



Naked Aggression: Personality and portfolio manager performance

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Motivation



- Empirical research (Fama and French (2010), Busse, Goyal and Wahal (2010)) show institutional investment products offer statistically insignificant risk-adjusted alphas.
- So why do managers continue to active manage portfolios?
- The literature on active portfolio management suggests the importance of effort, information and career concerns (Admati and Pfleiderer (1997), Rajan and Srivastava (2000), Ross (2004), Carpenter (2000), Dow and Gorton (1997) among others)
- In this paper we suggest that *aggression* can also be a factor: We show that portfolio managers with more aggressive personalities are more likely to be opt for active rather than passive management.

Aggression and money management



- Aggression is the “elephant in the room” – we all know traders and investment managers can be aggressive and further, that the industry seeks and rewards aggressive behaviour
- Among practitioners the terms aggressive and active portfolio management are often interchangeable
- Quick glance at recruitment materials for money management jobs reveals quotes such as “we are seeking individuals that are intelligent and aggressive”
- Popular books describing the money management business are full of references to culture of aggressive behaviour and how quickly it spread in Wall Street and London in the 80s and 90s (e.g. pp. 106-7 in Endlich 1999).

Goals of this paper



- Present a set of experiments with industry experts where we study the relationship between aggression and investment decisions
- To demonstrate that personality predispositions have a systematic effect on the investing behaviour.
- Explain the dynamics of when and how aggressiveness affect behaviour especially in a group setting.



Personality Traits



- Allport (1937, 1961) defines personality as the dynamic organization of characteristics that creates a person's cognitions, motivation and *behaviour*.
- The trait (disposition) approach assumes that personality traits differ across individuals, but are stable within an individual (during adulthood) and over time (McCrae & Costa, 1990), and that these traits *shape the person's behaviour*.
- The Five-Factor personality (FFM) Model (Costa & McCrae, 1992; Goldberg, 1993; Russell & Karol, 1994; also known as the "Big 5" model) is a prominent theory of personality. According to this model, there are five major personality dimensions (or domains): Neuroticism, Extraversion, Conscientiousness, Agreeableness and Openness to Experience.



Aggressiveness



- Aggressiveness promotes approach behavior (Lerner & Keltner, 2001), behavior intended to increase social dominance, and cause pain or harm (Ferguson & Beaver, 2009).
- Lauriola & Levin (2001): individuals with high scores engage in less risky decisions in the gains domain, but more risk taking in the domain of losses.
- Measured here using a self-report questionnaire (Buss & Perry, 1992, adapted by Bryant & Smith, 2001): 12 items such as “Given enough provocation, I may hit another person”; “I can’t help getting into arguments when people disagree with me”; “I have trouble controlling my temper”.
- Responders indicated the degree to which the statement is characteristic or true for them, on a five-point scale ranging from “not at all” to “completely characteristic”.
- Note, we focus on aggressiveness as trait – not state.

Heterogeneity in Economics



- Traditionally Economics (and Finance) consider that all agents reason in the same way and will make the same decisions given the same information and preferences.
- One source of difference may be attitude to risk
- More recently this approach has been challenged:
- Botelho et al (2005), show that bargaining behaviour varies with nationality, ethnicity and gender
- Ariel Rubinstein's Instinctive v contemplative agents:
- K level reasoning: Vince Crawford and co authors

Personality traits in economics



- Very little research on the connection between personality and economic behavior.
 - Battigalli and Dufwenberg (AER, 2007; JET, 2009)
 - Johnson, Rustichini & MacDonald (Personality and Individual Differences, 2009)
 - Anderson, Burks, De Young & Rustichini (unpublished, 2011)
- More recently, in Kugler et al (2014) we showed that aggressiveness and anxiety affect strategic behaviour



The Decision Problem



Set up:



