061
N	77,365		71,461		71,745	

After controlling for usual determinants, stock ownership is explained by MiFID answers

Paper 2 (with A. Bellofatto)

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Is Mandatory Profiling of Individual Investors indicative of investor's appetite for information?

- Database coming from on online Belgian brokerage house (**14,155 investors** over 2008-2012): **MiFID questionnaires answers + trading records (since 2008 only)**
  - 1) Appropriateness test: A-test (execution and order transmission)
  - 2) Suitability test: S-test (before getting general financial advice).
  - Data on stocks: Eurofidai

- Investors who fulfill the S-test have access to an information tool on stocks

- Assumptions:
  - A-investors:
    - Fulfill the A-test only
    - Neglect a free access to general advice and professional recommendations
  - S-investors:
    - Fulfill the A-test and the S-test
    - Willingness to have access to a service higher than order execution only
    - Provide an "effort" to access the information tool (cost of fulfilling the S-test)

-> A natural field experiment to test the relationship between trading behavior and a distinct personality trait, the **"appetite for information"**

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Table: Descriptive statistics for trading activity

	Mean	Median	Q1	Q3
Number of stock trades	44	18	8	45
Number of different stocks traded	12	7	4	15
Trading experience (in months)	25	24	14	35
Number of daytrades	1.43	0	0	0
Average number of trades on the same stock	3.37	2.4	1.75	3.64
Number of fund trades	7.04	0	0	0
Number of option trades	8.31	0	0	0
Number of bond trades	0.08	0	0	0

Table: Descriptive statistics for monthly portfolio data

	Mean	Median	Q1	Q3
Number of stocks	4.25	2.76	1.36	5.29
Portfolio value (€)	22,005	6,490	2,195	17,779
Gross return (%)	0.40	0.23	-1.47	1.98
Net return (%)	-0.40	-0.22	-2.21	1.48
Volatility (%)	18.01	11.22	7.17	18.29

A- and S- Investors answers to A-test

48% of A-investors and
52% of S-investors

Both have fulfilled the A-test

	Empirical frequencies
Self-estimated knowledge of financial markets	
Level 0	0.2921
Level 1	0.3099
Level 2	0.3176
Level 3	0.0804
Self-evaluated experience in complex instruments	
Level 0	0.8471
Level 1	0.0998
Level 2	0.0531
Investment in complex instruments	
No	0.6613
Yes	0.3387
Level of education	
Level 0	0.0609
Level 1	0.2149
Level 2	0.7242

	Empirical frequencies
Gender	
Female	0.1480
Male	0.8520
Language	
French-speaker	0.4535
Dutch-speaker	0.5077
English-speaker	0.0388
Professional status	
Executive	0.1667
Other	0.8333
N	14,155

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Methodology

- Comparison of the trading behavior between A- and S-investors but...

- Investors who ask for more financial information may differ from the other investors on a large set of covariates (Gerhardt and Hackethal (2009), Kramer (2012), Hackethal et al (2012), Georgarakos and Inderst (2014) and Calcagno and Monticone (2015)) :

    - Gender, financial literacy, income, professional status...
    - Therefore differences in trading behavior of the two groups may be due to investors-immanent effects that are correlated with the appetite for information

- Matching procedure to control for the effect of other covariates
- Compare a group of “twins” A-investors and S-investors Random matching:
    - For each A-investor, we associate a “matched” S-investor (Stuart, 2010)
    - Nearest-neighbor matching algorithm based on the propensity score (Rosenbaum and Rubin, 1983)
    - For each individual of the control group we associate an individual of the treatment group with the “closest” propensity score

		A-investors	S-investors	Difference
Self-estimated knowledge of financial markets				
	Level 0	0.2930	0.2912	-0.0018
	Level 1	0.3101	0.3097	-0.0004
	Level 2	0.3072	0.3274	0.0202***
	Level 3	0.0897	0.0717	-0.0180***
Self-evaluated experience in complex instruments				
	Level 0	0.8277	0.8657	0.038***
	Level 1	0.1110	0.0891	-0.0219***
	Level 2	0.0613	0.0452	-0.0161***
Investment in complex instruments				
	No	0.6708	0.6523	-0.0185**
	Yes	0.3292	0.3477	0.0185**
Level of education				
	Level 0	0.0703	0.0519	-0.0184***
	Level 1	0.2290	0.2015	-0.0275***
	Level 2	0.7007	0.7466	0.0459***
Gender				
	Female	0.1891	0.1088	-0.0803***
	Male	0.8109	0.8912	0.0803***
Language				
	French-speaker	0.4762	0.4319	-0.0443***
	Dutch-speaker	0.4836	0.5308	0.0472***
	English-speaker	0.0402	0.0373	-0.0029
Professional status				
	Executive	0.1515	0.1812	0.0297***
	Other	0.8485	0.8188	-0.0297***
Age		44.9779	44.6515	-0.3264
Average PF value (in euros)		22,203	21,815	-388
Trading experience (in months)		23.9595	25.5744	1.6149***
	N	6,913	7,242	

