



The Application of Behavioural Insights to Financial Literacy and Investor Education Programmes and Initiatives



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IOSCO – The International Organization of Securities Commissions (IOSCO), established in 1983, is the acknowledged international body that brings together the world's securities regulators and is recognised as the global standard setter for the securities sector.

IOSCO develops, implements and promotes adherence to internationally recognized standards for securities regulation, and is dedicated to enhancing investor protection and promoting investor confidence.

IOSCO's membership regulates more than 95% of the world's securities market and is one of the few international organizations that includes all the major emerging market jurisdictions within its membership.

IOSCO believes the need for investor education and financial literacy has never been greater than it is today. In response to these challenges, the IOSCO Board established Committee 8 on Retail Investors in 2013. The Committee's primary mandate is to conduct IOSCO's policy work on retail investor education and financial literacy. Its secondary mandate is to advise the IOSCO Board on emerging retail investor protection matters and conduct investor protection policy work as directed by the IOSCO Board.

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The Organisation for Economic Co-operation and Development – OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice, and work to co-ordinate domestic and international policies. OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

OECD governments officially recognised the importance of financial literacy in 2002 with the launch of a unique and comprehensive project. In 2008 the project was further enhanced through the creation of an International Network on Financial Education – INFE. The OECD/INFE has high-level membership from over 240 public institutions – including central banks, financial regulators and supervisors, ministries of finance and ministries of education – in over 110 countries. Members meet twice a year to share country and member experiences, discuss strategic priorities, and develop policy responses.

See www.oecd.org/finance/financial-education

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EXECUTIVE SUMMARY

High-quality investor education and financial literacy programs can help provide consumers and retail investors with a wide range of benefits, including more informed saving and investment decision-making, better financial and retirement planning skills, higher levels of financial inclusion, as well as greater confidence and higher participation in the securities markets.

Nonetheless, there is a range of cognitive, social and psychological factors or barriers that may prevent people from using their newly acquired knowledge to make satisfactory or rational financial choices. Behavioural economics has identified these barriers, known as **biases** in the scientific literature and which often arise from the use of **heuristics** (i.e. mental shortcuts) to simplify the decision-making process.

Behavioural sciences focus on the way people think and behave, based on empirical evidence from a range of social sciences, such as economics, psychology, anthropology, pedagogy, sociology, and social marketing. Consequently, the insights generated may be used to help overcome biases and develop simple, sometimes low-cost, and effective investor education and financial literacy initiatives.

This publication reports the results of complementary surveys of members of both the International Organization of Securities Commissions (IOSCO) and the Organisation for Economic Co-operation and Development International Network on Financial Education (OECD/INFE). These surveys explored the extent to which behavioural insights are used to guide financial literacy and investor education policies and practice.

IOSCO's Committee 8 on Retail Investors (C8) surveyed IOSCO members on the resources they commit and their experiences applying behavioural insights to investor education programmes and initiatives. The INFE Secretariat circulated a questionnaire on the application of behavioural insights to financial literacy and financial education policies and practice, to OECD/INFE members. The questionnaires are available in, respectively, Appendices E and F of this report.

The majority of the respondents reported that they actively seek or learn from behavioural insights, mostly through existing literature, events, and partnerships/networks. Almost half of those that are not applying behavioural insights (twenty-six institutions) expressed interest in doing so in the future.

This report also presents a literature review of relevant papers and reports on educational initiatives in the areas of investor education and financial literacy, with the use of insights from behavioural sciences.

Approaches

Based on the literature review and survey responses, C8 and the OECD/INFE developed a set of approaches considered to be effective for regulators, policy-makers, and other organisations and practitioners that are considering whether or how to apply insights from behavioural sciences to investor and financial education programmes and initiatives. These approaches are, in summary, to:

- establish a concrete understanding of the problem;
- design the intervention taking the context into account;
- start small;
- evaluate rigorously;
- interact, learn, and keep track;
- create thought leadership;
- consider combining traditional approaches and those based on behavioural insights; and
- review programs and initiatives regularly.

Preparation of the report:

Literature review

To prepare this report, the authors reviewed 141 selected papers and reports with relevant behavioural insights and their applications to the areas of investor education and financial literacy. The review focused on strategies to mitigate or eliminate the effects of behavioural biases (i.e., debiasing). Debiasing strategies can be classified according to the object of intervention: the *investor* or the *decision environment*. The review identified debiasing strategies intended to improve investors' financial literacy using experiential-learning techniques, simulation systems, and educational approaches.

The literature review identified debiasing strategies that may modify the decision environment in two ways: *placing incentives* or *altering the choice context*. The review indicates that monetary incentives (e.g., payment for attendance and contribution matching) have successfully increased uptake of financial literacy programmes and retirement savings accounts. Prize-linked savings carry a monetary incentive that offers an attractive learning-by-doing opportunity. Non-economic incentives (such as introducing accountability and conveying social norms) can foster group saving behaviour. Choice architecture interventions or “nudges” build on the evidence that people sometimes make irrational and inconsistent decisions, so the designed solutions focus on automatic processes of judgement. A widely applied and studied nudge is the default enrolment, which managed to stimulate participation in retirement savings plans. The review also identified experiments using commitment devices, mental accounting mechanisms, and text reminders to increase the savings rate of low-income groups.

Other applications of behavioural insights identified in the review, such as rule-of-thumb training and individualised counselling, increase programme participants' self-efficacy and address their lack of self-control, forgetfulness, and procrastination. Emotional engagement is a powerful tool to keep learners' attention and deliver educational messages through soap operas, movies, and interactive programmes. Financial coaching can tackle clients' intention-action gap by setting financial goals and suggesting the use of automated tools for recurring transactions. The Transtheoretical Model considers behaviour change as a process and presents a framework to assess one's stage of change, as well as ten processes of change to be applied according to the identified stage.

The review also identified theories and techniques from behavioural sciences as potential applications. Financial socialisation, the Theory of Planned Behaviour, and gamification offer behavioural insights into collective learning, the influences on attitudes and perceived control, and greater self-efficacy and engagement, respectively. The Big Five Inventory is a psychological scale that describes one's personality based on a questionnaire. The scale's correlation with financial behaviour is under intense study.

This report describes the six behavioural frameworks that are most currently used by academics, economists and others to design behaviour change interventions: COM-B, the Behaviour Change Wheel, MINDSPACE, EAST, TEST, and CREATE. This report also presents a conceptual framework specifically conceived for fostering financial behaviour change through educational strategies (see Section 4 for further information about these frameworks).

Survey results

In addition to the literature review, IOSCO and OECD/INFE surveyed their members on the resources they commit to, and their experience in, working with behavioural applications. From December 2016 to September 2017, fifty-nine IOSCO members representing forty-eight jurisdictions and thirty-four OECD/INFE member institutions from thirty countries and economies replied to a member survey. Of the thirty-four OECD/INFE institutions, eleven also participated in the IOSCO C8 Survey, reflecting their responsibility for both financial literacy and investor education in their jurisdictions. The responses to both surveys from these eleven common organisations were analysed for consistency and repeated information was counted only once. The term 'respondents' is used in the rest of this report to indicate institutions responding to either, or both surveys.

The majority of the respondents reported that they actively seek or learn from behavioural insights, mostly through existing literature, events, and partnerships/networks.

A number of IOSCO and OECD/INFE members have developed debiasing applications for education purposes based on both the investor and the decision-making environment. Survey respondents highlighted the use of online resources and face-to-face initiatives intended to raise participants' awareness of behavioural biases, and teach them social skills and financial decision-making techniques aimed at improving their financial literacy levels. Respondents said they also simulated financial situations and provided instant feedback on the choices made by participants. Many respondents stated collecting information on consumer behaviours from quantitative and qualitative research, and testing prototypes are crucial steps in designing effective educational tools. Some respondents have carried out randomised control trials to test how different ways of framing disclosure and communication prompt investors to change funds and savings accounts. Some have also tested choice architecture interventions, such as a nudge designed to increase compliance by directors of failed companies and a repayment solution produced according to the salience and simplification principles.

A number of survey respondents described campaigns that were developed taking into account behavioural insights, particularly those derived from personality traits defined in the Big Five Inventory. This includes the use of messages appealing to social norming and the audience's overconfidence bias, and investors' responses to games.

In addition, certain institutions use behavioural insights in consumer protection regulation/supervision. A number of regulators have conducted qualitative and quantitative surveys to collect, for example, insights into investors' perceptions, understanding, and preferences for new crowdfunding rules. Some have also run experiments and conducted surveys to test the effectiveness and influence of different disclosure formats on investor decision-making.

Several respondents in charge of financial literacy in their jurisdictions are applying behavioural insights to develop financial education policies. The majority of these respondents apply the findings of behavioural sciences to specific financial education initiatives. Almost half of those that are not applying behavioural insights (twenty-six institutions) expressed interest in doing so in the future. Relatively few institutions apply scientific frameworks (such as MINDSPACE and EAST) to their financial education policies. Methods that are used include randomised control trials (to provide evidence of behavioural change), behaviour-centric approaches (deep interviews, prototyping, testing), EAST methodology, COM-B model, field experiment, mystery shopping, and experimental lab (see Section 5 for further information about these methods).

1

INTRODUCTION

When the International Organization of Securities Commissions (IOSCO) Board created the Committee 8 on Retail Investors (C8) in June 2013, it highlighted the importance of exploring the application of behavioural economics to retail investor education and financial literacy programmes¹. Given the close cooperation between C8 and the OECD International Network on Financial Education² (OECD/INFE), it was agreed that work in this area should be undertaken jointly, in order to fully understand the application of behavioural economics to both financial literacy and investor education programmes and initiatives. Accordingly, this report aims to provide a deeper understanding of the extent to which relevant authorities are applying behavioural insights to their investor education and financial literacy programmes and initiatives.

After more than a century of financial and capital market regulation and demand-side efforts to empower consumers, many mainstream policy approaches and initiatives can be said to rely mostly on the rational-agent model to understand consumer behaviour and outcomes. This normative approach assumes that people gather complete information when making decisions (*homo economicus*), and make well-planned and calculated choices based on their personal utility³. Rationality assumptions of economics are, however, unable to explain the behaviour of investors in events such as the 2008 financial crisis⁴. It is important therefore that policy-makers consider the limitations of the rational model when designing programmes.

Behavioural sciences focus on the way people actually think and behave, grounded in empirical evidence from a range of social sciences, including both economics and psychology. The application of insights from behavioural sciences may be considered a tool to inform, and enhance the effectiveness of investor education programmes and financial literacy initiatives. Insights from behavioural sciences are especially relevant to securities regulators and policy-makers seeking to improve levels of financial literacy, due to the complexity and long-term nature of many financial products, the need for investors to make judgements about the risk inherent in these products, and the impact of biases, scarcity, lack of time, and other factors affecting investor decision-making.

1 International Organization of Securities Commissions. 2013. *IOSCO Board Focuses on Behavioral Economics and Social Media*. Media Release IOSCO/MR/24/2013. Available at: <http://www.iosco.org/news/pdf/IOSCONEWS286.pdf>

2 The OECD recognises the importance of applying behavioural insights and has undertaken significant work on this, including various papers focused on the ways in which such insights benefit financial education and financial consumer protection policies. See Tapia, W. and J. Yermo. 2007. *Implications of Behavioural Economics for Mandatory Individual Pension Systems* OECD Working Papers on Insurance and Private Pensions, No. 11, OECD Publishing. Online: <http://www.oecd.org/finance/private-pensions/39368306.pdf>; Organisation for Economic Co-operation and Development, Russia Trust Fund for Financial Literacy & Education. 2013. *Improving Financial Education Effectiveness Through Behavioural Economics*. Online: http://www.oecd.org/daf/fin/financialeducation/TrustFund2013_OECDImproving_Fin_Ed_effectiveness_through_Behavioural_Economics.pdf; Lefevre, A. and M. Chapman. 2017. *Behavioural Economics and Financial Consumer Protection*. OECD Working Papers on Finance, Insurance and Private Pensions, No. 42, OECD Publishing. Available at: http://www.oecd-ilibrary.org/economics/behavioural-economics-and-financial-consumer-protection_0c8685b2-en; and Organisation for Economic Co-operation and Development. 2017. *Behavioural Insights and Public Policy: Lessons from Around the World*. OECD Publishing, Paris: 16. Available at: <http://www.oecd.org/gov/regulatory-policy/behavioural-insights-and-public-policy-9789264270480-en.htm>.

3 Barr, M. S., S. Mullainathan, and E. Shafir. *Behaviorally Informed Regulation*. In Shafir, E. (Ed.). *The Behavioral Foundations of Public Policy*. 2013. Princeton, NJ: Princeton University Press: 440.

4 Ormerod, P. *Economics*. In Johnson, J., A. Nowak, P. Ormerod, B. Rosewell and Y. Zhang (Eds.). 2017. *Non-Equilibrium Social Science and Policy*. Springer: 42.

1.1. Scope and methodology

This report introduces key concepts in behavioural studies and provides a literature review of the most relevant research on insights from behavioural sciences, with a focus on applications to investor education and financial literacy initiatives, whether potential or already in use. The review, conducted between November 2016 and February 2017, identified 141 studies⁵ of potential relevance, with priority given to research with evaluation results.

The report also describes the main characteristics of behavioural frameworks often used to design public policy interventions, especially those aimed at achieving behaviour change.

IOSCO members were surveyed between December 2016 and January 2017 on their (past and current) initiatives and programmes incorporating behavioural insights applications. OECD/INFE members were surveyed slightly later, between April 2017 and September 2017. Eighty-two institutions from across the two memberships described their approach to behavioural sciences, the resources involved in developing behavioural applications, and the methods they use to acquire knowledge in these fields.

Emphasis in the IOSCO survey was placed on educational initiatives for adults since IOSCO considers investor education to be directed to individuals who participate, or are considering participating, in the securities markets (retail investors)⁶. Due to their relevance to IOSCO members, survey results regarding application of behavioural insights to regulatory initiatives are also described in the report. The OECD/INFE survey followed a similar design exploring the extent to which organisations are gathering information about behavioural insights (BI) and applying them to address policy challenges, but incorporating initiatives aimed across all age groups, reflecting the OECD Principles and Good Practices for Financial Education and Awareness⁷ which state that ‘People should be educated about financial matters as early as possible in their lives’.

The explicit application of the findings of behavioural sciences to the work of regulators and policy-makers is, generally speaking, a relatively new and developing field, with significant variation in the levels of experience among respondents. The report therefore identifies current practices and research that may help regulators, policy-makers and stakeholders to develop, design, test, and deliver behaviourally-informed educational programmes.

This paper leverages work already undertaken by OECD and the World Bank in research (especially field trials), evaluation techniques, and definition of key concepts in behavioural studies.

5 Appendix B lists 71 additional reports from IOSCO, IOSCO members, OECD, and OECD/INFE members.

6 International Organization of Securities Commissions. 2014, *Strategic Framework for Investor Education and Financial Literacy*.

7 Organisation for Economic Co-operation and Development. 2005. *Recommendation on Principles and Good practices for Financial Education and Awareness*. Online: <http://www.oecd.org/finance/financial-education/35108560.pdf>

2

BACKGROUND AND CONTEXT

Public policy is generally aimed at shaping society through a combination of law, regulations, incentives, and interventions to create conditions conducive to human welfare. In turn welfare, or well-being, depends on a number of factors including (but not limited to) financial security and resilience. From this perspective, education initiatives leading to positive impacts on consumer or investor behaviour, or their general well-being, can be considered effective policy interventions. For this reason, both the OECD and IOSCO have been actively engaged in driving forward such policy.

2.1. The importance of investor education and financial literacy for general consumers and retail investors

The OECD Governments officially recognised the importance of financial literacy and financial education in 2002 with the launch of a unique and comprehensive project. In 2008 the project was further enhanced through the creation of the International Network on Financial Education (OECD/INFE), which now has high-level membership from over 250 public institutions – including central banks, ministries of finance, and ministries of education – in 120 countries. The OECD has become the leading international organisation on the development of global policy instruments on financial education as recognised by the G8, G20, and APEC. In accordance with the OECD definition of financial literacy which states that it is ‘a combination of awareness, knowledge, skill, attitude, and behaviour necessary to make sound financial decisions and ultimately achieve individual financial well-being’, these instruments aim to support the development of sound policies to support financial well-being across the population.

As a testimony to the importance of investor education and financial literacy, in 2013 the IOSCO Board established a Committee on Retail Investors (Committee 8, or “C8”) that focuses specifically on these topics, and includes several members of the OECD International Network on Financial Education (OECD/INFE). C8’s Strategic Framework for Investor Education and Financial Literacy⁸ posits that investor education and financial literacy programmes can assist retail investors in improving financial outcomes. Key benefits could include more informed saving and investment decision-making, better financial and retirement planning, greater confidence and higher participation in the securities markets, greater wealth accumulation, and increased awareness of investor rights and responsibilities.

Such initiatives could also help to address any misalignment of investor and industry interests, particularly with respect to information asymmetry, as a complement to securities market regulation and supervision.

The OECD and the IOSCO C8 Framework recognise that investor education and financial literacy programmes have limitations. Drawing on psychology and cognitive science, behavioural economics research identifies a range of barriers that may prevent general consumers and retail investors from making satisfactory or rational financial choices. The availability of investor and consumer education programmes, therefore, does not guarantee that they will make better investment decisions or avoid fraud⁹, nor does it eliminate the need for regulatory intervention to achieve desired outcomes.

⁸ International Organization of Securities Commissions. 2014, *op. cit.*

⁹ A list of the key behavioural responses and an explanation of how they affect decision making are given in Appendix 2 of International Organization of Securities Commissions. 2014, *op. cit.*

Members of the OECD/INFE and IOSCO C8 acknowledge the challenge to identify and utilise simple, low-cost methods of delivering investor education and financial literacy messages that are effective. Behavioural insights can be a powerful tool to help deal with this challenge because they can provide innovative, often uncomplicated, solutions to making public policy that aligns better with the way people act.

