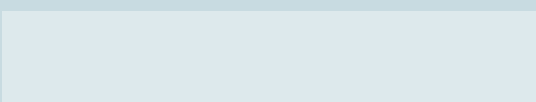
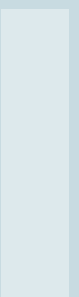
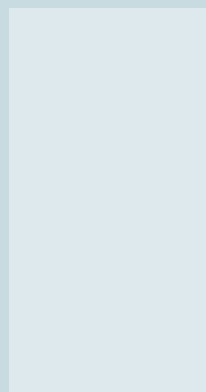
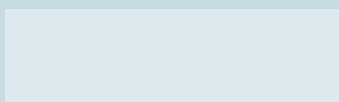
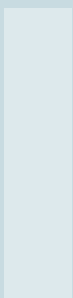
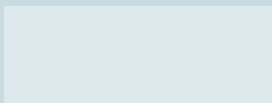
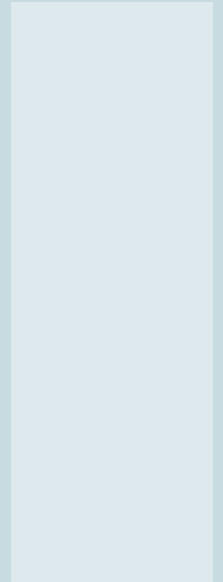
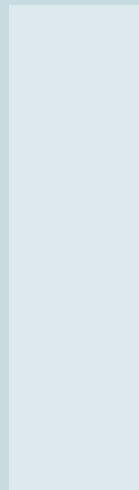
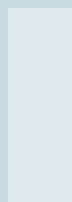
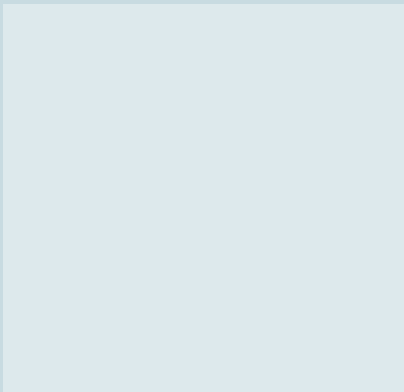
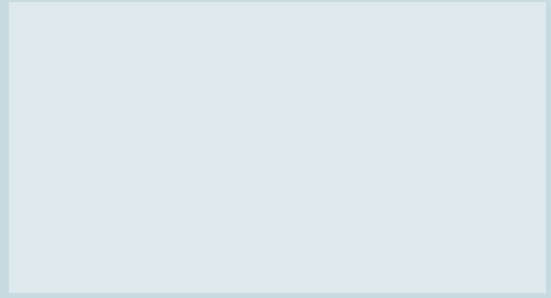
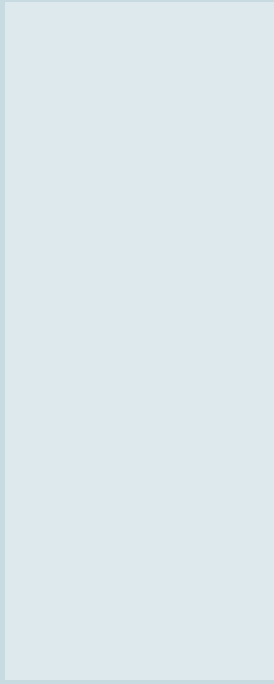
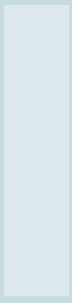


Thinking Ahead Institute

WillisTowersWatson 

A cognitive take on diversity



A cognitive take on diversity



The subject of diversity is attracting attention at all levels of society, with a particular emphasis on the participation of women in the workforce. While there is growing evidence of the benefits diversity brings, what do we actually mean by 'diversity'? A simple definition would be differences along an attribute. The attribute, and therefore the diversity, could be 'surface level' (observable) such as gender, age, ethnicity etc. Or the diversity could be 'deep level' reflecting different values, beliefs, experiences etc.

In this article I will argue that the investment industry should focus far more on the need to build greater *cognitive* diversity – so greater difference along the attribute of cognition, or the way we think. I draw on research presented at Thinking Ahead Institute seminars by a number of academics, whose work considers three different cognitive styles. While the formal underpin is important, I suggest a looser definition – that we need to build investment teams comprising people who think about the world in different ways.

We start with a working hypothesis that greater cognitive diversity would help improve investment decision-making, leading to better outcomes for investors. We will discover that gender is a reasonable proxy for cognitive diversity, so we will start there.



“There is strong empirical evidence¹ that men trade more frequently than women. The difference is most pronounced when comparing single men with single women.”