Investors characteristics comparison

A- and S-investors largely differ on a large set of covariates

Independent variables	Parameters estimates
Intercept	-1.0138***
Self-estimated knowledge of financial markets 1	-0.0671
Self-estimated knowledge of financial markets 2	-0.0532
Self-estimated knowledge of financial markets 3	-0.2697***
Self-evaluated experience in complex instruments 1	-0.2902***
Self-evaluated experience in complex instruments 2	-0.3251***
Investment in complex instruments “Yes”	0.1484***
Level of education 1	0.2121***
Level of education 2	0.3757***
Male	0.6137***
French-speaker	-0.1860***
English-speaker	-0.1798**
Executive	0.1366***
Age	-0.00106
Ln(PF value)	0.0174
Trading experience	0.00965***
Pseudo R^2	1.94%
N	14,155

Propensity score

- ***Propensity score:*** Probability to be part of the treatment group, i.e. probability to have asked for financial information (*Appetite for information=1*)

- Logit model:
  - Dep. Var: Prob(Appetite for information=1)
  - Indep. Vars: A-test items answers

Matching Procedure effectiveness

	A-investors	"matched" S-investors	Difference
Self-estimated knowledge of financial markets			
Level 0	0.2929	0.2983	0.00540
Level 1	0.3101	0.3039	-0.0062
Level 2	0.3072	0.3032	-0.004
Level 3	0.0897	0.0946	0.0049
Self-evaluated experience in complex instruments			
Level 0	0.8277	0.8332	0.0055
Level 1	0.1110	0.1021	-0.0089*
Level 2	0.0613	0.0647	0.0034
Investment in complex instruments			
No	0.6708	0.6679	-0.0029
Yes	0.3292	0.3321	0.0029
Level of education			
Level 0	0.0703	0.0741	0.0038
Level 1	0.2290	0.2366	0.0076
Level 2	0.7007	0.6893	-0.0114
Gender			
Female	0.1891	0.1901	0.001
Male	0.8109	0.8099	-0.001
Language			
French-speaker	0.4762	0.4655	-0.0107
Dutch-speaker	0.4836	0.4953	0.0117
English-speaker	0.0402	0.0392	-0.001
Professional status			
Executive	0.1515	0.1429	-0.0086
Other	0.8485	0.8571	-0.0086
Age (in years)	44.9779	44.8964	0.0815
Average PF value (in euros)	22,203	21,019	-1184
Trading experience (in months)	23.9595	24.0719	0.1124
N	6,913	6,913	

Univariate Analysis

Table 8: Univariate comparison results between A- and "matched" S-investors

	A-investors	"matched" S-investors	Difference
Number of stock trades	40.658	48.457	7.799***
Number of daytrades	1.510	1.418	-0.092
Average number of trades on the same stock	3.610	3.150	-0.460***
Number of different stocks traded	10.150	13.040	2.890***
Number of stocks	3.651	4.483	0.832***
Volatility (%)	18.304	19.033	0.728
Proportion of fund traders	0.158	0.258	0.1***
Proportion of option traders	0.170	0.210	0.04***
Proportion of bond traders	0.023	0.037	0.014***
Gross return (%)	0.290	0.650	0.360***
Net return (%)	-0.473	-0.217	0.256***
N	6,913	6,913	