2.2. Behavioural economics, heuristics, and biases

Interest in psychological aspects of choice was evident over two centuries ago in the work of Adam Smith, particularly in his *Theory of Moral Sentiments* (1759). Since this foundational work, economists have explored psychological and social influences on human decision-making.

In the twentieth century and through the work of Paul Samuelson and many others, decision-makers were assumed to be perfectly rational and fully capable of utilising all available information, under the standard assumptions of economic theory. Within this standard economic framework, people make choices that maximise the expected value of their private utility based on preferences consistent across time and independent of context.

While these assumptions are far from the reality of everyday human thinking, economists have long argued that they provide mathematical and empirically reasonable approximations for the modelling and analysis of actual behaviour. In fact, they set a foundation on which economic theory developed for 150 years. An example of theoretical advancement is the efficient market hypothesis¹⁰.

The standard economic model of human behaviour includes three theoretical traits rarely observed in the real world: unbounded rationality, unbounded willpower, and unbounded selfishness. People do not make decisions solely in a rational way, on the basis of costs and benefits. They also care about social norms and expectations, and they tend to follow patterns of cooperation. Their preferences depend on the related context and their mental models¹¹ that are affected by society. The human mind usually does not make calculations in the manner of a computer; it is affected by psychological factors and subject to change over time. Instead of having limitless willpower, individuals often lack self-control, even though they know how they should behave or what is best for their well-being. Voluntary work and philanthropy are counterexamples to the unbounded selfishness assumption.

In the second half of the twentieth century, economics thus came to the point where it integrated a more realistic understanding of human behaviour. Herbert Simon, a political scientist, is considered the creator of behavioural economics. In 1947, he developed the definition of administrative man¹², a creature that acts satisfactorily, as opposed to the maximisation-driven *homo economicus*. He coined the term **bounded rationality** in 1957 to describe a more realistic concept of human problem-solving ability. Since individuals have limited cognitive capacity, information, time, and other resources, they search for alternatives, try to avoid bad decisions, and choose satisfactory actions.

10 The efficient market hypothesis states that market prices reflect all available information. It is based on the rationality of agents and thus criticised by behavioural economists. See Lo, A. W. *Efficient Market Hypothesis*. In *The New Palgrave: A Dictionary of Economics*. 2008. London, UK. Palgrave Macmillan.

11 Concepts, categories, identities, prototypes, stereotypes, causal narratives, and worldviews.

12 See Simon, H. A. 1997. *Administrative Behavior: a Study of Decision-Making Process in Administrative Organizations*. New York, NY. The Free Press.

Daniel Kahneman, a psychologist, made the first attempt in the 1970s to produce a “map” of bounded rationality through the study of **heuristics** and **biases**¹³. When individuals make judgements under uncertainty, they employ heuristics (i.e., mental shortcuts) that simplify the decision-making process. In spite of having access to comprehensive information and convenient alternatives, decision-makers tend to reach suboptimal outcomes called biases when applying heuristics¹⁴.

Kahneman and other psychologists use the compound term “heuristics and biases” as these definitions are connected. Since scientific literature commonly uses the word “bias” to express either the process or the result (to overcome a bias, to be subject to a bias, systematic biases, anchoring bias, framing bias, etc.), this report adopts the term **behavioural bias**¹⁵ with the same general meaning, which is in line with previous work from IOSCO and OECD¹⁶.

Behavioural economics was therefore born from the challenges posed to neoclassical economics by the studies of Simon, Kahneman, and other behavioural scientists. It combines psychological insights into human behaviour to explain actual financial decision-making, and how human behaviour deviates from standard assumptions. Another significant difference between behavioural and traditional economics lies in the research method. The former uses inductive (experimental) scientific methods, in contrast to the more deductive thinking of the latter¹⁷.

2.3. Behavioural insights definition

The OECD considers behavioural insights as one discipline in a family of three, along with behavioural sciences and behavioural economics, “which mix traditional economic strategies with insights from psychology, cognitive science and other social sciences to discover the many “irrational” factors that influence decision making”¹⁸. Specifically, “Behavioural insights aim at improving the welfare of citizens and consumers through policies and regulations that are formed based on empirically-tested results, derived using sound experimental methods”¹⁹.

Behavioural sciences analyse the processes underlying human behaviour and decision-making. They address many different aspects of human life, such as happiness, well-being, health, social behaviour, voting preferences, education, consumer behaviour, and decision-making.

13 Kahneman, D. 2003. *Maps of Bounded Rationality: Psychology for Behavioral Economics*. The American Economic Review, 93(5): 1449-1475

14 Lunn, P. 2014. *Regulatory Policy and Behavioural Economics*. Organisation for Economic Co-operation and Development. OECD Publishing. Available at <http://www.oecd.org/publications/regulatory-policy-and-behavioural-economics-9789264207851-en.htm>

15 See Appendix 2 of International Organization of Securities Commissions. 2014, *op. cit.*; Organisation for Economic Co-operation and Development. 2017. *Use of Behavioural Insights in Consumer Policy*. OECD Science, Technology and Innovation Policy Papers, No. 36. OECD Publishing. Available at: http://www.oecd-ilibrary.org/industry-and-services/use-of-behavioural-insights-in-consumer-policy_c2203c35-en.

OECD has defined bias as “deviations from a strict economic model of rationality that many people exhibit in the face of (economic) decisions”, which can be understood as the process or the result. See Lefevre, A. and M. Chapman, *op.cit.*

16 Both organisations have published comprehensive lists of relevant behavioural biases related to financial decision-making in earlier papers. See Appendix 2 of International Organization of Securities Commissions. 2014, *op. cit.*; Lefevre, A. and M. Chapman, *op. cit.*; Ferreira, V. R. 2013. *Can Economic Psychology and Behavioural Economics Help Financial Education?* In Organisation for Economic Co-operation and Development, Russia Trust Fund for Financial Literacy & Education, *op. cit.*

17 Lunn, P., *op. cit.*: 19.

18 Organisation for Economic Co-operation and Development. 2017, *op.cit.*

19 Organisation for Economic Co-operation and Development. 2017, *op.cit.*

Behavioural insights thus draw on multidisciplinary research in social sciences such as economics, psychology, sociology, organisational studies, pedagogy, and anthropology, as well as other fields, including neuroscience, data science, and psychiatry.

Designing market interventions with behavioural insights is not a new approach, the private sector has been using such insights the field of advertising for decades. However, governments are now also embedding experimentation into their regulatory regimes to find the optimal form of intervention, as they increasingly apply behavioural findings to plan and implement more effective policies²⁰.

It should be noted that whilst nudging is one of the better known behavioural techniques available to policy-makers to induce people towards better decisions without actually banning or limiting their choices²¹, behavioural insights are not only about identifying appropriate nudges to achieve desired outcomes. Behavioural insights input into the policy process and can be applied to traditional tools, such as regulation, education, and incentives. They are not necessarily linked to any particular intervention and might even indicate that taking no measure is the best solution for a policy problem²². As a result, behavioural applications are still useful in jurisdictions where policy-makers would not accept the idea of using nudges, due to the concern that they do not support the empowerment of consumers and investors.

2.4. Consumer behaviour, investor education, and financial literacy

Nowadays the financial marketplace is much more complex for the average consumer and retail investor, due to technological innovations and sophisticated products. Consumers have more opportunities to manage their finances, but increased complexity makes them more vulnerable to financial fraud and more prone to unwise financial decisions. Growing life expectancy, the volume and speed of information, more choices, and increased economic uncertainty also present challenges to consumers especially when it comes to long-term investment decisions. In the past twenty years, governments and regulators have therefore placed importance on policies to improve financial literacy levels of citizens and promote investor education.

Financial literacy leads to welfare-improving financial behaviour such as planning, saving, appropriate use of credit and other financial products, and risk awareness. Policy-makers have traditionally used conventional educational methods to increase knowledge about financial concepts, products, and markets based on the notion that poor household financial decision-making is due to lack of information and the expectation that improved knowledge will change behaviour.

Research has raised questions, however, whether providing financial information alone is enough to change financial behaviour and enable financial consumers to make wise decisions. Cognitive factors explain some limitations of financial literacy initiatives. Participants may not be able to understand, retain, or use the knowledge they have gained in class. Teaching techniques may be inadequate or insufficient to convey the needed financial content. Programmes may be too short or participants may find them uninteresting or hard to understand. The same concern also applies to investor education, and indeed all kinds of education that seek to change behaviour in order to improve well-being.

20 Organisation for Economic Co-operation and Development. 2015. *Behavioural Insights and New Approaches to Policy Design: The Views from the Field. Summary of An International Seminar*.

21 A more detailed explanation of nudges is given in Section 3.

22 Lourenço, J. S., E. Ciriolo, S. R. Almeida, and X. Troussard. 2016. *Behavioural Insights Applied to Policy: European Report 2016*. European Commission Joint Research Centre.

Social factors also drive or affect financial behaviours. People are subject to social influences and motivations such as peer pressure, herd behaviour, and a desire for social acceptance or status. These factors influence individuals when they purchase goods or select investments, for example, inducing them to overspend, buy assets during a market bubble, or even fall victim to financial fraud, regardless of their financial literacy level.

Behavioural biases not only lead to suboptimal investment decisions²³, but they also affect enrolment in educational initiatives²⁴ and the way participants receive, understand and use the transmitted knowledge. In the latter case, for example, overconfident people are more prone to discard information, act according to their beliefs²⁵ and reject important market signals or bad news. Participants may feel overwhelmed if large blocks of information are delivered (information overload).

Policy-makers are themselves subject to behavioural biases. They should therefore search for sound evidence that the planned interventions have their intended effects. They should also allow the public to review and scrutinise their policies and actions, especially those aimed at shaping individual choice²⁶.

Other psychological factors also impact the effectiveness of financial literacy and investor education programmes. Individuals may feel motivated at the end of a programme to begin healthy financial habits, but do not keep them in the long run. While the lack of self-control hinders consistent savings behaviours, individuals with low self-efficacy (i.e., confidence in one's own ability to plan and accomplish a task) may find changing their financial behaviours difficult. Even investors with high financial literacy levels are subject to bad investment decisions made intuitively²⁷ (mainly with the cognitive process called System 1²⁸).

Effective financial literacy and investor education initiatives contain elements to access both mental systems. They deliver information and education to raise programme participants' awareness and motivate them to change their behaviour consciously (System 2). Such initiatives also create contexts and environments to induce individuals to behave in ways they consider to be in their best interests by accessing their System 1 (e.g., nudging²⁹). The next sections explain how behavioural insights are being used to inform the two approaches.

23 Such as holding a losing asset for too long (disposition effect) or investing only in domestic equities or stocks/funds with headquarters close to the investor's geographical position (home or local bias).

24 In a free credit counselling programme offered to 870 individuals, the group that agreed to receive financial information discounted the future less than the non-participants. If the participation in the programme can be understood as an investment in human capital, individuals more prone to value the present will find the investment less attractive. See Meier, S. and C. D. Sprenger. 2008. *Discounting Financial Literacy: Time Preferences and Participation in Financial Education Programmes*. Leibniz Information Centre for Economics. IZA Discussion Papers No. 3507.

25 Akerlof, G. A. and R. J. Shiller. 2009. *Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism*. Princeton, NJ. Princeton University Press: 12.

26 *World Development Report 2015: Mind, Society, and Behavior*. The World Bank Group.

27 Glaser, M. and T. Walther. 2014. *Run, Walk, or Buy? Financial Literacy, Dual-Process Theory, and Investment Behavior*.

28 There are two cognitive processes or mental systems. System 1 (automatic) activates the primitive ancient brain parts. It is fast, automatic, unconscious, and associative. System 2 (analytical) has been more recently developed in mankind. It is slow, effortful, serial, and reflective. See Kahneman, D. 2003. *op.cit.*

29 Elliott, A., P. Dolan, I. Vlaev, C. Adriaenssens, and R. Metcalfe. 2010. *Transforming Financial Behaviour: Developing Interventions that Build Financial Capability. A Report for the Consumer Financial Education Body*. CFEB Consumer Research Report 01. Online at: https://mascdn.azureedge.net/cms/research_jul10_cr01_full_report.pdf

3

LITERATURE REVIEW

As seen in Section 2, heuristics are mental shortcuts people use to make economic decisions, resulting in deviations from the strict rationality model called biases. Heuristics and biases are key concepts in behavioural economics, due to their relevant influence on the financial decision-making process and consequent outcomes. The initial focus is therefore placed on the application of insights directly intended to reduce behavioural biases, followed by other types of applications. Priority is given to research with empirical evidence.

3.1. Debiasing

For the purposes of this report, debiasing is understood as taking action to mitigate or eliminate the effects of behavioural biases, defined here as the collective of heuristics and biases, on financial decision-making. No distinction is made whether a debiasing strategy is carried out to affect a particular decision or to have long-lasting impact on the judgement process of individuals.

Italy CONSOB published in 2010³⁰ a detailed report on how heuristics and biases affect investment decision-making. In the case of retail investors, these factors lead to “low participation in the equity market, perception errors of the risk-return relationship, poor portfolio diversification, and excessive trading”. The report described financial literacy initiatives “in a behavioural vein”, improvement of disclosure of investment products, and financial advice as mutually dependent remedies.

Seminal scientific work posits that behavioural biases originate from mistakes of judgment, faulty tasks or a mismatch between the two³¹. Therefore, an intuitive classification of debiasing approaches can be considered according to the object of intervention: the decision maker or the decision environment³².

3.1.1. Individuals’ debiasing techniques

The first general approach consists of supplying knowledge that enables consumers and investors to analyse financial issues more effectively and make more informed decisions, as well as teaching them mental strategies to avoid behavioural biases. Teaching methods outside the classroom, such as simulation systems and experiential learning, also diminish the presence of biases and improve participants’ capability of evaluating probabilities.

30 Linciano, N. 2010. *Cognitive Biases and Instability of Preferences in the Portfolio Choices of Retail Investors: Policy Implications of Behavioural Finance*. CONSOB Working Paper 66.

31 Fischhoff, B. 1982. *Debiasing*. In D. Kahneman, P. Slovic and A. Tversky (Eds.) *Judgment Under Uncertainty: Heuristics and Biases*. Cambridge, UK. Cambridge University Press: 422-444.

32 This classification was taken from Soll, J. B., K. L. Milkman, and J. W. Payne. *A User’s Guide To Debiasing*. In G. Keren and G. Wu (Eds.). *The Wiley Blackwell Handbook of Judgment and Decision Making*. Vol. II. 2015. Chichester, UK. John Wiley & Sons, Ltd.: 924-951.

Education is the traditional approach to helping people to improve their decision-making processes. It is expected that individuals will employ the learned rules, operations, and principles (such as compound interest, inflation, and diversification) in lieu of heuristics and hence avoid biases. Improving numeracy skills is also important since there is a strong connection between poor mathematical ability and susceptibility to decision errors, such as the ones caused by framing effect, ratio bias, and misunderstanding of downside financial risk³³. Quantitative models (e.g., cross-sectional models, time series analyses, and simulation models) are a powerful tool for decision-making, elaborating forecasts, and debiasing judgements³⁴. To customise programmes and optimise efforts, organisations should beforehand identify and assess the weak cognitive points of the target audience as well as perform segmentation³⁵. Another form of education is simply conveying information on biases, their effects, and how to avoid or mitigate them.

On the other hand, it is challenging to enable learners to identify the situations to apply the acquired knowledge and motivate them to do so³⁶. Research has shown that teaching decision rules with brief training and concrete examples can help individuals apply economic concepts such as sunk costs and opportunity costs³⁷ in decision tests.

UK FSA³⁸ commissioned a behavioural economics literature review³⁹ about the likely impact of financial capability initiatives on behavioural outcomes. The resulting report, published in 2008, argued that consumers' financial behaviour may primarily depend on their intrinsic psychological attributes rather than information or skills. In the context of widespread behavioural biases, the use of face-to-face crisis counselling and norm manipulation, i.e., directing people to a particular action (such as higher saving) with rules of thumb or digestible slogans, should be more effective than supplying passive education. The study discussed six debiasing approaches⁴⁰ under the five components of financial capability covered in the Financial Capability Survey Baseline published in 2006⁴¹.

Psychologists have conducted several experiments to test debiasing strategies to overcome narrow thinking by encouraging people to look at a problem or a situation in a different way. One approach is to identify first all the objectives to be accomplished by the decision at hand.

33 Peters, E., D. Västfjäll, P. Slovic, C. K. Mertz, K. Mazzocco, and S. Dickert. 2006. *Numeracy and decision making*. Psychological Science, 17(5): 407-413; Newall, P.W.S. 2016. *Downside Financial Risk is Misunderstood*. Judgment and Decision Making, 11(5): 416-423; Ghazal, S., E. T. Cokely and R. G. Retamero. 2014. *Predicting Biases in Very Highly Educated Samples: Numeracy and Metacognition*. Judgment and Decision Making, 9(1): 15-34.

34 Soll, J. B., K. L. Milkman and J. W. Payne, op. cit.

35 Segmentation can rely on demographics or psychographic profiling, i.e., the process of assigning individuals to groups according to their personality, attitudes, values and beliefs. See L. F. Ackert and R. Deaves. 2010. *Behavioral Finance: Psychology, Decision-Making, and Markets*. Mason, OH. South-Western, CENAGE Learning: 323.

36 *Ibid*.

37 Larrick, R. P., J. N. Morgan and R. E. Nisbett. 1990. *Teaching the Use of Cost-Benefit Reasoning in Everyday Life*. Psychological Science, 1(6): 362-370.

38 The FSA was renamed as the FCA in 2012.

39 De Meza D., B. Irlenbusch and D. Reyniers. 2008. *Financial Capability: A Behavioural Economics Perspective*. Financial Services Authority. Consumer Research 69.

40 (i) consider-the-opposite, (ii) accountability, (iii) training in rules, (iv) training in representations, (v) voluntary cooling-off-periods, and (vi) group decisions.

