



FinCoNet
INTERNATIONAL FINANCIAL CONSUMER
PROTECTION ORGANISATION



BANCA D'ITALIA
EUROSISTEMA



Report

International Seminar

15 November 2019 | Rome, Italy

Behavioural insights for conduct supervision

November 2020

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Foreword

It is a real pleasure to introduce the International Seminar on “Behavioral Insights for Conduct Supervision”, associated to the Annual General Meeting of FinCoNet hosted by the Bank of Italy.

The choice of this topic was suggested by the increasing challenges that we face in protecting (financial) consumers effectively. For a long time we assumed that consumers are perfectly rational (as economists have usually described them). The only protection they needed were competitive markets, on the one hand, and stability/prudential supervision, on the other.

We first discovered information asymmetries between producers and customers, and addressed them with transparency provisions for producers. We then realized that customers cannot (do not want to) process all the information that was offered them. Hence, one of the challenges we have learnt to deal with over the last few years is associated with the evidence and the direct experience that in the real world, economic decisions are rarely taken as economic theory prescribes.

Behavioral economics, and more specifically behavioral finance, have helped clarifying how the cognitive and behavioral biases that describe us all affect the predictions and policy prescriptions based on the full rationality hypothesis.

A huge literature has developed, with a number of policy implications. Policymakers have then taken these distortions into account and have designed better laws, in some cases created units aimed at helping the policymakers and consumers as well (the Behavioral Insights Unit in the UK, the Behavioral Science team in the US; the Competence Centre on Behavioral Insights of the European Commission..). Also in finance, we have seen a number of applications, referred to spending, investing, trading, financial planning, and portfolio management.

Conduct supervisors started some years ago to introduce behavioral elements in their work (the Financial Conduct Authority in the UK, and the AFM in the Netherland were among the first ones). This has informed supervisory approaches, now more focused on product oversight and governance, on culture and governance, on ethics in business.

This conference allows sharing many important insights both from academic research, on behavioral finance and on neuro-finance, and from the experience of conduct supervisors.

In our work as conduct supervisors we face a number of challenges regarding how to enforce effectively many laws and regulation, how to design the right mix of private and public enforcement, how to complement enforcement with financial education. Sharing information and experiences is therefore essential.

I would like to add that since November 2019, further analyses have been conducted and new experiences developed. Behavioral insights are now more frequently used to inform also financial education programs.

But the current crisis presents new challenges: the greater uncertainty that affects all the societies; the impressive impulse to digitalization (especially in finance), which might benefit consumers but might at the same time affect their preferences; which could help addressing some biases or create and amplify others are just some.

Hopefully, the sharing of good practices and information will help all of us in dealing effectively with these challenges, transforming them into opportunities.

I think that FinCoNet is ready to take up the challenge.

Magda Bianco

Head of Consumer Protection and Financial Education Department of the Bank of Italy

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Opening Remarks



Luigi Federico Signorini, Deputy Governor of the Bank of Italy.

Luigi Federico Signorini

Deputy Governor of the Bank of Italy

It is my great pleasure to open the International Seminar on Financial Consumer Protection, jointly organized by Finconet and the Bank of Italy.

The theme of this seminar is the subject of much discussion and a driving force in the evolution of business conduct regulation and supervision. Behavioural economics has provided important insights. We would be well advised to take them into account when framing regulations and performing supervisory tasks in the financial sector.

Understanding how people make economic choices is central to economics. Economic models, however, will never be able to do justice to the full range of motivations, reasoning and impulses behind human behaviour. Economics needs to simplify and select. At the same time, it needs to remain open-minded enough to see the pitfalls of simplifying assumptions. Economic models have always been challenged over time, with new approaches subverting the conventional wisdom of the day; as in all sound science, progress in economics has been driven by people challenging received wisdom, pointing out its flaws, and proposing corrections. Yet it has always retained the basic concept that agents will respond to incentives and that in most circumstances the collective wisdom resulting from innumerable fallible individual choices is superior to comprehensive top-down planning, enlightened as the latter may be. Adam Smith

did not have to invoke utility maximisation to conceive of the invisible hand, nor did Ricardo to discover comparative advantage: two of the most counterintuitive, and most enduring, cornerstones of economics. Ronald Coase famously stated that “there is no reason to suppose that most human beings are engaged in maximising anything unless it be unhappiness, and even this with incomplete success”; yet this (half tongue-in-cheek) assertion did not prevent him from formulating a theorem about the superiority of private contracts even with externalities, provided property rights are carefully laid down¹.

Contemporary mainstream economics makes abundant use of formal models that specify what precise quantity is being maximised, and assume that agents make efficient use of whatever information is available. While such assumptions are extremely useful for developing insights into how the world actually functions, nobody believes them literally. “Utility” for instance, (sane) economists will accept, has no well-defined physical counterpart. This means that, while recognising the usefulness of this or that formal model in many cases, one should remain alert to its limits.

Consumer behaviour is a case in point. Utility maximisation by consumers has proved to be a fantastic tool for developing compact, elegant models to describe many interesting and crucial features of the real economy. Yet it cannot provide all the answers, especially when you look at consumers’ choices in a concrete environment and reflect upon the best ways to regulate market conduct in legal detail. Converting a useful simplifying modelling device into an article of faith about how the human mind works would be nonsense. One does not need to throw away a century of economic thought to recognise that human behaviour is much subtler and more elusive than that; one needs only some reasonable human heuristics, as it were, and the ability to adapt one’s tools to the task at hand.

Nevertheless, it took a while for economists to recognise in full that actual consumer decision-making is rather different from what is expected from a rational agent who single-mindedly maximises a utility function – a major exception being the studies on bounded rationality². By contrast, marketing experts developed an understanding early on of how buyers actually make decisions, and found ways to profit from it. Regulators that fail to recognise this asymmetry, and act upon it, would not do a good job.

This is not a theoretical point, and the audience today will need no convincing. There is even a plausible claim that the delay in tackling certain financial consumer protection issues contributed to the financial crisis ten years ago³. Be that as it may, the day-to-day task of ensuring the fair and efficient functioning of the market for consumer finance requires a richer model of consumer behaviour than one based on “utility” maximisation and the full use of information. Hence, the increasing attention now devoted to behavioural economics by financial regulators and supervisors, with the aim of designing and implementing policies that help consumers take financial decisions they will not regret.

This seminar will benefit from contributions from the academy and from supervisors. The Bank of Italy strongly supports this interaction.

Before leaving the floor to our speakers, let me briefly recall some well-known insights from behavioural economics that have been significant in the evolution of regulation in the field of financial consumer

1. Actually, as is well known, Coase did not formulate a “Coase theorem”, but he did lay down the theoretical foundations to what is known by that name.

2. Simon, H.A., “Models of Man, Social and Rational: Mathematical Essays on Rational Human Behavior in a Social Setting”, New York: Wiley & Sons, 1957.

3. G20 High-Level Principles on Financial Consumer Protection, October 2011 (www.oecd.org).

protection, and provide a quick overview of the approach to financial consumer protection adopted by the Bank of Italy.

Behavioural economics relies heavily on the seminal studies by Daniel Kahneman and Amos Tversky⁴, two psychologists, one of whom (Kahneman) got a Nobel Prize in economics for it (Tversky, sadly, did not live to get the share he deserved). This is, by the way, not an isolated case; it bears witness to the fact that the economics profession, in its best moments, is open to contributions from other disciplines to refine its understanding of human behaviour and interactions.

Behavioural economics has provided evidence that, when taking decisions, people regularly deviate from certain accepted canons of rationality, as intuition often prevails over reasoning⁵. Such deviations are not random. Laboratory experiments, though mostly confined to simulated environments, do provide rather convincing evidence that biases affect the decisions of consumers in a systematic way.

For financial services providers, knowledge of this can make competing on quality and prices less attractive relative to leveraging on these biases in their marketing activity using opportunistic business practices.

The list of biases is an evolving one; here, I will only mention a few of those that are most relevant from a financial consumer protection perspective and represent a common background for business conduct supervisors. They include:

- i) mental shortcuts used to generate approximate answers to questions (heuristics);
- ii) the influence of the way information is presented on the way decisions are taken (framing effect);
- iii) the fact that outcomes are usually assessed against a reference point (reference dependence/anchoring effect), implying that different reference points affect the perception of gains and losses;
- iv) a preference for immediate gratification, resulting in decisions that do not maximise long-term net effects (present bias) – e.g. people overestimate their ability to repay loans, resulting in over-indebtedness;
- v) the fact that people often demand much more to give up an object than they would be willing to pay for it (endowment effect); this helps explain, e.g., why switching rates among products from different financial services providers are low even when there are no legal obstacles to or monetary costs in doing so.

While biases are deeply embedded in the human mind, they have not prevented humans from becoming (for better or for worse) the dominant species on Earth. In fact, in many circumstances, biases and mental shortcuts will “do the trick” and help us to take decisions instantly and without effort that we would not later regret, by and large⁶. However, the jungle of finance is in many ways different from the environment where humans have evolved over hundreds of thousands of years. When it comes to financial decisions, mental shortcuts that were efficient for escaping lions or capturing gazelles may prove

4. 4D. Kahneman and A. Tversky. “Prospect Theory: An Analysis of Decision under Risk.” *Econometrica*, vol. 47, no. 2, 1979, pp. 263–291.

5. Kahneman, D., “Thinking, Fast and Slow”, New York: Farrar, Straus, and Giroux, 2011; Kahneman, D. “Maps of Bounded Rationality: Psychology for Behavioral Economics.” *The American Economic Review*, vol. 93, no. 5, 2003, pp. 1449–1475.

6. In a sense, it has been argued that sentiments and intuition, rather than reasoning, have provided the most enduring tool for decision-making in the history of humankind; see Harari, Y.N. “Homo Deus: A Brief History of Tomorrow”, London: Harvill Secker, 2016.

inadequate to make (say) choices on long-term financial retirement plans. They may prompt consumers to take decisions that they would not have taken based on a more thorough assessment.

The evidence from behavioural economics should be enough to convince regulators and supervisors that it is crucial to complement the traditional regulatory approach – based on pre-contractual disclosure to overcome information asymmetries – with behavioural insights. Policy makers have started testing new instruments, examples of which include:

- vi) standardising pre-contractual documents, so that they selectively provide (or highlight) only those pieces of information that are most relevant to the consumer;
- vii) prescribing the use of the most effective channels for interacting with customers: for instance, evidence exists that text alerts and mobile banking apps are much more effective than periodic reports for attracting the attention of consumers that are incurring overdraft charges⁷;
- viii) focusing on the overall fairness of contractual relationships, e.g. in order to limit any over-indebtedness induced by present bias;
- ix) establishing cooling-off periods, i.e. the possibility for consumers to withdraw from contracts, especially in the event of cross-selling practices and distance selling (thus neutralising possible temporary emotional effects), to allow for legitimate and sufficiently timely regret.

All these tools are mainly intended to remove information and cognitive asymmetries, and their undesired consequences for the proper functioning of financial consumer markets. In this sense, one could say that they do not depart from the traditional paradigm, whereby the individual's choices should not ultimately be replaced or unduly influenced by those of the regulator. The aim is to supply consumers with the necessary tools to make informed judgments, rather than to supplant their ability to decide for themselves.

Some go further. Proponents of libertarian paternalism maintain that regulators, while still refraining from direct coercion, should endeavour to influence the choices of affected parties in a way that is expected to make them better off⁸ – an approach also commonly referred to as nudging⁹.

This view also provides a strong argument (not the only possible one) for regulators to exploit the alternative between the “opt-in” and “opt-out” approaches for financial schemes; when the regulator considers one alternative to be in the best interests of consumers, it can “nudge” them in that direction by making it the default (or “inertial”) choice. The opt-out approach has proved to be quite effective in promoting participation in pension schemes, for example, where it is seen as an effective tool against “present bias”.

How far one would go along this road will ultimately depend on one's view of society. Some would balk at the idea of treating citizens as perennial minors, to be gently prodded, or “nudged”, by a benevolent regulator, to do whatever the regulator considers to be in the consumer's own best interest. Yet even if one thinks that the individual must remain ultimately responsible for his or her own choices, the insights of behavioural economics remain central for framing those choices in a way that is consistent with known cognitive bias, so as to empower the consumer to make such choices in full awareness.

7. FCA, Occasional Paper No. 10, “Message received? The impact of annual summaries, text alerts and mobile apps on consumer banking behaviour”, available on the FCA website (www.fca.org.uk).

8. Thaler, R.H. and Sunstein, C.R., “Libertarian Paternalism.” *The American Economic Review*, vol. 93, 2003, pp. 175-179.

9. Thaler, R.H. and Sunstein, C.R., “Nudge: Improving Decisions about Health, Wealth and Happiness.” New Haven and London: Yale University Press, 2008.

Whatever your approach, the landscape is evolving rapidly. A growing body of experimental research is developing on the effectiveness of regulatory initiatives based on behavioural insights. At the frontier, a series of studies is flourishing on the physiological reaction of financial consumers to external stimulus (neurofinance). What will come out of that, and what one is to do with whatever the results might be, must be the subject of future reflection.

For the framework of consumer protection to be effective, it needs more than regulation alone. It must be complemented with supervision, enforcement, and financial education. Let me elaborate briefly on the approach of the Bank of Italy.

Based on the understanding that too much information is as potentially harmful as too little information, and that such “information overload” can lead consumers to take financial decisions that they will consider inappropriate in retrospect, the traditional regulatory approach based on a full disclosure regime has evolved. Reflecting changes in the EU legal framework too, regulation of the most common products now provides for standardised pre-contractual information that makes key information adequately salient. The regulator plays a delicate role in selecting the most relevant information, based for instance on the size of the revenues from certain fees and tariffs, and finding ways to increase its visibility. One application of this concept is to require banks to disclose standardised cost indicators for the simplest forms of bank accounts and the most common types of consumer loans.

Again on the regulatory side, recognising that biases are always in action, and that financial services providers – including banks – may actively seek to exploit them, has led us to introduce – in compliance with the applicable EU legislation – certain business conduct requirements, aimed at increasing the overall fairness of contractual relationships. We abstain, however, from interfering directly with individual decisions of consumers or firms. A few examples of such requirements are:

- x) provisions concerning the assessment of creditworthiness, to address over-indebtedness;
- xi) product governance requirements, concerning the design of new products, consumer-testing activities, as well as distribution;
- xii) sound remuneration policies for sales staff, to mitigate the risk of perverse incentives for misleading the consumer.

As regards supervision, since the establishment of a dedicated Directorate in 2014, the Bank of Italy has been moving steadily from the assumption that more information is always better to a focus on salience as opposed to sheer quantity; from mere disclosure to a broader range of issues (including governance and strategy); and from a box-ticking approach to an approach that includes cooperation and guidance.

We have thus complemented our supervisory action by issuing Guidelines to clarify supervisory expectations. This approach has proved to be fruitful in addressing issues that are highly significant for consumer protection, such as the remuneration of overdrafts and overrunning, the unilateral variation of contracts, the handling of complaints, and the conditions for consumer credit.

For enforcement, we start from the assumption that customers harmed by unfair business conduct and non-compliance with regulatory requirements should be in a position to seek redress in a way that is simple, fast, and inexpensive. To this end, in 2009, the Bank of Italy established an alternative

dispute resolution mechanism for the banking sector (the Arbitro Bancario Finanziario or ABF), which has proved to be effective, has become increasingly popular with customers, and has somehow become a benchmark for other regulated sectors. While the ABF's decisions are not binding, "naming and shaming" is applicable in the event of non-compliance and has proven an effective deterrent. Furthermore, as financial services providers are required to take the ABF's decisions into account when dealing with complaints from their customers, this enforcement system contributes to increasing the overall fairness of contractual relationships in the banking sector.

Finally, a few remarks on financial education. While regulation and supervision may help to address indirectly some of the major flaws in consumers' choices, there is broad consensus that the empowerment of consumers also requires strategies aimed at increasing their basic financial knowledge.

Nowadays people are probably facing increasingly complex financial decisions more often than at any other point in humankind's history. Ageing and the evolution of welfare imply an enhanced role for life insurance and private pension schemes. The increased range of financial investment choices provides better potential opportunities, but may appear baffling to non-experts. Technological development in payments are transforming, beyond recognition, the way we conduct even the most common transactions. Individuals need to take financial decisions throughout their life, including decisions inherently involving long-term outcomes that are very difficult to predict and assess (e.g., investing early for one's retirement), which are exactly those where the usual mental shortcuts are most likely to fail.

Neither pre-contractual information, nor business conduct requirements will provide the desired policy outcomes if people are not able to grasp at least the fundamentals of finance. International evidence shows that this ability, while perhaps generally unsatisfactory, is even less developed in Italy than in many other countries. This is why the Bank of Italy has devoted a great deal of effort to designing and implementing financial literacy programs. These strive to take into account behavioural biases and to make consumers aware of how they influence their decisions.

The Bank also supported the establishment of a National Committee in charge of steering and coordinating financial education initiatives, where we cooperate with many other public and private institutions providing financial education schemes.

Effective business conduct supervision is challenging. Insights from behavioural economics contribute to its theoretical foundations, and provide useful suggestions for improving the regulatory and supervisory framework. The lessons we are going to learn today will be of great help in shaping our financial control architecture to make it more effective and to contribute to a financial system that is fairer, sounder, and safer for consumers.

I wish you all a fruitful discussion and a pleasant stay in Rome. Thank you!

Panel I Behavioral insights for conduct supervision: an academic perspective



Luigi Guiso – AXA Professor of Household Finance, Einaudi Institute for Economics and Finance (EIEF), Fellow, Centre for Economic Policy Research (CEPR); Peter Andrews – Oxera, Senior Adviser; former Chief Economist at FCA; Pedro Duarte Neves, Former Vice-Governor of the Banco de Portugal; GianMario Raggetti – Università Politecnica delle Marche, Full Professor in Economics; Maria Gabriella Ceravolo – MD, PhD, Neurologist at Università Politecnica Marche; Vincenzo Farina – Professor in Financial Intermediaries at School of Economy, University of Rome Tor Vergata.

Moderator

- Pedro Duarte Neves, Former Vice-Governor of the Banco de Portugal

Panelists

Behavioural insights for conduct supervision: what works well?

- Peter Andrews – Oxera, Senior Adviser; former Chief Economist at FCA

Distorted Financial Advice. Evidence and Policies

- Luigi Guiso – AXA Professor of Household Finance, Einaudi Institute for Economics and Finance (EIEF); Fellow, Centre for Economic Policy Research (CEPR)

Neurofinance contribution to supervision and regulation

- GianMario Raggetti – Università Politecnica delle Marche, Full Professor in Economics of financial intermediation
- Maria Gabriella Ceravolo – MD, PhD, Neurologist at Università Politecnica Marche
- Vincenzo Farina – Professor in Financial Intermediaries at School of Economy, University of Rome Tor Vergata

Pedro Duarte Neves

Former Vice-Governor of the Banco de Portugal



BEHAVIOURAL INSIGHTS FOR CONDUCT SUPERVISION: AN ACADEMIC PERSPECTIVE

Pedro Duarte Neves
Former Vice-Governor Banco de Portugal (2006-2017)

Banca d'Italia and FINCONET
International Conference on Financial Consumer Protection
15 November 2019

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	What are the underlying behavioral vulnerabilities and biases? Why do they exist?	How do markets respond to these biases?	What can be done to enhance individual contexts of choice?
<p>1 "Behavioural insights for conduct supervision"</p>	<ul style="list-style-type: none"> Information asymmetries Consumer myopia 	<ul style="list-style-type: none"> Public perception that competitive markets are not working well for consumers Commercial practices exploit consumer weaknesses Regulatory approaches have failed to deliver fair outcomes 	<ul style="list-style-type: none"> Conduct regulators and supervisors can use behavioural insights to: <ul style="list-style-type: none"> - work together with firms to foster an ethical culture of compliance - simplify individuals' choice environments - improve competition
<p>2 "Distorted Financial Advice: Evidence and Policies"</p>	<ul style="list-style-type: none"> Individuals lack knowledge and sophistication in making financial decisions, being highly susceptible to financial advice 	<ul style="list-style-type: none"> Distortionary advice: banks provide biased advice that steers consumers into the type of loan more favourable to the bank 	<ul style="list-style-type: none"> Policies that impose unbiased advice or financial literacy campaigns bring aggregate welfare gains (benefit the naïve, but hurt sophisticated borrowers) Banning advice is welfare reducing
<p>3 "Neurofinance contribution to supervision and regulation"</p>	<ul style="list-style-type: none"> Deviations from rationality and self-interest come from memories, biases, context, heuristics and emotions <i>Example:</i> exposure to payments in cash results in greater brain activation than payments in card or smartphone, that is, cash strengthens "the salience of parting with money" (Ceravolo et al, 2009) 	<ul style="list-style-type: none"> Neuroimaging can influence how firms "design and market their products" (Farb, 2013) 	<ul style="list-style-type: none"> Two possible solutions to cognitive biases: <ul style="list-style-type: none"> - limit the bounds of individual rationality (e.g. financial education) - design suitable contexts of choice <i>Example:</i> improve "neuroergonomics" of financial documents

Behavioural insights for conduct supervision: what works well?

Peter Andrews

Oxera, Senior Adviser; former Chief Economist at FCA

Thank you very much, Bank of Italy, for letting me make informal remarks around my slides here today.

First, listening to the introductory remarks by the Deputy Governor, I was struck by what he said, which almost exactly mirrors the experience that we had in the UK, in this different context of Italy. I guess this means that the things he spoke about are true and valid and probably deep-wired into human nature. So, I strongly agree with his remarks and think that what he said should be seriously considered.

The second thing I am going to do is tell you my three main messages right up front, so there is no mistake about what I will say.

The first one is my answer to the question: do conduct supervisors need to use behavioural insights? I would say, "The answer is definitely, yes". And this because other approaches to achieving markets that worked well for consumers have not been highly successful (and I mean that on the basis of quite thorough empirical analysis of prices paid, of whether people were buying the most suitable products for themselves and so on). The financial markets did not appear to be working well for consumers. So, I think, absolutely, conduct supervisors need behavioural insights.

The second one is that most attempts to exploit behavioural insights have been on the demand side and my reaction to those is mixed. I would say that they have been cost effective; that is, they have passed cost benefit tests in that most of nudges and similar devices are low-cost interventions in markets and they do produce beneficial effects for a proportion of people. Not a very high proportion, usually, but a proportion of people.

For example, in the UK, Ofgem, which is the regulator of electricity and gas markets (where there appears to have been a high rate of suboptimal purchasing), has just found that some interventions it made influenced as many as 22% of consumers to make better choices than they previously made: that is a higher percentage than many other nudges achieved and a huge outright effect considering that almost every household is buying electricity and gas, which together are a significant expense in most household budgets). It is an impressive result but, of course, it still leaves the question of what to do about the other (up to) 78% of households.

The third thing I want to say is that there hasn't been so much work on whether behavioural insights can be useful on the supply side, but I strongly contend that they can be useful. This is because on the supply side, the behaviour of firms may on the one hand be exploitative and on the other hand cooperative, but there is plenty of evidence in the UK, at least, of exploitative practices and so it seems rational for public policy makers to try to get the firms to behave in a more cooperative fashion. Of course, if you can achieve that, as supervisor, then in a sense you don't need to worry about the demand side because there won't be the bear traps lying in wait for the demand side, as the supply side is cooperating.

In terms of persuading the supply side to behave cooperatively, one could say that in the UK three different models are currently under consideration.

These are, first, approaches based on Gary Becker's work on credible deterrence and financial incentives to do the right thing, for example through the senior management responsibilities' area (setting bonuses, setting pay, specific lines of accountability and so on).

Then, there is another set of initiatives, which are about ethical and sustainable corporations. A lot of thought has been given by academics like Christopher Hodges in Oxford, to working out how to persuade firms to behave in an ethical way and cooperate with the regulator. That is the second approach, and it can be explored in Hodges' book with Ruth Steinholz 'Ethical Business Practice and Regulation: A Behavioural and Values-Based Approach to Compliance and Enforcement'.