Multivariate Analysis

	(1) Ln(n_trades)	(2) Ln(1+n_Dt)	(3) Ln(same_stock_t)	(4) Ln(n_stocks)	(5) Ln(stocks_PF)	(6) Ln(volat)	(7) F_trader	(8) O_trader	(9) B_trader	(10) Ln(1+g_r)
Intercept	-1.001***	-0.367***	0.807***	-1.304***	-2.468***	2.674***	-3.774***	-3.899***	-7.553***	-0.012***
S-test	0.141***	-0.0256**	-0.075***	0.237***	0.214***	-0.070***	0.679***	0.152***	0.548***	0.002***
Self-estimated knowledge of financial markets 1	-0.082***	-0.048***	-0.061***	-0.002	-0.013	-0.030*	0.161***	0.161**	0.158	-0.001
Self-estimated knowledge of financial markets 2	-0.102***	-0.078***	-0.080***	0.004	-0.046***	-0.068***	0.426***	0.653***	0.565***	0.001
Self-estimated knowledge of financial markets 3	-0.143***	-0.055*	-0.055***	-0.073**	-0.202***	-0.053*	0.571***	1.244***	0.769***	-0.001
Self-evaluated experience in complex instruments 1	0.104***	0.116***	0.075***	0.001	-0.098***	0.102***	-0.016	0.081	-0.181	-0.001
Self-evaluated experience in complex instruments 2	0.123***	0.112***	0.058***	0.004	-0.115***	0.122***	-0.065	0.397***	0.024	0.001
Investment in complex instruments "Yes"	-0.018	-0.019	-0.010	-0.006	-0.017	0.015	0.231***	0.728***	0.356***	0.003***
Level of education 1	0.035	-0.044	-0.006	0.039	0.053*	0.001	0.029	-0.069	-0.405*	-0.003
Level of education 2	-0.178***	-0.154***	-0.086***	-0.065**	0.073***	-0.086***	0.263**	-0.141	-0.201	-0.001
Male	0.162***	0.086***	0.065***	0.075	0.001	0.0254	-0.042	0.053	-0.161	-0.002*
French-speaker	0.112***	0.142***	0.087***	-0.003	-0.144***	0.034***	-0.101**	0.344***	-0.118	-0.001
English-speaker	-0.169***	-0.002	0.012	-0.181***	-0.209***	-0.037	0.113	0.091	-0.381	0.002
Executive	-0.153***	-0.096***	-0.043***	-0.092***	-0.009	-0.033**	0.119**	-0.188***	-0.213	0.001
Age	-0.006***	-0.004***	-0.002***	-0.002***	-0.001***	-0.001**	0.008***	-0.001***	0.024***	0.001***
Ln(PF value)	0.384***	0.083***	0.061***	0.305***	0.369***	-0.021***	0.093***	0.136***	0.189***	0.001***
Trading experience (in months)	0.034***	0.008***	0.007***	0.024***	0.011***	0.008***	0.0163***	0.028***	0.033***	-0.001***
Adjusted r^2	43.73%	7.40%	10.98%	43.16%	44.04%	3.04%	-	-	-	0.79%
Pseudo r^2	-	-	-	-	-	-	5.36%	10.35%	8.50%	-
N	14,155	14,155	14,155	14,155	14,155	14,155	14,155	14,155	14,155	14,155

A- and S-investors differ in their trading behavior:

- **S-investors** trade a **larger stock universe**, hold better **diversified PTF**, trade **complex instruments** and earn **higher returns**,
- **A-investors** display a more "intuitive" trading behavior

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Paper 3 (C. D'Hondt & P. Roger)

- **Is the predictability of returns better when sentiment is based on portfolios of investors that neglect information (A-investors) and recommendations?**

- **Investor sentiment**: « a belief about future cash-flows and investment risks that is not justified by the facts at hand » (Baker and Wurgler 2006*).*
- Sentiment investors use more their system 1 brains (fast and automatic) and partially base their decisions on « first impressions » (Kahneman, 2011, Barberis, Mukherjee and Wang, AFA 2014*).*
- When sentiment/retail investors trade in concert, it becomes costly and risky for rational arbitrageurs to bet against them (Shleifer & Vishny, 1997)

The unusual job in this paper is **to extract and make sense of noise in the portfolio dynamics of individual investors**….

- Noise becomes information on mispricing!

Intuition behind the sentiment index

- Retail investors do not really « manage » their portfolios but buy new stocks when they are optimistic about these stocks

- => Intuitive indicator of optimism/pessimism = the variation of the number of different stocks in investors' portfolios (Roger, 2014)

- How to « summarize » (with a unique number) the information in portfolio transitions?

⇒Decumulative distribution function of the steady-state equilibrium of a **Markov chains**

⇒ Prediction: small caps are more influenced by sentiment than large caps -> a good sentiment index should explain the future returns on a long-short portfolio based on size.

Data

- Data on investors' trades and portfolios
  - **45,085** retail clients of a Belgian brokerage house
  - 2,333,372 trades on 9064 stocks (Eurofidai and Bloomberg)
  - Period: January 2008-March 2012 (MIFID enforced in November 2007)

  - Two tests and two questionnaires:
  - 1) Appropriateness test: A-test (execution and order transmission)
  - 2) Suitability test: S-test (before getting general financial advice).