41 The results of the survey are available at <http://www.fsa.gov.uk/pubs/consumer-research/crpr47.pdf>

When the objectives are considered one at a time, rather than all-at-once, decision-makers will be able to generate alternatives and increase their chances of making a good choice⁴². To cope with overconfidence and confirmation biases, they can take the time to consider why they might be overestimating their chances of success in a particular task or prediction. They may also apply the prospective hindsight technique, i.e., to project themselves into the future, assume a failure scenario, and analyse the possible causes. This technique is useful in identifying potential causal paths that do not come to mind in foresight⁴³. A 2015 study tested the immediate and long-term (after 12 months) debiasing effects of an instructional video about heuristics and a game. Both training methods significantly reduced the influences of six different behavioural biases in both post-test and follow-up evaluations⁴⁴. These strategies can be adapted for financial decision-making and incorporated in investor education / financial literacy programmes.

The scientific community and public institutions have conducted experiments in which individuals were given knowledge and advice to reduce the effect of behavioural biases on their financial decisions and behaviours. The World Bank research group used a dice game in 2011 to deal with misjudgement of small probabilities in lotteries, which resulted in reduced gambling behaviour of the treatment group in the following year⁴⁵. Offering electronic notifications to participants before and after simulated investment decisions managed to lower disposition effect as well as the presence of framing, representativeness, and ambiguity biases⁴⁶. Explicit written warnings against overconfidence were found to be able to reduce bias in finance professionals⁴⁷.

Simulation systems are interesting experiential-learning resources to assist investors in assessing probabilities correctly⁴⁸ and making decisions about retirement savings⁴⁹. These task-based tools represent an alternative less prone to misrepresentation than surveys when assessing risk preference⁵⁰, and are able to convey concepts of volatility and risk-return. In Brazil, a strong relationship was found between participation in an online stock market simulator and a higher probability of investing in the actual market⁵¹. It was not possible, however, to conclude whether exposure to the simulator and overcoming investor biases were correlated.

42 Keeney, R. L. 2012. *Value-Focused Brainstorming*. Decision Analysis, 9(4): 303-313.

43 Koriati, A., S. Lichtenstein and B. Fischhoff. 1980. *Reasons for Confidence*. Journal of Experimental Psychology: Human Learning and Memory, 6(2): 107-118; Mitchell, D. J., J. E. Russo and N. Pennington. 1989. *Back to the Future: Temporal Perspective in the Explanation of Events*. Journal of Behavioral Decision Making, 2(1): 25-38 (as cited in Soll, J. B., K. L. Milkman and J. W. Payne, *op. cit.*).

44 Morewedge, C. K., H. Yoon, I. Scopelliti, C. W. Symborski, J. H. Korris and K. S. Kassam. 2015. *Debiasing Decisions: Improved Decision Making with a Single Training Intervention*. Policy Insights from the Behavioral and Brain Sciences 1-12.

45 Abel, M., S. Cole and B. Zia. 2015. *Debiasing on a Roll: Changing Gambling Behavior through Experiential Learning*. The World Bank Research Group Policy Research Working Paper 7195.

46 Döbrich C., J. Wollersheim, M. Spörrle and I. M. Welp. 2014. *Letting Go of Your Losses: Experimental Evidence for Debiasing the Disposition Effect in Private Investment Decisions*. Journal of Management and Strategy, 5(4); Bhandari G., K. Hassanein and R. Deaves. 2008. *Debiasing Investors with Decision Support Systems: An Experimental Investigation*. Decision Support Systems 47(1):399-410.

47 Kaustia, M. and M. Perttula. 2012. *Overconfidence and Debiasing in the Financial Industry*. Review of Behavioral Finance, 4(1):46-62.

48 A German experiment helped investors mitigate the effect of overestimating the probability of loss and increased their willingness to accept risk in their simulated portfolios. The participants estimated returns with more accuracy and felt more confident. The experiment interestingly provided instant feedback to investors and they could reallocate portfolios afterwards. See Kaufmann, C., M. Weber, and E. Haisley. 2012. *The Role of Experience Sampling and Graphical Displays on One's Investment Risk Appetite*. Management Science, 59(2): 323-340.

49 William Sharpe and other researchers devised in 2008 a computer system called Distribution Builder, where users input a probability distribution subject to cost constraint, and the tool calculated the investment outcome accordingly. It sought to help investors to construct more informed preferences so that they would better choose retirement investment products. No related tests were found in the literature nonetheless. See Goldstein, D. G., E. J. Johnson and W.F. Sharpe. 2008. *Choosing Outcomes versus Choosing Products: Consumer-Focused Retirement Investment Advice*. Journal of Consumer Research, 35: 440-456. Also see Donkers, B., C. Lourenço, D. Goldstein, and B. Dellaert. 2013. *Building a Distribution Builder: Design Considerations for Financial Investment and Pension Decisions*. Network for Studies on Pensions, Aging and Retirement. Design Paper20.

50 Eckel, C. and J. Carpenter. 2010. *Consumer Decision Making: Insights from Behavioral Economics*. Presented at: *Consumer Decision Making: Insights from Behavioral Economics*. Conference of the Federal Reserve Bank of Dallas. Retrieved from <https://www.dallasfed.org/cd/events/2010/10consumer.aspx>

51 Anginer, D., A. Coville, V. di Maro, M. Kanz et. al. *Understanding and Improving Household Investment Behavior in Brazil: A Stock Market Simulator as a Learning-by-doing Financial Literacy Tool*. In Lundberg, M. and F. Mulaj (Eds.). *Enhancing Financial Capability and Behavior in Low- and Middle-Income Countries*. 2014. The World Bank. Washington, D.C.: 105-138.

3.1.2. Debiasing techniques based on the environment

Instead of acting on the decision maker, the second approach seeks to alter the setting in which judgement is made to encourage desired behaviours or better reasoning. This approach recognises that decision-makers are subject to behavioural biases, so it creates situations in which biases become irrelevant or can even lead people to options with better financial outcomes. Policy-makers can modify the decision context by either explicitly placing economic or non-economic incentives, or – in a more subtle way – designing environments to suggest choices in wise directions. The latter technique is known as choice architecture.

Economic incentives are the traditional means of changing the decision environment and governments frequently use monetary incentives, such as subsidies, fines, and bonuses to encourage wise choices or deter undesirable behaviours. The World Bank tested four different treatments⁵² to provide evidence of barriers to take-up of a free half-day long financial literacy course in Mexico. Only two types of monetary payments increased participation rate by about ten percentage points. Matching employee contributions is a widely used monetary incentive to foster retirement savings, along with automatic enrolment – a choice architecture approach discussed later in this subsection.

Prize-linked savings (PLS) pool interest into a prize-fund that creates an additional monetary incentive to encourage saving. PLS is typically a savings product that offers chances to win cash prizes and becomes a commitment mechanism that prevents hyperbolic discounting bias, by helping savers to place more importance on the future when they consider the possibility of obtaining prizes and counterbalance immediate gratification. The act of saving is usually seen as sacrificing and involving self-denial, so PLS seeks to reframe it as fun and thus change the savings experience. This may particularly appeal to low-income households and youth, providing that the minimum deposit is sufficiently modest, as it allows them to envisage a large potential reward from saving, even if their actual saving pot is relatively small. Identifying prize winners in publicity materials motivates other savers and prospective savers, as it changes their perception of their probability of winning. Making low-value savings possible can also increase savers' feeling of financial self-efficacy⁵³. The World Bank evaluated a promotion programme using savings lotteries in Nigeria in 2011 and found that it led to a small increase in the savings balances of existing account holders in the short term, but the effects faded when the incentives were removed⁵⁴. It seems therefore that continuous effort is needed to generate long-term effects. Two experiences in the United States showed that enrolment in prize draws (small and frequent ones plus a grand prize) motivated young workers to sign up for direct deposit savings from their first paycheck⁵⁵. U.K. Premium Bonds stimulate saving behaviour

52 The treatments were monetary payments for attendance, deferred payments, free cost transportation to the training venue, and a video CD with positive testimonials about the programme. The course attained only short-term savings behaviour change of participants and no impact on credit card usage or borrowing behaviour. The study suggests that the classroom setting may not be appealing to the general public. See Bruhn, M., G. L. Ibarra, and D. McKenzie. 2013. *Why Is Voluntary Financial Education So Unpopular? Experimental Evidence from Mexico*. The World Bank Development Research Group. Finance and Private Sector Development Team. Policy research Working Paper 6439.

53 From 2009 to 2015, the Save to Win project reached more than 60,000 accountholders in 63 U.S. credit unions. Savers were able to purchase a one-year certificate of deposit with only US\$ 25, and 53% to 69% of them were first-time buyers. Average savings per account ranged from US\$ 1,274 to US\$ 2,744. 64% of participants rolled over their savings at the end of 2011. Incentives costs of Save to Win pilot were five times less than of a savings matching project and reached more low-income individuals. See *Playing the Savings Game: A Prize-Linked Savings Report*. Doorways to Dreams D2D Fund; *Prize-Linked Savings: Creating Financial Confidence and Opportunity*. Doorways to Dreams D2D Fund. 2015; *Saving to Win Impact: 2015 Overview*. Doorways to Dreams D2D Fund.

54 Kanz, M., A. Kaufman, K. Shue and B. Wahler. *Using Savings Lotteries to Promote Financial Inclusion in Nigeria*. In: Lundberg, M. and F. Mulaj (Eds.), *op. cit.*: 279-314.

55 See Loke, V, L. Choi, and M. Libby. 2015. *Increasing Youth Financial Capability: An Evaluation of the MyPath Savings Initiative*. The Journal of Consumer Affairs, 49(1): 97–126; and *Prizes Facilitate Saving by Youth: Report on a Pilot Project*. Commonwealth.

as chances to win tax-free cash prizes in monthly draws are proportional to the invested amount⁵⁶. A study in South Africa concluded that PLS might act as a substitute to lottery gambling because they did not affect balances in other savings products⁵⁷. The introduction of PLS also correlates with reduction of cash withdrawals made inside casinos although gamblers with less self-control do not respond to the new products⁵⁸.

Policy-makers can also make use of non-economic incentives, including introducing accountability, providing new information, and conveying social norms to decision-makers. Requiring disclosure of more information is a typical stimulus provided by regulation. Accountability and peer pressure were success factors identified in two experiments designed to foster group saving behaviour⁵⁹. Institutions may, however, encounter restrictions or dangers when trying to apply these techniques to financial literacy programmes, such as budget constraints (in case of giving monetary incentives), risk of “backfiring”⁶⁰, or risk of information overload.

Although economic and non-economic incentives modify the decision environment, the targeted individual still needs to access his mental System 2 and consciously make a choice to change his behaviour.

Choice architecture offers an alternative approach. It recognises that people sometimes make irrational and inconsistent choices, and so it focuses on more automatic processes of judgement and influence, “changing behaviour without changing minds”⁶¹. Choice architecture interventions are designed to offer choices or alter the decision process to influence behaviour for good (i.e., to promote decisions that enhance one’s well-being), without forbidding any option or significantly changing their economic incentives. These interventions are usually simple, easy to avoid, and often called “nudges”⁶².

Nudges are an attractive instrument for public policy since they keep citizens’ freedom of choice and can offer rapid results at relatively low cost. With respect to financial literacy, nudges can be applied to encourage good financial behaviours such as saving money and investing wisely. It is possible to combine cognitive approaches (based on changing minds through education, information, regulation, taxes, subsidies, etc.) and such choice architecture interventions to achieve behaviour change more effectively⁶³.

56 See Lobe, S. and A. Hölzl. 2008. *Why Are British Premium Bonds So Successful? The Effect of Saving with A Thrill*; and Tufano, P. 2008. *Saving whilst Gambling: An Empirical Analysis of U.K. Premium Bonds*.

57 Cole, S., B. Iverson, and P. Tufano. 2014. *Can Gambling Increase Savings? Empirical Evidence on Prize-linked Savings Accounts*. Saïd Business School Research Paper 2014-10.

58 Cookson, J. A. 2017. *When Saving Is Gambling*.

59 Kast, F., S. Meier and D. Pomeranz. 2012. *Under-Savers Anonymous: Evidence on Self-Help Groups and Peer Pressure as a Savings Commitment Device*. NBER Working Paper No. 18417. National Bureau of Economic Research; Dupas, P. and J. Robinson. 2013. *Why Don't the Poor Save More? Evidence from Health Savings Experiments*. American Economic Review 103: 1138–71.

60 A field experiment showed that disclosure on conflict of interest can increase biased advice because advisors might feel morally licensed and encouraged to exaggerate their counsels even further. See Cain, D. M., G. Loewenstein, and D. A. Moore 2005. *The Dirt on Coming Clean: Perverse Effects of Disclosing Conflicts of Interest*. The Journal of Legal Studies, 34(1):1-25.

Unionised non-participants enrolment in a savings plan decreased after having received peer information about who were already participating in the plan, probably due to the size of the gap between their savings behaviour and their peers’ or an antagonistic collective relationship with the company. See: Beshears, J., J. J. Choi, D. Laibson, B. C. Madrian and K. L. Milkman. 2010. *The Effect of Providing Peer Information on Retirement Savings Decisions*. Financial Literacy Center Working Paper Series.

61 Elliott, A., P. Dolan, I. Vlaev, C. Adriaenssens and R. Metcalfe. 2010, *op. cit.*: 16

62 Thaler, R. H. and Sunstein, C. R. 2008, *op. cit.*: 6; Soll, J. B., K. L. Milkman, J. W. Payne, *op. cit.*; Bhargava, S. and G. Loewenstein. 2015. *Behavioral Economics and Public Policy 102: Beyond Nudging*. American Economic Review: Papers & Proceedings, 105(5): 396–401.

63 Elliott, A., P. Dolan, I. Vlaev, C. Adriaenssens, and R. Metcalfe, *op. cit.*

The most studied and analysed choice architecture intervention in personal finance is the automatic enrolment⁶⁴, which takes advantage of the participants' inertia ("path of least resistance") and procrastination to increase participation in retirement saving plans⁶⁵. In the case of company-designed plans, as few employees opt out of default options, the predefined saving rates and investment funds should be carefully set⁶⁶. For example, low initial rates can result in insufficient saving, and default contributions to the employer's stock may lack diversification. To avoid immediate sacrifice and make savings more palatable, workers can also commit in advance to allocate a portion of their future salary raises toward retirement plans, leading to a significant overall savings rate increase⁶⁷. This front-loaded approach can also be applied to new workers' first paycheck, tax refunds⁶⁸, and other types of reimbursements⁶⁹. In the United Kingdom, setting a default option to set aside pay into an emergency savings fund has been proposed (but still untested) to help to decrease personal consumer debt⁷⁰. This kind of policy based on passive choice is potentially more cost effective than the ones relying on active choice (such as tax subsidies), providing that it is well designed to avoid unintended consequences⁷¹.

Field experiments have successfully tackled behavioural biases impeding saving behaviour of low-income groups. Methods to cope with present bias comprise the use of hard commitment devices, such as economic penalties for failure or rewards for success⁷², and soft commitment strategies⁷³, which have psychological consequences, e.g., the feeling of guilt or loss when withdrawing funds from a lockbox⁷⁴. Mental accounting mechanisms, such as earmarking savings for emergency health expenditures or a future acquisition and social pressure to make deposits in a group setting, are also effective to overcome savings barriers⁷⁵. Direct mail and text message reminders that mention

64 Automatic enrolment began in U.K. in October 2012. 5.4 million people automatically joined new workplace pensions and 8% to 14% of workers opted out by the end of August 2015 (Department for Work & Pensions (HC 417, Session 2015-2016, 4 Nov 2015), online: National Audit Office at: <https://www.nao.org.uk/wp-content/uploads/2015/11/Automatic-enrolment-to-workplace-pensions-Summary.pdf>).

65 Rise from 49% to 86% of workers enrolled in a 401(k) plan of large U.S. corporation, as described in Madrian, B. and D.F. Shea. 2001. *The Power Of Suggestion: Inertia In 401(k) Participation And Savings Behavior*. Quarterly Journal of Economics, 116 (4): 1149-1187.

66 Choi, J., D. Laibson, B. Madrian, and A. Metrick. 2002. *Defined Contribution Plans: Plan Rules, Participant Decisions, and the Path of Least Resistance*. In Poterba, J. (Ed.). *Tax Policy and the Economy*. vol. 16. Cambridge, MA. MIT Press: 67-113

67 A nearly four-fold increase was seen in Thaler, R., and S. Benartzi. 2004. *Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving*. Journal of Political Economy 112: 164-87.

68 Since 2010, the U.S. Internal Revenue Service offers government bonds to all citizens eligible for tax refunds.

69 Benton, M., S. Meier, and C. Sprenger. 2007. *Overborrowing and Undersaving: Lessons and Policy Implications from Research in Behavioral Economics*. Federal Reserve Bank of Boston. Department of Public and Community Affairs and Center for Behavioral Economics and Decision Making, 07-4.

70 StepChange Debt Charity. 2015. *An Action Plan on Problem Debt*. Foundation for Credit Counselling.

71 Chetty, R., J. Friedman, S. Leth-Petersen, T. H. Nielsen, and T. Olsen. 2013. *Subsidies V.s. Nudges: Which Policies Increase Saving The Most?* Issue Brief 13-3. Retirement Research at Boston College.

72 A savings account developed in Philippines with reduced liquidity resulted in an increase of savings balances by 82%, as tested by Ashraf, N., D. Karlan, and W. Yin. 2006. *Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines*. Quarterly Journal of Economics 121: 673-97.

73 Dupas, P. and J. Robinson, *op. cit.*

74 It is still not clear which commitment type is more effective. One experiment of the World Bank concluded that the soft commitment treatment led to higher initial take-up but the hard commitment group had the highest overall savings by the study's end. A 2014 test showed that weaker commitments resulted in higher savings on educational expenses and improved students' literacy scores, whereas strong commitments had no effect. Low budget families may naturally feel reluctant to tie funds and trust in financial institutions is probably an issue as well. See Burke, J., J. E. Luoto and F. Perez-Arce. 2014. *Soft versus Hard Commitments: A Test on Savings Behaviors*. RAND Labor & Population Working Paper WR-1055; Karlan, D. and L. L. Linden. 2014. *Loose Knots: Strong versus Weak Commitments to Save for Education in Uganda*. National Bureau of Economic Research Working Paper 19863.