The third approach is from Colin Mayer, another Oxford academic, and is very much about using legal mechanisms to oblige firms to behave in more ethical ways. He is thinking about changes in company law, and in individual company's articles of association and memoranda of understanding, to define more broadly the purpose of corporations, and ensure that these purposes are reflected in corporate behavior. This can be seen in Colin Mayer's book 'Prosperity: Better Business Makes the Greater Good'.

What I want to say about these three approaches is that they are, by and large, not alternatives to each other. I would say that they probably should all be used because they are in principle complementary, since different firms will respond to different stimuli. Later, I will comment on what they might mean for conduct supervisors' use of behavioural insights.

Let's start by considering the problem that conduct supervisors need to address and the approaches taken to solving it. The Deputy Governor has already covered the problem of financial markets not working well for consumers. In similar vein, I am quoting Adam Smith in my slides ('in the mercantile system the interest of the consumer is almost constantly sacrificed to that of the producer') because asymmetry of information or understanding may be powerful influences in a context such as pensions. The consumers don't know really what they're doing (because a pension is not like a simple product like a Mars bar or a Snickers bar), so it is very easy for the mercantile side to take advantage and organize itself to exploit their customers.

It also seems to be hard in reality for regulators to bear down on these practices. In the UK and, I think, more widely, there is a degree of dissatisfaction with what regulation has delivered: in the case of the UK, there was a publication a few weeks ago in the Financial Times, which showed about two decades of major financial scandals exploiting consumers. One of the biggest one was the mis-selling of PPI (payment protection insurances), which amounted to about 5 billion pounds.

These are very big events and they have been regular. Therefore there is dissatisfaction with the mostly non-behavioural approaches that have not changed outcomes as much as it was hoped they would. Payment protection insurance is a classic case of an add-on product, where, as in the case of most add-ons, people focus on buying the main product and they don't think so much about the value for money of the add-on. So, they may or may not work very hard to decide which loan they should get but then they don't think very much about the insurance associated with it. In fact, I would also say, based on empirical research by the FCA, that consumers also don't think that much about the first products because there's a huge bias towards obtaining a financial product from a firm with which one already has a relationship, even if the offerings of that firm are very poor.

I will briefly consider the UK's experience of non-behavioural approaches to financial conduct regulation as further background on why supervisors need to use behavioural insights. The first attempt that the regulators made to deal with these problems was very much rules-based and there are some academics from the University of London (Rawlings, Georgosouli, Russo, 2014), who found that the psychological effect of this approach is largely to create and tick a box indicating compliance, whatever the substance, so it doesn't really work very well. As lawyers and psychologists such as Ben-Shahar, have pointed out, mandated disclosure to the consumers to offset these behaviours by the firms also didn't work very well, because it rested on false assumptions about how people make decisions.

So, a lot of rules created a compliance problem and led to the decision to try and use a principles-based approach featuring less prescription. The idea was that as regulator you would say the kind of things you wanted and expect that somehow the firms would do that. Julia Black, an academic at the London School of Economics, has written extensively about this and in a very interesting way, but the experiments in the 2000s were actually quite short lived. As Hector Sants, the then Chief Executive of the FSA, said, "You can't rely on principles when the people you're trying to influence have no principles". Coming from a former investment banker, it seemed a powerful comment.

The experiments with principles were stopped, at least for a while, and then the creation of the FCA in 2013 led, from my point of view, to some positive developments in the form of a novel approach championed by the FCA's new Chief Executive, Martin Wheatley, which included some behavioral analysis.

Actually, to be fair, I believe that the Central Bank of the Netherlands had already, by that point, published some very useful material on behavioural economics in regulation. I am not sure how well known it was in the UK, but the FCA's 2013 document, Occasional Paper 1, was, for a lot of conduct regulators, really ground-breaking.

Importantly, this work wasn't just saying, "Do a nudge." It was actually saying, "Look at how this economic market is working. Consider how the equilibrium that you observe has developed. Think about that and then think about what that tells you about remedies, including behavioural remedies." 'Applying behavioural economics at the Financial Conduct Authority' was in fact a very sophisticated document.

As mentioned in my opening remarks, the effect of many nudges and other behaviourally informed interventions, in terms of consumers changing their mind, was quite small (and typically under 10%) but still a very important contribution to making markets work better and a very cost effective contribution too. But they left the management of the FCA saying, "Well, more is required."

And so, we come to the current UK approaches that I've mentioned already (deterrence/accountability, ethics and purpose). A lot is going on under these broad headings. Oxera is involved in Scottish Water's work with Christopher Hodges on an ethical approach, which is being rolled out across Scotland more widely. BEIS, the UK Department for Business Enterprise and Industrial Strategy, is concerned about the importance of competition. The idea in its paper 'Modernising consumer markets' is then to combine some behavioural approaches, in particular choice simplification, with pro-competition approaches to making markets work well. This might avoid the risk to competition inherent in price capping, product standards and so on. Nesta, a UK think tank that does a lot of work on regulation, is developing the idea of anticipatory regulation to try to sharpen competition. This seems important given the increased digitization of markets, where on one hand you have the possibility of new entry by firms with novel

business models but on the other hand intrusive regulation could give an advantage to incumbents who have economies of scope and scale, which may also mean that they benefit from tipping mechanisms in digital markets and platforms.

Based on these approaches and the literature summarised in my slides, I am arguing that the areas where the conduct supervisors most need behavioural insights, are: a) the ethics culture and governance of firms (how do you actually make ethics meaningful in the compliance decisions of firms?); b) choice simplification (because we know that consumers are unlikely to be reading in detail the complex contracts put to them and nudges will not help everyone); and c) the sharpening of competition in the interest of consumers (if you can get competition to do a lot of the work, that would be good). Here, of course, there is tremendous literature already developed. Now, I'm not going to read through this long list of publications on the slide but I do think that it is marvellous that we have seen, in the last five, six years, this substantial set of very thoughtful, new pieces by large public bodies, which others can draw on to develop their own preferred approaches and insights.

So, turning to my first topic (ethics, culture and governance of firms), I think, it is clear from the conduct of UK firms that the simplest Becker model can't be completely reliable because misbehaviour cost firms an awful lot in the UK. One would assume that since firms must pay out billions of pounds of compensation and fines for misbehaviour (which they actually had to do as a result of misdemeanours) and bear some reputational costs, they would find ways to control how their staff behaves. But this did not happen. It seems that we need to think more broadly than simply the rational cost benefit analysis of offense. Some of the psychological and behavioural reasons why that's true are set out in Ariely's book, *The Honest Truth about Dishonesty*, which I think tells us that we need to go beyond the Becker model (though it still has an important role) and here one thing that has been under-emphasized is how to figure out how to get the firms to cooperate with the regulator.

It is not a new idea. When Sir Callum McCarthy was Chairman of the FSA in the late 2000s, he thought that this idea of cooperation could be extremely important and we were tasked to try to work out how to utilize it: to be honest, I don't think we did a very good job. In many natural contexts, co-operation between organisms has evolved over time to be a powerful force for mutually advantageous behaviour: could regulators motivate such co-operation? The papers on evolutionary biology were perhaps just a little bit too far away for us to be able to see how to utilize them well. I can give the intuition, which is very simple: humans are not like bees, where the individuals sacrifice themselves for the interest of the wider group of bees; but equally humans have not evolved to be like the bears which effectively roam around by themselves (and I can tell you from personal observations that the thing that most bears are most scared about is meeting a bigger bear). We, as humans, are somewhere in between these extremes and so, given that, there is clear evidence in evolutionary biology of our ability to cooperate, what might this mean for regulation?

Drawing on work by Martin Nowak, one might consider four possibilities. One is Direct Reciprocity: the supervisor helps the firm, the firm helps the supervisor. Another is Indirect Reciprocity: the supervisor helps firm A; firm B, therefore, trusts the supervisor and helps the supervisor. The third is Spatial Selection: the supervisor creates a successful set, others move to it (that could be about successful set of business models). The fourth is Group Selection: the supervisor creates groups of common interests (such that members make sacrifices for the common good), which was the original idea of self-regulation and guilds.

The power of that, to me, is very evident if you think about the motor industry, where Volkswagen cheated on its diesel emissions tests, creating a seriously negative narrative about diesel in many authorities; meanwhile, BMW was making fantastically efficient diesels but the fact that the cheating of Volkswagen was so salient meant that much less attention has been paid to the efficiency of some diesels than really ought to be the case. In the UK now, we have local authorities banning diesels from entering the centre of cities, while allowing entry by highly inefficient petrol engines and ignoring the all-in cost of electric cars, and that's largely down, I think, to Volkswagen and the failure in the motor industry to develop and act in accordance with a guild of common interest (competition law permitting!).

I should mention here some work that we did in Oxera: we thought about and published in our Agenda series a piece called 'The Puzzle of Regulating Pay', which is about the complex problem of designing incentives to influence behaviour, especially in the field of pay and bonuses and it's certainly worth thinking carefully about that. But there are other things in play here and I think that Armstrong and Huck's "Behavioural Economics as Applied to Firms: A Primer" (2010), which was done for the UK competition authority, is very insightful about why firms continue to break rules; of course this was in the context of competition law and competition enforcement, but the relevant drivers of behaviour within the firms are likely to be the same. There is also the problem of groupthink, which is set out in the work by Brest and Krieger 'Problem Solving, Decision Making, and Professional Judgment: A guide for Lawyers and Policymakers'. The authors argue that groupthink makes it possible within a very competent organization to think that you have a certain status (and standing and credibility) that perhaps you don't really have, but this causes you to make overconfident and exploitative decisions.

In the FCA, we were very aware of this and we did a lot of work on what exactly it is in firms that is driving these behaviours (the papers mentioned in the slides are certainly worth looking at) and there is other work (Cohn et al, 2014; Stucke, 2011), which explores why firms think that they don't need to comply (or comply in substance). If you just step back a moment to what I was saying about activities which led to billions of pounds of redress having to be paid, that must be the consequence of a very large number of people wilfully deciding that they weren't going to comply with regulations for whatever reason. So compliance analysis is a very important thing to consider and it's an area where behavioural insights can be very helpful.

To take an example, let's consider competition. Some businesses may have a simple idea about competition or indeed about selling generally, that they should be allowed to do whatever they want. There is no public interest, you just trust the market because that is the overriding ideology (that capitalism works). If you are in that mind-set, you think that nobody can legitimately interfere in your business and you will not comply with their attempts to do so: there needs to be an ideological response to this mind-set, saying: "Well, actually, there is a genuine public interest in stopping you doing exactly what you want to do". But how can this point be made persuasive?

The papers I mentioned in my slides (Ischenko et al, 2016; Heady & Myles, 2016) actually both have a wide-ranging set of ideas and even prescriptions about things regulators can do to improve compliance, ethics, culture and governance of firms. If you want some practical ideas about how to take this forward, those are sources that can be very useful.

I am not going to say so much about the other two areas where the conduct supervisors most need behavioural insights: choice simplification and sharpening of competition.

Choice simplification has become a hot topic in the UK in part due to the influence of the work of Gabaix and Laibson (2006) on shrouded attributes. What our competition authority is seeing is an enormous amount of what's called by some 'sludge' (dark material that is hard to clear away and that makes markets murky and confusing; also, drip pricing, meaning that you see a headline price and then later you will see another price added to the original price before you can take your product).

The FCA's supervisory work on Business Model Analysis (BMA) may be a way of helping with cooperation, because of the spatial selection argument I made earlier, allied with the principle of treating customers fairly. Here, the supervisors seek to understand what decisions firms are making about price, quality and customer targeting, and engage with the firms about these topics. The rationale could be: if you think firms should treat customers fairly and find it's very difficult to detect when they don't, the regulatory system may not work very well. But if you also use BMA to build some cooperation around the idea of treating customers fairly, perhaps the system will work better.

On sharpening competition, the idea of standard IO models being insightful about those financial markets in which consumers have severe cognitive and informational issues seems not very plausible. On the other hand, I do find the behavioural IO models, for many retail markets, much more plausible. One of the key issues here is whether the subset of savvy consumers (the ones who actually do know what they're doing) can help or hinder the ones who don't know what they're doing. There is empirical evidence in a lot of financial markets that actually the ones who don't know what they're doing may easily be cross-subsidizing the ones who do know what they're doing (that is the 'rip off externality' of Mark Armstrong's work). What you really want to have is the "search externality", which means that the search carried out by the savvy consumers actually helps the ones who don't know what they're doing. The challenge for the regulator is: can they design the market so that this will come about. That's not an easy challenge but it's one that should be thought about very carefully.

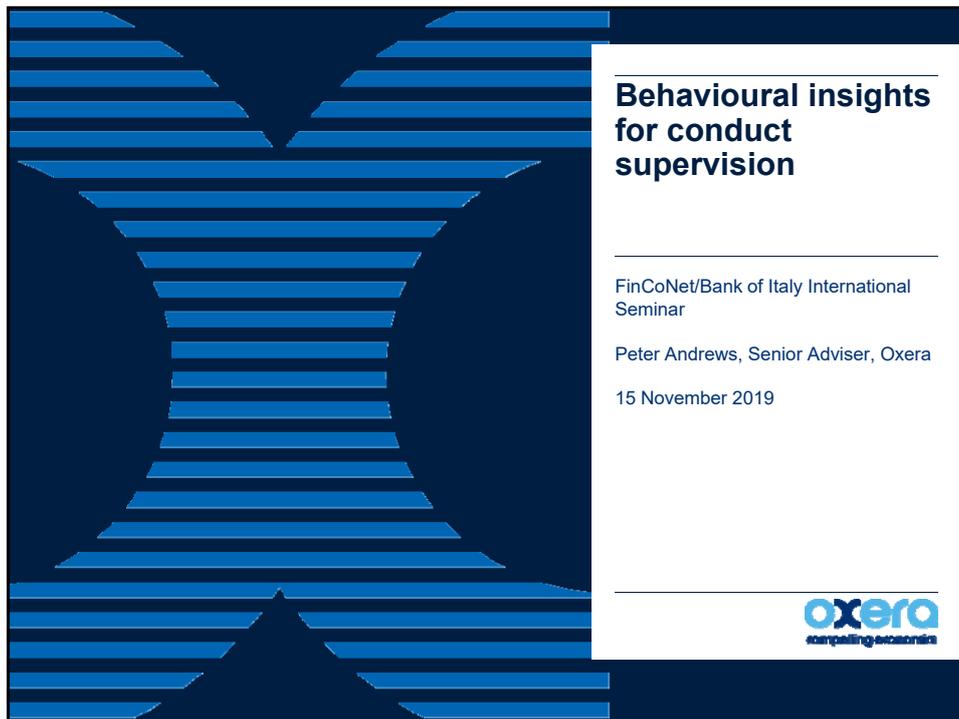
Again, in the UK we've been having a lot of debates about this, because of digitization of markets and Oxera has done a lot of work in different industries on digitalization: how it can generate market power; how it can generate complexity that can confuse consumers as well; how it gives more ability to the firms to work out what a consumer is willing to pay or what a consumer is really willing to buy. In those three dimensions, digitization can be a concerning development for conduct supervisors.

My final point is, given the complexity and the reality of digitization, might there be a case for saying that there are some markets where it's now just too hard to make them work well?

That is a difficult judgment to make. The response of Britain's Labour governments in the early 2000s to somewhat similar problems was the so called 'CAT' products. 'CAT' stands for Conditions, Access, Terms. Essentially, the idea was that firms could sell to most people contracts which had specific characteristics that were standardized, safe, and not troubling to most consumers. But because they also believed in competition, they said, "Well, you don't have to sell that. You can sell various CAT products, if you want to, but if you sell more complex, more expensive products as well (through your innovation), that's fine, provided you can demonstrate that those products are better for the consumer than the

CAT product.” And in a similar vein, Heidhues et al. (2018) have a recent study on “Pro-market case for regulation” which essentially says: “Some sort of product regulation which standardizes most of the detail and allows people to search in terms of the details that matter, will drive better competition.” Such approaches could helpfully simplify the task of supervisors, specifically where the behavioural insights that supervisors need reveal that rectifying particular markets may need tools beyond even the broader set that behaviourally-informed supervisors can deploy.

And I think that’s where I’ll stop. Thank you.



Behavioural insights for conduct supervision

FinCoNet/Bank of Italy International Seminar

Peter Andrews, Senior Adviser, Oxera

15 November 2019



Overview of presentation

Key insights from behavioural literature for conduct supervision include:

- real people often don't behave like the agents in economic models
- so disclosure to empower consumers has not worked well
- and, more surprisingly, firms are also 'behavioural' in some ways
- which makes it harder to secure compliance with regulatory standards
- the impacts of demand side nudges have generally been smaller than hoped, though they have often been cost-effective
- regulation may be improved by addressing the ethics and co-operation of individuals working within firms, as part of a wider approach involving corporate culture and governance
- regulation may be improved by simplifying the choices facing consumers, for example through Business Model Analysis, and further sharpening competition through Market Design based on Behavioural IO models

Why do conduct supervisors need behavioural insights?

- if we understand why conduct supervisors need behavioural insights, we can identify which behavioural insights will be most useful for them
- the immediate driver of the need is political/public perception that ostensibly competitive markets are not working well for consumers
- the underlying driver of the need is information asymmetry in markets for credence goods, which exacerbates Adam Smith's general case that 'in the mercantile system the interest of the consumer is almost constantly sacrificed to that of the producer' (Wealth of Nations, iv)
- the regulatory driver of the need is that previous regulatory approaches have failed to deliver market outcomes aligned with the outcomes demanded in regulated markets

Previous regulatory approaches 1

- if we describe previous and current regulatory approaches, we will understand better the role that behavioural insights are expected to play in conduct supervision
- most conduct regulation in financial services started with specification of rules
- these set out what suppliers are expected to do and the information that consumers must be given in order to protect themselves
- unfortunately, from supplier perspective 'Rules may lead to box ticking so... compliance is merely about observing the letter of the rules without looking at their purpose' (Rawlings, Georgosouli and Russo, 2014)
- while consumers also fail to play their part: 'mandated disclosure rests on false assumptions about how people live, think, and make decisions' (Ben-Shahar & Schneider, The failure of mandated disclosure, 2011)

Previous regulatory approaches 2

- if the supply side problem was legal but not substantive compliance with rules, it seemed to make sense to supplement them with general principles (Making a success of principles-based regulation, Black et al, 2007)
- an advantage of principles such as 'fair treatment' is that compliance with them can be judged by market outcome (as well as documented process), making achievement of regulatory objectives more likely
- unfortunately, the first British experiment here also failed: 'A principles-based approach does not work with individuals who have no principles' said Hector Sants, CEO, Financial Services Authority, in 2009 when declaring that principles-based regulation was no longer suitable
- a more elaborate analysis is in 'The Rise, Fall and Fate of Principles Based Regulation', Black 2010

Previous regulatory approaches 3

- if the demand side problem was that disclosure rested 'on false assumptions about how people live, think, and make decisions', it seemed to make sense to address it with behaviourally informed communication with consumers and with other devices such as choice architecture
- the UK Institute for Government published a wide-ranging report on this 'Mindspace: influencing behaviour through public policy' (2010)
- similarly, in financial regulation we saw 'Applying behavioural economics at the Financial Conduct Authority' (2013)
- unfortunately, while the latter emphasised the need to analyse markets in the round, the effects of nudges and other behavioural remedies were generally far smaller than was hoped, though still potentially cost-effective: Nudge Database, Stirling University; FCA OP23 (2016)

Which brings us to current approaches...

- if the supply side problem is that firms in practice do not comply with the substance of rules and do not share the regulators' principles, it makes sense to try to influence the ethics, culture and governance of firms: Ethical business practice and regulation, Hodges et al, 2018
- if the demand side problem is that consumers do not respond strongly to disclosures or to nudges, it makes sense to simplify their choices (e.g. product regulation) and to try to harness competition in their interests: Modernising consumer markets, BEIS, 2018
- if these approaches fail, regulators will be under pressure to intervene in markets ex post to change 'socially unacceptable' outcomes e.g. through redress mechanisms and to cap prices, despite the potential costs in terms of entry, innovation, commercial certainty, cost of capital, etc (Renewing regulation, Armstrong, Gorst and Rae, 2019)

So...

- the areas in which conduct supervisors need behavioural insights are
 - ethics, culture and governance of firms
 - choice simplification
 - sharpening competition in the interests of consumers
- fortunately (at last!), many national and international public bodies have created a literature that can be helpful here
- and of course there is a relevant academic literature, which underpins the literature of the public bodies...
- next I will provide a list of relevant literature by public bodies
- then I will look in more detail at what behavioural literature tells us about the three areas listed above

Literature generated by public bodies

- Applying Behavioural Sciences to EU Policy-making, European Commission JRC, Rene van Bavel et al, 2013
- Guidance on Supervisory Interaction with Financial Institutions on Risk Culture - A Framework for Assessing Risk Culture, FSB, 2014
- Mind, Society and Behaviour, World Bank Group, 2015
- Supervision of Behaviour and Culture, DNB, 2015
- Transforming Culture in Financial Services, FCA, 2018
- A Behavioral Approach to Financial Supervision, Regulation, and Central Banking, IMF WP 18/179, Ashraf Khan, 2018
- The Application of Behavioural Insights to Financial Literacy and Investor Education Programmes and Initiatives, IOSCO/OECD, 2018
- Banking Conduct and Culture, G-30, 2018

Ethics, culture and governance of firms 1

- we have seen that motivating compliance with rules and principles through detection of and sanctions for breaches did not work well
- despite fines and redress payments for UK banks amounting to billions of pounds and exceeding credit losses – thus a prudential issue too
- so while Becker's model in Crime and Punishment: An Economic Approach, 1968, where probability of detection and size of sanction, roughly speaking, determine compliance, remains a powerful predictor of some responses to regulation, there is also a more complex story
- see experimental evidence on extent of rule-breaking not rising with size of gains in The (Honest) Truth about Dishonesty, Ariely, 2012
- what regulators need to know and exploit are the drivers of real-world compliance decisions by individuals and groups in corporations
- and here, behavioural and related literature is very helpful

Ethics, culture and governance of firms 2

- one route to compliance is co-operation between firms and regulators
- regulators influence firms to co-operate by understanding the evolution and conditions for creating co-operation
- 'Cooperation is always being destroyed and has to be rebuilt.'
Evolution, altruism and human behaviour, Martin Nowak, 2012
- four of Nowak's mechanisms of co-operation are amenable to use by supervisors in building co-operation with firms (BTW, evidence → trust):
 - direct reciprocity (supervisor helps firm; firm helps supervisor)
 - indirect reciprocity (supervisor helps firm A; B trusts/helps supervisor)
 - spatial selection (supervisor creates successful set; others move to it)
 - group selection (supervisor creates group with common interest such that members make sacrifices for the common good of guilds)

Ethics, culture and governance of firms 3

- co-operation is important and valuable but, as game-theoretic modelling suggests, will not always be present
- so regulators also need to draw on other insights to influence firms:
 - while Becker's model is not the whole story, direct financial incentives do influence behaviour and need careful design and monitoring, The Puzzle of Regulating Pay, Andrews & Haynes, 2019
 - optimism about the benefits of rule-breaking and avoiding detection may be severe in senior bank staff, Behavioural Economics as Applied to Firms: A Primer, Armstrong & Huck, 2010
 - groups of decision makers are often over-confident about their knowledge set and moral position, Problem Solving, Decision Making, and Professional Judgment: A guide for Lawyers and Policymakers, Brest & Krieger, 2010

Ethics, culture and governance of firms 4

- some further behavioural insights relevant to regulators:
 - rule-breakers generally wish to maintain a favourable view of their own morality and deploy 'fudge' (Ariely, op cit) to achieve this, see taxonomy of relevant factors (distance from harm, contractual obligation, etc) in Behaviour and Compliance in Organisations, Iscenko et al, 2016
 - perceptions of culture can lead individuals to suspend their own morality: an experiment on bankers found them less honest when reminded of their professional status, Business culture and dishonesty in the banking industry, Cohn et al, 2014
 - ideologies may be used to justify non-compliance, A Behavioural Economics Analysis of Cartels, Stucke, 2011 (competition law should not stop 'fair' profits)

Ethics, culture and governance of firms 5: so what?