  - **21738 investors**

Correlations between sentiment, FFC factors and size-based portfolios

BW (2007) Sentiment seesaw: long on small caps, short on large caps

	MKT	SMB	HML	MOM	Lcaps	Mcaps	Scaps	Small-Big
	Lagged correlations-January 2008-March 2012							
SMSI	-0.063	-0.162	0.166	-0.099	-0.030	-0.053	-0.083	-0.107
AMSI	-0.160	-0.291**	-0.000	0.054	-0.128	-0.231*	-0.257**	-0.267**
RES	-0.222*	-0.338**	-0.222	0.234	-0.203	-0.370***	-0.379***	-0.367***

RES= residual of the regression of AMSI on SMSI

Multivariate analysis

- Standard methodology from Barker & Wurgler 2006
- Without controls $$R_{Smallcaps,t} - R_{Largecaps,t} = \alpha + \beta_s.Sentiment_{t-1} + \varepsilon_t$$
- With controls (Market return and Fama-French factors except SMB)

$$R_{Smallcaps,t} - R_{Largecaps,t} = c + \beta_s.Sentiment_{t-1} + \beta_{\mathbf{X}}\mathbf{X}_t + \varepsilon_t$$

Regression results

	SMSI	AMSI	RES
	Panel A: Equation (3) without controls		
β_s	−0.060	−0.118**	−0.310***
t-stat	−0.703	−2.320	−3.241
p-val	0.485	0.024	0.002
$\overline{\mathbf{R}}^2$	−0.009	0.052	0.117
	Panel B: Equation (4) with controls		
β_s	−0.088	−0.137***	−0.336***
t-stat	−1.211	−2.807	−3.398
p-val	0.232	0.007	0.001
$\overline{\mathbf{R}}^2$	0.077	0.152	0.213

=> Aggregation of noise provides information

Conclusion

- The MiFID provides a natural experiment to investigate the relationship between customers' expectations and trading behavior
- Investor segmentation based on questionnaire answers works pretty well
- However, questionnaire answers are biased (due to data collection)
- In France, banks do not use (or store) MiFID data enough

Work in progress:

FRANCE

- MiFID answers and stock market participation: Causality?
- PTF analysis (composition, PTF diversification and assets diversification, home biais, dynamic allocation…)

BELGIUM

- Social/peers and culture impact?
- Correlation between self-reported financial literacy and actual trading behavior?
- Is a portfolio strategy based on RES or AMSI profitable?

Thank you for your attention!

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		NO	CONTROL			CONTROL		
Variable	Coefft	t-stat	p-value	R^2	Coefft	t-stat	p-value	R^2
S_FR	-0.091	-1.234	0.224	0.065	-0.106	-1.682	0.100	0.109
A_FR	-0.108**	-2.285	0.027	0.136	-0.116**	-2.664	0.011	0.171
RES_FR	-0.184**	-2.197	0.033	0.082	-0.188**	-2.215	0.032	0.131
S_NL	-0.006	-0.066	0.948	-0.010	-0.035	-0.464	0.645	0.047
A_NL	-0.101*	-1.743	0.088	0.077	-0.117**	-2.349	0.023	0.135
RES_NL	-0.274***	-3.164	0.003	0.111	-0.327***	-4.067	0.000	0.208
S_LFL	-0.029	-0.373	0.711	0.037	-0.055	-0.864	0.392	0.089
A_LFL	-0.106**	-2.312	0.025	0.171	-0.116***	-2.828	0.007	0.205
RES_LFL	-0.249***	-3.050	0.004	0.164	-0.268***	-3.697	0.001	0.235
S_HFL	-0.073	-0.771	0.444	0.001	-0.092	-1.078	0.287	0.056
A_HFL	-0.087	-1.189	0.240	0.020	-0.102	-1.631	0.110	0.085
RES_HFL	-0.122	-1.062	0.294	-0.012	-0.129	-1.300	0.200	0.066
S_LPV	-0.024	-0.166	0.868	0.019	-0.033	-0.267	0.790	0.063
A_LPV	-0.119	-1.638	0.108	0.058	-0.109*	-1.698	0.097	0.095
RES_LPV	-0.262**	-2.606	0.012	0.055	-0.242**	-2.665	0.011	0.107
S_SPV	-0.076	-0.937	0.354	0.044	-0.137*	-1.997	0.052	0.123
A_SPV	-0.123*	-1.890	0.065	0.136	-0.210***	-3.629	0.001	0.247
RES_SPV	-0.262	-1.442	0.156	0.040	-0.369*	-1.935	0.059	0.163