75 An analysis of the savings barriers and a summary of the related empirical evidence can be found at Karlan, D. and A. L. Ratan. 2014. *Savings By and For the Poor: A Research Review and Agenda*. A similar experiment was being carried out in Malawi and results are

financial incentives or specific goals are useful to tackle limited attention (which can lead to under-savings), although cost-effectiveness is still an issue, especially for direct mail⁷⁶. Using a tangible track-keeping object – for example, a coin with numbers for each week to be scratched in different positions depending on whether the person managed or not to do a weekly deposit – is also effective to motivate a saving behaviour with immediate costs and delayed gratification⁷⁷.

Commitment devices can also address lack of self-control and avoid over-borrowing, but more experimental evidence is needed to support this application. Financial literacy programmes can teach and test commitment techniques, such as self-imposing credit limits (e.g., reducing them or refusing limit increases when offered) and cooling-off intervals before any purchase, as well as replacing credit cards by debit cards. Another possible intervention is to commit future salary raises to debt reduction⁷⁸. Peer support and reminder messaging are potential tools to help individuals follow a repayment plan⁷⁹.

An environment modification that increases the chances of achieving behavioural change is providing opportunities for participants to immediately act during or after a financial literacy or an investor education programme. When these opportunities are offered with fewer hassle factors, they help participants avoid procrastination and take actions such as opening a savings account or enrolling in a retirement savings plan⁸⁰.

There is a gap between the studies on the occurrence of biases and debiasing experiments. While the scientific literature about the existence of behavioural biases and how they influence human behaviour is vast, additional research is needed to elaborate and test debiasing techniques as well as learn how to cope with heuristics and biases.

3.2. Other applications of behavioural insights to investor education and financial literacy

This subsection describes training techniques, tools, and means tested or implemented with behavioural insights in mind. It shows how rules of thumb, mass media, visual tools, counselling,

pending, see Giné, X. 2014. *Direct Deposit and Commitments to Save in Malawi*. In: Lundberg, M. and F. Mulaj (Eds.), *op. cit.*: 315-354.

76 Karlan, D., M. McConnell, S. Mullainathan and J. Zinman. 2013. *Getting to the Top of Mind: How Reminders Increase Saving*. Akbas, M., D. Ariely, D. A. Robalino, and M. Weber. 2015. *How to Help the Poor to Save a Bit: Evidence from a Field Experiment in Kenya*.

77 Akbas, M., D. Ariely, D. A. Robalino, and M. Weber, *op. cit.*

78 Benton, M., S. Meier and C. Sprenger, *op. cit.*

79 A study offered three features to 465 individuals with high interest card or auto loan debt in 2010: a repayment plan, reminder messaging, and peer support. In spite of having a considerable demand (41% of the sample signed up for any kind of intervention), credit card balances of the treatment group were not significantly lower than of the control group. On the other hand, 51% of treated individuals were on track after 12 months. See Innovations for Poverty Action. *Borrow Less Tomorrow*. Project Evaluation.

80 The MyPath financial education programme managed to foster savings of low-income youth from the moment they received their first paycheck. The first pilot programme helped them to open savings accounts with reduced paperwork and set a savings goal. The programme offered as well a deposit match in the first four months and a prize when the goal was reached. See Loke, V., L. Choi, and M. Libby. 2015, *op. cit.*; and *Prizes Facilitate Saving by Youth: Report on a Pilot Project*. Commonwealth.

A second more scalable version of MyPath was piloted from 2013 to 2015. It featured peer-led group coaching sessions, two types of savings accounts with direct deposit functionality, in-person orientation session, and an interactive smartphone app. The programme employed an anchoring strategy to suggest some parameters to participants, while setting their savings goals. A quasi-experiment evaluated the programme and concluded that nearly all youth participants enrolled into the accounts, 96% reached their savings goal, and on average they saved 34% of their income. Financial knowledge and financial self-efficacy levels of the group treated with coaching were also significantly higher than of the control group. See Loke, V., L. Choi, L. Larin and M. Libby. 2016. *Boosting the Power of Youth Paychecks. Integrating Financial Capability into Youth Employment Programmes*. Federal Reserve Bank of San Francisco. Working Paper 2016-3.

and financial coaching can engage consumers and investors with simple, emotionally appealing, and customised approaches. A behaviour change model – the Transtheoretical Model of Change – is explained along with its application to financial literacy programmes. In addition, the importance of considering sociocultural elements and creating a learning community for the delivery of educational programmes is discussed.

Rule-of-thumb training takes advantage of the human tendency to use heuristics to tackle complexity, lack/excess of information, uncertainty, or other difficulties when making choices. Providing simple, summarised and straightforward advice is therefore an interesting substitute or complement to the standard approach usually based on teaching fundamentals and principles. Learners generally implement rules-of-thumb⁸¹ faster than financial knowledge, so the risks of procrastination and misunderstanding are reduced⁸². One experiment showed that rule-of-thumb training improved management practices of low-skilled micro-entrepreneurs to a larger extent than the traditional financial literacy programme⁸³. Simple rules usually produce good results when applied to repetitive and frequent decisions⁸⁴, such as the ones related to credit card payment and usage. However, if the rule-of-thumb method is employed without significant differences in pedagogical aspects (readings, syllabus topics, assignments, etc.) to the principle-based approach, it is difficult to expect substantial improvement in terms of outcomes⁸⁵. Research concluded that the use of simple heuristics can lead to modestly lower levels of welfare and utility for retirement planning, consumption, and portfolio selection when compared to optimal choices⁸⁶. More research on long-term effects is needed to assess the efficacy of this low-cost tool.

Mass media is a powerful tool to engage the emotional interest of large audiences with stories involving educational content. The World Bank evaluated the economic impact of financial literacy messages on debt management delivered through a television soap opera in South Africa. The viewers were less likely to gamble and less prone to enter hire purchase agreements. The initiative employed techniques of social marketing, edutainment, and emotional connections to convey practical information about how to get out of debt, use credit wisely, and other topics⁸⁷. In Nigeria, the World Bank also assessed the impact on entrepreneurs of a movie that capitalised on the “affect” heuristic⁸⁸ and the theory of behavioural consistency to deliver saving messages. This one-off event proved somewhat successful in influencing short-term decisions when accompanied by an

81 A toolkit for designing rules of thumb is presented at *Designing Rules of Thumb Toolkit*. Commonwealth.

82 Schoar, A. and S. Datta. 2014. *The Power of Heuristics*. Ideas42.

83 Drexler, A., G. Fischer and A. Schoar. 2014. *Keeping It Simple: Financial Literacy and Rules of Thumb*. American Economic Journal: Applied Economics, 6(2): 1–31. J-Pal is conducting another experiment in India, where rules of thumb are delivered to micro-entrepreneurs through mobile technology. Results are still under analysis. (<https://www.povertyactionlab.org/evaluation/rules-thumb-providing-timely-financial-management-advice-scale-india>).

84 Baumol, W.J. and R. E. Quandt. *Rules of Thumb and Optimally Imperfect Decisions*. In Quandt, R. E. The Collected Essays of Richard E. Quandt Vol. I. 1992. Hants. Edward Elgar: 24.

85 Skimmyhorn, W.L., B. Mitchell, E. R. Davies, D. Mun. 2015. *Assessing Financial Education Methods: Principles vs. Rules-of-Thumb Approaches*.

86 Winter, J., K. Schlafmann, R. Rodepeter. 2011. *Rules of Thumb in Life-Cycle Saving Decisions*. University of Munich. Munich Discussion Paper No. 2011-16; Love, D. A., 2013. *Optimal Rules of Thumb for Consumption and Portfolio Choice*. The Economic Journal, 123: 932-961; Binswanger, J., K. G. Carman. 2008. *How Real People Make Long-Term Decisions The Case of Retirement Preparation*. Tilburg University. Discussion Paper No. 2009-73.

87 Berg, G., B. Zia. 2013. *Harnessing Emotional Connections to Improve Financial Decisions*. The World Bank Africa Region Finance and Private Sector Development Unit & Development Research Group Finance and Private Sector Development Team. Policy Research Working Paper 6407. Online at: <http://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-6407>

88 The “affect” heuristic leads to an emotional decision based on good or bad feelings towards something, instead of evaluating its pros and cons. Advertising often creates a positive affect, for instance, to sell unhealthy activities or foods. The theory of behavioural consistency states that people tend to keep compatible behaviours throughout life, so their past choices are a reference to the present decision process.

opportunity to act promptly (open a savings account), but it did not foster longer-run behaviour⁸⁹. Mass media also has the advantage of reaching a population originally unaware of its financial education needs, thus avoiding the selection bias⁹⁰ of traditional financial literacy programmes.

Behavioural insights also drive the use of visual tools in financial literacy programmes. An experiment conducted in the United States developed an interactive online programme that applied the concept of mastery experience to improve the user's self-efficacy, which helps to induce changes in financial behaviour. The results suggest that tools capable of engaging the learner emotionally and visually (e.g., videos or interactive programmes) are more effective than text-based or passive educational programmes⁹¹. A related test used videos and text narratives that emphasised tangible and intangible short-term benefits to address present bias and lack of self-control. The visual tools also presented employer-matched contributions in U.S. pension funds – 401(k) – as ‘free money’ to make them look attractive, according to the findings of existing literature. The videos led to higher levels of self-efficacy and financial knowledge⁹².

Offering financial literacy or investor education at “teachable moments” helps to ensure relevance and prompt action. For example, stimulating savings and introducing financial products when youth receive their first paycheque results in higher savings balances and supports their financial autonomy⁹³. A recent meta-regression analysis considers this a key factor to success⁹⁴, as lack of motivation explains low financial literacy⁹⁵. Another study from the World Bank also gives importance to carefully and optimally choosing the recipients of the “just-in-time” training programme⁹⁶.

Individualised counselling, goal setting, and financial education make up a combination capable of overcoming behaviour change barriers, such as procrastination and forgetfulness. This combination can also fill the gap between the one-size-fits-all programmes and each participant's lack of knowledge/skills⁹⁷. More research is needed, however, to test technological channels offering individual advice (virtual chat, video, etc.) to enable large-scale application. When counselling is optional or paid, it might be challenging to engage investors who are unaware, due to overconfidence,

89 Coville, A., V.Di Maro, S. Zottel and F.A. Dunsch. 2014. *Nigeria's Nollywood Nudge*. In: Lundberg, M. and F.Mulaj (Eds.). 2014, *op. cit.*: 315-354.

90 More aware and more conscious people are more likely to enrol voluntarily in educational programmes. If randomisation is not performed, results generally tend to be better.

91 Lusardi, A., A. S. Samek, A. Kapteyn, L. Glinert, A. Hung and A. Heinberg. 2014. *Visual Tools and Narratives: New Ways to Improve Financial Literacy*.

92 Lusardi, A., A. S. Samek, A. Kapteyn, L. Glinert, A. Hung and A. Heinberg. 2014. *Five Steps to Planning Success: Experimental Evidence from US Households*. 2014. Oxford Review of Economic Policy, 30(4): 697-724.

93 See Lusardi, A., P.Keller and A. Keller. 2008. *New Ways to Make People Save: The Dartmouth Project*. TIAA-CREF Institute: Trends and Issues; and Loke, V., L. Choi, and M. Libby. 2015, *op. cit.*

94 Kaiser, T. and L. Menkhoff. 2016. *Does Financial Education Impact Financial Behavior, and if So, When?* German Institute for Economic Research (DIW Berlin). Discussion Paper 1562.

Another meta-analysis posits that the effects of financial literacy initiatives decay over time and suggests giving “just-in-time” education: Fernandes, D., J. G. Lynch Jr., and R. G. Netemeyer. 2014. *Financial Literacy, Financial Education and Downstream Financial Behaviors*.

95 Mandell, L. and L. S. Klein. 2007. *Motivation and Financial Literacy*. Financial Services Review 16: 105-116.

96 In Indonesia, the World Bank concluded that training both migrants and their left family members led to the best results. See Doi, Y., D. McKenzie and B. Zia. 2012. *Who You Train Matters: Identifying Complementary Effects of Financial Education on Migrant Households*. The World Bank Development Research Group, Finance and Private Sector Development Team & East Asia and Pacific Region Financial and Private Sector Department. Policy Research Working Paper 6157.

97 Carpena, F., S. Cole, J. Shapiro and B. Zia. 2015. *The ABCs of Financial Education: Experimental Evidence on Attitudes, Behavior, and Cognitive Biases*. The World Bank Development Research Group Finance and Private Sector Development Team. Policy Research Working Paper 7413; Consumer Financial Protection Bureau. 2014. *Financial Wellness at Work: A Review of Promising Practices and Policies*. pp: 31-2.

of their lack of financial knowledge. Advisors themselves might be prone to overconfidence and other cognitive biases, so they need training to tackle their own biases as well as their advisees⁹⁸. There is some evidence that advisory intervention alone has a positive effect on the portfolio returns of individual investors, provided there is no conflict of interest⁹⁹.

Financial coaching¹⁰⁰ acts more directly on behaviour change than on financial knowledge. Coaching represents the maximum degree of personalisation of an educational programme¹⁰¹, as the delivered information is tailored to the learner's needs and financial situation, improving its salience¹⁰². Financial coaching experiments were able to produce positive financial outcomes, such as reducing participants' debt and increasing their credit scores¹⁰³. To close the client intention-action gap, coaches can suggest automated tools for recurring transactions, e.g., programmed savings transfers, automatic credit card payments above the minimum, and automatic bill payments. Making commitments and scheduling text or message reminders are alternatives for those who are not ready to sign up for automated features¹⁰⁴. Motivating participants to start a coaching process and attend regular coaching sessions remains a challenge nevertheless¹⁰⁵. As participants may have different financial goals, the diversity of outcomes is an obstacle to comparing satisfactorily effects on control and treatment groups. This situation outlines the importance of using several metrics to assess correctly the impact of coaching initiatives. As costs of one-to-one interventions are high, automated customisation is a promising alternative to be more tested¹⁰⁶.

The Transtheoretical Model of Change¹⁰⁷ (TTM) is a behaviour change model with application to the design and the evaluation of financial literacy interventions. The TTM was developed by integrating psychotherapy models and relies on the assumption that behaviour change is a process, not a discrete event. The model presents five stages of change: pre-contemplation, contemplation, preparation, action, and maintenance. Someone is said to be in a particular stage depending on the acknowledgment of the need to alter his/her behaviour, the intention to change, and for how long the new behaviour has been integrated into his/her life. The TTM also describes ten processes of change to enable subjects to move between the stages. One survey showed that most of the

98 Gentile M., N. Linciano, and P. Soccorso. 2016. *Financial Advice Seeking, Financial Knowledge and Overconfidence: Evidence from the Italian Market*. Commissione Nazionale per la Società e la Borsa. Working Paper 83; Kramer, M. K. 2014. *Financial Literacy, Overconfidence and Financial Advice Seeking*.

99 Hung, A. A. and J. K. Yoong. 2010. *Asking for Help: Survey and Experimental Evidence on Financial Advice and Behavior Change*. RAND Corporation. Working Paper WR-714-1; Kramer M. and R. Lensink. 2012. *The Impact of Financial Advisors on the Stock Portfolios of Retail Investors*; Mullainathan, S., M. Noeth, A. Schoar. 2010. *The Market for Financial Advice: an Audit Study*. National Bureau Of Economic Research. Working Paper 17929.

100 Financial counselling mostly deals with a particular financial issue of the client, in the form of a crisis-driven intervention. Financial coaching often helps individuals to achieve the financial goals they establish. Coaching differs from counselling by focusing on a longer-term financial behaviour change, although both methods rely on one-to-one interactions.

101 Innovations for Poverty Action. *Beyond the Classroom: Evidence on New Directions in Financial Education*. Financial Inclusion Programme Brief: 5.

102 *World Development Report 2015: Mind, Society, and Behavior*. The World Bank: 121

103 Theodos, B., M. Simms, M. Treskon, C. Stacy et al. 2015. *An Evaluation of the Impacts and Implementation Approaches of Financial Coaching Programmes*. Urban Institute (funded by the CFPB); Innovations for Poverty Action, *loc. cit.*

104 In an RCT run between 2010 and 2012, automatic savings transfers and reminders helped the treated group to attain a final savings balance 21% higher than that of the control group. See Schoar, A. and P. Tianta. 2014. *The Financial Health Check: A Behavioral Approach to Financial Coaching*. New America Foundation.

105 The test commissioned by the CFPB showed that around half of the treatment groups attended the first coaching session and the clients went, on average, to only three sessions. See Theodos, *op. cit.*

106 An experiment in Chile tested the effects of providing, at self-service kiosks, a personalised simulation showing how changes in contribution amounts would affect one's retirement savings balance. The treatment group increased the average amount of contributions by 12%, but the effect only lasted eight months after the intervention. See Innovations for Poverty Action. *Personalizing Information to Improve Retirement Savings in Chile*. Financial Inclusion Study Summary.

107 Prochaska, J. O. 1979. *Systems of Psychotherapy: A Transtheoretical Analysis*. Homewood, IL: Dorsey.

individuals who reported financial distress were in the pre-contemplation stage¹⁰⁸. Particularly at this point, the person does not have the intention to alter behaviour and may not even be aware of his/her problems. Thus, there is little readiness to learn or participate in a programme, so to help one move on from this first stage of change requires specific strategies different than those applied in other stages. One application of the model to personal finance suggests that, in the case of individuals with money management issues, it might be more effective to teach them in the first place how to limit impulsive purchases (an avoidance strategy), before bringing up the necessity of saving regularly (an approach strategy)¹⁰⁹. Another application to a programme implemented between 1996 and 2000 in 29 U.S. states managed to produce debt reduction and savings increment among more than 13,000 participants¹¹⁰. A 13-episode soap opera written with insights from the TTM enabled the viewers to progress further through the stages of behavioural change¹¹¹. The model has been applied as a tool to evaluate behaviour change as well, even in programmes that did not employ the techniques indicated by the model itself¹¹².