- how can the insights above help Supervision to promote compliance?
- Nowak's work on co-operation suggests a role for game-theoretic modelling and building pro-co-operative relationships with firms
- the behavioural insights mostly have implications for the compliance choice architecture that supervisors can set for firms
- Iscenko et al (op cit) sets these out under the headings:
 - changing perceptions of detection and punishment
 - de-biasing firms' decision making
 - enhancing the role of morality;
 - improving culture
- Incentivising compliance with financial regulation, Heady & Myles, 2016 combines discussion of credible deterrence with co-operation models
- Co-operation models can include Business Model Analysis as FCA/ Oxera 'Strategic Review of Retail Banking', 2018

Choice simplification and sharpening competition in the interests of consumers

- I will say less about these topics: time limits
- it makes sense, though, for supervisors to complement efforts to improve ethics, culture and governance of firms as these efforts may not be wholly successful, given the apparent scale and diversity of the challenges involved
- strengthening the demand side and promoting competition in the market have potential to be useful complements
- hence the discussion here about simplifying choices for consumers and sharpening competition in the interests of consumers

Choice simplification

- in Shrouded attributes, consumer myopia and information suppression in competitive markets, Gabaix and Laibson showed that hidden add-on prices will produce an equilibrium that exploits myopic consumers with no possibility that fair entrants can debias them
- in the UK, the Competition and Markets Authority has addressed a range of commercial practices that exploit such insights by making choices harder – drip pricing, confusopoly, sludge tactics, etc
- as implied, these practices also make it harder for consumers to benefit from 'good' conduct (fair marketing of well-priced, quality products)
- supervisors can bear down on these practices through combining Business Model Analysis (arguably an example of the 'spatial selection' co-operative approach described above) with a principle of Treating Customers Fairly

Sharpening competition in the interests of consumers 1

- Behavioural research has raised profound questions about the assumptions in standard IO models: again, simplifying choice matters
- Models in Behavioural IO often seem more realistic for FS markets
- A common problem is that some consumers in these markets are 'savvy' while others are not, and often the former cannot protect the latter: Search and Ripoff Externalities, Armstrong, 2104
- On one hand, search by the savvy can drive price and quality to the advantage of the unsavvy
- On the other hand, 'rip-offs' or bear-traps such as add-ons, rollovers, penalties, etc can be avoided by the savvy but not by the unsavvy
- Behaviourally Informed Financial Services Regulation, Barr et al, 2008 explores some policy implications of behavioural financial consumers:
 - framing, defaults, opt-outs, fiduciary duty, product regulation...

Sharpening competition in the interests of consumers 2

- rise of digital commerce in financial services increases concerns about savvy not helping unsavvy. OECD on Price Discrimination, 2018:
 - 'The scope for price discrimination in the digital economy is expanding as firms increase the accuracy with which they can predict an individual's willingness to pay. This raises the stakes on exploitative price discrimination, and there are particular reasons to worry that price discrimination in digital markets will be harmful.'
- so, time to revisit CAT standards? CAT Standards and Stakeholders: Their Role in Financial Regulation, Johnson, 2000. Note importance of 'sale of CAT product required unless dominated' rule that allows competition above a quality/price floor that protects the unsavvy
- Browsing versus Studying: A Pro-Market Case for Regulation, Heidhues et al, 2018 agrees: consumers freed to focus on key features

Distorted Financial Advice. Evidence and Policies

Luigi Guiso

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Fellow, Centre for Economic Policy Research (CEPR)

Thank you for inviting me to participate in this meeting and discuss some of these extremely challenging issues.

Also difficult to really pin down are the sources of the problem: whether it is a failure of rationality, a failure of markets, a failure of supervision or a combination of all these features.

Thanks in part to research in behavioral economics, I think we now have a better understanding of how people come up with their choices. We have a much worse understanding of how to fix people mistakes. There are different strategies. The debate is ongoing and there are contradictory signals, in the sense that there is evidence that points in several directions.

What I am going to do is to bring in some evidence that there is steering in financial markets and focus on one particular market, the market for mortgages. I will be drawing on data from Italy. We should not worry too much about “external validity” (i.e., that the evidence is only comes from this country and thus holds only for it), since the issue is definitely broad and the basic mechanism – intermediaries incentives to distort customers choices – is present everywhere. Hence, qualitatively if not quantitatively, the evidence should carry over to other economies.

What I want to do is not only offer some evidence, but also to quantify the welfare costs of the presence of this steering and then look at the welfare benefits of some alternative policies.

The interesting part will be at the very end of the presentation, my last slide. But I need to show first you some setup.

There is no question that advice is common in the financial industry. Essentially, everyone needs to gather some information, possibly from a reliable source, before making a financial decision. Not everyone and not all financial products need advice to the same extent. The mortgage market is one where the advice of the expert matters and is typically relied upon by individuals at the time when they are making their choice.

Notice that, differently from other financial decisions, often this is one people make once in their life. Thus, the opportunity for learning from experience is limited. In other domains, one can learn from your past mistakes.

So, what is the motivation for looking at these issues? I think that the main reason is that, based on several measures from the financial literacy literature, we know that many individuals lack financial sophistication. I would say the vast majority of the people along most domains of financial choices. We may have a grasp over several issues but in the end, there are many things that we miss simply because they are really complex.

Because of this there is scope for financial intermediaries, which are much more sophisticated than households, to steer individuals when they are making financial choices. Steering means that they a direct channel is used to influence the individuals' choice. While a customer speaks to a seller of financial products the latter can say, "Why don't you do this?", rather than alter the prices of the products or the service that is selling, which is the standard way of interacting between sellers and buyers.

Hence, steering is an instrument, different from the prices, that can "manipulate" the decision of a buyer in a direction that is potentially most valuable and profitable for the seller. I would say there is a lot of evidence that actually individuals are steered at the time when they make their financial decisions.

What I am going to do, as I said, is to show evidence on how costly is steering in these markets and what is the effect of different policies that are meant to deal with these issues on the welfare of the individuals. As I said, I am going to rely on the Italian mortgage market. There are a number of reasons why Italy's mortgage market is a good one to look at.

First, there are essentially only two types of mortgages that are sold in the market (adjustable rate and fixed rate mortgages), which makes the identification of steering much easier than when there is a multitude of alternative products.

Second, banks have opportunities to steer because there is a close relationship – like in many other countries – between the customers and the banks. But – differently from other countries – there are no brokers. The broker is the bank: a customer goes to the bank and negotiates the loan, searches for it and gets the advice. The relationship is one to one: mortgages are sold usually at the bank's premises.

Finally, banks have incentives to steer because they can try to sell mortgages where they have higher margins. Or they can steer customers towards the type of mortgage that they want to sell, in order to match assets and liabilities maturity. Essentially, they may have a preference for issuing either long term or adjustable rate mortgages, in order to fit as much as they can their preferred liability and asset structure.

First, let me discuss some evidence based on data from another paper that I wrote with my co-authors. The idea was to provide some evidence that actually there is a steering in this market, exploiting a very simple idea. Suppose that the only thing that matters for an individual when choosing whether to take a fixed rate or an adjustable rate mortgage is the relative price of the two mortgages – besides other preference parameters like the risk aversion of the individual, the steepness of his income profile, the size of the mortgage, which are all attributes of the consumer.

There should be no role for other attributes of the bank, such as features of its balance sheet (like the density or the size or the deposits in the balance sheet of a particular bank).

The idea was really simple: look at whether features of the balance sheet of the bank matter in the choice of the type of mortgage, after controlling for the prices of the two mortgages and other features of the individual. If banks characteristics other process affect the mortgage choice, this is the simple evidence of steering.

The Long Term Financial Premium is essentially the spread, the relative cost of the two mortgages. On the left-hand side in the slide, I am trying to explain whether an individual is picking up a fixed rate mortgage or an adjustable rate mortgage. As you can see, when the fixed rate mortgage is more costly, people tend to pick up an adjustable rate mortgage, which is exactly what one should do.

The others are variables that hinge on the balance sheet of the firm: for instance, whether the bank is active in the securitization market (the idea is that if it can securitize, then it is easier for the bank to issue fixed rate, long term mortgages) and what you see is that banks' clients that are taking a loan from a bank that can more easily securitize, are more likely to take a fixed rate mortgage, which is the one that also benefits the bank.

Moreover, banks' clients that are borrowing from banks with a higher deposit ratio are more likely to take up a fixed rate mortgage. The interpretation that we give to this correlation is that banks that have a very high deposit ratio have more stable funding. A more stable funding allows them to be better able to issue fixed rate mortgages.

On the other hand, when the bank bond spread (i.e., the cost of securing long term funding in the market) goes up, individuals are less likely to take a fixed rate mortgage. If the cost of securing long term funding in the market goes up, for the bank it is less profitable to issue fixed rate mortgages and hence it has an incentive to steer customers in the other direction.

The next slide repeats the same exercise but splits the sample between sophisticated and unsophisticated households and what you see is that the effect of banks' balance sheet characteristics on the individual choice are much stronger among the unsophisticated individuals. This is consistent with the idea that banks tend to take advantage of the unsophisticated customers. And we are able to rule out other alternative channels, such as advertisement.

Now, let me move from this evidences based on correlations. In order to say something about the welfare cost of steering, I need to set up a model.

The welfare cost is something that needs to be estimated and this requires knowledge of the parameters of the individual as well as a measure of the fraction of individuals that are more or less sophisticated in the market.

The way I try to model this market, is to assume that an individual is initially attached to a bank – the home bank (e.g. is a regular customer). He chooses between these two types of mortgages. Customers differ in the degree of sophistication: a fraction of individuals is naive and a fraction is sophisticated. Sophisticated means that they don't need to rely on the advice of the bank. Hence are not susceptible to steering. Some individuals are "attached" to the bank, in the sense that if they have to obtain a mortgage, they only ask their home bank. Others, instead, can shop around and look also at other banks.

This is meant to capture market frictions and the fact that we know that there is this tendency of individuals to make most financial decisions with their home bank – i.e. bank relations are "sticky".

Finally, how do individuals decide? They look at the relative cost of the two types of mortgages: there is some threshold of these costs that takes the borrow in one direction or another. The threshold depends on the preference parameters of the individuals, the beliefs that they have about the volatility of rates and inflation in the future, and the size of the mortgage.

Now, how do these two types of households decide?

Let's start with the sophisticated. What they do depends on whether they are "attached" to their bank or whether they shop around (the "searchers"). The idea is the following: if you are sophisticated and a searcher, you look for the best market rate; you are able to screen all the rates in the market and pick

up (at least in the local market where you are searching) the best available offer and then decide based on your optimal rule. You compare the net benefits of the two alternatives and decide, optimally. If you are “attached” to your home bank, you do not search: you look at the rates of your own bank, applying again the optimal rule.

Let us look at the naïve. If he is a searcher, he searches for the lowest fixed rate. Why the fixed rate? The idea is the following: the fixed rate is the default option for an unsophisticated individual because it is the simple mortgage. Compare a fixed rate mortgage and an adjustable rate mortgage: the fixed rate is the one where you can predict how much you are going to pay over the maturity of the mortgage, year by year. In terms of computing the affordability of the mortgage, fixed rate mortgages are much easier.

An adjustable rate mortgage is a nightmare. To get a sense of affordability one has to predict what will be the course of interest rates over the next 25 years; and predict whether he/she will be able to match a potentially rare event related to movements in market rates into the future or fluctuations in his/her income.

Hence, we assume that unsophisticated individuals tend as a default to pick up the best fixed rate, if he is a searcher. Once he matches with a bank with the lowest fixed rate, if the bank says, “For you, the best thing to do is to switch and take an adjustable rate mortgage” this guy is going to switch. This is the assumption that catches the idea that the individual is unsophisticated and susceptible to the advice.

If instead, he/she does not search, he/she goes to his own bank and does what his own bank recommends. If the bank says “go for adjustable rate”, he/she follows the advice; otherwise, he/she takes a fixed rate mortgage.

Banks instead are smarter and what they do, as in the standard models, they maximize profits. There is a margin on adjustable rate mortgages and another margin on fixed rate mortgages. They want to issue, ideally, a share θ of fixed rate mortgages for their own purpose, i.e., they have an ideal target FRM share for their balance sheet. Then there is the real share of fixed rate mortgage and there is a cost for departing from the ideal share. X is the actual share, θ is the optimal one and there is a cost of departing from this ideal share. What banks do on the market is to compete in setting the fixed rate mortgage spread. They also have to decide how to steer their customers.

The data we use is from the credit register of the Bank of Italy. It collects all the mortgages above 70,000 euros and we focus on maturity between 25 and 30 years. We look at the years between 2005 and 2008, in order to pin down these parameters and then we use data aggregated at the local market level, which, in our case, is the province.

In terms of lender information, we have all the balance sheets of the banks that we can match. We know the number of competitors in each market i.e. which banks are active in each market.

These are the parameters that we get: the blue one and the green one, and they are easy to interpret.

μ is the share of naïve individuals. According to this estimate, 48% of the customers are naïve, in the sense that they are susceptible to steering by the bank. It is a reasonable estimate: if you look at the data in the Bank of Italy survey on households' income and wealth: 50% of individuals is unable to locate the balance in their bank account statement, suggesting that many individuals are unsophisticated.

A large share of individuals is “attached”: the fraction of individuals that shop around, is small (9%): this is consistent with the idea that bank customers are quite immobile. They tend to deal always with the same bank presumably because there are mobility costs.

Once I have these parameter estimates, I can do my exercise and look at the welfare costs or welfare benefits of three different policies (by the way, the number of individuals that can be steered is equal to the proportion of individuals that are unsophisticated).

I look at three policies.

The first one is limiting steering. Suppose that the supervision authority can block banks and say: “You cannot steer, you cannot talk to your customers. When you meet a customer, you cannot even express your opinions and if he asks questions, you’re not going to answer.” That is an extreme case, and I don’t know exactly what could be the technology for limiting steering, but suppose there is one. The assumption is that the bank can only manipulate half of their naive customers: this is just to capture the idea that the policy cannot be fully successful, that is there are some frictions also in policymaking.

The second one is honest advice, in the sense that the bank provides the advice that is in the best interest of the consumer. Everyone follows the optimal rule, which is the one that you would follow if you were sophisticated.

The third one is a financial literacy campaign. I assume that the financial literacy campaign is able to reduce the fraction of naive by half, from 48 to 24%.

The figures in the slide are the benefits (or the costs if they are negative) of the three policies and they are measured in euros.

A policy that limits steering brings overall a reduction in welfare of the order of \$1,000, which most heavily hits the naive customer (1400 euros), less the sophisticated customers.

Why is that so? It is not surprising: steering comes with information; not all steering is to the benefit of the bank. Steering is distorted information: what the above result says is that distorted information is better than no information at all. In a sense, this is obvious because if banks were only disseminating misinformation, nobody would be borrowing or following their advice. It would be fully discounted: a borrower can be naïve, but not so naïve to fully harm himself. Naiveté is limited; rationality is obviously limited but also naiveté is.

The second policy, the undistorted advice, is beneficial on average and benefits particularly the naive customers for the equivalent of 1700 euros but it penalizes the sophisticated. Again, that is an example of what Peter Andrews was mentioning earlier: there is cross subsidization or cost transfers, when there is heterogeneity in sophistication.

The financial literacy campaign, again, is beneficial on average, particularly for the naive.

So, this is essentially the conclusion of the study.

Let me add two final comments.

First, I have nothing to say about the ability to implement these policies. I am assuming that financial literacy is successful. I am assuming that authorities have the ability to impose undistorted advice.

Secondly, since these policies have heterogeneous effects whereby some benefit but some lose, their adoption poses a political economy problem. When policies are costly for a fraction of the population, the losers will be voicing and oppose the policies.

Thank you.

The Cost of Steering in Financial Markets: Evidence from the Mortgage Market

Luigi Guiso¹ Andrea Pozzi¹ Anton Tsoy²
Leonardo Gambacorta³ Paolo Mistrulli⁴

¹EIEF and CEPR ²University of Toronto ³BIS ⁴Bank of Italy

Bank of Italy, November 15 2019

What we are talking about



Motivation

Many households lack sophistication to make financial decision

Financial intermediaries can affect households decision through price and non-price channels (i.e. *steering*)

Substantial amount of evidence that steering induces significant distortions in households' financial choices [Literature](#)

This paper:

- How does steering affect households welfare?
- What is the effect of different policies dealing with steering?

The Italian mortgage market

- Two mortgage types: [More](#)
 - Adjustable rate mortgage (ARM)
 - Fixed rate mortgage (FRM)
- **Banks have opportunity to steer** [Evidence](#)
 - Close relationship b/w customers and banks
 - Mortgages sold on banks' premises
- **Banks have incentive to steer**
 - Selling higher margin products
 - Managing liabilities mismatch [More](#)

Evidence of steering

Foà, Gambacorta, Guiso, Mistrulli (2017)

- Controlling for FRM-ARM spread, banks' supply factors explain household mortgage choices Baseline By education
- Evidence on steering channel
 - Rule out strategic rationing
Data on rejected applications
 - Rule out advertising
No evidence of sorting on observables or unobservables characteristics
 - Left with advice in one-on-one interaction

Model: Households

- Born in bank i (home bank) with prob. p_i
- Choose bank and type of mortgage (ARM vs FRM)
- Households heterogeneity:
 - sophisticated (frac. $1 - \mu$) vs naive (μ);
[captures people who are susceptible to advice]
 - un-attached (frac. ψ) vs attached ($1 - \psi$) to *home bank*;
[captures market frictions]
 - Optimal cutoff on FRM-ARM spread $\delta \sim N(\mu_\delta, \sigma_\delta)$
[risk aversion, mortgage size, beliefs on volatility of rates and inflation, expectations on nominal interest rates]

Model: Household behavior

	Un-attached (frac. ψ)	Attached (frac. $1 - \psi$)
Sophisticated (frac. $1 - \mu$)	<ul style="list-style-type: none"> • best market rates • "Spread rule" 	<ul style="list-style-type: none"> • rates at home bank • "Spread rule"
Naive (frac. μ)	<ul style="list-style-type: none"> • best fixed rate ["Money doctors" Data (Gennaioli et al. 2015)] • recommended mortgage type 	<ul style="list-style-type: none"> • rates at home bank • recommended mortgage type

"Spread rule" (ex. Kojien et al. 2015). ARM iff:

$$\nu_r + H\gamma(\sigma_\varepsilon^2 - \sigma_\pi^2) \equiv \delta \leq \phi_{ht} \equiv \text{FRM-ARM spread}$$

Model: Banks

Bank managers maximize:

$$\underbrace{\left[\overbrace{s_{it}^a (1 - x_{it})}^{\text{profits on ARM}} + \overbrace{s_{it}^f x_{it}}^{\text{profits on FRM}} - \overbrace{\lambda (x_{it} - \theta_{it})^2}^{\text{cost of deviating from ideal frac. of FRM}} \right]}_{\text{net profit margin}} \times \underbrace{m_{it}}_{\text{customer base}} \times \underbrace{e^{-\beta r_{it}^f}}_{\text{penalty for high rates}}$$

- Heterogenous in **cost-efficient fraction of FRMs**: $\theta_{it} \sim TN$
Drives banks' incentives in setting rates and provide advice
- Compete setting FRM spread over interest rate swap: s_{it}^f
More
- Affect choices of naive through steering
Recommend "Take ARM" to fraction $1 - \omega_i$ of their customers

Data Desc. Stats

Mortgage information

- All mortgages \geq 75,000 euros & maturity 25-30 years:
 - Years: 2005-2008, Quarterly frequency;
 - Aggregate info (by bank-quarter-province):
 - Num ARM and average rate
 - Num FRM and average rate
 - Micro data (with borrower info) for a 40% subsample

Lender information

- Bank balance sheet data (bank bond spread)
- Market share in deposit market (in euros)

Market information

- Number of competitors in each market

Parameter estimates

<i>Demand</i>		<i>Supply</i>	
Parameter	Estimate	Parameter	Estimate
μ (frac. of naive)	0.48 [0.46;0.49]	λ (cost param.)	2.5 [2.36;13.15]
ψ (frac. of un-attached)	0.0884 [0.0879;0.0891]	β (high spread penalty)	0.46 [0.38;0.52]
μ_δ (cutoff distrib. - mean)	-0.68 [-0.88;-0.56]		
σ_δ (cutoff distrib. - stdev)	0.9 [0.81;1.01]		

Imply that banks distort choice for 48% of the customers

Fin. literacy

Rates distribution

Robustness

Counterfactual exercises

- Welfare measure: Average change in certainty equivalent of mortgage payment per capita per year
- **Limiting steering**
 - Bank can manipulate only half of their naive customers (e.g. tighter regulation monitoring, fiduciary standards)
- **“Honest” advice**
 - Banks provide advice in the best interest of the customers → Everybody follows the “spread rule”
- **Financial literacy campaign**
 - Policy reducing the fraction of naive. Ex., $\mu \downarrow$ to 24%

Counterfactual results

	Limiting Stering	Undistorted Advice	Financial Literacy	
All	-998	661	304	
(% of repayment)	(17%)	(7.8%)	(3.6%)	
Sophisticated	-590	-295	-314	
Naive	-1,444	1,705	980	$\left\{ \begin{array}{ll} 1,845 & N \Rightarrow S \\ 117 & N \Rightarrow N \end{array} \right.$

Note: Welfare effects are expressed in *Euros per household per year*.
 Yearly repayment for 125,000 euros mortgage at 4%: 8,550 euros.

Conclusions

- Model of mortgage market with naive households steered from self-interested banks
- Exploit detailed administrative data + institutional features of the Italian mortgage market to:
 1. **Assess relevance of steering WITHOUT observing steering activity**
 - Large fraction of naive households
 - Novel evidence of advice distortion
 2. **Quantify impact on households welfare**
 - Effects are sizeable
 - Educating the population leads to large gains
 - Banning advice may be welfare reducing

Neurofinance contribution to supervision and regulation

GianMario Raggetti

Università Politecnica delle Marche, Full Professor in Economics of financial intermediation

Thank you, Mr. Chairman, let me thank Dr. Magda Bianco for this opportunity which allows us to introduce some reflections on Neurofinance in a context of people who have high responsibilities in the protection of financial operators. NeuroFinance is a recent scientific area of general Neuroeconomics that has developed and spread internationally since 2003. Considering the limited time available to introduce the interventions of colleagues who will present some results of our research in Neurofinance, I would like to recall how classical economists, traditionally quantitative, still use the metaphor of Homo Oeconomicus to describe individual behaviour in economics and finance. In this way, it is assumed that an economic operator, but also a financial one, acts in the financial market preferring options that immediately ensure a benefit, a premium, a utility. He rejects any option that results in a deferred positive result (gain). It is also assumed that he is aware of the consequences of his choices and decisions and that he avoids any risky, uncertain, or ambiguous options. That it is always rational and impervious to any emotion, and that it is amoral. To make a profit, a premium he is willing to buy or sell any kind of good or service. This, in a nutshell, is the metaphor that economists still use today to describe individual behaviour in economic and financial markets. In fact, one claims to understand individual behaviour by considering only the total number and economic value of the results of the purchase or sale choices made by an individual. But the reality is much more complex and different.