- You are an investment manager who is offered a chance to buy a stock or continue to passively track the index
- This stock can go up or down.
 - If it goes up then it will return 20% more than the index.
 - If it goes down it will return 30% below the index.
- Before making your decision you are told a “rumour” from an inside source, which could be “good” or “bad”
 - If the stock is going to go up then the probability of a “good” signal is $>50\%$
 - If the stock is going to go down then the probability of a “good” signal is $>50\%$
 - If the stock is going to go down then the probability of a “good” signal is $<50\%$
 - If the stock is going to go down then the probability of a “bad” signal is $>50\%$

Decisions:



- Individual (control) scenario: Your rumour is bad. Do you buy the stock or continue with passive tracking?
- Group setting: Same as before, except you are in group of 5.
- Each of you get an independent and equally informative signal (rumour).
- Three of you got a bad signal and two of you got a good signal. Do you buy the stock or passively track the index?

Decisions second experiment:



- D1: Individual decision, you get to see signals of other managers. Your signal/rumour is good, three others are bad, one other is good.
- D2: You are part of a team, you see your signal and the others then you all vote. Your signal is good, three others bad, one more is good.
- D3: You are part of a team. The team gets one signal only, but gets to see signals of other teams. Signal structure same again



The Experiments



Participants



- 52 participants in first experiment, 72 in the second, all recruited via the Diploma in Finance Strategy
- Ratio male to female 3.3
- 40% aged 20-30; 27% age 30-40; 25% aged 40-50; 8% over 50
- Average 11+ years of experience in making investment decisions



Using experts



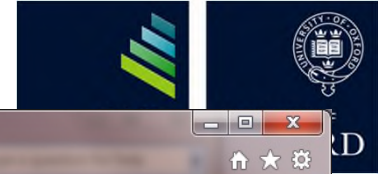
- In behavioural finance often the biases disappear with experience, i.e. they are less pronounced with experts (see e.g. Various papers by Terrance Odean)
- Using experts as subjects therefore is likely to reveal persistent biases/patterns.
- Indeed our sample of experts are a lot more “rational” than any other group we ever worked with. Their Holt & Laury is almost perfect unlike students and random subjects recruited through our database and others.

Design



- Half the participants completed the individual decision problem before the group and the other half in the opposite order (in second experiment order of D1, D2 and D3 was random)
- After completing the investment decision problems subjects completed a standard Holt and Laury risk assessment task
- Followed by a 74 questionnaire including gender, age, experience, the Big 5 and the Buss and Perry aggression questionnaire.
- Web based software
- Pay: 4 selected at random paid £20 for tracking; £24 or £14 if invested depending on weather stock went Up or Down.

Interaction & Communication (first experiment)



Your rumour about the stock is **GOOD**. The rumours from your colleagues are shown below.

Your Rumour	Good
Colleague 1	Bad
Colleague 2	Good
Colleague 3	Bad
Colleague 4	Bad

If you would like to send a message to your counterparts to influence their decision, enter it here, otherwise, leave this box blank and just press submit:

Submit Message



Framing the problem



- Bossaerts (2009) promotes the use of “ecological design” in studying financial decision making
- The general idea is that design should look and feel as real as possible and not like a maths problem.
- Ecological design also suggests the importance of using subjects that are familiar with the task
- Our design is deliberately “lose” at certain points to make it look and feel real

What to expect, experiment 1:



- These two scenarios (individual bad signal, and group with 3 bad and 2 good signals) are mathematically equivalent – so decision should be the same
- Risk aversion should be negatively correlated with investment decisions

Alternative: Aggression matters – based on Lauriola & Levin (2001), aggression should be positively correlated with investment

Aggression should matter more in group decisions



Results



Results – Summary



Risk matters in individual decisions

Risk does not matter in group decisions

Being more risk averse reduces your chances of selecting to buy the stock by ~15%

Aggression does not matter in individual decisions

Aggression matters in group decisions

In the group case, being aggressive increases the probability of purchasing the stock by ~25%

Nothing else (big 5; age, experience) is significant

Examples of messages sent in group decision



Rational (?)