Gender-based behavioural bias in finance

In studies of investment behaviour by individuals, Professor Terrance Odean of the University of California, has isolated overconfidence as having a significant detriment to performance. This manifested mainly through over-trading and overweighting risky positions, giving rise to high transaction costs and a lack of diversification. Several characteristics were identified as generalised indicators for overconfidence.

Gender: There is strong empirical evidence¹ that men trade more frequently than women. The difference is most pronounced when comparing single men with single women. While the data suggest that married men trade less than single men, a plausible explanation for the increase in trading activity by women after marriage is that husbands take over trading on their wives' accounts.

White males in particular were found to have higher risk tolerance than any other demographic group (female, non-white male and non-white female)². The fundamental drivers of white-male risk taking are open to debate. Aside from overconfidence, excessive trading has also been ascribed to the need for entertainment and for control. An example of this effect is how trading on the local stock exchange fell by 25% in the year after a national lottery was introduced in Taiwan.

However, there may also be an element of white males needing to project their ability to handle risks that they might not take on if societal pressures were absent. Similarly, risky behaviour may represent little more than a weak grasp of the probabilities of adverse outcomes.

Faccio, Marchica and Mura³ found evidence that firms run by female CEOs have lower leverage, less volatile earnings and a higher chance of survival than otherwise similar firms run by male CEOs. Additionally, transitions from male to female CEOs are associated with economically and statistically significant reductions in corporate risk taking.

The other issues that affect overconfidence include:

- *Age:* age is inversely related to overconfidence – the young are more brazen and tend to hold portfolios with higher volatility and to trade more
- *Cohort effect and life experience:* childhood life experiences can have an impact on investment decision making in later life: people who have experience of severe economic hardship are more likely to be risk averse
- *Emotions:* financial decisions can also be affected by one's emotions at the time. People tend to make riskier decisions when they are happy and excited; less so when they are tired and serious
- *Anchoring:* people are more likely to weigh up financial decisions based on the expected gain or loss, not relative to their overall wealth
- *Societal structures:* in western societies, which tend to be patrilineal, men show an affinity for, and tend to excel in, competitive tasks, relative to women. Women are more likely to compete in gender-neutral tasks or female tasks.⁴ However, in matrilineal societies, women are much more competitive than men, and much more competitive than women in patrilineal societies.

¹ Barber, B and Odean, T: Boys will be Boys: Gender, Overconfidence, and Common Stock Investment, Quarterly Journal of Economics, 2001

² Slovic, P: The perception of risk, Earthscan, 2000

³ Faccio, M, Marchica, M & Mura, R: CEO Gender, Corporate Risk-Taking, and the Efficiency of Capital Allocation, working paper, 2015

⁴ Günther, C, Ekinci, NA, Schwierien, C and Strobel, M: Women can't jump?: An experiment on competitive attitudes and stereotype threat, Journal of Economic Behavior & Organization, 2010

Are some teams smarter?

The general intelligence factor (g) for individuals was first described by Charles Spearman in 1904⁵, and is measured via intelligence quotient (IQ) tests. Until more recently, no similar factor had been identified to gauge and predict the ability of teams. Instead, individual ability has conventionally been used as a basis for composing teams – often by combining talented individuals with similar, task-appropriate skills. Anita Woolley, Associate Professor at Tepper School of Business, Carnegie Mellon University described the origin of her search for a *collective intelligence factor (the c factor)* as the 9/11 terrorist attacks, when it became apparent that US intelligence teams were struggling to work together to identify threats to national security. A 2008 study of team performance⁶ found that low diversity groups delivered average performance, both before and after undergoing an integration exercise. Diverse groups, however, responded well to proper integration, delivering significantly above average results.

These findings led to further investigations into the factors driving team performance, culminating in the classification of *the c factor*. Her studies showed teams that performed well in one kind of cognitive task tended to perform well in other cognitive tasks. This raised questions around how *the c factor* might be measured and improved. Results indicated that neither maximum individual IQ within the team, nor average IQ of the team are significantly correlated with *the c factor*.

Instead, the following three criteria correlated significantly to a team's collective intelligence⁷:

- the average social sensitivity of group members
- the equality in distribution of conversational turn taking
- and the proportion of females in the group⁸.

This clearly brings us back to gender as the research shows that a higher proportion of women make teams smarter. In fact, because social sensitivity is also a skill that women generally possess in greater abundance than men, the smartest teams have a very high proportion of women. One study, and male readers may wish to look away at this point, found that the very smartest teams had only a single male complementing the female members.

On a practical level, even if we can't immediately change the gender composition of our teams, we can aim for more equal contributions by all team members to the team conversation by, for example, suppressing any dominant voices. This thought leads naturally to considering other ways in which we can make teams more effective.