Capitalising upon cultural elements and creating a learning community are important tailoring strategies for delivering financial literacy programmes to ethnic, minority, or other social groups¹¹³. Sociocultural beliefs and values often override how individuals receive and process information, affecting their financial decisions on housing, food, and health. Consequently, educators should not only reflect them in educational materials (in terms of participants' life situations, habits, language, etc.), but also use them to emphasise similarities among learners and promote a critical perspective about the influence of culture on financial decisions. Pre-programme data gathering on the target audience's financial knowledge, habits, and gaps is crucial¹¹⁴. Instructors and participants can build mutual trust and a comfortable learning environment by telling their personal stories, using art expressions¹¹⁵, and creating connections (e.g., sharing food during session intervals). These actions enable the learners to create educational content based on their experiences, as well as generate a support network inside and outside the programme¹¹⁶. Collective financial learning will thus become one more aspect of the daily community life¹¹⁷.

108 Prawitz, A. D., P. Shatwell, G. Haynes, K. C. Hanson et al. 2007. *Lifestyle Risk Factors, Health Status, and Financial Distress: Framing Interventions Using the Transtheoretical Model of Change*. Proceedings of the Association for Financial Counseling and Planning Education, 25: 153-161.

109 Berriche, A., F. Salerno, M. Calciu. 2014. *Mediating Effects of Decisional Balance in the Transtheoretical Model of Change for Customers who Mismanage their Money*. International Journal of Economic Practices and Theories, 4(5).

110 Xiao, J. J., B. O'Neill, J. M. Prochaska, C. Kerbel, P. Brennan, B. Bristow. 2001. *Application Of The Transtheoretical Model of Change To Financial Behavior*. Consumer Interests Annual, Vol. 47.

111 Spader, J. 2009. *The Bold and the Bankable*. Federal Reserve Bank of Boston Communities & Banking, Fall 2009. The complete results of the intervention are presented in Spader, J., J. Ratcliffe, J. Montoya and P. Skillern. 2009. *The Bold and the Bankable: How the Nuestro Barrio Telenovela Reaches Latino Immigrants with Financial Education*. Journal of Consumer Affairs, 43(1): 56-79.

112 Shockey, S. S., S. B. Seiling. 2004. *Moving Into Action: Application Of The Transtheoretical Model Of Behavior Change to Financial Education*. Financial Counseling and Planning, 15(1); Palmer, L., D. L. Bliss, J. W. Goetz and D. Moorman. 2010. *Improving Financial Awareness Among College Students: Assessment Of A Financial Management Project*. College Student Journal, 44(3): 659-676.

113 One example is a family-oriented learning activity that employed a financial board game similar to the *Lotería*, a bingo game played by Mexican origin families. See Robles, B. J. 2014. *Economic Inclusion and Financial Education in Culturally Diverse Communities: Leveraging Cultural Capital and Whole-Family Learning*. In Forté, K. S., E. W. Taylor, and E. J. Tisdell (Eds.). *Financial Literacy and Adult Education*. New Directions for Adult and Continuing Education, Number 141.

114 *Ibid*.

115 For example, to have participants drawing pictures about their financial situation. See Tisdell, E. J. 2014. *The Role of Emotions and Assumptions in Culturally Responsive Financial Education Practice in a Capitalist Economy*. In Forté, K. S., E. W. Taylor and E. J. Tisdell (Eds.), *op. cit*.

116 A financial literacy programme delivered to Latinas single mothers in the U.S. considered the fact that they have not had previous money management experience, due to the male-dominated culture of Hispanic communities. See Sprow, K. M., 2010. *Adult Financial Literacy Education and Latina Learners: A Qualitative Case Study*. The Pennsylvania State University (Doctoral Dissertation). Retrieved from https://etda.libraries.psu.edu/files/final_submissions/3505; Tisdell, E. J., E. W. Taylor, and K. S. Forté. 2013. *Community-Based Financial Literacy Education in a Cultural Context - A Study of Teacher Beliefs and Pedagogical Practice*. Adult Education Quarterly, 63(4): 338-356.

117 In fact, financial literacy programmes should contemplate the financial networking existent in low-income communities. For instance, instead of having a financial reserve, members usually borrow money from neighbours or ask favours (e.g., to repair goods), and are expected to repay when others need help.

3.3. Findings in behavioural sciences research with potential applications to financial literacy and investor education initiatives

The scientific community is continuously developing conceptual models and carrying out exploratory studies linking financial literacy and investor education to behavioural sciences. This subsection describes two selected psychological theories (the Theory of Planned Behaviour and financial socialisation) that examine variables and factors capable of influencing or eventually changing financial behaviour. This report also analyses the Big Five Inventory, a personality framework whose relationship with financial behaviour is under intense study, and has been already applied to an investor education campaign¹¹⁸. As a behaviourally-informed tool increasingly used in business and education to engage customers and learners, gamification and its potential applications to financial literacy and investor education are described here as well.

Financial socialisation (i.e., learning opportunities with parents and friends) correlates with desirable financial behaviours, such as budgeting, checking credit report, and saving. It is therefore suggested that financial literacy initiatives incorporate elements of modelling, involve the participants' families, and work in cohorts or peer groups¹¹⁹. Social learning can work as a mitigating factor when delivering financial literacy, so engaging families at a grass-roots level should be considered in the initiative design and implementation.

The Theory of Planned Behaviour (TPB)¹²⁰ is a commonly used psychological framework to predict and understand saving¹²¹ and investment behaviours¹²². According to the theory, behaviour is determined by intention, which is influenced by three factors: attitudes, subjective norms, and perceived behavioural controls. A strong point of the model is that some of its explanatory variables, such as attitude and perceived control, are susceptible to intervention. The theory effectively explained young adults' financial behaviour in terms of their financial attitudes, subjective norms, and perceived behaviour control¹²³. Favourable attitudes toward financial management, meeting parents' expectations, and confidence in following one's own financial plans were found to correlate positively with positive financial behaviours. Financial knowledge and skills should, therefore, be strengthened as well as confidence in one's ability to stick to a plan and self-discipline. On the other hand, these capabilities are probably the most difficult to enhance, especially in adulthood. The TPB was also applied to build a conceptual model of the financial socialisation

118 See the IOSCO member British Columbia BCSC's campaign at subsection 5.2.3.

119 Gutter, M., Z. Copur and S. Garrison. 2009. *Which Students Are More Likely to Experience Financial Socialization Opportunities? Exploring the Relationship between Financial Behaviors and Financial Well-Being of College Students*. Networks Financial Institute at Indiana State University. 2009-WP-07.

One experiment concluded that communication between learners with the similar levels of comprehension can improve the quality of decision-making. However, when only one peer was submitted to a financial literacy intervention, the untreated peer was not influenced by the interaction between the two. These findings reinforce the idea of involving families in initiatives. See Ambuehl, S., B. D. Bernheim, F. Ersoy and D. Harris. 2017. *Social Transmission of Financial Decision Making Skills. A Case of the Blind Leading the Blind*. Rotman School of Management Working Paper No. 2891753.

120 Proposed in Ajzen, I. 1985. *From Intentions to Actions: A Theory of Planned Behavior*. In J. Kuhl & J. Beckmann (Eds.). *Action Control: From Cognition to Behavior*. Berlin, Heidelberg, New York: Springer-Verlag: 11-39.

121 Davis, K., G. Hustvedt. 2012. *It's a Matter of Control: Saving for Retirement*. *International Review of Social Sciences and Humanities*, 3(2): 248-261; Kisaka, S. E. 2014. *The Impact of Attitudes towards Saving, Borrowing and Investment on the Capital Accumulation Process in Kenya: An Application of the Theory of Planned Behavior*. *Research Journal of Finance and Accounting*, 5(9); Magendans, J. 2014. *The Cost of Self-Protective Measures: Psychological Predictors of Saving Money for a Financial Buffer*. University of Twente.

122 A list of papers concerning the application of the theory to explain intentions to invest in the stock market and mutual funds can be found at Ali, S., R. M. Zani, K. Kasim. 2014. *Intention-Behaviour Relations: A Conceptual and Literature Review*. *Research Journal of Finance and Accounting*, 5(19).

123 Shim, S., J. J. Xiao, B. L. Barber, and A. C. Lyons. 2009. *Pathways to Life Success: A Conceptual Model of Financial Well-Being for Young Adults*. *Journal of Applied Developmental Psychology* 30: 708-723.

process¹²⁴. The model concluded that skills, attitudes, and values – transmitted by parents, work, and school – contributed to the financial learning outcomes of young adults.

Companies have been increasingly adopting games to strengthen customer relationships and increase employee participation in training. In the financial literacy field, gamification is a promising tool to engage learners and drive good financial habits, such as saving¹²⁵. Games can be distributed online and played without teachers, so dissemination cost is low. As well-designed gaming tools can provide an entertaining and encouraging frame within which financial concepts and behaviours can be tested and experienced¹²⁶, they are potentially capable of engaging learners for long periods and enhancing financial self-efficacy¹²⁷. Personal finance apps can utilise gamification elements (e.g., badges, challenges, quizzes) that take advantage of behavioural biases, such as loss aversion and mental accounting, to stimulate savings¹²⁸. Gamification potentially also allows organisations to collect data from learners' game movements and develop a set of analytics on their decision-making and performance (taking into account concerns about data confidentiality, and the resources required to manage and analyse the resulting large datasets). These insights can be applied to further game improvement and new educational materials, as well as used to inform supporting classroom activities. Sophisticated games could be used to provide real-time information or offer appropriate financial products to encourage players to action, but such additions should take into account the need to clearly differentiate education and marketing. Rigorous evaluation of such programmes is still unusual: although a wide range of financial literacy games is freely available, most impact results are reported in the form of absolute quantity of engaged players or usage time, with no use of experiments or data analysis to understand the effect of such games on future behaviour.

Research has indicated that personality matters when it comes to financial behaviours. The Big Five Inventory (or Five-Factor Model) is one of the most accepted and applied personality taxonomies. The model considers that personality can be described by five traits or dimensions:

124 Shim, S., J.J. Xiao, B.L. Barber, N.A. Card, and J. Serido. 2010. *Financial Socialization of First-Year College Students: The Roles of Parents, Work and Education*. *Journal of Youth and Adolescence*, 39(12): 1457-70.

125 A pilot test of the SavingsQuest app between 2014 and 2015 showed that its users saved 25% more frequently than other savings account holders (non-users). Users also made new deposits into their Rainy Day Reserve accounts outside the tool, suggesting that exposure to the game may have stimulated saving behaviour. Even micro-savings (as little as one penny) were encouraged to remove participants from inertia. See *SavingsQuest: Creating Savings Through Gamification*. Commonwealth. October 2015.

126 Especially for millennials, who already play casual games extensively.

127 A group of game websites reported that users voluntarily played financial literacy games for more than 40 minutes on average, from 2009 to 2012. The same study informed the results of an RCT, where the treated group played a game and the control group read a pamphlet with financial advice. Both groups significantly improved their financial literacy level and confidence. The control part performed slightly better. See Maynard, N. W., P. Mehta, J. Parker and J. Steinberg. 2012. *Can Games Build Financial Capability? Financial Entertainment: A Research Overview*. Financial Literacy Center Working Paper WR-963-SSA.

128 It is possible to explore loss aversion through the fear of losing previously earned badges or points, while mental accounting can take the form of multiple virtual piggy banks for different purposes. A prototype has proved the efficacy of these biases in a laboratory test. See Stockinger, T., M. Koelle, P. Lindemann, M. Kranz et. al. 2015. *Towards Leveraging Behavioral Economics in Mobile Application Design*. In Reiniers, T. and L. C. Wood (Eds.) *Gamification in Education and Business*. Switzerland. Springer, 2015: 105-133.

Other biases commonly applied to game design are described in Butler, C. 2015. *Applied Behavioral Economics: A Game Designer's Perspective Investigating the Gamification of Modern Games and How Similar Techniques Can be Leveraged in Non-Game Environments*. In: *Ibid.*: 81-104; and Niman, N. B. 2014. *The Gamification of Higher Education: Developing a Game-Based Business Strategy in a Disrupted Marketplace*. New York, NY. Palgrave MacMillan: 87-106.

OECD/INFE also examined in a 2017 report the demand-side opportunities and challenges resulting from today's digital revolution, with a particular focus on the emerging financial education and consumer protection needs of newly financially included and disadvantaged or at-risk segments of the population. The report also highlights concrete examples of the use of digital tools to deliver financial education outcomes and enhance overall financial decision-making. See OECD. 2017. *G20/OECD INFE Report on Ensuring Financial Education and Consumer Protection for All in the Digital Age*. Available at <http://www.oecd.org/daf/fin/financial-education/G20-OECD-INFE-Report-Financial-Education-Consumer-Protection-Digital-Age.pdf>

extraversion, neuroticism or emotional instability, conscientiousness, agreeableness, and openness to experiences¹²⁹. In general, researchers using this model test the five traits simultaneously in a multiple regression or a structural equation model to determine which ones significantly correlate with a particular financial behaviour. Some studies have found that more extraverted individuals tend to be more indebted and hold fewer financial assets. Similarly, openness is positively associated with financial liabilities, but also to assets¹³⁰. Young people with higher scores of openness, conscientiousness and agreeableness, combined with lower extraversion and neuroticism scores, have a greater level of “financial culture” or financial literacy (a combination of perceptions, attitudes, and financial knowledge)¹³¹. Furthermore, an educational intervention had more success in reducing delay-discounting of individuals with high neuroticism scores than those with lower scores¹³². The Big Five were also found to be related to the presence of behavioural biases¹³³ and both short and long-term investing behaviours¹³⁴. Personality traits measures can be applied to design specific programmes for individuals according to their personality characteristics, especially the ones associated with risky behaviours. Future research needs to investigate the causal relationships between traits and financial behaviours, taking into account the possibility of reverse causality (e.g., over-indebtedness as a source of neuroticism). These findings will be useful for making policies to address personality change or adaptation, which is easier during childhood¹³⁵.

129 A detailed description of the Big Five can be found at Mayfield, C., G. Perdue and K. Wooten. 2008. *Investment Management and Personality Type*. Financial Services Review 17: 219-236.

130 Brown, S. and K. Taylor. 2011. *Household Finances and the 'Big Five' Personality Traits*. Institute for the Study of Labor (IZA) DP No. 6191.

131 Peña, P.A. 2016. *Personality and Financial Culture: A Study of Mexican Youths*. In Aprea, C. et al. (Eds.), *International Handbook of Financial Literacy*. Singapore. Springer Science+Business Media, 2016: 465-493.

132 DeHart W.B., J. E. Friedel, J. M. Lown and A. L. Odum. 2016. *The Effects of Financial Education on Impulsive Decision Making*. PLoS ONE 11(7).

133 Kübilay, B. and A. Bayrakdaroglu. 2016. *An Empirical Research on Investor Biases in Financial Decision-Making, Financial Risk Tolerance and Financial Personality*. International Journal of Financial Research, 7(2); Sadi, R., H. G. Asl, M. R. Rostami, A. Gholipour and F. Gholipour. 2011. *Behavioral Finance: The Explanation of Investors' Personality and Perceptual Biases Effects on Financial Decisions*. International Journal of Economics and Finance, 3(5).

134 Brown, S. and K. Taylor, *op. cit.*

135 Recent findings in psychological research support the malleability of the Big Five Inventory to a certain degree. Personality traits naturally change with time as well.

4

BEHAVIOURAL FRAMEWORKS APPLICABLE TO THE DESIGN OF INVESTOR EDUCATION AND FINANCIAL LITERACY PROGRAMS

Following an appropriate framework is a practical way of developing effective behaviour change interventions without having a detailed understanding of behavioural science. This helps the practitioner to characterise potential interventions and link them to desired investor behaviour.

Behavioural sciences have built a vast set of frameworks¹³⁶ and applied them to public health, social marketing, environment, and culture change. This report will focus on the frameworks employed by IOSCO and OECD/INFE members, as well as the most general behaviour change frameworks, which policy-makers can assess and use as guidance for the enhancement of investor education and financial capabilities. These capabilities could be potentially improved not only by providing education, but also by affecting attitudes and behaviour directly. The choice of which mindset to establish when designing appropriate interventions – supposing that one method might be clearly more cost effective than another – is still a persistent gap in the financial behaviour literature.

IOSCO has recognised both approaches in past papers. The C8 Framework¹³⁷ stated that IOSCO members focused on “investor education and financial literacy programmes” that “improv[e] retail investor knowledge of basic core competencies for investing”. A later report regarding investment risk education stated that “influencing the attitudes and behaviour of retail investors is likely to be more effective than just the provision of information to improve knowledge”¹³⁸.

Recent empirical evidence highlights the complexities of designing efficient educational interventions and conducting robust evaluations¹³⁹. However, research also reveals that both cognitive and non-cognitive abilities as well as socio-emotional skills might be as important or more important than financial knowledge in determining financial attitudes and behaviour. This indicates the importance of continuing to test a variety of approaches in order to identify those that achieve the most effective outcomes¹⁴⁰.

136 Three researchers have identified and analysed 19 frameworks of behaviour change interventions, mostly in public health. See Michie, S., M. Stralen, and R. West. 2011. *The Behaviour Change Wheel: A New Method for Characterising and Designing Behaviour Change Interventions*. Implementation Science No. 6: pages 5-6 and additional file 4.

A research team has developed a first version of a taxonomy with 93 behaviour change techniques, which can help policy-makers to draw on a comprehensive list to design interventions. See Michie, S., M. Richardson, M. Johnston, C. Abraham et. al. 2013. *The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions*. Annals of Behavioural Medicine, 46 (1): 81-95.