- *"Seems like majority consider the rumour as bad depressing the price"*
- *"I doubt the reliability of my rumour. Please don't follow me."*
- *"Track the index, gents."*
- *"Considering the news we should follow the index"*
- *seems like a keep tracking the index decision. 3/5 for bad added to 20%gain, 30% loss potential. Not worth purchasing the stock*

Irrational (?)

- *"The rumour is from a reliable source - get involved guys"*
- *"Guys the rumour about this stock is good, why do we have majority stating the opposite?"*
- *"Chances are good. Lets think of buying. Recommend a buy. Have insider information pointing at a buy."*
- *"the company will sell its subsidiaries in Latin America"*

Conclusions



- In reality all portfolios are managed by groups of people in some way or another (attributed to Manso)
- We find support for the fact that personality strongly affect collective financial decisions
- We do not know exactly how aggression affects behaviour but the affect is clear and strong (first order importance) – this is rare in empirical research into financial decision making
- Understanding of how aggression, and possibly other traits, affect financial decision making have both normative and positive implication to researchers, regulators and policy makers

	μ -Invest	μ -Track	Mann-Whitney Test	
			U	P-Value
RISK	4.69	5.65	127.000	0.050
#Obs.	10	34	–	–

Table 5: Individual Decisions: Univariate Nonparametric Analysis



	Estimate	Standard Error	z-Statistic	P-Value
Intercept	1.220	1.250	0.977	0.329
RISK	-0.405	0.241	-1.680	0.093

Table 6: Individual Decisions: Univariate Analysis

	Estimate	Std. Error	z-Statistic	P-Value
Intercept	-3.910	8.450	-0.463	0.643
AGG	0.065	0.070	0.923	0.356
AGREE	-0.012	0.115	-0.106	0.916
ROTTER	0.412	0.463	0.890	0.374
NEURO	-0.025	0.092	-0.276	0.783
OPEN	0.175	0.126	1.390	0.166
CONS	0.079	0.096	0.818	0.413
EXTRA	-0.172	0.116	-1.480	0.138
RISK	-0.784	0.361	-2.170	0.030
GENDER	-1.100	1.130	-0.973	0.331
EXP	-0.074	0.083	-0.897	0.370
AGE	0.064	0.069	0.926	0.354

Table 7: Individual Decisions: Multivariate Analysis

	$P(\mu + \sigma_{\text{RISK}})$	$P(\mu)$	ΔP
Univariate	0.165	0.278	-0.114
Multivariate	0.073	0.225	-0.152

Table 8: Individual Decisions: Economic Significance of Risk Aversion

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Group Decision



			Mann-Whitney Test	
	μ -Invest	μ -Track	U	P-Value
AGG	32.3	24.9	265	0.007
#Obs.	10	34	–	–

Table 1: Group Decisions: Univariate Nonparametric Analysis

	Estimate	Standard Error	z-Statistic	P-Value
Intercept	-4.770	1.600	-2.980	0.003
AGG	0.125	0.052	2.390	0.017

Table 2: Group Decisions: Univariate Logit Analysis

	Estimate	Std. Error	z-Statistic	P-Value
Intercept	-3.870	8.400	-0.461	0.645
AGG	0.162	0.076	2.150	0.032
AGREE	0.027	0.112	0.237	0.813
ROTTER	0.249	0.459	0.543	0.587
NEURO	-0.009	0.089	-0.099	0.922
OPEN	-0.038	0.141	-0.269	0.788
CONS	-0.062	0.107	-0.580	0.562
EXTRA	-0.021	0.099	-0.216	0.829
RISK	-0.090	0.315	-0.286	0.775
GENDER	-0.577	1.430	-0.404	0.686
EXP	-0.030	0.090	-0.335	0.737
AGE	0.060	0.076	0.799	0.424

Table 3: Group Decisions: Multivariate Analysis

	$P(\mu + \sigma_{AGG})$	$P(\mu)$	ΔP
Univariate	0.387	0.191	0.196
Multivariate	0.427	0.172	0.255

Table 4: Group Decisions: Economic Significance of Aggressiveness

What should you do



	Investment decision	
	Invest	Track
Low risk aversion & signal uninformative	18.50	20.00
High risk aversion & signal informative	15.32	20.00

Table 9: Certainty equivalent wealth from investing and tracking.