In 1975, some economists, more curious than others, and some psychologists began to collaborate to better understand how the purchase and sale decisions of the individual are reached. Behavioural vision in economics and finance emerges and spreads rapidly. The role of emotions and the perception of risk, uncertainty, ambiguity of the contexts in which decisions are made, on an economic and financial level, are explored. Behavioural Economics and Behavioural Finance are spreading. Some authors are awarded the Nobel Prize. The economic and financial market is finally populated with individuals who are examined for “how” they decide being influenced by emotions, mental states, as well as by the experiences learned and memorized, by their prejudices, bias, framing, and by their mental heuristics, by character and personality, etc. All factors difficult to measure and never considered before by classical economists. Behavioural economists permit us to understand (and measure) that in the market, we have people that decide irrationally with psychological and mental factors that play an important role in our individual behaviour. Behavioural economists are interested to identify the most effective exogenous essential stimuli to modulate the behaviour of a buyer, saver, investor, bankers, or a regulator of markets.

But some of them, more curious, wonder how it is possible that a, chemical-physical, sensory stimuli can induce emotions, mental states, memories, prejudices in the brain and how they are immediately translate into motor and cognitive impulses capable of modifying our preferences, choices, decisions, our behaviour. They like to understand what happens in the brain, in our Black Box. Neuroeconomics and Neurofinance offer the scientific answers to this question. In 1979, Mount Castle suggested to use with caution, Neuroscience. It is an interdisciplinary set of knowledge (Physiology, Biology,

Neurology, Neuropsychology, Neuroradiology, Neuro chemistry, Statistics, Computer Science, etc.) to address the complexity of the brain. In 2003, Paul Glimcher combines Neuroscience with Economics and Behavioural Economics, then with Psychology and proposes the first theoretical view of the neural correlates of human decision making, in economics. He uses clinical tools and methods to enter the Black Box, in a non-invasive, non-risky way. He can reconstruct what happens in the human brain, in vivo, when it is engaged in decision making. In 2003, Glimcher founded the Center for Neuro Economics at New York University. There are now thousands of scientific papers and books issued in Neuroeconomics, Neuro-finance, Neuromarketing: this number increases year by year. There are dozens of research centers in Neuroeconomics at an international level.

Our Team, at the Polytechnic University of Marche and at the University of Rome Tor Vergata, has been working for years in Neuroeconomics and Neuropsychology, involving Economists, finance Scholars, Neurologists, Physiologists, Neuroradiologists, Neuropsychologists, Statisticians, Computer scientists, etc. With humility we face the complex reality of our wonderful brain which is the source, automatic and unconscious, of every function useful for life, as well as the numerous and complex ones as, for example, those of evolved language, learning, evocation of memories, perception of emotions, to think about what we think, or to perceive our Self. In our research activities we use clinical methods and tools (fMRI, EEG, Eye-tracking..) to reconstruct when it happens in the Black-Box during a controlled economic or financial decision-making process. This is possible while 100 billion cells (neurons) and trillions of synaptic connections are modifying, automatically and unconsciously, to react instantly to the sensory stimuli they continuously receive. Synaptic connections change by provoking new emotions, mental states, exciting or inhibiting neural areas, starting, or eliminating millions of synaptic connections. These phenomena not only influence our preferences, choices and decisions, therefore, our behaviour, but are often predictive of them. And this also happens in our economic and financial decision-making processes.

Neurofinance is a complex but very fascinating interdisciplinary area. The knowledge that can be obtained with it integrates and updates those offered by Behavioural Finance and Psychology. In addition, Neurofinance makes us humble towards our brain, an organ that intrigues us a lot but which we fear having to admit that it influences a lot of what we like to consider as “our” behaviour. The next two reports of our Colleagues will show some interesting examples of our knowledge acquired in Neurofinance.

Thanks again to Dr. Magda Bianco, and thanks for the kind attention of the friends of FinCoNet. Thank you.



*Bank of Italy/FinCoNet International Seminar
on Financial Consumer Protection*

"Behavioural insights for conduct supervision"

Neurofinance contribution to supervision and regulation

*GianMario Raggetti – Economist, Università Politecnica delle Marche
Maria Gabriella Ceravolo – Neurologist, MD, PhD, Università Politecnica delle Marche
Vincenzo Farina – Financial Economist, University of Rome Tor Vergata*

 brain-line
Boosting Research Activity in Neuroeconomics
Financial Supervision

GianMario Raggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome





The old classic economic metaphor of *Homo oeconomicus* assumes that an economic agent...

- ...likes decisions with immediate utility & profit!
- ...knows the consequences of his decisions, rejects uncertainty and risk!
- ...is always rational, impervious to emotions, amoral...!

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Financial Supervision

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Economics **Behavioral Economics** **Psychology**

Since...1975

2002		2002		2013		2017		

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Health & Performance

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5 NEURAL SENSES
HEARING SMELL TASTE SIGHT TACT

Stimulus → **Response**

Behavioral economists hope to *identify the most effective exogenous sensorial stimuli.... to modulate the behavior of others!*

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Health & Performance

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Since 1975, behavioral economists...

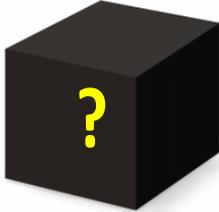
...consider traditional economic visions....*far from reality!*
...Because the *role* of psychological factors,
in human behavior,... *is not examined* ! .

...prove how irrationality in human decisions
comes from *memories, bias, framing, context, heuristics, emotions*,
that influence our behavior!

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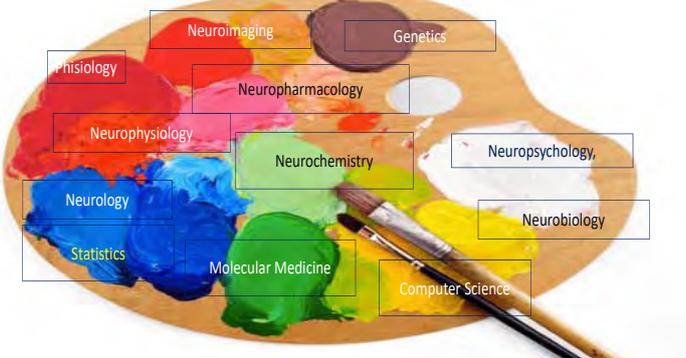


...but *what happens* in the *Black Box*?

"How does an *exogenous*, chemical-physical, *stimulus turn*,
in an *emotion*, a *mental state*
causing a *motor*, or *cognitive* reaction?"

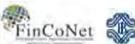
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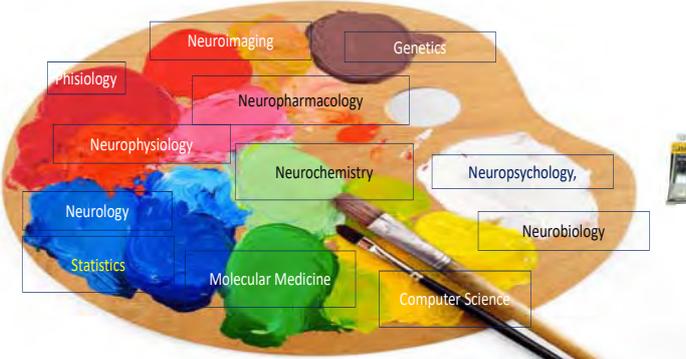

Vernon Mountcastle
(1918-2015)

In **1979**, He makes clear how **Neuroscience** include **numerous** scientific areas!




Boosting Research Activity in Neuroeconomics
Italian Participation

GianMario Ruggetti – Maria Gabriella Ceravolo – Vincenzo Farina
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P. GLIMCHER

ECONOMICS: mktg, finance, accounting, ..

PSYCHOLOGY: Sociology, Law, ...

The **foundations of Neuroeconomics** are laid!
proposing the **first** theoretical vision of
neuro-correlates of economic decision making!
In **2003**, he founded the **Center for Neuroeconomics** at NYU!




Boosting Research Activity in Neuroeconomics
Italian Participation

GianMario Ruggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome



Since 2004, neuroeconomists
 (economists, *together* with physiologists, neuradiologists, neurologists, neuropsychologists,...)
 try to enter "humbly" the Black Box... "in vivo"!!
 ...to understand and quantify the "brain's role" in decision-making!



b.r.a.i.n.-line
 Boosting Research Activity in Neuroeconomics
 (Interdisciplinary)

GianMario Raggetti – Maria Gabriella Ceravolo – Vincenzo Farina
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...the neuroeconomists, work in interdisciplinary teams,
 and to interview the "brain" they use complex tools..



The functional Magnetic Resonance



The Eye-Tracking



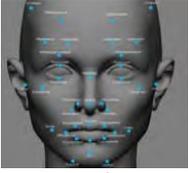
E.E.G.



Trancranic Direct Stimulation



Magnetic Transcranic Stimulation



Face analysis



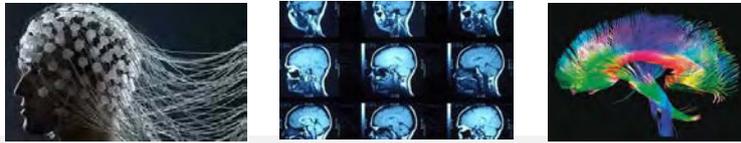
D.T.I. Tractography



b.r.a.i.n.-line
 Boosting Research Activity in Neuroeconomics
 (Interdisciplinary)

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The collection of *electro-physical neural signals* and *neuroimages, in vivo* and..the knowledge of the *synaptic connections...(connectome) plasticity*

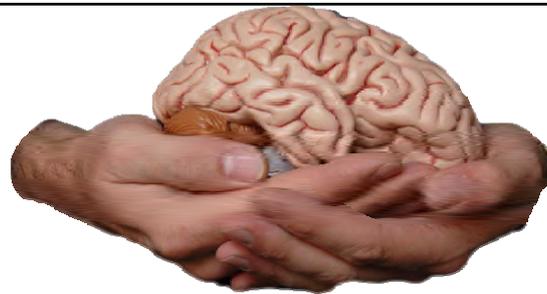


...allow neuroeconomists to *enter the Black Box*,
to *examine the, automatic and unconscious, Brain's role*,
as a *living organ*, in the *decision-making process!*



b.r.a.i.n.-line
Boosting Research Activity in Neuroeconomics
Italian Universities

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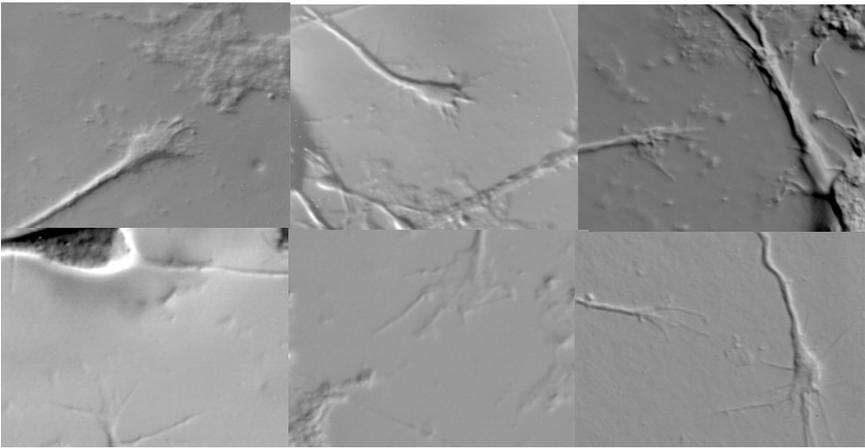


The neuroeconomists begin to navigate, *humbly*,
inside a *living organ, complex, wonderful, very powerful*,
discovering his *structures, functioning...and plasticity!*
(*80-100 Billion of Neurons...and the plasticity of Trillions of synapsis.!*)



b.r.a.i.n.-line
Boosting Research Activity in Neuroeconomics
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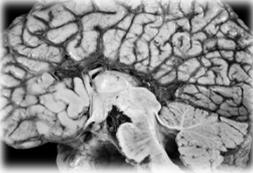


*..synaptic plasticity provokes **emotions** and **mental states**
...inducing, **motor** and **cognitive, reactions**,
often **predictive...**
of **changes** in our **preferences, decisions, behavior, personality!***

 **b.r.a.i.n.-line**
Boosting Research Activity in Neuroeconomics
Italian Universities

GianMario Ruggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome



*The **Neurofinance** can provide **innovative data mine**,
measuring the **neural correlates** of decision making..
of the bank and financial institutions **customers!***

*This can improve the **FinCoNet associate's professional assignment!***

 **b.r.a.i.n.-line**
Boosting Research Activity in Neuroeconomics
Italian Universities

GianMario Ruggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome

Maria Gabriella Ceravolo

MD, PhD, Neurologist at Università Politecnica Marche

Thank you Professor Raggetti, dear Chairman, dear colleagues, dear Dr. Bianco.

Thank you for this kind invitation that allows me the opportunity to present you with the results of our research works, by which, we had the ambition of opening the black box and looking in the brain.

So, some of you may have read this provocative paper that appear on the economist around 10 years ago.

It challenges the hypothesis that economists needed to brain, as they hardly use their brain to predict the financial crisis in 2008.

At that time, the new burden discipline and the very strange discipline that was called neuro economics, started since a very few years and without claimer, it started to investigate the role of different mechanisms supporting human choices.

So, after 2002 and even more after 2008, the number of papers investigating the role of emotions in our decisions has grown impressively.

So, the traditional, relational choice model that leaked the characteristics of decision maker, the characteristics of options to the decision and to the expected outcomes that you can see here, outlined by straight black lines, superseded to a more complex model, where the current emotions, the incidental influences of mood whether carryover effects had to be taken into account, in order to explain the variability of human choices.

So, I hope you will not be worried by the schema but I want just to present you, how there are different areas in our brain that here, just purposefully, have been coloured with the green, cyan and pink in order to highlight that we have different networks that are specialized to process information in a different way to support our decision.

So, we have a reward network that is mainly devoted to represent the value or the utility of the different choices.

So, also to represent the expected pleasure or reward that we will get from the achievement over one option.

There is the salience network that has been developed by the brain, in order to distinguish between relevant and irrelevant information and finally, what is most important reason executive network that plays an important role, especially, in those scenarios where uncertainty and ambiguity, leads in the decision making process and the modulation of these areas, the frontal area and the parietal cortex area, make an individual to be risk tolerant or risk averse.

So, it is really interesting to try to understand the interplay between the activation of these areas in real financial decision and I am proud to say that we performed the first ever research study, where brain activity of professional traders was recorded while they negotiated in the real stock market, using their own bank account.

This was made possible by a technology that is called the functional magnetic resonance imaging.

Here, you can see the traders that were putting the scanner of the magnetic resonance and they had glasses, special glasses, by which, they could look at the different stock options and negotiate the options that were displayed on a PC screen while we recorded their brain activity.

So, what we expected, we observed that because the executive network, the network, those areas that are more relevant in taking the final decisions, were really activated in this traders but not only the executive network, also the reward network was greatly active and what is most intriguing is that the age, the professional experience of traders modulated the activation of both, the reward and the executive network and what is most interesting is that by a personality questionnaire, we could distinguish two subgroups of bold people and wise people i.e.

those traders that were more risk averse or risk tolerant or risk seeker and their brain activities was different, in that the executive network worked better in those who were wise than in those who were bold and these also translated in a different behavior when they negotiated in the stock market because the bold ones performed a higher number of negotiations but and less than the wise ones.

So, studying brain activity can open as very interesting scenarios, in order to think about how to modulate stimuli.

This is our most recent publication, it appeared just a couple of weeks ago.

Again, we put a young individuals, so they were students from the school of medicine in Ancona, in a scanner of the functional magnetic resonance imaging.

They were watching footages, displaying routine purchasing with different amounts of money, using cash or digital money card or smartphone while we recorded their brain activity and what we observed again, was what we expected to observe that using cash and imagining to use cash to pay fuel, activates much more of the salience network than using digital money and what is most impressive is that changing the amount of money makes the difference for the activation of this salience network but only when cash is involved.

It seems that paying with cash activates those negative feeling of parting with money.

Whereas, using digital money is less powerful as a stimulus to activate this pain of payment and this can have some consequences for regulators concerned with digital gambling or shopping.

Finally, I want just to underline that our salient network is one of the best tools that our brain has developed through years through centuries, through thousands of years, in order to help us to distinguish the information that is really relevant for our decision from the background noise.

Of course, we use a mechanism that is called the selective visual attention to do these and the task that selective visual attention does is really complex because it has to take into account a variety of different features that are pertinent or relevant for the stimulus, are relevant for the task that has to be realized, that are relevant for the cognitive features of the individual for the personality profile for the heuristics of individuals but thanks to technology, we are able now to use our understanding of visual attention, in order to get clues about those mechanisms that drive decisions because we can just study gaze direction and gaze duration on different areas of interest displayed on a desktop screen, for instance, where

financial documents are displayed and try to understand whether the stimulus features like, the color or the position of information that has been put on a financial document, easy enough to affect the consequent decision, easy enough to drive the subjective perception of financial attractiveness of products and this can be interesting also for regulators.

I will now stop my presentation to give the floor to Professor Farina, who will present you just with the results of our most recent studies using the eye tracking methodology.

Thank you.

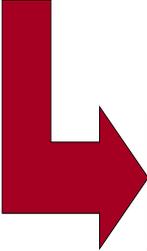
REVIEW

Neuroeconomics: The Consilience of Brain and Decision

Paul W. Glimcher^{1*} and Aldo Rustichini²

www.sciencemag.org SCIENCE VOL 306 15 OCTOBER 2004





DO ECONOMISTS NEED BRAINS?

Jul 24th 2008

The
Economist



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Boosting Research Activity in Neuroeconomics
(Brain & Economics)

GianMario Raggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome

Emotion and Decision Making

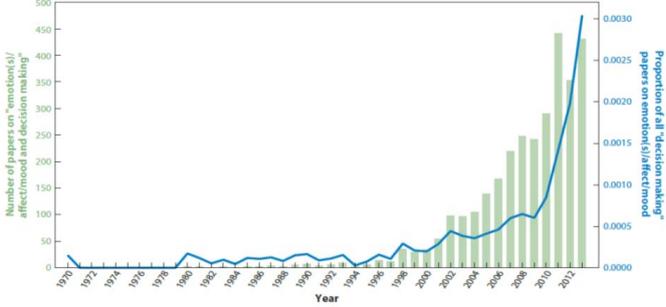
Jennifer S. Lerner,¹ Ye Li,² Piercarlo Valdesolo,³
and Karim Kassam⁴

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2014



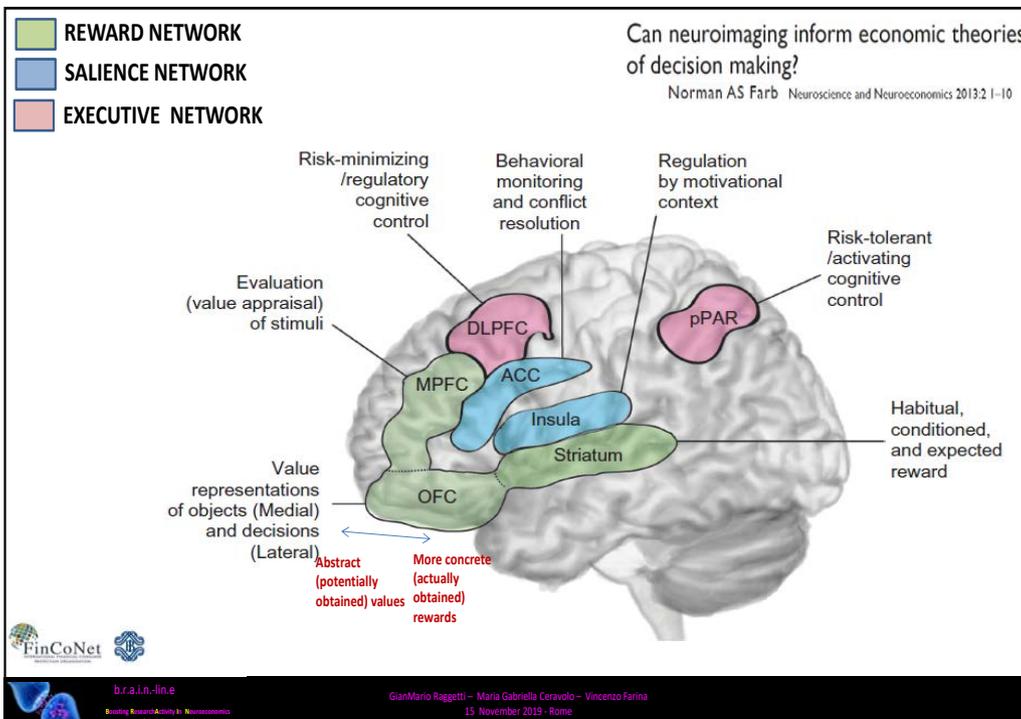
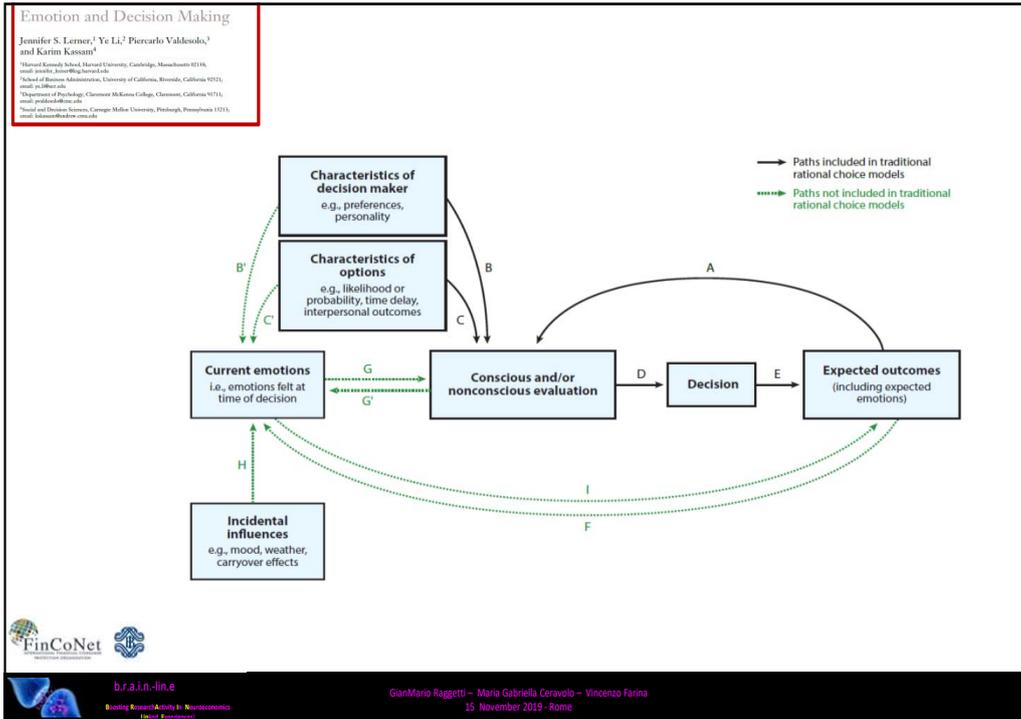
The exponential growth in the number of studies exploring
the role of emotions in decision making, starts from 2002





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REWARD NETWORK = represents the value or utility of the choice ; pushes towards gaining rewards in the short-term

+

SALIENCE NETWORK= how easily the choice captures attention and generates arousal; is involved in decisions on outcomes available in the long term.

Can neuroimaging inform economic theories of decision making?
Norman AS Farib Neuroscience and Neuroeconomics 2012 1-10

GianMario Raggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome

EXECUTIVE NETWORK **top-down regulation of value appraisal**

In ambiguous situations where reward values have not already been associated with a stimulus or behavior,

cognitive evaluation occurs, in a network of brain regions including the lateral PFC, which activates most strongly for participants who are risk averse, and the posterior parietal cortex for participants who prefer risk

Can neuroimaging inform economic theories of decision making?
Norman AS Farib Neuroscience and Neuroeconomics 2012 1-10

GianMario Raggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome

ORIGINAL RESEARCH
published: 29 September 2017
doi: 10.3389/fnins.2017.00636

Neural Correlates of Direct Access Trading in a Real Stock Market: An fMRI Investigation

GianMario Ruggetti^{1,2}, Maria G. Ceravolo^{1,2*}, Lucrezia Fattobene^{2,3} and Cinzia Di Dio^{4*}

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Frontiers Publications

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15 November 2019 - Rome

EXPERIENCE

AGE

TRADERS' AGE AND EXPERIENCE WERE INVERSELY RELATED TO THE AROUSAL AND COGNITIVE EFFORT, RESPECTIVELY.