Cognitive diversity

Ishani Aggarwal was a PhD student under Anita Woolley and has been a research collaborator and co-author over several years. Her interests include the issue of cognitive diversity and how that might relate to collective intelligence. Cognitive diversity brings various issues to a team. On the positive side, it brings Information-processing advantages, and greater cognitive resources (skills, perspectives, knowledge, information) but it also brings conflict and a lack of consensus. So does it help? The answer, of course, is 'it depends'. Specifically, it depends on the task context or what the team is trying to achieve. If the task relates to exploitation and implementation, say processing trades or administering a pension fund, then the team priorities will be efficiency, convergent thinking and execution. In this case, almost the last thing the team needs is cognitive diversity. Conversely, if the task is about exploration and innovation, say improving a portfolio, then the team priorities will be experimentation, divergent thinking and problem solving so cognitive diversity will be essential.

⁵ Spearman, C: "General Intelligence," Objectively Determined and Measured, The American Journal of Psychology, Apr 1904

⁶ Woolley, AW, Gerbasi, ME, Chabris, CF, Kosslyn, SM, & Hackman, JR: Bringing in the Experts: How Team Composition and Collaborative Planning Jointly Shape Analytic Effectiveness, Small Group Research, 2008

⁷ Woolley, AW, Chabris, CF, Pentland, A, Hashmi, N & Malone, TM: Evidence for a collective intelligence factor in the performance of human groups, Science, 2010

⁸ Woolley, AW and Malone, TM: Defend Your Research: What Makes a Team Smarter? More Women, Harvard Business Review, 2011



“... the research shows that a higher proportion of women make teams smarter. In fact, because social sensitivity is also a skill that women generally possess in greater abundance than men, the smartest teams have a very high proportion of women.”

The question in this latter case is whether more cognitive diversity is always better. So far, the research says 'no'. There is a sweet spot for maximum benefit, and adding more cognitive diversity beyond that point sees a drop off in team performance as the dysfunctions kick in. A future research interest of Dr Aggarwal is to explore whether better team integration will allow that sweet spot to be pushed out further.

Cognitive styles

A person's cognitive style is defined as a psychological dimension that represents consistencies in how an individual acquires and processes information⁹. The academic literature seems to have settled on three different cognitive styles¹⁰, emanating from different parts of the brain, namely:

- Spatial visualisation – the ability to recognise shapes in different orientations
- Verbal reasoning – the ability to explain complex concepts in words
- Object visualisation – the ability to recognise small changes

From this it is unsurprising to learn that architects tend to be spatial visualisers, lawyers tend to be verbal reasoners, and designers or radiographers tend to be object visualisers. I therefore hold a hypothesis that people tend to self select for their careers. At some unconscious level they realise that they are, say, a verbal reasoner and so choose school subjects, university degrees and ultimately careers that better suit their cognitive style. If there is any truth to this hypothesis, then individuals will be self selecting the investment industry and our industry is likely to be undiversified in terms of cognitive style. As a reality check, consider the range of courses and even range of universities represented by your current graduate intake. Is this better or worse than 20 or 30 years ago?

“A person's cognitive style is defined as a psychological dimension that represents consistencies in how an individual acquires and processes information.”



⁹ Ausburn, L J & Ausburn, F B, Cognitive styles: Some information and implications for instructional design, 1978

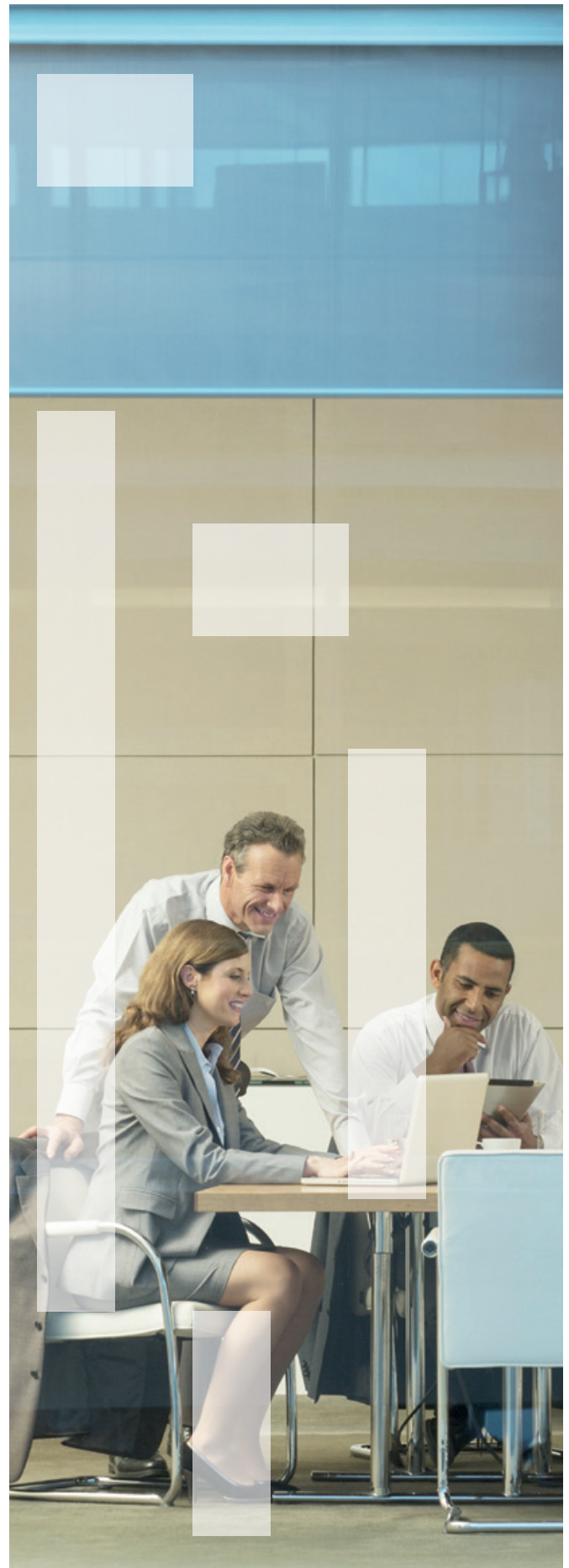
¹⁰ Kozhevnikov, M, Hegarty, M & Mayer, R: Revising the visualizer-verbalizer dimension: evidence for two types of visualizers, Cognition & Instruction, 2002