- *Low risk aversion*: CPRA utility of wealth with relative risk aversion coefficient equal to 2/3
- *High risk aversion*: CPRA utility of wealth with relative risk aversion coefficient equal to 3
- *Uninformative signal*: Rumor uncorrelated with investment payoff
- *Informative signal*: $P[\text{Good Rumor}|\text{High Inv. Payoff}] = P[\text{Bad Rumor}|\text{Low Inv. Payoff}] = 0.75$

What should you do (cont)



- If the subject is risk averse or risk neutral and the subject believes the instruction sheet when it says that up and down are equally likely investing is only rational if
 - (a) the subject has low risk aversion
 - (b) the subject believes that the quality of the signals is asymmetric in a strange way: When the payoff is low the rumour is almost always bad but when the payoff from investing is high the signal is almost random.
- A subject with these beliefs would reason as follows: if the payoff were really bad I should see 5 bad signals but the signals are pretty close to being 50/50 so it is very likely that the that the payoff will be high.
- Very unlikely

	AGG	AGREE	ROTT	NEURO	OPEN	CONS	EXTRA	RISK	EXP	AGE
Mean	26.60	33.10	2.61	20.80	37.90	34.90	28.50	5.36	11.20	35.50
Median	25.50	33.00	3.00	20.00	38.00	35.00	29.00	5.00	9.00	35.00
Std. Dev.	7.87	4.61	1.19	5.72	4.09	5.22	5.28	1.66	7.36	10.30
Mean Dev.	8.88	5.20	1.21	6.57	4.69	6.02	6.05	1.80	7.95	11.40
L-CV	0.17	0.08	0.23	0.16	0.06	0.09	0.11	0.17	0.35	0.16
L-Skewness	0.14	-0.03	-0.15	0.07	0.00	0.01	-0.04	0.08	0.25	0.16
L-Kurtosis	0.12	0.15	0.17	0.09	0.11	0.11	0.12	0.20	0.17	-0.08

Table 1: Summary statistics

Experiment - Instructions



Thank you for agreeing to take part in today's experimental session. The experiment should only take about 20-25 minutes to complete.

In today's experiment you work for a fund which is currently passively tracking the index. You are offered the choice between continuing to passively track the market index, and purchasing a new stock. To simplify things we will assume that only one of two events can occur if you purchase the stock: either the stock goes up, in which case you get a return of 20% above the index, or the stock goes down in which case your returns are 30% below the index. These events are equally likely. If you do not buy this stock, you simply earn the market return.

You are part of a team of 5 investigating whether to invest in a particular stock. Each of you will now get an independent signal which will be revealed to the rest of the group. You will then each vote whether to invest or not in this stock. The management of your fund will take the advice each of your team give them into account when making the final investment decision. Having support from your colleagues is more likely to influence the management to your decision.

Before you make your decision you find out what the overall rumour is amongst the other managers about this stock. Again to simplify things this rumour will be either "good" or "bad".

- If the stock is going to go up, then the chance that your rumour is "good" is more than 50%
- If the stock is going to go down, then the chance that your rumour is "good" is less than 50%
- If the stock is going to go up, then the chance that your rumour is "bad" is less than 50%
- If the stock is going to go down, then the chance that your rumour is "bad" is more than 50%

On the next screen, you will each receive an independent rumour ("good" or "bad").

At the end of this experiment, four participants will be selected at random to receive payment. The payment amount will depend directly on the decision of your fund's management, and the market behaviour. If you are selected for payment, and your fund chose to passively track the market index, your payment will be £20. If you are selected, your fund chose to purchase stock, and the stock goes up, your payment will be £24. If you are selected, your fund chose to purchase stock, and the stock goes down, your payment will be £14.

Once you click on the link below your team will be sent their signals and will need to make the decision whether to buy the stock or not. Are you ready? If so, click [HERE](#).