137 International Organization of Securities Commissions. 2014, *op. cit.*

138 International Organization of Securities Commissions. 2015. *Sound Practices for Investment Risk Education*. Available at: <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD505.pdf>

139 Miller, M., J. Reichelstein, C. Salas, and B. Zia. 2014. *Can You Help Someone Become Financially Capable? A Meta-Analysis of the Literature*. The World Bank Development Research Group Finance and Private Sector Development Team & Financial and Private Sector Development Financial Inclusion and Infrastructure Practice. Policy Research Working Paper 6745; Kaiser, T. and L. Menkhoff. 2016, *op. cit.*; Fernandes, D., J. G. Lynch Jr., and R. G. Netemeyer. 2014, *op. cit.*

Researchers should focus on testing and evaluating the actual implementation of programmes during a larger time period, rather than just using the enactment year. See Brown, A., J. M. Collins, M. Schmeiser, and C. Urban. 2014. *State Mandated Financial Education and the Credit Behavior of Young Adults*. Finance and Economics Discussion Series 2014-68. Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, Washington, D.C.

140 Gutman, L. M., I. Schoon. 2013. *The Impact of Non-Cognitive Skills on Outcomes for Young People*. Education Endowment Foundation. Institute of Education, University of London; Gyllenram, A., N. Hanes, J. Hellström. 2013. *The Influence of Non-Cognitive and Cognitive Ability on Individuals' Stock Market Participation*; Kuhnen, C. M., B. T. Melzer. 2016. *Non-Cognitive Abilities and Financial Delinquency: The Role of Self-Efficacy in Avoiding Financial Distress*.

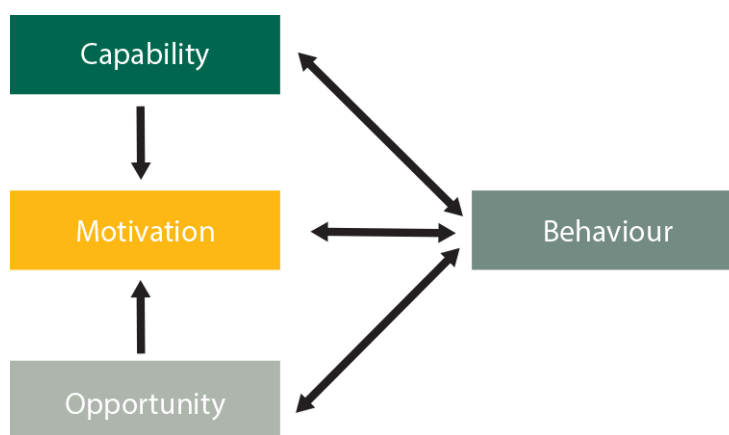
Selecting an appropriate framework for the design of effective behaviour change techniques requires a broad set of contextual considerations and should be linked to a coherent behaviour system capable of conceptualising causal associations between its components. For instance, default choices have been very effective in mitigating procrastination and inertia on savings plans, but are probably not the best policy option to optimise saving rates and portfolio allocation, due to their anchoring effect on a one-size-fits-all solution. In addition, the chosen framework should contemplate the existing temporal constraints when regulators are deciding which policy to implement. Investing for retirement is a typical example. Even if deliberate investment choices could be improved by boosting financial literacy, their aggregate effect on retirement savings might not become apparent until far in the future, consequently not leaving time to recover from fiscal problems caused by demographic challenges of the ageing population.

4.1. COM-B

The COM-B system was proposed by Michie et al. (2011) as a ‘behaviour system’ composed of three factors that interact to generate behaviour: capability, opportunity, and motivation (Exhibit 1). The system was conceived as a general model with the minimum number of factors.

The COM-B system contemplates the existing challenges currently present in the literature of financial capabilities. It permits to consider that psychological factors might be stronger determinants of financial behaviour than pure knowledge or individual awareness about what is best for oneself. Also, the framework addresses a commonly overlooked issue in the scientific literature: the reverse causality that probably occurs between knowledge and behaviour¹⁴¹. As shown in Exhibit 1, the single-headed and double-headed arrows represent potential influences between system components. For example, enacting a behaviour can alter capability, motivation, and opportunity.

Exhibit 1 - The COM-B System¹⁴²



¹⁴¹ For instance, research found that individuals with investment competence (capability) are more likely to hire advisers (behaviour), possibly due to more awareness of the need for advice. However, clients might also be learning from the professionals and this reverse causality has not been tested. For more information: Bachmann, K. and T. Hens. 2013. *Investment Competence and Advice Seeking*.

¹⁴² Adapted from Michie, S., M. Stralen, and R. West, *op. cit.*, page 4.

The system components are:

- Capability: psychological and physical capacity to engage in the activity, including having the needed knowledge and skills.
- Motivation: brain processes that energise and direct behaviour, including habitual processes, emotional responding, as well as analytical decision-making.
- Opportunity: all the factors lying outside the individual that make the behaviour possible or prompt it.

It is possible to design interventions to change one or more system components. However, the causal links within the framework can reduce or amplify the effects of an intervention by leading to changes elsewhere. There is no priority or difference of importance among components.

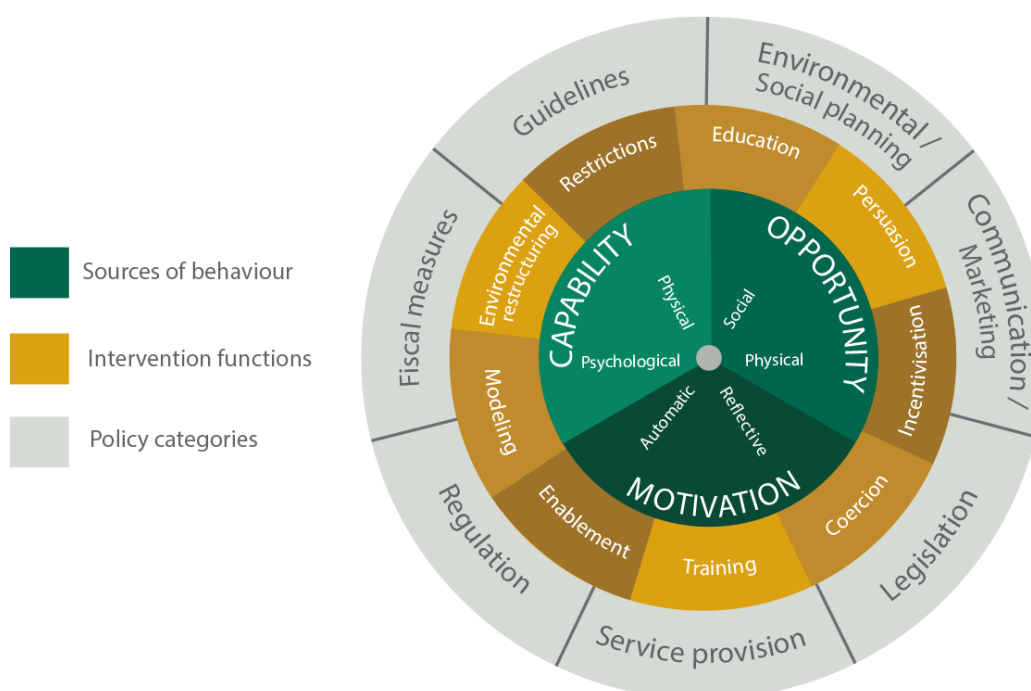
The authors proposed the COM-B system as a starting point to receive inputs from behaviour change interventions and other frameworks they identified in an extensive and multidisciplinary literature review. The result was a whole new classification system, the Behaviour Change Wheel framework.

4.2. The Behaviour Change Wheel (BCW)

The BCW was developed after a systematic literature review and analysis of existing behaviour change frameworks and their corresponding interventions. The authors divided all identified interventions into non-overlapping approaches called intervention functions, where a particular intervention can comprise more than one function. For example, increasing financial literacy level may involve three intervention functions: education, training, and environmental restructuring.

The BCW framework is composed of three layers: policies, intervention functions and sources of behaviour (Exhibit 2).

Exhibit 2 - The BCW Framework¹⁴³



¹⁴³ Adapted from *Ibid*, page 7.

Interventions are placed in the middle layer because policies use them as means to achieve desired behaviours. The wheel representation shows that the BCW is not a linear model as the COM-B, whose components interact with each other. Table 1 contains the definitions of the intervention functions and policy categories.

Table 1 - Definitions of Intervention Functions and Policies¹⁴⁴

Interventions	Definition	Examples
Education	Increasing knowledge or understanding	Providing information to promote healthy eating
Persuasion	Using communication to induce positive or negative feelings or stimulate action	Using imagery to motivate increases in physical activity
Incentivisation	Creating expectation of reward	Using prize draws to include attempts to stop smoking
Coercion	Creating expectation of punishment or cost	Raising the financial cost to reduce excessive alcohol consumption
Training	Imparting skills	Advanced driver training to increase safe driving
Restriction	Using rules to reduce the opportunity to engage in the target behaviour (or to increase the target behaviour by reducing the opportunity to engage in competing behaviours)	Prohibiting sales of solvents to people under 18 to reduce use for intoxication
Environmental restructuring	Changing the physical or social context	Providing on-screen prompts for GPs to ask about smoking behaviour
Modelling	Providing an example for people to aspire to or imitate	Using TV drama scenes involving safe-sex practices to increase condom use
Enablement	Increasing means/reducing barriers to increase capability or opportunity ¹	Behavioural support for smoking cessation, medication for cognitive deficits, surgery to reduce obesity, prostheses to promote physical activity
Policies		
Communication/marketing	Using print, electronic, telephonic or broadcast media	Conducting mass media campaigns
Guidelines	Creating documents that recommend or mandate practice. This includes all changes to service provision	Producing and disseminating treatment protocols
Fiscal	Using tax system to reduce or increase the financial cost	Increasing duty or increasing anti-smuggling activities
Regulation	Establishing rules or principles of behaviour or practice	Establishing voluntary agreements on advertising
Legislation	Making or changing laws	Prohibiting sale or use
Environmental/social planning	Designing and/or controlling the physical or social environment	Using town planning
Service provision	Delivering a service	Establishing support services in workplaces, communities, etc.

¹Capability beyond education and training; opportunity beyond environmental restructuring

To apply the framework, the desired behaviour change should be considered within the “sources of behaviour” section. This inner layer of the BCW consists of the three components of the COM-B system, along with two classifications each. For instance, capability is divided into physical capability and psychological capability. With the behaviour changes in mind, the policy-maker can refer to Table 2 to find which interventions would be suitable.

144 Adapted from *Ibid*, page 7.

Table 2 - Links Between Behaviour Sources and Intervention Functions¹⁴⁵

Interventions	Education	Persuasion	Incentivisation	Coercion	Training	Restriction	Environmental restructuring	Modelling	Enablement
Sources									
C-Ph ¹					X				X
C-Ps ²	X				X				X
M-Re ³	X								
M-Au ⁴		X	X	X			X	X	X
O-Ph ⁵		X	X	X		X	X		X
O-So ⁵						X	X		X

C: Capacity, M: Motivation, O: Opportunity.

1. Physical capability can be achieved through physical skill development which is the focus of training or potentially through enabling interventions such as medication, surgery, or prostheses.
2. Psychological capability can be achieved through imparting knowledge or understanding, training emotional, cognitive and/or behavioural skills or through enabling interventions such as medication.
3. Reflective motivation can be achieved through increasing knowledge and understanding, eliciting positive (or negative) feelings about a behavioural target.
4. Automatic motivation can be achieved through associative learning that elicit positive (or negative) impulses and counter-impulses relating to the behavioural target, imitative learning, habit formation, or direct influences on automatic motivational processes (e.g., via medication).
5. Physical and social opportunity can be achieved through environmental change.

Based on the chosen intervention functions, the policy-maker can associate them with policy categories referring to Table 3. Organisations can therefore develop multiple policy approaches for a single intervention.

Table 3 - Links between Policy Categories and Intervention Functions¹⁴⁶

Interventions	Education	Persuasion	Incentivisation	Coercion	Training	Restriction	Environmental restructuring	Modelling	Enablement
Policy categories									
Communication/Marketing	X	X	X	X				X	
Guidelines	X	X	X	X	X	X	X		X
Fiscal			X	X	X		X		X
Regulation	X	X	X	X	X	X	X		X
Legislation	X	X	X	X	X	X	X		X
Environmental/social planning							X		X
Service provision	X	X	X	X	X			X	X

The BCW gathers elements to motivate behaviour change by acting on the individual and the environment. Education, persuasion, incentivisation, training, and enablement are intervention functions based on the recipient. The remaining four functions (coercion, restriction, environmental restructuring, and modelling) relate to environment modification. The authors claim that the BCW

¹⁴⁵ Adapted from *Ibid*, page 8.

¹⁴⁶ Adapted from *Ibid*, page 8.

incorporates context, which is key to effective design and implementation of interventions, in the opportunity component.

For this report, a scientific literature review was conducted and found four applications of the BCW and COM-B frameworks to health interventions¹⁴⁷, and one to energy conservation. Although it would seem viable, no application to financial behaviour change was identified. When testing the framework, regulators and other financial policy-makers may find other applicable links and associations between its three layers.

As the BCW was conceived under a scientific analysis using precise concepts, it appears to be a more rigorous framework than its counterparts. The three-layer process is likely to require a considerable amount of time and attention of policy-makers, especially when using the framework for the first time, but it offers various interventions and policy approaches as a result. As one intervention function may encompass a range of behavioural insights (e.g., persuasion techniques can make use of emotional connections, priming, or salience), practitioners will need to expend effort to search for and select the insights to be applied.

4.3. MINDSPACE

The MINDSPACE framework provides a description of the most consistently documented effects that operate on the automatic system (System 1), hence illustrating important tools in influencing behaviour – specifically nudges and others related to choice architecture. It does not, however, cover cognitive methods used to change people’s minds, for example, traditional interventions that rely on providing information or incentives. Nevertheless, the framework outlines nine approaches to modify the decision environment, supported by laboratory and field research from social psychology, cognitive psychology, and behavioural economics. Exhibit 3 presents the nine non-coercive approaches.

Exhibit 3 - The MINDSPACE Framework¹⁴⁸

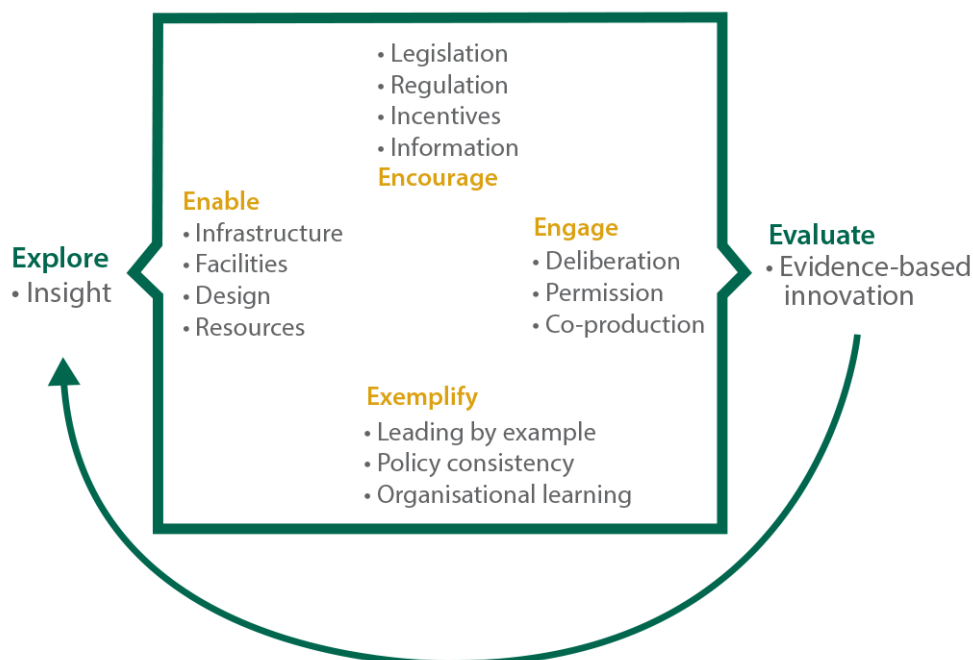
Messenger	We are heavily influenced by who communicates information
Incentives	Our responses to incentives are shaped by predictable mental shortcuts, such as strongly avoiding losses
Norms	We are strongly influenced by what others do
Defaults	We ‘go with the flow’ of pre-set options
Salience	Our attention is drawn to what is novel and seems relevant to us
Priming	Our acts are often influenced by sub-conscious cues
Affect	Our emotional associations can powerfully shape our actions
Commitments	We seek to be consistent with our public promises and reciprocate acts
Ego	We act in ways that make us feel better about ourselves

¹⁴⁷ In fact, some harmful financial behaviours, such as compulsive spending and gambling, are being studied as psychological disorders and addictions.

¹⁴⁸ Adapted from Dolan, P., M. Hallsworth, D. Halpern, D. King and I. Vlaev. 2010. *MINDSPACE: Influencing behaviour through public policy*. Institute for Government, the Cabinet Office: 6. Available at <https://www.instituteforgovernment.org.uk/publications/mindspace>

A possible framework to apply MINDSPACE is showed in Exhibit 4. The “4Es” model¹⁴⁹, depicted inside the square, lists four broad categories of policy tools to change behaviour. MINDSPACE needs two more supporting actions: to do initial exploratory work (Explore) and Evaluate. The framework manual explores each category in detail and lists the related key questions for policy-makers.

Exhibit 4 - A MINDSPACE Application Framework¹⁵⁰



The authors stress that MINDSPACE does not replace the existing policy tools, but helps policy-makers understand the behavioural dimension of their actions in three ways:

- Enhance: current policies’ effectiveness in terms of behaviour change can be improved using insights from MINDSPACE.
- Introduce: MINDSPACE provides policy-makers new elements or remind them of overlooked aspects.
- Reassess: government actions might cause unintended “collateral behaviours” and the framework enables policy-makers to analyse the outcome spectrum rigorously.

The authors also emphasise the need to obtain public permission to use nudges because these interventions often intrude into issues inside the domain of personal responsibility.