MOREOVER, THE SUBGROUP WITH A «BOLD» PSYCHOLOGICAL PROFILE (RED HISTOGRAMS) SHOWED:

- REDUCED ACTIVATION OF AREAS USUALLY INVOLVED IN THE CONTROL OF IMPULSIVE BEHAVIOUR
- MORE INTENSE AND LESS EFFICIENT TRADING ACTIVITY

TIME TO DECISION

DECISIONAL EFFICIENCY

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Frontiers Publications

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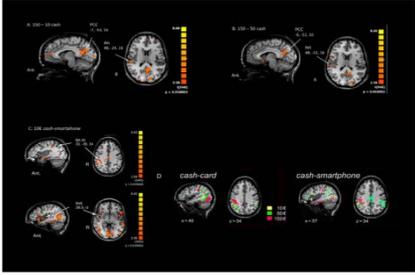

frontiers
in Neuroscience

BRIEF RESEARCH REPORT
published: 05 November 2019
doi: 10.3389/fnins.2019.01158



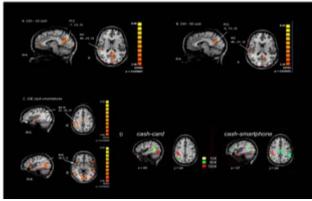
Cash, Card or Smartphone: The Neural Correlates of Payment Methods

Maria Gabriella Ceravolo^{1,2}, Mara Fabri¹, Lucrezia Fattobene^{1,2,4*}, Gabriele Polonara⁵ and GianMario Ruggetti^{1*}



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Boosting Research Activity in Neuroeconomics
through Fundraising

GianMario Ruggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome









frontiers
in Neuroscience

BRIEF RESEARCH REPORT
published: 05 November 2019
doi: 10.3389/fnins.2019.01158



Cash, Card or Smartphone: The Neural Correlates of Payment Methods

Maria Gabriella Ceravolo^{1,2}, Mara Fabri¹, Lucrezia Fattobene^{1,2,4*}, Gabriele Polonara⁵ and GianMario Ruggetti^{1*}

Greater activation of the parietal cortex and right insula observed during the exposure of subjects to videoclips showing payments with **cash** than with either card or smartphone, with any amount of money.
A significant greater activation of the right parietal cortex, right INS and posterior cingulate cortex was observed with 150€ than 50€ and 10€, only in the cash condition.

Cash enhances the salience and negative affective valence of parting with money, as suggested by the greater activity of areas processing the perceived utility of motor behavior (e.g., the parietal cortex), and the individual emotional involvement (e.g., INS).

Cash payment represent a stronger self-regulating tool.

This information can be useful for those interested in regulating compulsive shopping or digital gambling.

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through Fundraising

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15 November 2019 - Rome

SALIENCE NETWORK= how easily the choice captures attention and generates arousal; is involved in decisions on outcomes available in the long term.

Although we experience a complete image of the visual world, our capacity to process all facets of available visual information is **extremely limited**.

We tend to perceive **ONLY** the information most relevant to our behavioral goals.

Although the visual system carries out a more or less exhaustive extraction of visual information from the environment, at least at early stages, our behavior is driven only by the small subset of that information that is most pertinent =

selective visual attention is one of the more fundamental cognitive functions




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SELECTIVE VISUAL ATTENTION

A process oriented to select /filter sensory stimuli and allow only a few of them to be included in the decisional process
(any unnecessary information is automatically excluded in order to spare the overload on the working memory)

**THERE ARE SEVERAL VARIABLES
INFLUENCING THE MECHANISMS BY WHICH
INFORMATION IS FILTERED**



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STIMULUS DRIVEN ATTENTION	GOAL DRIVEN ATTENTION	WORKING MEMORY
Saliency	Task instructions	Consideration sets
Surface size	Utility effects	Pair-wise comparison
Visual clutter	Euristics	Information complexity
Position	Attention phases	Presentation effects
	Learning effects	Decision difficulty
		Time pressure
		Distractors



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FinCoNet - Banca d'Italia

GianMario Raggetti – Maria Gabriella Ceravolo – Vincenzo Farina
 15 November 2019 - Rome

Why bother with the brain?
 A role for decision neuroscience in understanding strategic variability

Vinod Venkatraman

Progress in Brain Research, Volume 202,
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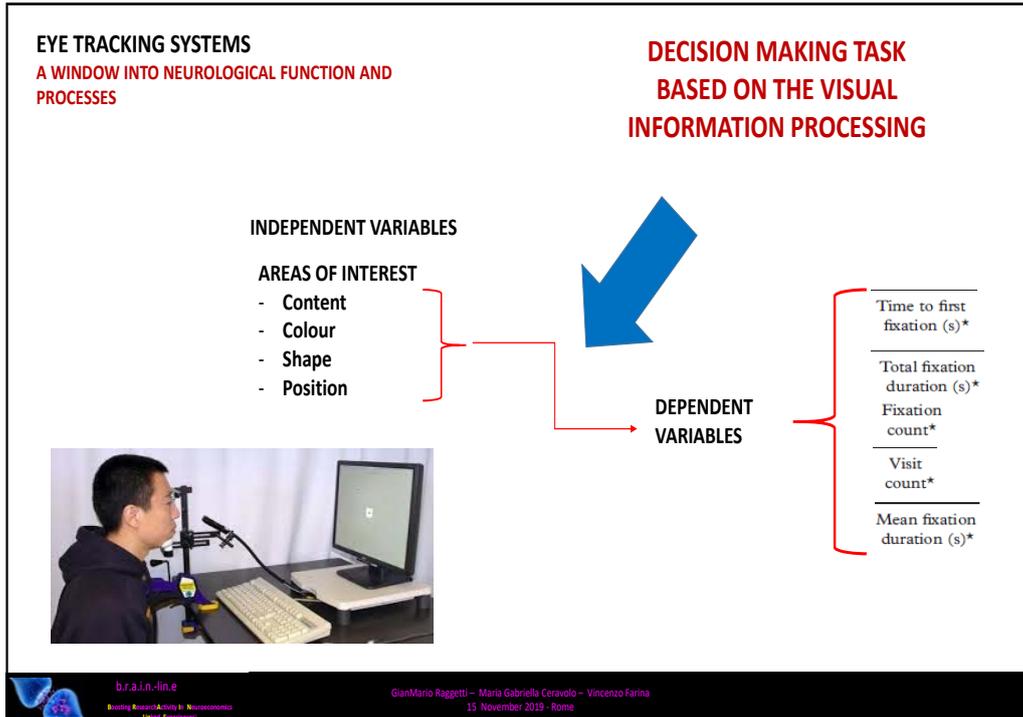
Gaze duration on specific areas of interest may be taken as a proxy of greater value given to those AOIs and a likely predictor of the following decision .



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Vincenzo Farina

Professor in Financial Intermediaries at School of Economy, University of Rome Tor Vergata

Thank you Professor Ceravolo, dear Chairman, dear colleagues, dear Dr. Bianco.

Thank you for this kind invitation. It's a pleasure to present a real application of the concepts previously expressed. In particular, exploiting the analysis of visual attention, we look at the role of the colours and impulsiveness of individuals, in order to see if these two characteristics affect how we analyse documents and how we make decisions.

The idea is that individual biases are the basis of incorrect information, in accordance to what was said before by Dr. Signorini.

We propose two solutions.

The first solution is to reduce the limitation of our rationality and, in this field, financial education is obviously a recommended tool. However, financial education should be oriented not only to the main topics of finance but also on cognitive biases.

The other solution is to design choice environments that are suitable to our limited rationality and, in this field, we analysed the topic of neuro-ergonomics of financial documents.

When it comes to neuro-ergonomics, what is important is the visual attention and the different solutions to increase the level of attention on salient and relevant information for consumer protection.

When preparing ads, someone uses neuro sciences. Also, banks are investing in neuro sciences to improve their relationship with customers.

Whether, the main aim is to increase the possibilities to make better decisions for individuals or to manipulate, well this is another topic. For sure, what we know is that available information, not necessarily, increases decisional accuracy since we have an inverse U-shaped relationship between the number of items of information and the decision on accuracy. In parallel, we also have an increase in the level of confidence, when you have a lot of information.

So, theoretically, we could rely on a lot of information, now thinking we are right, and we are overconfident on our wrong decisions.

Well, the purpose of our study is to investigate the patterns of eye movements in the early phases of information acquisition during the reading of financial disclosure documents, disentangling the independent role of color and impulsivity at modulating attention distribution toward the different sources of financial information.

The tool that we use is an eye tracker and these are the relevant characteristics of these equipment.

We can measure, how people scan the document and also, pupil dilatation and here, we have the object of our analysis.

The financial document that we propose is the key investor information document (kiid). Here, we have an ecological version of this document with the identification of four main areas of attention, namely objectives and investment policy, risk and reward profile, charges and past performance.

In addition, we identified the following sub areas of attention, namely the indicator of risk and reward, the first three years of past performance, the last three years of past performance and the disclaimer. The latter is simply an obvious disclaimer saying that past performance is not predictive of future performance.

This is our protocol.

Each participant was exposed to our stimuli and at the beginning, you see a black cross in the middle of the screen. Then after five hundred milliseconds, you have the first stimulus, that is our key investor information document. In detail we have colored kiids and non-colored, black and white, kiids. After 60 seconds, you have another screen where you can evaluate the convenience of the product and this task is repeated 18 times for each participant.

A total of 90 participants with normal or corrected to normal vision and no report of eye or neurological diseases volunteered for the experiments.

They were all Italian undergraduate students, with basic data analysis skill, as documented by successful completion of a Statistics course, and who declared no previous exposure to financial documents and no gambling attitude.

Data from 9 participants were discarded because eye tracking score for calibration and validation were below the acceptance threshold.

The final sample consisted of 81 participants

Out of 81, 40 were randomly assigned to read black and white documents and 41 were assigned to read colored documents.

Does color affect attention? The answer is yes. As you can see, we have some areas of the document for which we noticed some relevant differences. For example, objectives, charges, disclaimer and risk reward profile receive a higher level of attention in colored documents.

Does colours affect the financial attractiveness of the product? The answer is still, yes. Colored documents influence not only the way we look at the document but also the level of financial attractiveness of the products represented in that document. These are really important results.

Finally, the role of impulsiveness.

It was measured through the Barratt Impulsiveness Scale and it was inversely related to the first and average fixation duration. Interestingly, such association was highly significant when subjects were exposed to black and white kiids, though disappeared in presence of colored documents.

In other terms, the color reduces the negative effect of impulsiveness so that participants observe more carefully the documents.

In conclusion some key messages coming from the results. First, it is possible to improve the neuro-ergonomics of financial documents. Second, we think that supervisors' activities could benefit from the consideration of how financial institutions frame their documents for the public. Third, it is important to increase the awareness of financial consumers about these types of biases. Finally, there are broad possibilities to exploit the insights offered by a neuro-scientific approach to increase financial consumer protection.

Thank you for your kind attention.

frontiers
in Neuroscience

ORIGINAL RESEARCH
published: 06 August 2019
doi: 10.3389/fnins.2019.00818

Check for updates

Attention Allocation to Financial Information: The Role of Color and Impulsivity Personality Trait

Maria G. Ceravolo^{1,2}, Rocco Cerroni³, Vincenzo Farina⁴, Lucrezia Fattobene^{1*}, Lucia Leonelli⁴, Nicola B. Mercuri^{2,5} and GianMario Ruggetti^{1,2*}

- Cognitive biases are the basis for incorrect financial decisions
- Solutions?
 - Reducing the limits of our rationality → **Financial education**
 - Design "choice environments" suitable to our limited rationality → **Neuroergonomics**

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Innovative Perspectives

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The neuroergonomics of financial documents

"What information consumes is rather obvious: it consumes the attention of its recipients" (Simon, 1971)



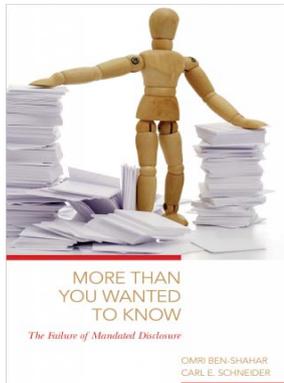
The image shows a dense collage of various financial documents, advertisements, and news snippets. On the left, there is a screenshot of a news article from 'The New York Times' titled 'Making Ads That Whisper to the Brain' by NATASHA SINGER. The article features a photograph of a person sitting at a desk with multiple computer monitors displaying various data and charts. On the right, there is a screenshot of a news article from 'oggi' titled 'Imt e Intesa creano "Innovation center lab"'. The article mentions that the Scuola Imt alti studi di Lucca has presented an innovation center lab-neuroscience, a laboratory dedicated to the study of economic, managerial, and strategic behaviors of companies, realized in collaboration with the Intesa Stipaio group.

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Innovative Perspectives

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Available information and decisional accuracy



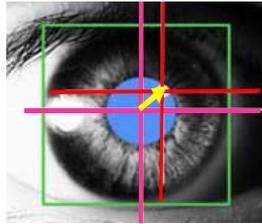
Aims

Study the patterns of eye movements in the early phases of information acquisition during the reading of financial documents, disentangling the independent role of **color** and **impulsivity** at modulating **attention distribution** toward the different sources of financial information

The tool...



15.6" laptop
 SMI REDn Scientific system
 Sampling rate = 60 Hz
 Screen resolution: 1366 x 768
 5-point monitor calibration



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Boosting Research Activity in Neuroeconomics
 (Research Programme)

GianMario Raggetti – Maria Gabriella Ceravolo – Vincenzo Farina
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1 **OBIETTIVI E POLITICA DI INVESTIMENTO**

Obiettivi e politica di investimento del Fondo: il Fondo mira ad incrementare gradualmente il valore del capitale investito attraverso l'investimento in strumenti finanziari di natura obbligazionaria ed azionaria.

Principali categorie di strumenti finanziari oggetto di investimento: strumenti finanziari di natura obbligazionaria e strumenti del mercato monetario di emittenti sovranari ed assimilati, organismi sovranazionali nonché emittenti societari, nei mercati dei Paesi Sviluppati.

3 **SPESE**

Spese "una tantum", prelevate prima o dopo l'investimento	
Spese di sottoscrizione - Classe A	3%
Spese di rimborso - Classe A	0%
Percentuale massima che può essere prelevata dal capitale prima che venga investito	
Spese prelevate dal Fondo in un anno	
Spese correnti - Classe A	1,24%
Spese prelevate dal Fondo a determinate condizioni specifiche	
Commissioni legate al rendimento (performance)	0%

2 **INDICATORE RISCHIO RENDIMENTO**

I dati storici utilizzati per calcolare l'indicatore sintetico potrebbero non costituire un'indicazione affidabile circa il futuro profilo di rischio del Fondo.

Altri rischi che rivestono importanza significativa per il Fondo e che non sono adeguatamente rilevati dall'indicatore sintetico:

- Rischio di credito
- Rischio di liquidità

Rischio più basso - Rischio più alto

1 2 3 4 5 6 7

8

4 **RISULTATI PASSATI**

5 **6**

7 I Rendimenti passati non sono indicativi di quelli futuri. I rendimenti rappresentati si riferiscono agli ultimi 10 anni.

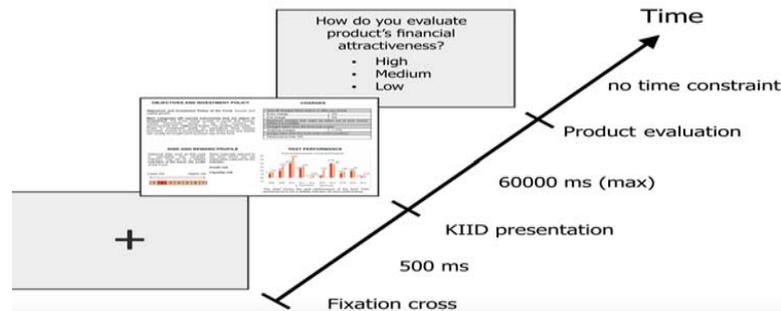


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Eye-tracking protocol



In the neutral condition, the standardized KIIDs were drafted in black and white. In the colored condition, visual stimuli were built using either blue, or red.



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Health & Performance

GianMario Ruggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome

Participants

- A total of **90 participants** with normal or corrected to normal vision and no report of eye or neurological diseases volunteered for the experiments.
- They were all Italian undergraduate students, with basic data analysis skill (as documented by successful completion of a Statistics course), and who declared no previous exposure to financial documents and no gambling attitude.
- Data from **9 participants** were discarded because eye tracking score for calibration and validation were below the acceptance threshold.
- The final sample consisted of **81 participants** (age: 24 ± 2 years).
- Out of 81, **40** (age: 23 ± 2 ; females = 15) were random assigned to read **black and white** documents and **41** (age: 24 ± 2 ; females = 26) were assigned to read **colored documents**.

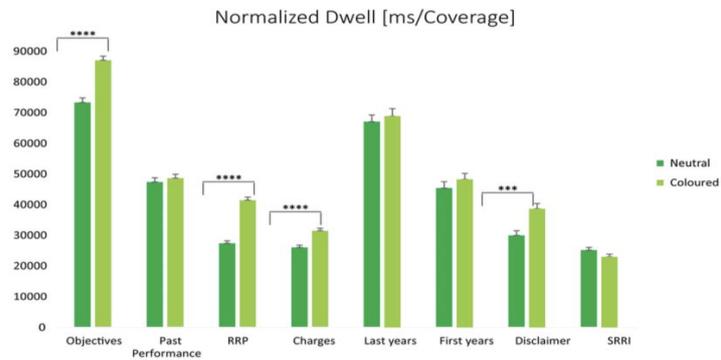


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Boosting Research Activity in Neuroeconomics
Health & Performance

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15 November 2019 - Rome

Does color affect attention?

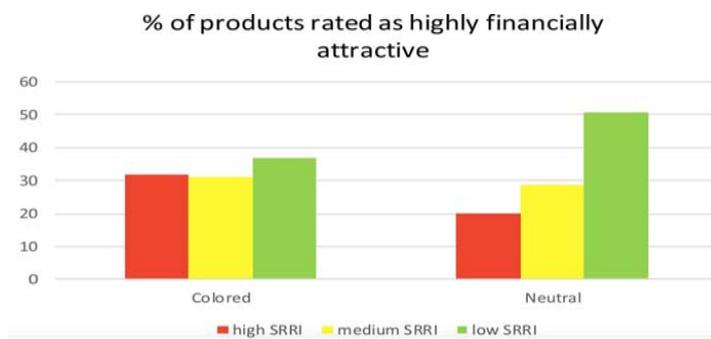


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Boosting Research Activity in Neuroeconomics
Health & Performance

GianMario Ruggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome

Does color affect financial attractiveness?



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Boosting Research Activity in Neuroeconomics
Health & Performance

GianMario Ruggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome



Impulsiveness, color and attention

- **Impulsiveness**, measured through the Barratt Impulsiveness Scale (BIS-11), was **inversely related** to the first and average fixation duration.
- Interestingly, such association was highly significant when subjects were exposed to black and white KIIDs, **though disappeared in presence of colored documents**.
- This evidence suggests that the **increased attention induced by color is strong enough to compensate for individual impulsivity**.



brain-line
Boosting Research Activity in Neuroeconomics
Linked Evidences

GianMario Ruggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome



Conclusions

- Improve the **neuroergonomics** of financial documents
- Inform **regulators and supervisors** that the colour of financial documents can affect investors' behaviour
- Propose a **neuroscientific approach** to investigate neural processes which occur below the awareness level



brain-line
Boosting Research Activity in Neuroeconomics
Linked Evidences

GianMario Ruggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome



The Association "B.R.A.I.N.- LIN.E."
(Boosting Research Activity in Neuroeconomics - Linked Experiences)
is co-promoted by
the Polytechnic University of Marche (Ancona)
and University of Rome Tor Vergata.

The Association stimulates *interdisciplinary scientific research*,
in *Neuroeconomics, Neurofinance, Neuromarketing*, ...
to learn about the role of the human brain
in *economic, financial, social decision-making process*.



b.r.a.i.n.-l.i.n.e
Boosting Research Activity in Neuroeconomics
Linked Experiences

GianMario Raggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome

A proposal for a neurofinance research project, innovative and *complex, interesting* for *FinCoNet members* ...?

The *neural correlates* of the trust given, or not,
to those who offer a financial investment...

...a *human being* !

...a *bank consultant* !

...a *computer* with which one operates in the financial market!

...a ... *robot advisor* of the *reference bank* ..!



b.r.a.i.n.-l.i.n.e
Boosting Research Activity in Neuroeconomics
Linked Experiences

GianMario Raggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome

The "*B.R.A.I.N.-L.I.N.E.* research team involves researchers of different Universities and academic Centers



Prof. G. Raggetti
Neuro-Economist
UNIVPM



Prof. M. G. Ceravolo
Neurologist
Neuro-Economist
UNIVPM



Prof. V. Farina
Neuro-Economist
Univ. TOR VERGATA



Prof. N. Mercuri
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Prof. Luca Passamonti
Neurologist
Univ. Cambridge



Prof. F. Hartmann
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Prof. A. Carretta
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Prof. G. Gregori
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Prof. S. Luzzi
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AA. OO. UU. Parma



Prof. G. Polonara
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Prof. M. Fabri
Neurophysiologist
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Dr. L. Fattobene
NeuroEconomist
LUM-JEAN MONNET



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LINK Campus Univ.



Prof. F. Pascucci
Economist
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Dr. R. Cerroni
Neurologist
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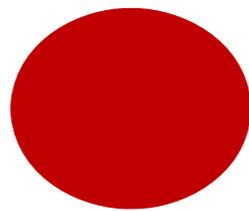


Dr. L. Pepa
Data Scientist
UNIVPM



b.r.a.i.n.-l.i.n.e
Boosting Research Activity in Neuroeconomics
Linked Expertise

GianMario Raggetti – Maria Gabriella Ceravolo – Vincenzo Farina
15 November 2019 - Rome



https://youtu.be/m0rHZ_RDdyQ

<https://youtu.be/1fnm1vGGRYI>

Panel II Experiences from financial supervisors



Jeroen Nieboer, Technical Specialist, Behavioural Science Unit, United Kingdom Financial Conduct Authority; Stefanie de Beer, Senior Supervision officer, Netherlands Authority for Financial Markets; Miles Larbey, Head of Financial Consumer Protection, OECD & FinCoNet Secretariat; Julien Brugerolle, Policy Officer, Consumer Policy Unit, European Commission; Tirta Segara, Member of the Board of Commissioners, Indonesia FSA.

Moderator

- Miles Larbey, Head of Financial Consumer Protection, OECD & FinCoNet Secretariat

Panelists

- Stefanie de Beer, Senior Supervision officer, Netherlands Authority for Financial Markets
- Jeroen Nieboer, Technical Specialist, Behavioural Science Unit, United Kingdom Financial Conduct Authority
- Julien Brugerolle, Policy Officer, Consumer Policy Unit, European Commission
- Tirta Segara, Member of the Board of Commissioners, Indonesia FSA

Stefanie de Beer

Senior Supervision officer, Netherlands Authority for Financial Markets

Thank you Miles.

Thank you for inviting me in Rome.

I hope you enjoyed your coffee break.

I think it was much needed but hopefully you'll have some concentration back for this new session.

So, yes, I work for the Dutch Financial Markets Authority.