Towards practical application

My argument so far is that we can improve the performance of our teams through improved gender balance and through greater cognitive diversity. The research we have considered has thrown off some practical ideas along the way: the need to control overconfidence and excessive trading, work hard on equalising the verbal and non-verbal contribution of everybody in the room, and use the task context to guide the composition of the team. This latter point can be expanded. First, the research suggests that making the task clear, specific and challenging will improve *the c-factor* in a team. Second, there is a nuance in terms of whether the goals are ends – or means-specified, leading to teams being respectively outcome-focused or process-focused. Whereas process-focused teams tend to make fewer errors, outcome-focused teams tend to perform better in creative tasks. Therefore, again, it is necessary to take task type into consideration when setting goals for a team.

As well as aiming for evenness of conversational turn taking, team collaboration is enhanced by good integration. Highly diverse teams, without the benefit of good integration, generally perform worse than homogenous groups, so diversity factors can become counter productive if not integrated well. Evidence suggests that patterns of working together within a team are set early on, and good integration can be fostered by introducing appropriate behavioural checklists. Collaboration was typically hardest to achieve at a senior level, possibly as a result of resistance to the learning element of integration. Incentive and compensation structures have also been shown to have an impact on team collaboration.

“... it is necessary to take task type into consideration when setting goals for a team.”



Diversity in investment committees

Our own work has sought to apply the above insights to investment committees¹¹. All asset owners have an investment committee, or a body that operates as such; the internal teams of very large asset owners generally have one; and the majority of asset managers have one. So we can observe the big impacts of investment committees and, more importantly, their latent effects which often lurk below the surface. Our research produced with three big takeaways:

- *Role*: there are key governance calls on who does exactly what, particularly in the mix of the strategic agenda (where investment committees are critical) and the operational agenda (where they need to delegate)
- *Selection and development*: good selection obviously matters but isn't always possible, and all members can respond to development. Investment committee training and particularly the training of the chair should be much more wide-spread in the industry
- *Collective effectiveness*: this is about the coming together of process (or tricks of the trade) and culture (how things get done)

Our view is that the selection criteria for investment committee members favours representation too heavily and as a result often produces a lay structure. This will limit the investment competency as a result. That said, there are increasing numbers of funds that have advanced their model with expert investment committee members who operate in high functioning ways: they accept assessment and accountability; they play their part in cognitive and decision-making diversity; and last but not least they 'read the room'.

This last point is critical for the chair of the investment committee as the impacts of their facilitation activities feed heavily off their read of each committee members' potential. With effective chairing we believe there is the biggest pay off from the diversity effect.

Conclusions

We fully support the efforts pushing gender equality, and have outlined above some of the compelling research behind the benefits on offer from such a shift. We also believe more attention should be given to deeper-level diversity, including cognitive diversity. I have touched on the necessity for good integration because diversity is harder than a PLU (People Like Us) team and I suspect much more work needs to be done on this point. Nevertheless we are already in a position to make practical changes to the way we build and manage teams with a view to more effective performance – if that is what we want.

This paper is based on a Willis Towers Watson article first published in Professional Investor: the journal of the CFA society of the UK.

¹¹ Thinking Ahead Institute: Best practice investment committees – applying collective intelligence, working paper (unpublished)

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