The BCW authors consider that MINDSPACE lacks coherence, as it mixes characteristics of recipients (ego), policy strategies (default), modes of delivery (messenger), and other concepts¹⁵¹. Nevertheless, MINDSPACE seems to offer a simple way to keep in mind the main factors that influence behaviour when designing interventions, especially some well-known heuristics and biases (e.g., salience, priming, and affect).

¹⁴⁹ Created by the UK Department for Environment, Food and Rural Affairs (DEFRA). More information about the “4Es” model can be found at: <http://webarchive.nationalarchives.gov.uk/20130404013841/http://archive.defra.gov.uk/environment/economy/documents/sustainable-life-framework.pdf>

¹⁵⁰ Adapted from *Ibid*, page 9.

¹⁵¹ Michie, S., M. Stralen, and R. West, *op. cit.*, page 2.

4.4. EAST

The Behavioural Insights Team (BIT) created a checklist in 2012 known as the EAST framework¹⁵². It was intended to provide policy-makers with a simpler model that includes insights absent from MINDSPACE, although both frameworks should be applied jointly.

According to the framework, to encourage a certain type of behaviour, policy-makers should make it “Easy, Attractive, Social, and Timely”, hence the mnemonic EAST. Easily adopted influences employ pre-set default options, break complex goals into simpler actions, and reduce the effort needed to act. Automatic enrolment and provision of pre-filled enrolment forms are typical examples used in the financial sector to improve saving behaviour. Personalised content, focus on scarcity and self-image, and other salience strategies are suggested as mechanisms to make an invitation to action more attractive. The social aspect of interventions should consider the importance of peer-to-peer support and public commitments. Another effective social strategy is describing a prevalent behaviour to appeal to the herd instinct of individuals. The last principle (timely) states that interventions should consider when people are likely to be most receptive to alter their behaviour and help them to plan their actions. For example, habits are usually disrupted by major life events, such as marriage or death of a relative.

The BIT recommends a four-stage method to apply EAST:

- define exactly the desired behaviour change, the metrics, and the extent of effect needed to justify the project;
- understand the context from subject’s perspective;
- create the intervention using EAST and, if needed, revisit previous stages; and
- use, when possible, randomised controlled trials (RCTs) to evaluate the intervention.

The authors posit that future applications of behavioural insights will increasingly deal with issues related to replication, segmentation, and complexity. They recommend that policy-makers continuously test interventions in different settings as a particular policy might not produce same results every time. As individuals have different responses to an intervention, customisation will lead to improved outcomes. The authors also recognise the need to develop more elaborate interventions to address complex behaviours.

As with MINDSPACE, EAST is a framework focused on decision environment change but it can help develop applications to access the System 2 as well. For example, the second principle (“attractive”) can refer to offering incentives to programme participants. The four behaviour characteristics of EAST provide a coherent definition, while the framework guide offers a set of insights to facilitate intervention design, such as defaults, simplification, peer pressure, salience, and commitment. The framework also stresses that policy-makers should design the evaluation process carefully and conduct RCTs.

4.5. TEST

The BIT developed the TEST framework and made it public in 2016¹⁵³ (“Target, Explore, Solution, and Trial”). While EAST focuses on the intervention design, TEST explores the development and implementation of trials. TEST can be seen as a development of the four-stage application method

152 Service, O., M. Hallsworth, D. Halpern, F. Algate et. al. 2014. *EAST: Four Simple Ways to Apply Behavioural Insights*. The Behavioural Insights Team.

153 Halpern, D. 2016. *Behavioural Insights and Healthier Lives: VicHealth’s Inaugural Leading Thinkers Residency*. Victorian Health Promotion Foundation.

described in the EAST guide, as they have several features in common. Therefore policy-makers can use both frameworks in sequence to create interventions and test them with RCTs.

The “Target” principle relates to the desired behaviour change, as well as the evaluation process and the metrics to be used. Exploring the behavioural literature and techniques, such as ethnography and fieldwork, helps the practitioner generate creative ideas for the intervention. In the “Solution” phase, ideas are tested, prototyped, or filtered out. The last principle comprises the RCT itself.

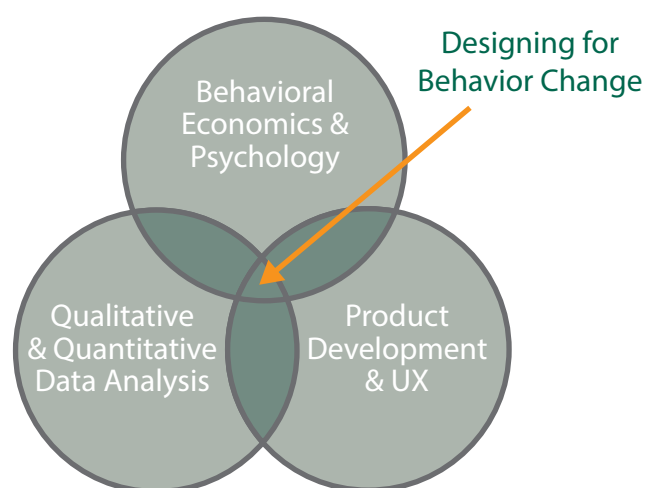
The BIT recommends that empirical testing should be considered from the beginning of the design and development process. Policy-makers should continuously conduct experimentation, with social impacts in mind. If a standard RCT is not possible, alternative forms, such as trials with discontinuity or step-wedge designs, can also be considered to assess interventions.

4.6. Design for Behaviour Change (CREATE)

Marketing and design have always used insights from human psychology to create and advertise new products/services. Recently, findings from behavioural economics and persuasive technology have been incorporated into the design process, making products to help people take action in their lives. Therefore, with the objective of changing financial behaviour in mind, it is possible to apply this improved design technology to develop innovative investor education and financial literacy products and initiatives.

Exhibit 5 shows the set of needed skills to support the design process. Data analysis comprises user research to understand behaviours, the definition of evaluation metrics, and constant fine-tuning based on obtained data. Product development and UX (user experience) techniques are useful to stimulate product utilisation. Behavioural insights form the third component.

Exhibit 5 - Needed Skills for the Design for Behaviour Change¹⁵⁴



The author prepared the framework of design for behaviour change based on his experience as the head researcher of a financial wellness application¹⁵⁵. The framework manual¹⁵⁶ contains examples of behavioural insights applications to financial literacy.

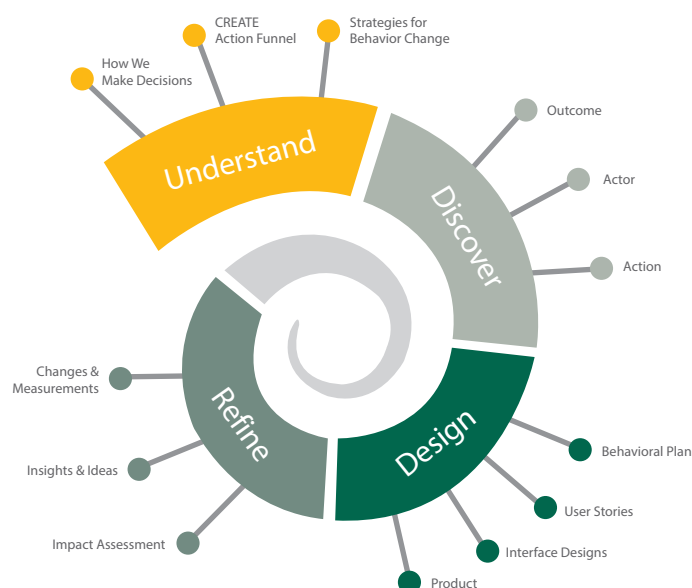
¹⁵⁴ Adapted from *Ibid*, page

¹⁵⁵ Named Hellowallet.

¹⁵⁶ Adapted from Wendel S. 2014. *Designing for Behaviour Change: Applying Psychology and Behavioural Economics*. Sebastapol, CA. O'Reilly.

Exhibit 6 depicts the framework containing the four steps of the design for behaviour change and their outputs.

Exhibit 6 - Framework of the Design for Behaviour Change¹⁵⁷



The first stage is to understand how individuals decide to act and apply these insights to motivate behaviour change. The following step is to discover which behaviours to change and the target audience (using segmentation, if necessary), taking into account policy-makers' objectives. The optimal approach to consider is to help individuals perform their desired actions. In the design phase, the organisation prepares the overall concept, the user interface, and the product itself. Important outputs of this phase are:

- a behavioural plan, describing the environment, the desired action, the user experience with the product, and his/her preparation to act;
- user stories – short statements that describe each piece of the behavioural plan and the user needs;
- interface designs; and
- product prototypes.

The fourth stage comprises field testing of the prototype and its impact assessment, in order to provide inputs for product improvement. Depending on the evaluation results, policy-makers and product designers will probably need to go over the preceding stages and refine previous outputs.

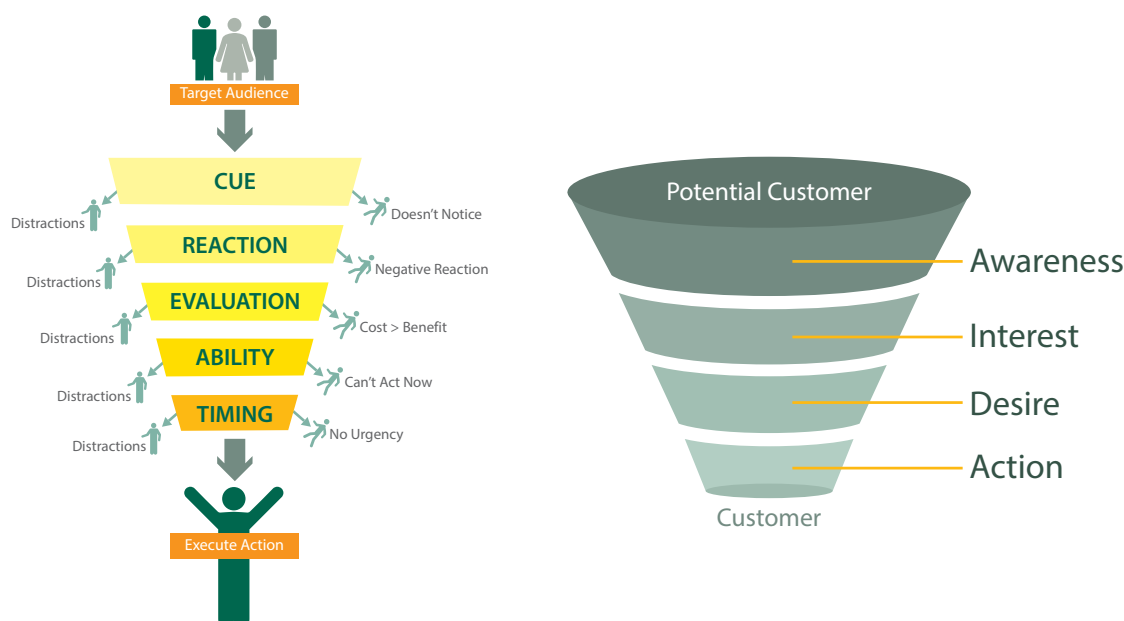
The framework describes the behaviour change process as having five preconditions or stages that form the acronym CREATE:

- Cue: triggers the thought about an action.
- Reaction: automatic mind reactions (System 1) at an intuitive level to a potential action. It can lead to the action itself.
- Evaluates: conscious mind evaluates the idea (System 2), especially in terms of costs and benefits.
- Ability: the subject checks if he knows what to do, has the needed resources and skills, and believes he can succeed.
- Timing: determines when to take action, especially if it is urgent or not.

¹⁵⁷ Adapted from *Ibid*, page xvii.

CREATE (Exhibit 7) is seen as an “Action Funnel” because there are two leaks in every step shrinking the reach of a particular initiative, from the moment it reaches an audience until participants finally take action. For example, during a financial literacy or investor education programme, part of the audience may get distracted by other tasks, while another portion has negative reactions. Besides being a diagnostic tool to understand the problem, the funnel can also be used to detect and correct design flaws in programmes and initiatives. The framework manual explains strategies to help participants to go through the tunnel and avoid leaks.

Exhibit 7 - CREATE¹⁵⁸ and a Generalized Conversion Funnel



A similar framework (the conversion funnel in Exhibit 7) is used in digital marketing and fintech start-ups. Therefore, it enables financial regulators and other organisations to understand the way the industry tries to drive consumer choices. Its goals are not much different from those of behaviour change interventions: to optimise activation of potential users and retain them. Investor education programmes also stimulate behaviour change by following the steps shown in the conversion funnel: awareness, interest, desire, and action.

Although the framework was originally conceived for product design, its application to the development of educational programmes seems viable, especially the CREATE funnel part. In this case, it is possible to simplify the design process (Exhibit 6) since some outputs (e.g., user stories and interface designs) may not be applicable for all kinds of financial literacy or investor education initiatives. The framework manual describes behavioural change approaches based on the investor and the decision environment, as well as experimental evaluation techniques.

4.7. Conceptual framework for financial behaviour change with educational strategies

In 2010, two academics proposed a conceptual framework, combining three different behaviour change theories, to support the design and evaluation of financial literacy initiatives¹⁵⁹. The framework has elements from the Transtheoretical Model of Behaviour Change (TTM),

¹⁵⁸ Adapted from *Ibid*, page 40.

¹⁵⁹ Guion, L. A. and T. R. Free. 2010. *A Conceptual Framework for Infusing Behavior Change Theories into Programme Design, Delivery, and Evaluation: A Financial Education Example*. The Forum for Family and Consumer Issues, 15(1).

Diffusion of Innovation Theory, Ecological Systems Theory, and Targeting Outcomes of Programmes Model (TOP). The base of the framework (Table 4) relies on the five stages of change proposed by the TTM¹⁶⁰: pre-contemplation, contemplation, preparation, action, and maintenance, as well as the ten processes of change (second column of the table). The literature on the two other theories has provided insights to define the methods and environmental factors to achieve behaviour change, as well as the possible educational strategies to deliver it (third and fourth columns). The last column shows the appropriate evaluation measures for each stage of change, originated from the TOP model¹⁶¹.

Table 4 - Conceptual framework for financial behaviour change¹⁶²

Stages of Change	Processes of Change	Methods of Change	Educational Strategies	Evaluation Indicators
Pre-Contemplation	• <i>Consciousness-raising</i> • <i>Dramatic relief</i> • <i>Environmental re-evaluation</i>	• Create awareness and interest • Emphasise relative advantage • Create awareness of how significant others might be affected	• Exhibits/Displays • Radio, television, and/or newspaper ad • Fact sheets • Newsletters, websites, blogs, podcasting, email alerts/blasts	• Increased awareness • Interest in changing • Amount and type of info distributed • Number reached
Contemplation	• <i>Self-re-evaluation</i>	• Increase knowledge • Reduce complexity • Address compatibility • Change attitudes	• Financial management classes, workshops, seminars with examples, testimonials, program results, alternatives	• Perceived or actual knowledge gain • Attitude and/or confidence change
Preparation	• <i>Self-liberation</i> • <i>Social liberation</i>	• Develop or increase skills • Offer opportunities for trialability	• Financial management skills training with incentives, mentors and demonstrations	• Skills • Future intentions to change behaviour
Action	• <i>Reinforcement</i> • <i>Helping relationship</i> • <i>Counter conditioning</i>	• Provide support and incentives • Offer opportunities for observability	• Develop goals and plans • Provide tools, incentives, support	• Increased support • Perceived or actual changes
Maintenance	• <i>Stimulus control</i>	• Provide follow-up and support	• Accountability check up and support	• Long-term impacts

The authors acknowledge the framework's limitations in terms of implementation. It is difficult to apply the TTM to a group of individuals at many different stages of change. The framework is not well suited for the development of one-session programmes either. It focuses on programme design and evaluation, while attrition and assessment of the audience needs remain unaddressed.

¹⁶⁰ The TTM is described in subsection 3.2.

¹⁶¹ This framework can be complemented by the teaching approaches and means presented for the design of extension programmes, using the TTM, in: Warner, L. A., S. Galindo-Gonzalez and M. S. Gutter. 2014. *Building Impactful Extension Programmes By Understanding How People Change*. Agricultural Education and Communication Department, UYF/IAS Extension.