We call it the AFM and the AFM is the supervisor for retail financial markets, capital markets and accountancy but this presentation will obviously focus on retail financial markets and the fair treatment of consumers. What I would like to do today is shortly present three pieces of research about consumer behavior and then also explain to you how we utilize these insights in our daily supervision. But first, by means of an introduction, let me tell you something about the underlying philosophy.

At the AFM, we've been using behavioral insights since 2016 and we try to use it to become more effective as a supervisor. I think this quote by Richard Taylor, nicely illustrates what we believe in and what we try to achieve.

So, first of all, we think that we need to understand the actual behavior of consumers. We believe that they are not dumb, not at all but sometimes they suffer from biases and that can cause wrong decisions. And second, we also need to understand the way in which financial institutions present information and choices to consumers because if they do it in a very commercial way, it can be very hard for consumers to make solid financial decisions.

At the AFM we believe that we need to, on the one hand, ensure that financial institutions do not misuse behavioral biases and on the other hand we also try to ensure that rules and regulations contribute to better outcomes for real consumers.

What I will tell you today is that at the AFM, we try to use behavioral insights on different levels.

First of all, my team performs high quality research to both identify and understand behavioral risks. We then try to take the insights from our research into practice by developing tools, guidelines and frameworks for our supervising colleagues. Furthermore, we utilize our findings to influence national and European policymaking and to influence the behavior of the financial institutions under our supervision.

What I will do today is illustrate how this works by sharing with you some of the work that we did on the consumer credit market.

So, in 2016, we looked at the impact of a mandatory credit warning that is presented at every loan and basically it says, "Watch out, borrowing money costs money". And we did that by performing a randomized controlled trial with a large Dutch bank.

So, we tested the effects of a warning on the behavior of actual people and these people were randomly assigned to either a website with the warning or without a warning. What we found out is, basically, that showing a warning had no effect on people's behavior. The number of loan applications didn't change, for instance and also the loan amount requested didn't change.

What we also did is, we tested different versions of a warning. But again, we found no effects. And so what we concluded from this piece of research is, if we do want to influence behavior, we should think about different interventions. That's why we started with a literature study where we identified behavioral biases and heuristics in the market for consumer credit and we also tried to find evidence in the literature for how we can influence this behaviour. What we found is that what works is to focus on the strategies that companies already use for their own commercial purposes. So, to focus more on choice architecture. And to put it very short, choice architecture is the way in which choices are presented to consumers.

Anchors, for instance, can be prefilled fields. So, a 5,000 euros loan amount versus a 25,000 euros loan amount. You can also force people to make an active choice by showing them an empty field.

So, based on this literature study, we did some suggestions for new policy interventions but we were very much aware that we would had to test them first, before we took next steps.

Again, we performed a randomized controlled trial with a large credit supplier in the Netherlands who agreed to work with us. We tested the impact of choice architecture on people's actual decisions about borrowing.

This is the Dutch online application form that we studied. I will quickly tell you what we were interested in.

First of all, we were interested in the effects of prefilled loan amounts. So, this is the 5000 euro on the screen and what we did is, we studied what happened when we changed this amount to 9000 euro or when we presented people with an empty fields.

The second thing we were interested in was the prefilled monthly repayment rate, which is 100 euro in the screen. We changed it to 150 and 200 and we also presented people with an empty field again, so active choice. And the last thing we were interested in was: what if we change the phrasing of the question about repayment? So, what if we don't ask people what amount they would be willing to pay every month? But instead ask people, what are your preferences for the contract duration? Or: what are your preferences for the total costs of this loan? I'll quickly run you through the results.

We are publishing this hopefully next week but maybe the week after. So, if you're interested to learn more, please read the report.

What we found is, if we change the prefilled loan amount from 5000 to 9000 euros, more people start borrowing 9000 euros and less people start borrowing 10,000 euros. So, there is a localized effect.

However, we did not find any effect on the average loan amount. So, there's a small impact but not on the average loan amount.

In the second part of the study, we found out that prefilled monthly repayment rates have a larger impact on people's decision. To put it short, if you present people with a higher anchor or an active choice even, people decided to pay more every month and as a consequence, they pay less for their loan in total.

And then the third part of the study showed us that if we ask people about their preferences for contract duration, instead of monthly repayment rate, people chose longer contract duration and this was a bit to our surprise because a lab study that we also performed showed that people would opt for shorter contract durations if you ask them about their preferences for the duration of the loan. This basically, stresses the importance of testing in practice.

In the last part of the study, where we asked people about their preferences for total costs instead of monthly repayment rates, 30% fewer people applied for a loan. This is quite a huge effect and the people who did apply for a loan, chose significantly shorter contract duration (12 months difference).

Some conclusions that we drew from this research.

An obvious one is: choice architecture matters. By changing architecture, we can change people's behaviour. However, we also concluded that we have to be aware because choice architecture consists of many interrelated elements that differ from one company to another.

So, not only choice architecture matters but also context matters and it matters a lot.

That brings me to the application part.

As a first stage, let me quickly draw some overall conclusions from our research.

First of all, we found that warnings have no effects on borrower behavior, at least no direct effect.

Second of all, we found that choice architecture does have an impact on borrowing behavior and we know that companies use, or at least can use, choice architecture for commercial goals. We believe that regulators and supervisors should focus on choice architecture as well.

Third conclusion that I just shared with you is: context matters. And I think because of that, regulation of very specific elements in choice architecture can be difficult. If we come up with a uniform solution for one specific element in choice architecture, firms can probably easily find workarounds.

At the AFM, I think we are aware that micro regulating choice environment is not always a clever solution. And so, we have to find ways to deal with this. We do that by, on the one hand, trying to influence policy in the Netherlands and on the other hand, influencing financial institutions.

This first slide shows the impact that we had on national policy and this didn't happen overnight. It's a result of ongoing conversations between the AFM and the finance ministry but I think, in the end, we were quite successful.

The research that the AFM performed on the credit warning caused the Ministry of Finance to critically reassess the policy goals behind the credit warning and actually, it wasn't very clear what his warning was supposed to achieve. Therefore, the finance ministry introduced three new policy objectives in 2018 and one of them said, "Do not direct consumers towards higher borrowing amounts or longer contract duration.

"So, this is much more specific and much more measurable I would say than the earlier policy goals. Quite recently, the Ministry of Finance explicitly communicated that we should focus more on choice architecture to realize policy goals and this was in line with our recommendations.

That brings me to almost the last slide of my presentation.

How do we influence financial institutions? So, what we want to achieve is choice architecture that helps consumers to make suitable decisions. We do that, not by telling financial institutions what their choice architecture should look like exactly, but by communicating with the institutions what guiding principles we will take into account in our supervision

We just started this new approach, so there are no results yet that I can share with you. But I believe that in this stage, this is probably an effective approach. On the one hand because it stimulates financial institutions to take responsibility and it makes it more difficult for them to find workarounds. And on the other hand, it provides us as a supervisor with the flexibility to deal with different and changing contexts and also to deal with new insights on choice architecture. Although there's a lot of relevant research, there's also still a lot that's unknown.

A quick recap. At the AFM, we use behavioral insights on different level. Maybe the presentation could give you the impression that these activities can easily be placed in a logical order but that's not true.

We have to shift back and forth all the time but we believe that by working on all these levels, we can have most impacts and contribute to the fair treatment of consumers.

Thank you.



The use of Behavioural insights at the Dutch Conduct Supervisor AFM

Stefanie de Beer
Manager Consumer Behaviour, Centre of Expertise

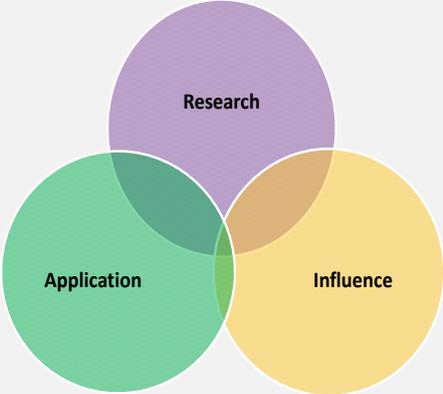
November 15th, 2019

“People aren’t dumb. The world is hard”

Richard Thaler, Nobel prize winner 2017



Consumer behaviour on different levels



Watch out! Borrowing money costs money (AFM, 2016)

Research I



A closer look at consumer borrowing (AFM, 2018)

Research II

Literature study on behavioural biases and choice architecture

- Anchors
- Active choice
- Framing



Titel rapport (AFM, 2019)

Research III

1

3

2

Titel rapport (AFM, 2019)

Research III

1. Prefilled loan amounts have minimal impact 1
2. Higher monthly repayment rates if given:
 - Active choice 3
 - Higher anchor (3%-4% instead of 2%) 2
3.
 - Ask for total costs → less applications, shorter contract duration if people do apply
 - Ask for duration → less applications, longer contract duration if people do apply

Let op! Geld lenen kost geld

freet

Vrijblijvende offerte

Maak eerst uw berekening en vraag vrijblijvend uw offerte aan bij Freet.

Hoeveel wilt u lenen?

Gebruik de balk om een lenenbedrag te kiezen

€ 5000

5.000 75.000

Hoeveel kunt u per maand aflossen?

€ 100

50 1.500

Uw gegevens

Waarvoor wilt u lenen?

Doelgebied Krediet	Persoonlijke Lening
5.743,98	5.817,23

7 The use of Behavioural insights at the Dutch Conduct Supervisor AFM
15 November 2019

Challenges in regulating choice architecture

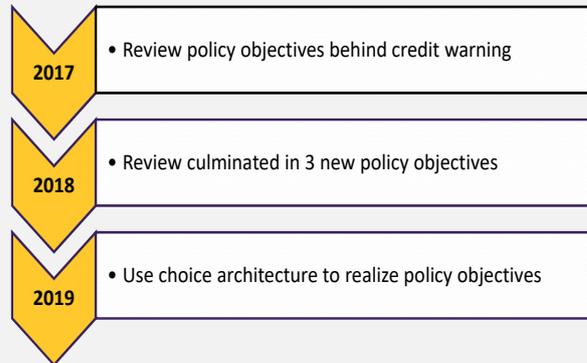
Application

1. Warnings have no effect on borrowing behaviour
2. Choice architecture does have an effect on borrowing behaviour
 - Companies use choice architecture for commercial goals
 - Regulators should focus on choice architecture as well
3. Context matters
4. Mirco-regulation not always effective solution

8 The use of Behavioural insights at the Dutch Conduct Supervisor AFM
15 November 2019

AFM influence on national policy (Finance Ministry)

Influence



AFM influence on financial institutions

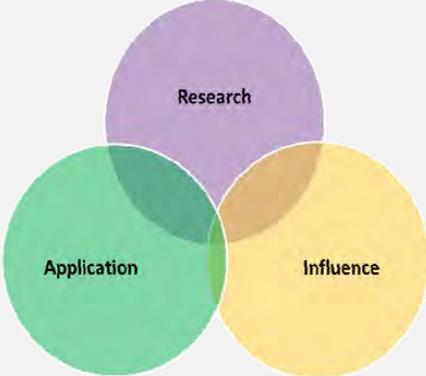
Influence

Stimulate choice architecture that helps consumers make suitable decisions



- Make conscious decisions about choice architecture design
- Design interventions that are salient in customer journey
- Ensure that operational processes support choice architecture
- Perform solid research (Randomized Controlled Trial)

Recap



Jeroen Nieboer

Technical Specialist, Behavioural Science Unit, United Kingdom Financial Conduct Authority

For those of you that were here this morning, you have heard quite a few things about the FCA already. And Peter covered a few developments in his talk.

It is nice to have heard those elements of the story first, the strategic high-level considerations, because what I will be talking about is very much the applied side: the nuts and bolts of our behavioral insights and behavioral economics work.

As Miles said, I am in the behavioral economics and design unit. We are a team of eight people and we are now in the Chief economist office of the FCA, working with other colleagues, economists and also supervisory colleagues too, basically embedding behavioral insights in all the FCA's work.

And that is my disclaimer that popped up just there.

So, I am first going to start about the recent past, the work we have done over the last five, six years. The FCA published our position paper on behavioral economics in 2013, and then, in 2015, what was then called the "behavioral economics and data science unit" was established. I believe it was the first of its kind in the world. Personally, I joined in at the beginning of 2016, so, I have seen most of the work of the team.

We have worked on many issues and many markets.

The first experiment was actually on customer redress and I want to highlight that, because it is something that we continue to advise our supervisory colleagues on. Very often, there are either a redress communication or another quite complicated communication that is issued by firms, which our supervisory colleagues have to effectively judge. It might be something like: there is a pension transfer from a defined benefit to a defined contribution scheme. This is, of course, really complicated and there is a real risk that people are making suboptimal decisions with big financial consequences.

Some of that very early work on customer redress, on getting people's attention, making things salient and simple, making it easy for people to engage and to act upon communication, still informs some of our advisory work.

That is why I want to highlight that piece of work.

We have also worked on current accounts, credit cards, insurance savings, investment funds, advertising, pretty much every sort of mainstream consumer finance product.

So, how might you think of the work that the unit does? I think, one of the headers is understanding consumers, in a way very similar to what Stefanie just talked about.

We do reviews of existing literature. There is a paper, for example, called, 'From Advert to Action', which helps us understand - using insights from psychology in the psychology and marketing literature - how people judge financial advertising and how that then affects their perception of the financial products. The image on the slide is an advertisement for a 0% balance transfer credit card: the paper talks about all the details of how that is presented, including the fact that the 0% is big and bold and salient, and how people process that information.

We also do a lot of work on household finance or consumer finance.

The paper I have highlighted in the slide (by Eric Johnson and co-authors) is actually not an FCA piece of work but I think it is a good example of the literature. It is on the role of trust in banks in accepting mortgage refinance offers. The authors found through a survey (that was issued alongside this communication) that one of the things that was most important, if not the most important, in whether people are responding to refinancing offers from their mortgage lender, was whether they had a high general trust in banks.

That, I think, is a nice example of where some of these psychological factors (that traditional economic research does not measure) affect people's decisions.

Then finally, something we have done quite a lot of work on is experiments on decision making in naturally occurring context. The example I have here is research on opt-out insurance sales.

As you can see on the screen (right down at the bottom), you might have seen this whenever you book a flight: you book your flight and then you get to the next screen where the airline automatically opts you into a bunch of these extra products. This is most frequent for travel insurance and we (actually colleagues of mine) did a really nice experiment in trying to find out, how the presentation of that offer, right at the point of sale, affected people's propensity to shop around and search for a good deal on their travel insurance and other insurance products.

The other big part of that work is on the firm side: how products are designed and how firms are working with these behavioral insights? A very early example is the quote that I put up on the screen on credit card minimum payments. Credit cards work quite differently in different countries but the way they work in the UK, is that they are a revolving line of credit and the only set amount you have to pay is what is called "a minimum payment" and that is enshrined in law and it is approximately 1% of your outstanding balance plus a little bit.

If you hold a large balance on your credit card, this could take a very long time to pay off. Research in this area showed that minimum payment, if it is made very prominent, can act as an anchor. So people start thinking of it as "appropriate" and start paying down less than they otherwise would have, if the anchor was not there. That is a nice example of how the behavioral literature can be applied directly to the products we see.

I don't think that behavioral issues are created by design by firms.

Another example is, we often hear about the fact that it is a lot easier to join a new financial firm or get a new product than to leave. There are many examples in investment funds. I do not necessarily think that it is always by design, I just think the commercial imperative is always to bring in new consumers and that is probably where firms naturally spend more of their resources (not so much on making it easy for people to switch away). So, it is not necessarily all intentional but it still means that you might end up with these behavioral issues (and obviously, some behavioral issues do arise by design).

The example I have here is from the US. In the box there is part of the "Truth in Lending Act" in the US; these four cells in the table summarize the details of the loan (in this case, a pay day loan that people were taking out). What I underlined here says, "if you decline the option of renewing your loan...": this payday loan was set up in a way that if you do not actively opt out of renewing your loan, the loan

would automatically roll over at the end of the agreed period and you would just continue to pay finance charges. And they would only very late start taking some of the money to pay down the principal.

This is a quite good example of where firms were probably quite conscious of the way they were designing the products and how that might help their profitability, through taking advantage of people's behavioral biases.

If you are interested, there is a show called "Dirty money" on Netflix which actually talks all about a guy who made a lot of money off these products (and is now in prison, by the way).

Some of the other work we do is policy testing, most of it through randomized control trials. For example, we found that putting last year's insurance premium on people's renewal letters increased their propensity to switch insurance providers when they received this letter.

We also found that automatically enrolling people in "overdraft text alert messages" reduced their overdraft fees by up to 18% in some cases. This is a nice example of choice architecture because these text messages were available. In most countries now they're available: your bank will allow you to set up an alert which tells you when you are going into the red, but they are not switched on by default and that's the policy we tested. It is a very simple example of switching from an opt-in to an opt-out policy and we found that it had huge effects, whilst retaining the freedom for people who did not want to receive these messages had to opt out (and not receive them).

Finally, going back to what I was saying earlier, about minimum payments on credit cards, we also tested that. The screenshot shows you how the minimum repayment would have appeared on a screen that you would see when you first opened your credit card account. We just tested working with several credit card providers.

What would happen, if you just removed that option? There were quite clever ways in which they designed the experiment, such that we didn't break the law.

The minimum payment amount was actually still in effect but it was not there on the screen as a salient option. Unfortunately, we found that it did not increase people's credit repayment, which really surprised us and some of our colleagues. This is a nice example of the transparency that testing these interventions and publishing the results creates, because this is something that based on the literature looked like a really good idea, but we found that in practice, in this case, it didn't work.

If I had to sum up some of our recent work but also some of the work we have seen in other countries, there is a very nice little booklet that Pete Lunn wrote for the OECD (Regulatory Policy and Behavioral Economics). He says that three principles of behavioral economics featured very strongly in these early applications.

There is the simplicity of information, and I think we have already discussed that. People are drawn towards more convenient options, especially default: I think that's a nice link to the work we did on overdraft text alerts, where we find out that switching from an opt-in to an opt-out makes a big difference without making anyone worse off and then finally, the salience of options or attributes: what is salient to people when they are making these decisions.

I want to spend the last few minutes talking about some suggested new directions, some of the things that we have been talking about, perhaps not working on yet but I could see some of these developments becoming more important in the next 5 to 10 years.

So, the first big one is behavioral economics or behavioral insights and technology. What I mean by that is, if you just take behavioral insights and then test those behavioral insights with large volumes of data, you effectively get what modern tech firms do these days to sell their products and to get you to engage with what they are offering you.

So, Uber is a good example. There is quite a lot online if you want to find out how they experiment, on both sides of their platform (drivers and on their consumers). They do this continuously. They have a very sophisticated platform and you have a continuous and dynamic experimentation that is going on.

I think it is not too bold to say that, even though the nudge ideas originated in academia and some of the famous early applications are in government (and I think the UK has been at the forefront of that), technology firms are probably now the frontier for using these techniques to sell things to people and to influence people's behaviour.

That obviously means that we need to think about what that means because: first, will financial services firms adopt these models and these techniques? To some extent in their marketing communications they already are doing it. But obviously this could be developed much more and could go further into product design.

Will technology firms move into financial services? I think, we are already seeing a bit of a rapprochement there, where some of the financial services firms are starting to describe themselves as technology companies and some of the technology companies are now moving into financial services markets, perhaps a little bit cautiously. I don't know if you've followed the news on Apple and their credit card in the US. They were working with Goldman Sachs on a credit card and they have recently ended up in quite a lot of hot water over some of their credit scoring and credit limit decisions. But these kind of crossovers are more likely to happen and then we need to think about what does that mean for consumer outcomes. What does that mean for the fairness in these markets? I think, the apple example is a really good one there.

How might we ensure that these new techniques and the combination of data science and behavioral science is used for good? First of all we might develop criteria for ensuring that firms remain accountable for the outcomes when you use algorithms or when you use different types of experiments that interact with each other. Or you might think of policing what are the outcomes in these markets. Can we give firms certain targets of what we would like to see? Lauren Willis has a good paper on performance-based regulation that sets out some of the ways we might measure outcomes and how to measure whether people are making informed decisions.

A separate point of interest is how we might use data science to detect vulnerable consumers that are losing out because of their behavioral biases. Can we use experimentation to find out ways of helping them?

In the interest of time, I will now quickly go through the last two slides.

The first is on behavioral industrial organization. This a literature that influenced a lot the early thinking but perhaps has not been so much used in practice. We often talk about these behavioral issues (inertia and attention confusion) but we do not necessarily work with very precise measures of what these mean in our models (what percentage of the population is inert, for example). I would like us to think more about how we can be more precise. Could we perhaps use some of these parameters in our cost benefit analysis? There is some recent work on savings accounts, at the FCA, that goes in that direction already.

I will close on a methodological point. What we have done quite recently is using online experiments on policymaking. They are obviously a lot faster for running full scale randomized control trials with firms. In some ways you could think of them as a substitute.

The UK Behavioral Insights Team is an early pioneer of this approach with its “predictive” platform which allows the most interesting application I’ve seen. There are lots of different interventions you might test on a consumer population but you can’t necessarily run them all in an RCT (Randomized Control Trial). An online experiment is something you can run beforehand to reduce the number of options that you will be putting in front of people in the RCT. As I said, we are starting to explore these. We have already a few examples of working on these markets but one thing we need to be very mindful is external validity issue.

I think that is going to be a very interesting dialogue, as we use more of these online experiments. Where can you use them? Where can’t you use them? How can you extrapolate from those findings? That was it.

Thank you very much.



Behavioural insights for conduct supervision

Banca d'Italia/FinCoNet International Seminar on Financial Consumer Protection, 15/11/2019

Jeroen Nieboer
Technical Specialist
Behavioural Economics and Design Unit

The content of these slides represent the view of the presenter and not those of the Financial Conduct Authority. Any errors are the presenter's own responsibility.

1

Using behavioural economics
for conduct regulation: the
recent past

2

BE at the FCA

We published our position paper on behavioural economics in 2013

Behavioural economics unit established in 2015

- First of its kind in the world



BE work on customer redress, current accounts, credit cards, insurance, savings, investment funds, financial advertising...

3

Understanding consumers

Reviews of existing literature

- “From advert to action” paper



Household/consumer finance research

- E.g. Johnson et al (2019) on role of trust in banks in accepting mortgage refinancing offers

Experiments on decision-making in naturally occurring contexts

- Research on opt-out insurance sales

Yes, I want to add the Total Protection Plan to my trip to London.
 ⚡ 27,912 customers protected their flight in the last 7 days

No, I'm willing to risk my \$865.60 trip.

4

Understanding products and firms

Use behavioural theory to assess product design

"Credit card minimum payment...can serve as an anchor and as a nudge that this payment is an appropriate amount"

Nudge, Thaler & Sunstein (2008)

Behavioural issues may not arise by design, but key question: **does the market resolve them?**

Some behavioural issues arise by design...

ANNUAL PERCENTAGE RATE The cost of your credit as a yearly rate (a) 684.38%	FINANCE CHARGE The dollar amount the credit will cost you \$90.00	Amount Financed The amount of credit provided to you or on your behalf. \$300.00	Total of The amount you have made payment. \$380.00
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Your Payment Schedule will be: 1 payment of \$380.00 due on 2010-09-24, if you decline* the option of renewing your loan, if your pay date falls on a

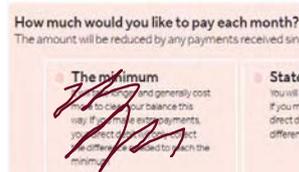


5

Policy testing

We've tested policy interventions in RCTs:

- Putting last year's premium on people's renewal letter increases insurance provider switching
- Automatically enrolling people in overdraft text message alerts reduces fees by up to 18%
- Removing the minimum option from credit card repayment set-up does... not increase repayment



6

Summing up recent work in and outside FCA

“Three principles of behavioural economics feature strongly in the early applications to regulation design.

- 1. First, choices are influenced by the **simplicity of information** and the range of available options.*
- 2. Second, people are drawn towards more convenient options, **especially default options**.*
- 3. Third, the **salience** of options or attributes can affect how they are weighted in decisions.”*

- Lunn (2014)

7

Using behavioural economics
for conduct regulation: some
suggested new directions

8

BE & technology

When behavioural insights and testing are combined with data science, you get...

a modern tech firm (e.g. Uber, Google)

- Continuous and dynamic experimentation

Although *Nudge* famously originated in academia and government, tech firms are now the frontier

- Will financial services adopt this model? (Probably, and tech firms may move into FS.)
- What does this mean for consumer outcomes? For fairness?

9

BE & technology (II)

How can regulation ensure these new technological solutions are used 'for good'?

- Develop criteria for ensuring firms (& senior management) remain accountable for outcomes when algorithms are used.
- Performance-based regulation? (Willis, 2015)

Can we use data science to detect vulnerable consumers? And use experimentation to find ways of helping them out?

10

Behavioural Industrial Organisation

Our policies often presume behavioural issues – e.g. inertia, inattention, confusion – are widespread but we rarely specify behavioural parameters precisely.

Can we be more precise about these behavioural models? In Cost Benefit Analyses (CBAs)? FCA's recent work on savings accounts goes in this direction – assumes that consumers in “back book” are not aware of the “front book” rates.

Behavioural parameters could also be used to target interventions and policy

- Cooling-off periods following aberrant behaviour?

11

On-line experiments for policy

Growth area: using on-line experiments for policy

- Faster, substitute for RCTs

UK Behavioural Insights Team “Predictiv”

At the FCA, we are starting to explore these. We already have used them to estimate attention to investment fund charges, for example.

But need to be mindful of external validity issues

12



Thank you for listening

Comments and questions welcome.



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Julien Brugerolle

Policy Officer, Consumer Policy Unit, European Commission

“Thank you Miles and thank you to the Bank of Italy and FinCoNet for the invitation today, pleasure to be here.

The purpose of my presentation is to share with you a few of the European Commission’s examples with behavioural economics and especially, in the field of financial services. We are indeed currently evaluating two pieces of legislation, on consumer credit and distance marketing of financial services, and we thought it was a good occasion to test consumer behaviour, whether these rules are effective and whether, this could enable us to develop food for thought on how we could reform this legislation.

In the European Commission, we are notably using the service of a unit in the Joint Research Center of the Commission. We are increasingly using their expertise and we also relying on external consultants specialized in running out behavioural experiments.

I am working in the consumer policy unit of the European Commission, in charge of the legislation which I have mentioned and my first slide is essentially to introduce the policy context and to show that we have already been using behavioral insights into the development of policy.

One of the examples which we have of such use was in the Consumer Rights Directive which was already adopted several years ago and which bans the use of pre-ticked boxes, in the case of goods bought online. It doesn’t apply to financial services but it is a good example of the use of behavioural insights.

More recently, we have proposed EU-level rules on the transparency of platforms, including ranking transparency, and these rules have also been informed by specific behavioural studies.

Policy informed by behavioural insight is therefore something which we are increasingly doing and we published in April this year a new study in the field of financial services.

It looks at the digitalization of the marketing and distance selling of retail financial services and is informing the two ongoing evaluations of our directives.

There is also another project done by the Joint Research Centre looking into switching of mortgages and the use of behavioral insights to help consumers switch mortgages, which will be finalized at the beginning of next year, if I’m not mistaken.

The purpose of this study on digitalization was, first of all, to look into the risks faced by consumers arising from the practices used online by retail financial services providers.

Its aim was to understand who are the providers active in the online environment, the types of commercial practices that they were using and then to test the drivers and potential remedies for these practices and draw a set of policy recommendation.

To do so, the study had three main tasks.

The first one was a literature review, very much looking at all the body of evidence, which has been developed so far, in terms of behavioral insights for financial services, discussions with stakeholders as well as to what issues they were seeing in the distance selling, especially in the online market for financial services.

Then, our consultants looked for and mapped out the practices that are used by providers in the online environment and carried out focus group to gain first insights from consumers on such practices.

Finally, the last task consisted in online behavioural experiments, accompanied with consumer surveys, to actually test these practices and the remedies and then to develop, of course, conclusions and recommendations.

In the course of the study, we have tried to group the practices, which we have identified.

The first group included these practices covering how the information is provided to the consumer, including practices used online to emphasize the benefits and hide the costs or to hide key information (for instance under a hyperlink which is quite frequent in the online environment).

A second group was revolving around features, which are aimed at accelerating the consumers' purchase decision. This included the development of offers, which are available in only a couple of clicks or advertising, which are stressing the speed at which credit can be obtained.

Another group of practices encapsulated the whole issue of targeting and personalization, which, of course, is not specific to the financial services sector, but has an importance there because it allows providers to target specifically certain segments of the population.

Finally, a last group covered the design of the offers, including the use of pre-ticked boxes and also these tools which are meant to help consumers in the decision making process but can also have an impact in terms of choice architecture.

At this stage, I want to say a few words as well on the remedies which have already been put in place by several EU Member States and which we have mapped in the course of the study. Some of them relate to minimum standards regarding font size, for instance the font size of the information about the credit cost. Some authorities are also running comparison websites which are useful tools to help consumers navigate through the information and help them compare offers. Risk warnings were also identified as possible remedies used and studied in some Member States as well as the prohibition of certain practices, in some EU member states, especially SMS loan, fast loan. In these cases, for these short-term high cost credits, they have either been prohibited or limited in terms of advertising.

So, now back to our experiments. You have here on the slides, what the experiments actually looked like and we have tried very much to replicate something, which consumers can find in the online environment.

For the purpose of this experiment, we decided to focus on two products: consumer credits and current accounts and the reasoning was that these are quite common products which are actually looked for online by consumers and also because they are covered by the legislations, which we are evaluating.

An interesting aspect of this study is that the experiments were carried out both on desktop format but also on mobile phone. It thus allowed us to play with how the information was presented on the mobile phone which can be much more different than how it is on a desktop.

At the beginning of the experiment, the respondents were given a profile: for instance, they were told they had to buy a washing machine and needed to borrow 800 euros.

At the first stage of the experiment, they were shown an advertising and they could click on the advertising and would enter a second, what we call, pre-contractual stage with additional information about the loan. Then they could either confirm the loan or go back to compare additional offers. The other possibility was that, at the advertising stage, they decided not to click on the advertising and they could compare instead three different loans directly.

What we did to measure the different impacts of the practices was that out of the three offers respondents were seeing, there was one offer, which was the best, which was basically the cheapest.

This allowed us to test every time the impacts of the different practices and the remedies that were shown to consumers. You have here, for instance, on this slide, a few examples of what I mean by practices and remedies.

The first example on the slide concerned practices relating to "benefits emphasized and costs hidden or given lower prominence". In the case of the personal loan experiments, one of the advertising was only showing one cost element, which was the monthly reimbursement fee (which would not be compliant with the legislation but we wanted to test actually whether our legislation was effective here) and another example was showing the representative example. We also tested the warning "borrowing cost money".

At the pre-contractual stage, we tested the practice of only showing some information directly on the web page and hidden under a hyperlink, but also a fee information document for payment accounts and consumer credits.

What were the main findings of the study?

First of all, digitalization has impacted the business model of traditional providers and has allowed the emergence of digital-only providers. In turn, this has led to a wide range of commercial practices which have appeared online.

These practices, in essence, are not all new. Practices around information disclosure have been around for a long time but they are, of course, taking a new dimension in the online environment. Some of these practices can be problematic for consumers and are actually not compliant with existing legislation.

In terms of behavioural impacts, we found out that better information has powerful impacts on consumers. Information should thus be provided upfront, saliently and early enough in the process and in a format that helps the comparisons.

Standard information documents can help consumers make informed choice but even more so when there is a direct interaction with such document: if you put them under a hyperlink, then they have a very limited effectiveness. However, we also have to consider vulnerable consumers because the impact of these documents are lower on consumers with low financial literacy.

In addition, remedies at the advertising stage, for instance, the presence of the representative example, had an effect at that stage because it pushed consumers to compare offers. However, warning, for instance, had no effect, because of crowding out the information that was given to the consumer.

In terms of policy implication, a first lesson of the study is that enforcement of existing legislation is key but also that it is important to improve the quality of the information provided to the consumers.

We need to have a reflection on how to do that, possibly define better and reduce, perhaps, the number of information and reflect further on how and when it should be provided, taking into account also the impact on vulnerable consumers.

We also looked into the speed of the purchasing process, where we saw that slowing down the consumer also had a positive impact. This requires further reflection.

Finally, we also need to think at how to design legislation that will stand the test of time and will be able to address future technological developments.”



Behavioural insights in retail financial services: Experience from the European Commission

FinCoNet/Bank of Italy International Seminar on Behavioural
Insights for Conduct Supervision
15/11/2019

Julien Brugerolle
European Commission
Unit JUST.E1 - Consumer Policy

Justice and
Consumers



Policy context

Behavioural insights increasingly used by the European Commission when evaluating and designing policies...

- **Ban on pre-ticked boxes in the case of goods bought online**
- **Increased transparency in platforms ranking**

... including in retail financial services:

- **Recent Behavioural study on the digitalisation of the marketing and distance selling of retail financial services**
- **To inform the ongoing evaluations of the Directives on consumer credit and distance marketing of financial services**



Behavioural study on digitalisation: Main objectives and approach

- *Study to identify risks faced by consumers arising from practices used by retail financial services providers to market and sell their products online. Objectives were to:*
 - **Depict the landscape of online retail financial services providers in the EU**
 - **Map and assess the commercial practices encountered online for retail financial services products**
 - **Identify and test drivers behind the effectiveness and propagation of these commercial practices as well as the corresponding remedies**
 - **Draw a set of policy recommendations**
- *3 main tasks:*
 - **Preparatory task (Task 1) including literature review, interviews with stakeholders, desk research and focus groups**
 - **Behavioural experiments and consumer survey (Task 2)**
 - **Development of conclusions and recommendations (Task 3)**



Behavioural study on digitalisation: Commercial practices mapped

5 types of practices identified:

- Ways in which information is provided to the consumers (e.g. benefits emphasised while costs are hidden, key information missing or difficult to find)
- Features aimed at accelerating the consumers' purchase decision (e.g. one-click products, offers limited in time)
- Targeting and personalisation
- Design of the offers (e.g. pre-ticked boxes and bundles)
- Tools made available to consumers to assist in the decision making process (e.g. calculators, progress bars)


Examples of remedies put in place in EU Member States

Minimum standards regarding font types and sizes

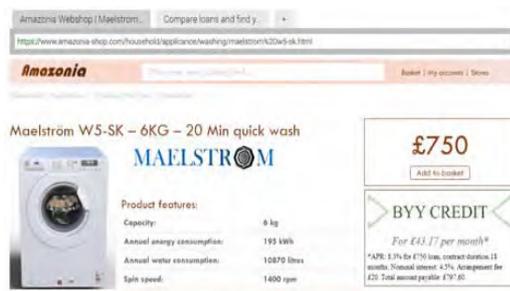
Comparison tools run by national authorities

Risk warnings for personal loans
("Warning! Borrowing money costs money")

Prohibiting the advertising and selling of certain risky products/fast credits (sms loans)

Ban of pre-ticked boxes


**Behavioural study on digitalisation:
Design of the experiments**



Example - Advertising stage, personal loan experiment, desktop environment



Example - Pre-contractual stage, current account experiment, mobile environment


**Behavioural study on digitalisation:
Practices and remedies tested (examples)**
Practice tested: emphasising benefits over costs at the advertising stage

Current accounts experiment		Personal loans experiment	
Treatment variant		Treatment variant	
1. Highlight features: Highlight the features and costs most advantageous for the advertised account	* Practice	1. Key selling points only: Only the key selling point of the advertised loan is shown	* Practice
2. Social proofing message: Message that customers like them compare offers	✓ Remedy	2. Example: Representative example is shown	✓ Remedy
3. EU law message: Message that EU law give them the right to compare offers		3. Warning: Representative example are shown	✓ Remedy
4. "Think carefully" message: Message that they should think carefully about whether the account is right		4. Warning: Representative message "Warning! also costs money" are Sale and alongside the	✓ Remedy

BY CREDIT

For £43.17 per month*

*APR: 8.3% for £750 loan, contract duration 18 months. Nominal interest: 4.5%. Arrangement fee £20. Total amount payable: £797.60.


Practices and remedies tested (examples)

Current accounts experiment		Personal loans experiment	
Treatment variant	Benefits highlight	Info hidden	
1. Highlight benefits: Only the best aspects of the advertised account were presented upfront, important information was placed behind a button at the validation stage	* Practice	* Practice	<div style="border: 2px solid red; padding: 5px;"> </div>
2. FID (validation): As per 1, except the FID was provided upfront at the validation stage	* Practice	✓ Remedy	
3. FID (validation and pop-up): FID was provided upfront at the validation stage & via a pop-up at the pre-contractual stage	✓ Remedy		
4. Comparison table: Upfront comparison table in style of FID was provided at the validation and pre-contractual stages	✓ Remedy		
5. Comparison table (colour): Upfront colour-coded comparison table in style of FID was provided at the validation and pre-contractual stages	✓ Remedy		
6. Calculator: Calculator provided to help identify the best account	✓ Remedy		



Behavioural study on digitalisation: Main findings and conclusions

- 

Digitalisation has impacted the business model of traditional providers and has allowed the emergence of digital-only providers (Fintech).
- 

The digitalisation of retail financial services has given rise to a wide range of commercial practices.
- 

Some of the identified practices may be legally problematic.



Behavioural study on digitalisation: Main findings and conclusions

- 

Better information has powerful beneficial impacts. It needs to be provided upfront, saliently, early enough in the process and in an engaging format that helps comparison.
- 

EU Standard Information documents (e.g. FID) do help consumers make the best choice of product, even more so when there is a direct interaction with them.
- 

However, simple tables are even more effective, especially for vulnerable consumers (low financial and digital literacy) and in the mobile environment, demonstrating the need to adapt information to the users' device.
- 

Remedies at the advertising stage (such as representative example) are effective at that stage and bring consumers to compare offers.



Behavioural study on digitalisation: Main findings and conclusions

-  Slowing down the decision-making process has a positive effect on consumer choice.
-  Some marketing practices have a counter-intuitive effects. When told to "hurry" to benefit from an offer, respondents actually took more time and made better choices.
-  The benefits of targeting and personalisation of offers are unclear but there is a general support for more transparency.
-  The effectiveness of tools available to assist consumers is somewhat mixed.
-  EU horizontal rules on the distance marketing of financial services continue to be relevant but would require an update.



Behavioural study on digitalisation: Policy implications

- Ensure existing legislation is enforced
- Improve the quality of information provided to consumers (How? When? What?)
- Take measures to protect vulnerable consumers
- Ensure that the speed of the purchasing process does not lead to poor decision-making
- Increase transparency around personalisation and targeting
- Ensure that tools provided to help consumers are fit for purpose and user-friendly
- Monitor technological development and design technology-neutral legislation



Your comments and questions?

Tirta Segara

Member of the Board of Commissioners, Indonesia FSA



Banca d'Italia/FinCoNet International Seminar on Financial Consumer Protection

Applying Behavioral Insights on Conduct Supervision: Indonesia Experience

Tirta Segara
Member of Board of Commissioners of the Indonesia Financial Services Authority
in Financial Education and Consumer Protection

Rome, 15th November 2019



Agenda

- 01** Background
- 02** Implementation Program Against Risk in Consumer Protection
- 03** The Tools
- 04** Study Cases





**INDONESIA
FINANCIAL SERVICES
AUTHORITY**

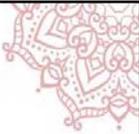


BACKGROUND

*Risk in Consumer Protection
(Behaviour Insight Perspective)*



Risk in Consumer Protection (Behaviour Insight Perspective)



 <p style="color: red; font-weight: bold; margin: 5px 0;">Consumer Side</p> <ol style="list-style-type: none"> 1. Practical Behavior (greedy, focus on return) & Biases 2. Information Asymmetry 3. Consumer Literacy 	 <p style="color: blue; font-weight: bold; margin: 5px 0;">FSI Side</p> <ol style="list-style-type: none"> 1. Conflict of Interest 2. Culture & Incentive 3. Market Structure 	 <p style="color: green; font-weight: bold; margin: 5px 0;">Environment Side</p> <ol style="list-style-type: none"> 1. Policy and Regulation 2. Technological Development 3. Economic and Market Condition
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Macro Impact :

1. Ineffective Competition
2. Increase in consumer's risk (High Inclusion, low literacy)
3. Lower Customer Satisfaction
4. Market Distrust

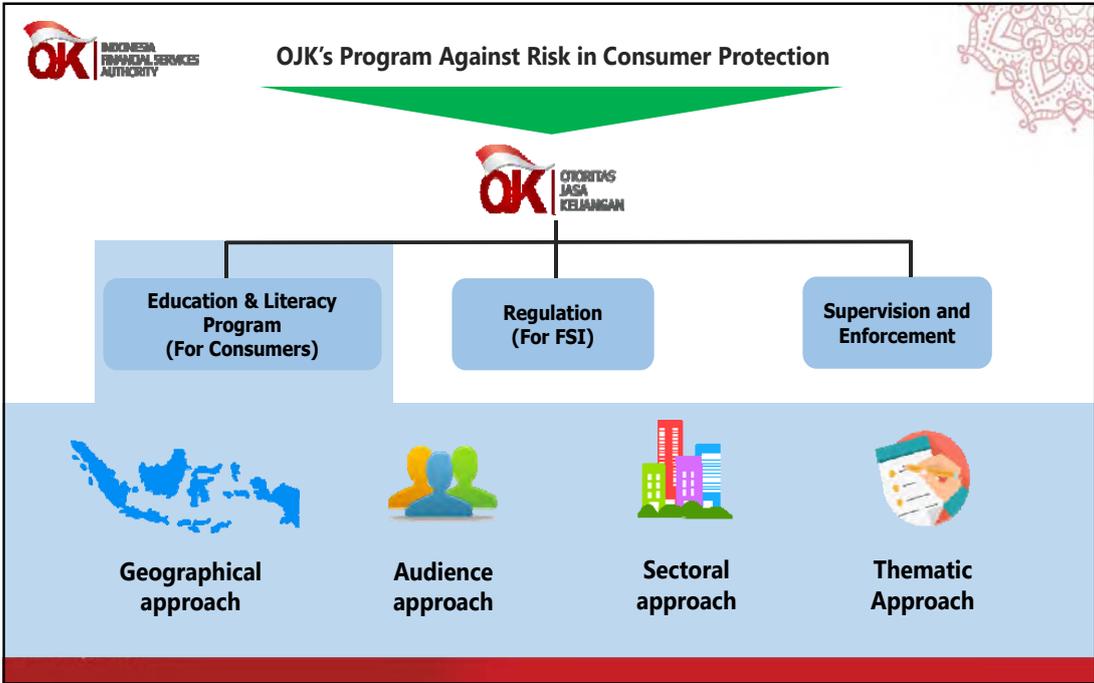


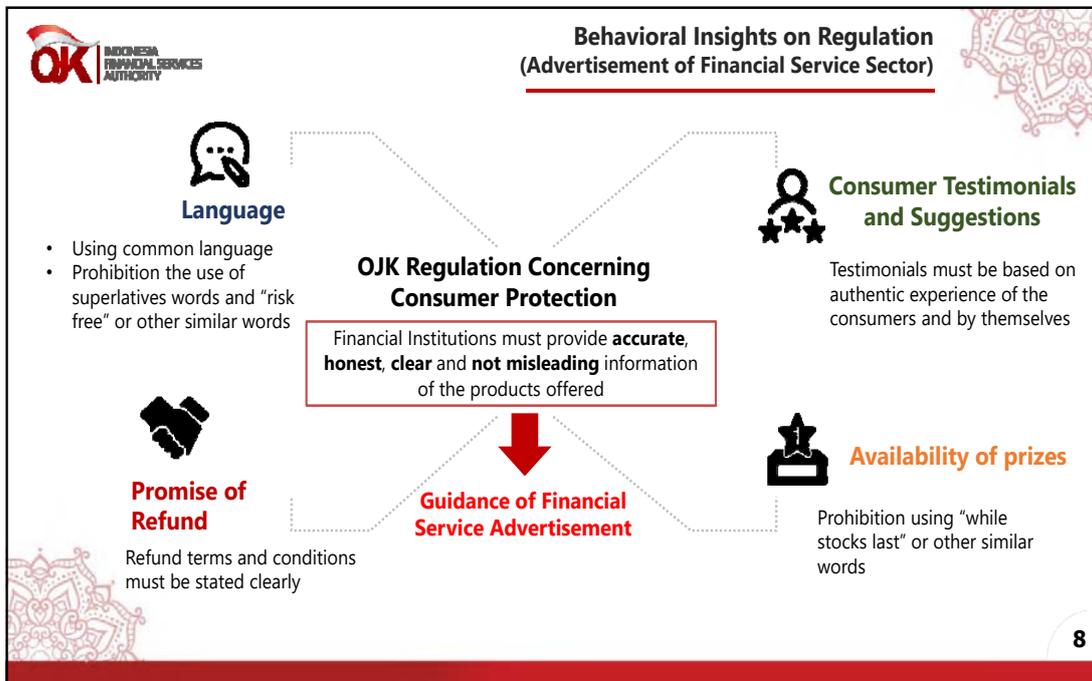
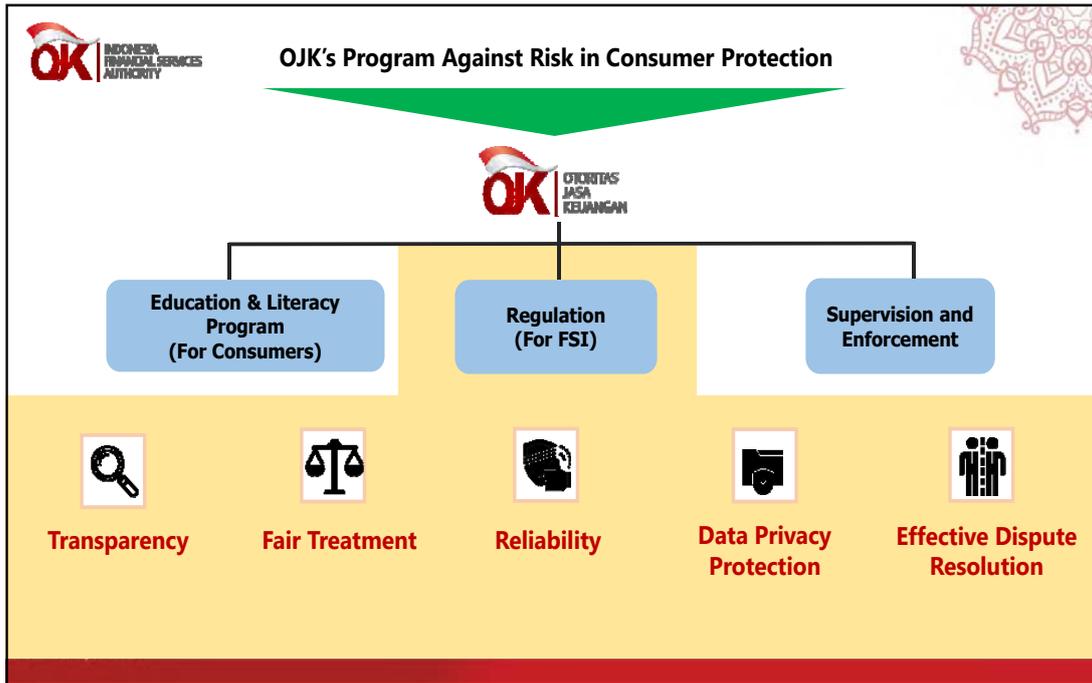
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Implementation Program Against Risk in Consumer Protection

(Applying Behavioral Insight into Consumer Protection)







Behavioral Insights on Regulation (Standard Agreement)



OJK Regulation Concerning Consumer Protection (Level of Playing Field between consumer and FSI)

Financial Service Institution shall comply with **equitable treatment, impartial** and **fairness** in drawing up agreements with Consumers.

Guidance of Standard Agreement for Financial Services



Equitable Treatment
FSI must treat their consumers properly according to their rights and obligations



Impartial
FSI have to treat consumer fairly and balancing interest between consumer and FSI



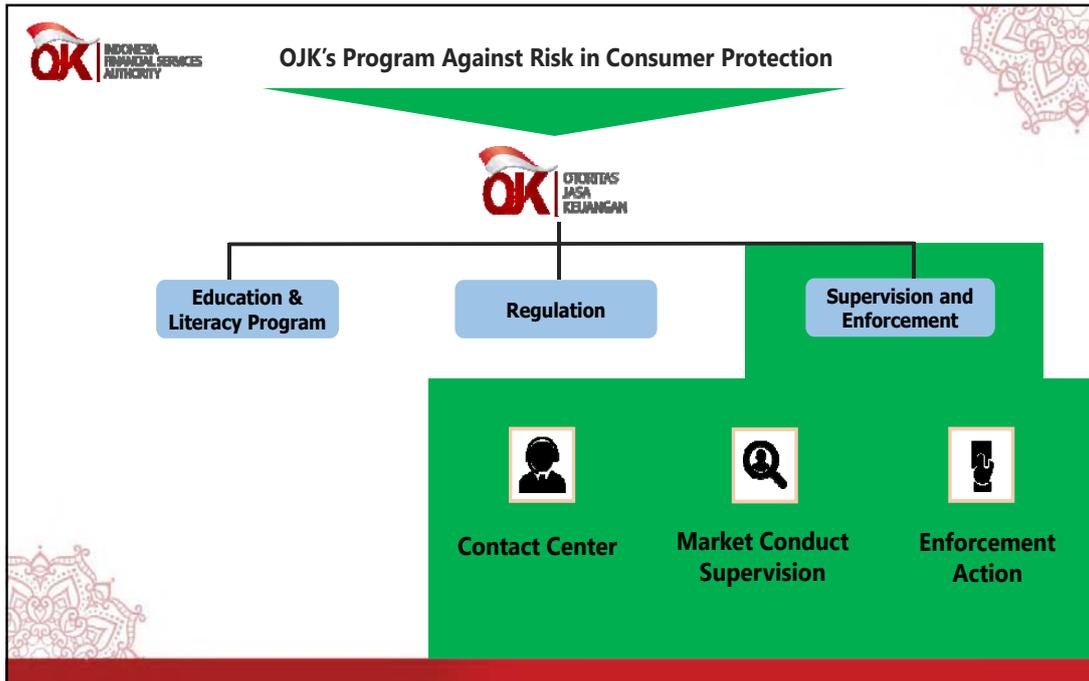
Fairness
Fairness is treating consumer equally and free from any discrimination.

9



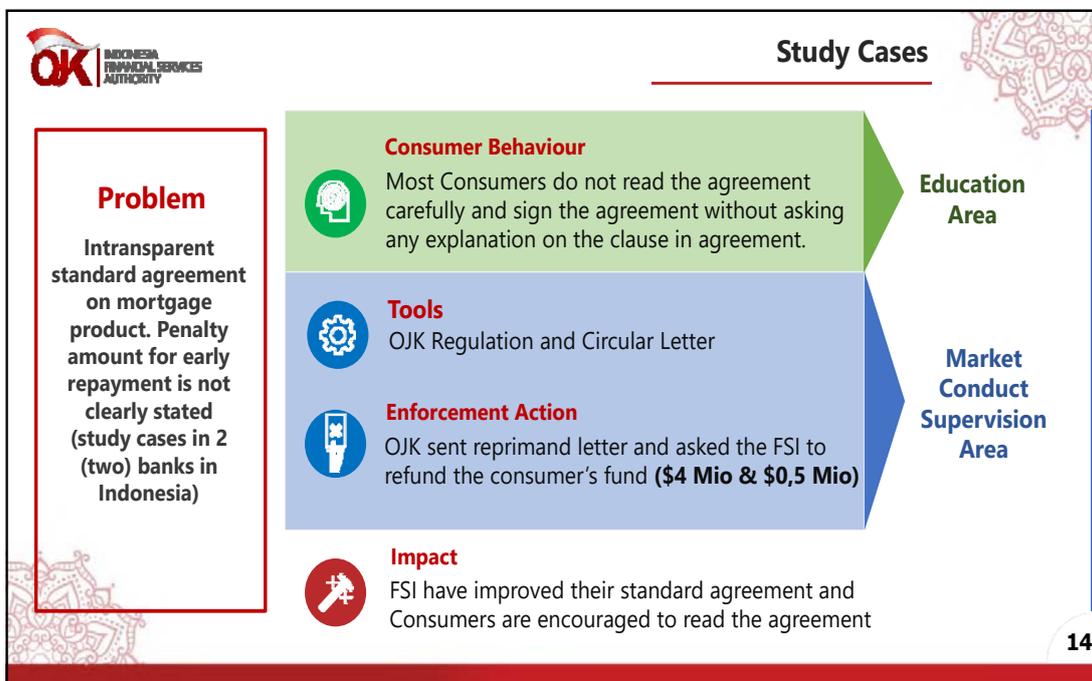
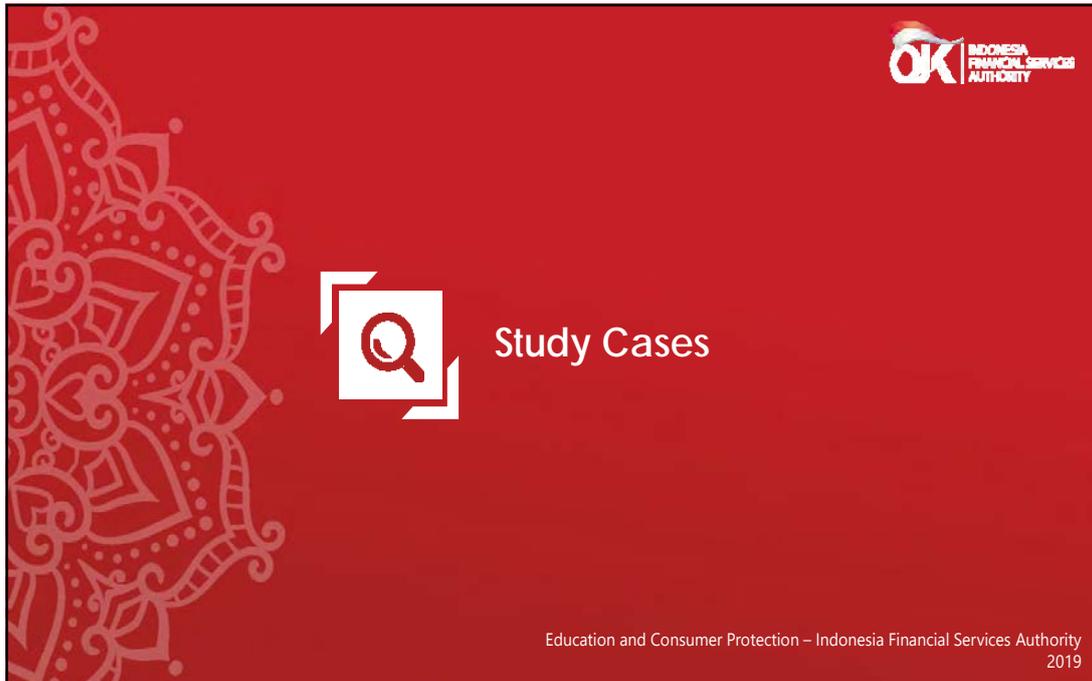
The Tools

(Applying Behavioral Insight into Supervisory Tools)



Consumer Protection Supervision in Indonesia

	Approach	Tools	Activity
PREVENTIVE	<ul style="list-style-type: none"> Education and Literacy Program Contact Center Market Monitoring Risk Analysis and assessment Market conduct supervision 	<ul style="list-style-type: none"> Financial Education program to consumer and society Call, Email, WA and other social media Complaints Monitoring, Media / News /Advertising monitoring and Open Source Intelligent Reports Analysis of Monitoring report, Analysis of risk Self Assessment report and Risk Indicators assessment Thematic supervision, market intelligence operation and making clarification and verification to FSI's, 	
CURATIVE	<ul style="list-style-type: none"> Verification and/or special examination Market conduct supervision 	<ul style="list-style-type: none"> Special Examination, Enforcement Action (Disgorgement Fund) Thematic supervision, market intelligence operation and making clarification and verification to FSI's, 	





THANK YOU

Mr. Tirta Segara
Member of Board Commissioners
In Financial Education and Consumer Protection, IFSA
tirta.segara@ojk.go.id

Closing Remarks

Ladies and Gentlemen, Good afternoon,

As Chair of FinCoNet I would like to take this opportunity to congratulate and compliment today's remarkable set of presentations. To all our panellists, thank you very much for all your insights on the diverse issues discussed.

Today has been an enriching experience in showing us the complexity of business conduct supervisors' work and the tools and best practices we need to implement in response to the many challenges we face.

We have had the confirmation of the growing importance of behavioural insights to financial supervision.

The providers of retail financial services have long understood behavioural economics and they have become more and more sophisticated in the practices, strategies and products they create to effectively influence consumers. Behavioural insights make it possible to influence consumers through a wider range of marketing strategies, commercial practices and new products and services.

As behavioural insights have become instrumental to better understanding consumer behaviour and its interaction with market practices, failing to take them into account may place conduct regulators and supervisors at a great disadvantage. They can significantly improve the work of regulators and supervisors on many fronts.

In a constantly evolving market, behavioural and cognitive sciences can assist legislators and regulators not only in monitoring market developments, but also in designing better and more up-to-date regulation.

Today we know that information alone is far from enough to ensure consumer protection, which creates the need to re-design disclosure rules in ways that resonate with consumers as well as the urgency to contemplate the use of new tools in the regulatory toolkit.

Regulation goes hand in hand with supervision; and behavioural insights play an important role in supervision too. Refined and realistic understanding of consumer behaviour allows conduct supervisors to update supervisory practices to fast developments taking place in the real world.

Behavioural and cognitive sciences can also be used to improve the strategy and design of financial literacy initiatives, empowering consumers to make better decisions for themselves.

Behavioural insights are also crucial to addressing new challenges and risks posed by the digital world. Retail banking products are increasingly being sold digitally, with new players – fintechs and BigTechs – coming into the market landscape.

At Banco de Portugal, we have been attentively following developments in behavioural economics since 2011 and as a result, in 2018 we started to monitor the commercialisation of consumer credit through digital channels in a more systematic manner, issuing best practices that take into account behavioural insights such as compulsory scroll-down of pre-contractual and contractual information, convenient right of assistance and no pre-selection of default options.

Digitalisation and innovation bring added value to consumers in terms of speed, convenience, comparability and range of services, but they also present additional challenges for conduct regulators and supervisors.

In particular, commercial practices designed for digital channels have the potential to exacerbate behavioural biases and increase over-indebtedness. In a digital environment, impulse buying is facilitated, access to consumer credit is smoother, the pain of paying is reduced and security risks can be underestimated.

Seriously dealing with these challenges may require raising consumers' awareness and, very importantly, close monitoring of practices that take advantage of bias and exploit consumer vulnerability.

I'm sure that the rich discussion of today has inspired us all. We all take home important lessons to incorporate into our own work.

Before finishing I would like to take this moment to thank Banca d'Italia for co-organising this conference. A special thanks to my colleague Magda Bianco.

Thank you all for joining us today!

Maria Lúcia Leitão

FinCoNet Chair; Banco de Portugal, Head of Banking Conduct Supervision Department



BIOS





Pedro Duarte Neves

Pedro Duarte Neves is Adviser for the Board of Directors of Banco de Portugal since September 2017. Pedro Duarte Neves was Vice-Governor of Banco de Portugal from June 2006 to September 2017. He has also chaired the Board of the Deposit Guarantee Fund, the Board of the Resolution Fund and the Board of the National Council for Audit Supervision. He represented Banco de Portugal at the Supervisory Board of the SSM, the General Board of the ESRB and the Board of Supervisors of the EBA, amongst others.

Pedro Duarte Neves acted as Alternate Chairperson of the EBA from July 2013 to June 2018. Over the past years, he has also chaired a number of European groups on economic and financial matters in the scope of the Financial Stability Board, the European Banking Authority and the Joint Committee of the European Supervisory Authorities, covering a wide range of issues like the impact of Basel III on prudential requirements and economic developments, consumer protection and financial literacy, risks for the financial stability, amongst other topics.

He joined the Research Department of Banco de Portugal in 1994 and served there until July 2004. He acted as Chairman of the Board of the National Communications Authority (ANACOM) from September 2004 to June 2006.

Pedro Duarte Neves is a Visiting Professor at Católica Lisbon School of Business and Economics.

Pedro Duarte Neves holds a PhD in Economics from Université Catholique de Louvain, and undertook his doctoral research at the University College London, the Institute for Fiscal Studies and the Center for Operations Research and Econometrics. He published in scientific journals like The Journal of Econometrics, Economics Letters and Economic Modelling.

Peter Andrews



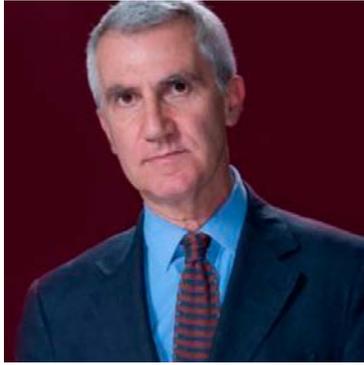
Peter Andrews is a Senior Adviser at Oxera LLP. He is involved in a range of projects for the public and private sectors, mostly in regulation and finance. He also chairs the Regulation and Market Design Centre of Excellence. The aim of the Centre is to ensure that Oxera is at the cutting edge of new thinking and practical techniques in regulation, through internal research and interaction with leading academics.

Previously, Peter gained senior-level experience of a range of businesses in the financial sector, including in banking and at a ‘Big Four’ accounting and consulting firm, before becoming a financial regulator.

Until 2017, Peter was Chief Economist at the UK’s Financial Conduct Authority (FCA, previously the Financial Services Authority, FSA). Here, he led a substantial economic research and consulting service, established the first behavioural economics capability at any financial regulator, built the foundations for the FCA’s Competition Division, and undertook the first empirical work on the macroeconomic costs and benefits of higher capital standards. He also developed rigorous techniques for analysing market failures, remedies and their impacts to identify where intervention may be sensible, and to provide a strategic prioritisation tool based on the expected pay-offs of intervention. He engaged stakeholders by developing the FCA’s Occasional Papers series and its Insight Channel of communications.

A major theme of Peter’s work at the FCA was that regulation is a waste of firms’ and consumers’ money unless it changes real-world decisions for the better. He therefore focused on issues such as the drivers of non-compliance, how behavioural insights can change firms’ and consumers’ decisions, and the impacts of such changes under different forms of competition. He is developing these themes in Oxera’s work on Market Design.

Peter also represented the UK in international fora such as the Basel Macro Assessment Group, the Financial Stability Board Group on stock lending and repos, and the International Organization of Securities Commission’s (IOSCO) Committee on Risk and Research/Committee on Emerging Risks.



Luigi Guiso

Luigi Guiso is the Axa Professor of Economics at the Einaudi Institute for Economics and Finance. He has directed for five years the Finance Programme at CEPR of which he is a fellow.

Luigi Guiso obtained a Msc in Economics at the London School of Economics (1980) and Mphil in Economics at University of Essex (1982). He has held teaching positions at the University of Rome, The European University Institute, the University of Chicago, Graduate School of Business and at Northwestern University, Kellogg School of Management. He is a recipient of several publishing awards.

Luigi Guiso has broad research interests. Besides his work in the field of households finance he has contributed research in the field of labor economics, firms investment and financial decisions, entrepreneurship and banking, political economy and institutions and in the field of culture and economics. His research has been published in the major scholarly journal such as the Review of Economic Studies, the Journal of Monetary Economics, the Quarterly Journal of Economics, the Journal of Political Economy, and the American Economic Review.

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GianMario Raggetti

GianMario Raggetti is an Economist, Scientific Director of the Center for Health care Management (CMS) at the School of Medicine, Università Politecnica delle Marche, Ancona. At the CMS, he coordinates several interdisciplinary researches in Neuroeconomics.

His team involves neurologists, physiologists, neuropsychologists, neuroradiologists, economists, statisticians, who investigate the role of the brain in economic and financial decision-making.

He published in scientific journals and presented the results at national and international seminars. His commitment is to stimulate the scientific curiosity of students and young researchers, towards Neuroeconomics. His idea of an annual academic rendez-vous with “Officina di Neuroeconomia” (A workshop in Neuroeconomics) is consolidating as a relevant scientific event.

Maria Gabriella Ceravolo

Maria Gabriella Ceravolo, MD, PhD in Neurosciences, Neurologist, is Full Professor of Physical and Rehabilitation Medicine at Università Politecnica delle Marche. Her scientific research mainly focuses on the assessment, prognosis and rehabilitation of motor and cognitive impairment in subjects with brain diseases.

Her recently published research studies concern the neural correlates of financial decisions in healthy subjects. She co-authored the book “Neuroeconomia...Neurofinanza: I correlati neurali del Direct Access Trading”, published by McGraw-Hill in 2017, and contributed to organize the three Editions of the Officina di Neuroeconomia.



Vincenzo Farina

Vincenzo Farina is Associate Professor of Financial Markets and Institutions in the Department of Management and Law at the University of Rome “Tor Vergata” and Adjunct Professor of Financial Management and Financial Markets in the Department of Finance at Bocconi University.

He is member of scientific board and director of the track in “Banking and Finance” of the PhD in “Economia Aziendale”, University of Rome “Tor Vergata”.



Miles Larbey

Miles Larbey is the Head of the Financial Consumer Protection Unit at the OECD. In this role, he is responsible, among other things, for supporting the G20/OECD Task Force on Financial Consumer Protection and the International Network on Financial Consumer Protection.

Before this, Miles held positions as Senior Executive Leader for Financial Capability at the Australian Securities and Investments Commission, and General Manager of the Investor Education Centre in Hong Kong. He has wide-ranging experience in financial consumer protection law and policy; banking, credit and insurance supervision; and financial education.





Stefanie de Beer

Stefanie de Beer is Manager of the Consumer Behavior team at the Netherlands Authority for the Financial Markets (AFM). Stefanie joined the AFM in 2011, and has held various roles in the actual supervision of financial institutions.

From 2015, Stefanie was involved in the creation of a behavioral insights unit within Retail supervision. From 2016, this unit got a permanent function within the Centre of Expertise. The AFM consumer behavior team consists of 12 professionals who contribute to the fair and conscientious provision of financial services to consumers and private investors.

The team focuses on the identification and understanding of behavioral risks in different market segments, the interpretation of current – principle-based – legislation and the development of effective policy and instruments for supervision.



Jeroen Nieboer

Jeroen Nieboer is a behavioural economist who specialises in consumer financial decisionmaking and choice under risk. He obtained his PhD from the University of Nottingham, where he used experimental methods to study risk-taking in groups.

He subsequently moved to the London School of Economics as the principal investigator on a research project on consumer financial decision-making, funded by the AXA Research Fund. Jeroen has also acted as a consultant to various for-profit and not-for-profit organisations, advising them on how behavioural science can help people make better financial decisions.

In 2016, Jeroen joined the Behavioural Economics and Data Science Unit at the UK's Financial Conduct Authority, where he focusses on programme evaluation and the design of behaviourally informed consumer policy. He retains an affiliation with the London School of Economics where he teaches on the Executive MSc in Behavioural Science.

Julien Brugerolle

Julien Brugerolle is policy officer in the Consumer Policy Unit of the European Commission's Directorate General for Justice and Consumers, which he joined in 2012.

He is currently overseeing the evaluations of the Directives on Consumer Credit and on Distance Marketing of Financial Services.

Mr Brugerolle has also experiences in relation to behavioural insights, having recently managed a behavioural study looking at the impact on consumers of the digitalisation of the distance selling and marketing of financial services. In addition to his work on retail financial services, Mr Brugerolle has been directly involved in the design and implementation of the European Commission's Digital Single Market Strategy.

Prior to joining the European Commission, Mr Brugerolle worked as an assistant to a Member of the European parliament as well as a consultant. He holds a Master's degree in European Studies from Sciences Po Bordeaux.



Tirta Segara

Member of the Board of Commissioners Indonesia Financial Services Authority in charge of Financial Education and Consumer Protection.

Born in Semarang, 1963. He holds an accounting degree from the University of Diponegoro, Semarang in 1987 and obtained his MBA degree from The George Washington University, USA in 1994.

He began his career in Bank Indonesia as a staff in the Accounting Department in 1989. In 2007, he was appointed as a Team Leader of Indonesia Financial System Architecture and Financial Sector Assessment program (FSAP). Three years later, he was promoted as a Head of Research, Development & Regulation in Islamis Banking, and became a Director of the International Policy and Relation Group in 2012. In 2014, Tirta Segara was promoted as the Executive Director of the Communication Department, Bank Indonesia.

On July 20, 2017 he was appointed as a Member of the Board of Commissioners OJK in charge of Financial Education and Consumer Protection.





Maria Lúcia Leitão

Mrs. Maria Lúcia Leitão, Head of Banking Conduct Supervision Department, Central Bank of Portugal (Banco de Portugal).

With a background in Economy and European Studies, Maria Lúcia Leitão is since its inception (in 2011) the Head of Banking Conduct Supervision Department at the Banco de Portugal following her appointment as Deputy Head of Banking Supervision Department in 2007.

Mrs. Maria Lúcia Leitão is also the Chair of the Steering Committee of the Portuguese National Strategy for Financial Education lead by the three financial supervisory authorities.

Mrs. Maria Lúcia Leitão actively participates in several international fora dedicated to financial consumer protection and financial education. At the international level, Lúcia Leitão is Chair of the International Financial Consumer Protection Organisation (FinCoNet) and she is a member of the Advisory Board of OECD/INFE (International Network on Financial Education). At the European level, she participates as a member in the Standing Committee on Consumer Protection and Financial Innovation of the EBA (European Banking Authority). She also participates in the G20/OECD Task Force on Financial Consumer Protection. She also participated in the Joint Committee of the European Supervisory Authorities (ESAs).

Mrs. Maria Lúcia Leitão often participates as speaker at international gatherings invited by organizations such as the OECD, G20/GPFI, United Nations Conference on Trade and Development (UNCTAD), World Bank, Child and Youth Finance International.

Magda Bianco



Magda Bianco is Head of the Bank of Italy Consumer Protection and Anti-Money Laundering Directorate since 2014. In this role she is responsible for banking conduct supervision, complaints management, the banking ombudsman, financial education programs and anti-money laundering banking supervision.

She is member of the Financial Consumer Protection Network (FinCoNet) and of its Advisory Board and member of the OECD International Network for Financial Education.

After graduating in Economics she received an M.Sc. and a PhD in Economics from the London School of Economics.

At the Bank of Italy since 1989, she worked in the Research Department until 1999, first in the Sector and Region Analysis Unit and then in the Financial Flows Unit, which she headed since 1997. She then moved to the Law and Economics Unit, which she headed since 2007.

She has published articles on corporate governance, corporate finance, bankruptcy, economics of civil justice, and more generally on regulatory matters and gender issues. She has taught Industrial Organization and Corporate Governance courses at several Italian universities.

She served as economic advisor to the Italian Minister of Justice in 2012-2013 and has been economic and financial consultant to the Ministry since 2013. She is consultant for economic and financial matters for the President of the Republic.

She coordinates the Bank of Italy's Equal Opportunity Committee.