¹⁶² Adapted from Guion, L. A. and T. R. Free, *op. cit.*

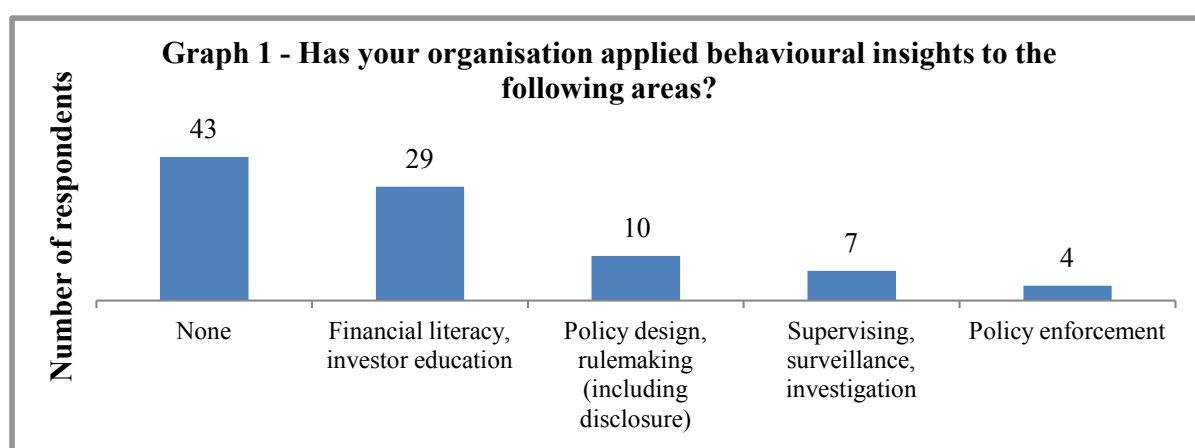
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THE APPLICATION OF BEHAVIOURAL INSIGHTS TO INVESTOR EDUCATION AND FINANCIAL LITERACY INITIATIVES AMONG IOSCO AND OECD/INFE MEMBERS

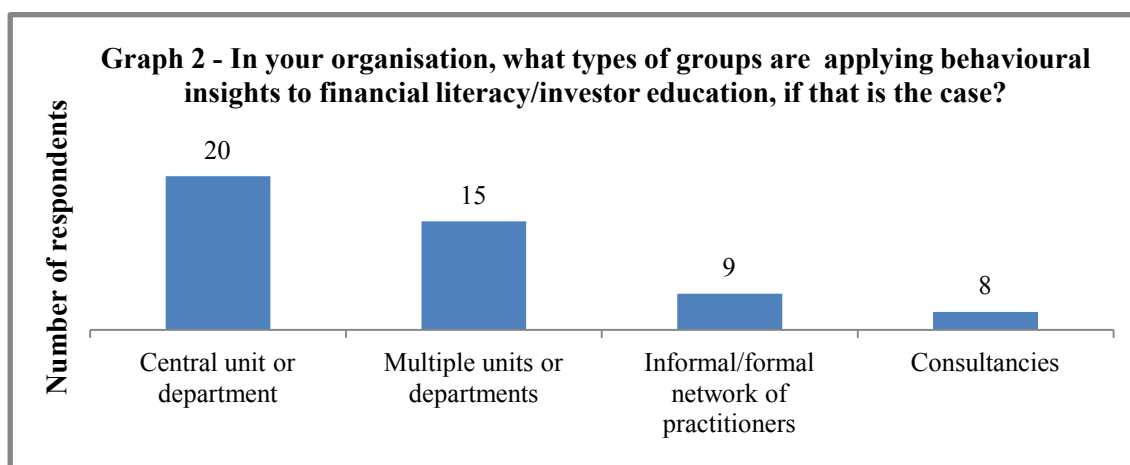
IOSCO and OECD/INFE members were surveyed about the resources committed to behavioural applications and their experience in working with behavioural insights. Fifty-nine organisations from IOSCO, representing forty-eight jurisdictions, answered the survey between December 2016 and January 2017. A total of thirty-four INFE member institutions from thirty countries and economies in Africa, Asia, Europe, and the Americas replied to the questionnaire circulated by the OECD. From thirty-four institutions, eleven have also participated in the IOSCO C8 survey. The responses to both surveys from these eleven common organisations were analysed for consistency and repeated information was counted only once.

5.1. Resources dedicated to training, research and application of behavioural insights

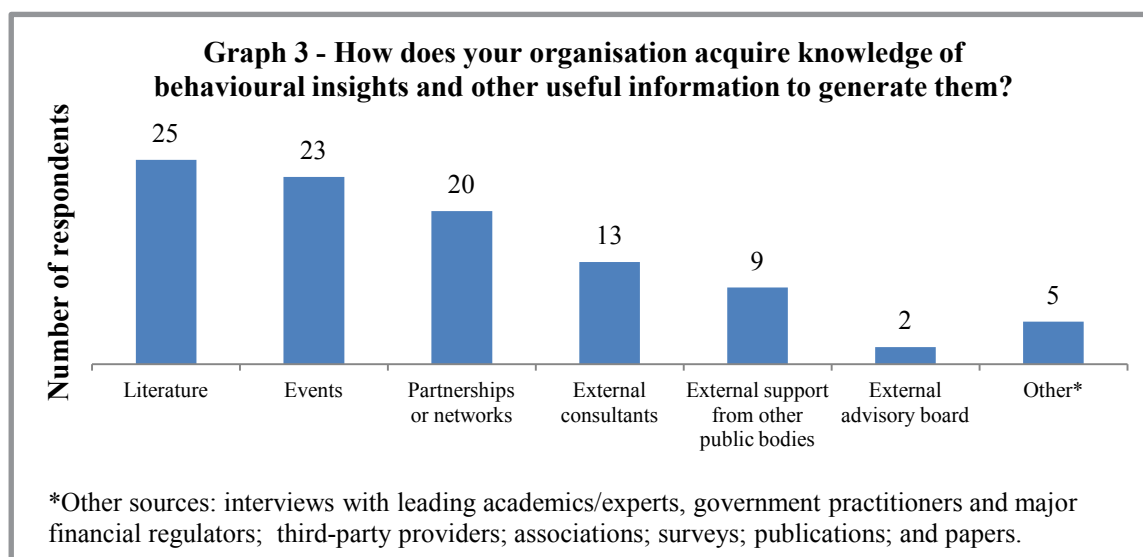
Nearly half of the respondent members of IOSCO and OECD/INFE (37) reported at least one area of application, in either financial literacy or investor education, other areas or both. Graph 1 shows the areas of application of behavioural insights ranked according to the number of respondents, who were allowed to select more than one field.



Twenty respondents reported having one central unit/department responsible for applying behavioural insights, and fifteen reported having multiple units or departments tasked with work in this area (Graph 2).



Thirty-one respondents reported that they actively seek or gain knowledge on behavioural insights (Graph 3). The most frequently used information sources include existing literature (25 respondents); events, such as symposia, conferences, seminars and workshops (23); and partnerships/networks (20). Publications and research reports from OECD/INFE, IOSCO, and IOSCO members¹⁶³ were cited as examples of valuable information. Some members consider communities of practice as useful networks which enable representatives from different government agencies to learn and share their experience. The UK Behavioural Insights Team (BIT) was mentioned as a significant external consultant¹⁶⁴.



¹⁶³ A complete list of papers and reports from the OECD, IOSCO, as well as members of IOSCO and OECD/INFE is presented at Appendix B. All online resources and events from IOSCO members are listed at Appendix C.

¹⁶⁴ Singapore MAS and New Zealand FMA reported that they have joined their countries' communities of practice on behavioural insights and also received consultancy services from the BIT. As part of MAS's leadership of the Financial Capability Strategy for the UK, they have developed the Financial Capability Lab in partnership with the BIT UK. The Lab is described on page 71.

Examples

UK MAS maintains an ‘Evidence Hub’ on the website www.fincap.org.uk, to promote sharing and the use of relevant evidence, research, and insight on financial capability among other organisations across the sectors.

Brazil CVM holds the two-day Behavioural Sciences and Investor Education Conference every December since 2013. The conference gathers representatives of regulators, the financial industry, and self-regulatory organisations, as well as specialists and researchers from fields as diverse as psychology, economics, anthropology, neurosciences, education, and design to present their findings related to investor behaviour, regulation, financial literacy, and public policy.

Regarding human resources, eleven surveyed organisations¹⁶⁵ reported the presence of full-time employees involved in applying behavioural insights to financial literacy or investor education programmes. Ten respondents¹⁶⁶ indicated that they employ behavioural scientists or experts, mostly behavioural economists, psychologists, and data scientists.

Only two jurisdictions¹⁶⁷ reported that behavioural insights training is offered to investor education providers and seventeen respondents¹⁶⁸ informed that their staff have similar specialised instruction. Training is usually given through research seminars, dialogues with other government agencies, workshops, study visits, on-the-job training, and short courses.

Example

Australia ASIC staff are offered training through workshops at annual planning days, self-directed online learning, and seminars. ASIC’s dedicated behavioural economics team has received training in presentation and facilitation skills, as well as Randomised Controlled Trial (RCT)¹⁶⁹ training by the Behavioural Insights Team. ASIC’s staff regularly receive a behavioural economics newsletter, produced internally by ASIC’s Behavioural Research & Policy Unit, with related articles and applications within the organisation. ASIC staff also have access to user guides on applying behavioural insights and to the learning website Lynda.com, which has a range of related topics on offer. ASIC’s Behavioural Research & Policy Unit has developed an internal website to disseminate knowledge among all staff and describe the projects being undertaken at ASIC.

165 Australia ASIC, Brazil ANBIMA, Brazil CVM, British Columbia BCSC, Italy CONSOB, Malaysia SC, Namibia FLI, New Zealand CFFC, New Zealand FMA, Spain CNMV and The Netherlands MinFin.

166 Australia ASIC, Belgium FSMA, British Columbia BCSC, Namibia FLI, New Zealand CFFC, Spain CNMV, The Netherlands MinFin, UK FCA, US FINRA and US SEC.

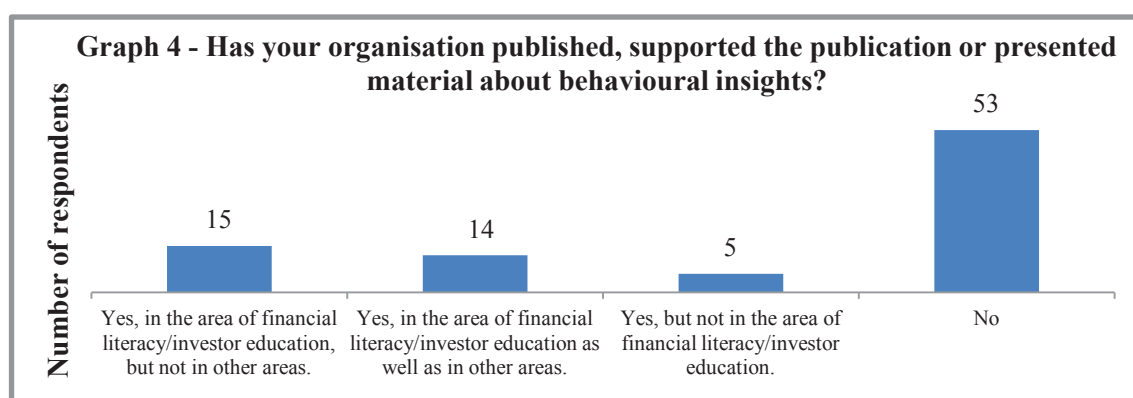
167 Panama SMV and US CFTC.

168 Australia ASIC, Bank of Russia, Denmark FSA, Germany BaFin, India NSE, Malaysia SC, New Zealand CFFC, Pakistan PSX, Panama SMV, Peru SBS, Serbia NBS, Singapore MAS, Spain CNMV, Sweden FI, Thailand BT, UK FCA and US SEC.

169 The US Consumer Financial Protection Bureau (CFPB) report shares insights into successful strategies and pitfalls of conducting RCTs. See Consumer Financial Protection Bureau. 2014. *Rigorous Evaluation of Financial Capability Strategies: Why, When, and How*. Also see Haynes, L., O. Service, B. Goldacre and D. Torgerson. 2012. *Test, Learn, Adapt: Developing Public Policy with Randomised Controlled Trials*. The Cabinet Office Behavioural Insights Team.

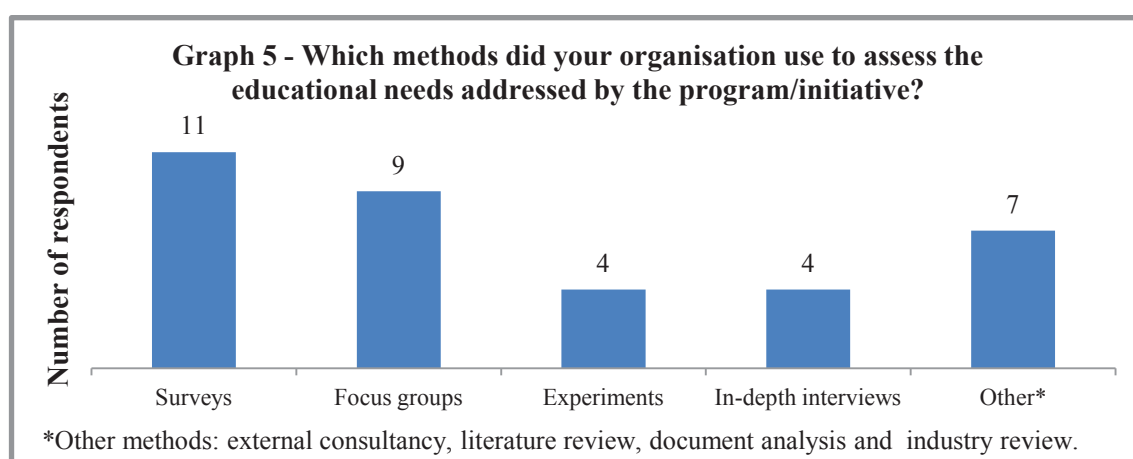
5.2. Applications of behavioural insights to financial literacy/investor education programmes

Both IOSCO and the OECD/INFE encourage their members to conduct research, in behavioural economics and other fields, to provide critical inputs to the design and implementation of financial literacy/investor education programmes¹⁷⁰. Therefore, this report covers not only formal application of behavioural principles but also research or studies respondents developed to understand investors' behaviours, biases, and preferences. In this regard, thirty-four respondent organisations reported that they have applied behavioural insights or carried out research on behavioural sciences to develop applications to financial literacy/investor education initiatives. Twenty-nine organisations answered that they have published, supported, or presented material about behavioural insights in the areas of financial literacy and investor education (Graph 4).



Regarding frameworks employed in the application of behavioural insights, five respondents mentioned the usage of COM-B, EAST, and MINDSPACE.

Respondents have mostly used surveys to assess educational needs to be addressed by behaviourally-informed initiatives (Graph 5). Focus groups were also mentioned as an important qualitative method.



Both surveys' responses showed different degrees of behavioural insights' applications among IOSCO and OECD/INFE members. Some reported approaches utilise behavioural elements (such as beliefs and attitudes) but it is not clear whether these elements are employed in a scientific way.

¹⁷⁰ International Organization of Securities Commissions. 2014. *op. cit.*, and Organisation for Economic Co-operation and Development. 2006. *Improving Financial Literacy: Analysis of Issues and Policies*. Financial Market Trends, vol. 2005/2. Online: http://www.oecd-ilibrary.org/finance-and-investment/improving-financial-literacy_fmt-v2005-art11-en.

Conversely, elaborate applications usually gather behavioural insights through direct observation of human behaviour or structured processes such as quantitative or qualitative research, literature reviews¹⁷¹, and data mining. In addition, although the perceived need for promoting financial behaviour change is widespread, it is important to distinguish between a simple assessment of behaviour change (without using a specific behavioural framework or model) and an application of findings from social sciences (e.g., behavioural economics or psychology). As some of the actual applications highlighted by respondents show, once behavioural insights are apparent they are usually taken into account from the conception of an educational programme or a financial literacy initiative, and are experimentally tested. The behavioural approaches (scientific or not) described in this report bring a comprehensive picture of current initiatives and programmes to policy-makers and practitioners at all levels of experience, whilst also highlighting the variety of approaches that are being used to understand or change behaviour.

5.2.1. Educational materials and initiatives

There is no single approach on how to incorporate behavioural insights into the educational materials and initiatives. The responses to IOSCO and OECD/INFE surveys showed varied comprehensions of what behaviourally-informed interventions are, translating into multiple strategies according to the way behavioural insights are integrated into an existing educational framework. Three main approaches identified are:

- using psychological factors (attitudes, beliefs, and behaviour) in the impact evaluation of educational initiatives;
- delivering information to consumers and investors about behavioural biases, as well as appropriate decision-making practices; and
- helping directly individuals to overcome one or more behavioural biases.

Behavioural insights have also informed the methodological guidelines adopted by the reported initiatives, such as utilising experiential learning techniques to make concepts more actionable (e.g., learning-by-doing approach), making educational content simple to understand (e.g., rules of thumb, plain language, framing, and step-by-step guides), and make information available in an entertaining or familiar way (e.g., comics, games). The reported initiatives indicate that it is possible to apply behavioural insights in a wide range of educational tools, such as apps, documents (printed or online), interactive games, as well as to traditional educational approaches (class, courses, seminars, and distance learning).

Respondents reported the use of behavioural principles and frameworks when designing educational materials and initiatives or as part of the educational content. In the latter case, most of the initiatives presented by respondents seek to raise awareness of the behavioural biases among investors and consumers, as well as help individuals to develop desirable financial habits and skills (e.g., budgeting, saving, and tracking their spending).

171 As the UK Behavioural Insights Team states in its website: “We do this by redesigning public services and drawing on ideas from the behavioural science literature” (<http://www.behaviouralinsights.co.uk/about-us/>).

Examples

Italy CONSOB's new version of the investor education area on its institutional website¹⁷² currently explains the concepts of risk perception and risk tolerance, as well as some cognitive biases, tips to avoid mistakes and “mental traps” when investing. The organisation intends to provide tools (such as questionnaires and personalised feedback) for testing one's risk attitude, other behavioural traits (such as impulsivity and overconfidence), and the exposure to other biases. CONSOB is also developing with the University of Trento (Italy) an interactive game on investment choices and cognitive biases, based on a learning-by-doing approach.

Japan JSDA staff give lectures to university students on financial literacy, the role of the capital markets, and behavioural finance using experiential learning techniques (e.g., a coin toss game¹⁷³) to explain the cognitive biases investors are usually prone to.

US FINRA developed and tested (among a sample of retail investors) a one-page educational document to inform a customer who is contemplating transferring assets to an account assigned to his broker at a new firm. Based on quantitative and qualitative testing, FINRA simplified the recruitment communication it initially proposed, applying the framing principle to create a clearer version using plain language. The rule requiring the use of the new communication went into effect in November 2016.

Brazil ANBIMA offers university students the online financial literacy course “Como Investir em Você” (How to Invest in Yourself). ANBIMA conducted two focus groups with the target audience to inform the course development. The groups also answered a short questionnaire before the qualitative interaction. The study sought to understand three dimensions of the subjects' financial behaviours: ethics (conscience and values), competences (knowledge, social skills), and responsibilities (relation with the environment and the economy). During the survey, the students not only showed lack of capability to save and deal with emergencies but also no capacity to make plans and identify life objectives. The focus groups also revealed the students' worries about a “never-ending” online course, lack of live interaction, and little practical content. With these findings in mind, the course developers decided to place an initial module of personal organisation to teach short/long-term planning, productivity, and procrastination-avoiding techniques to help the students staying focused on and completing the course. Subsequently, the course offers five financial modules with straightforward names: Spend, Earn, Save, Invest, and Plan, along with quizzes and discussion forums. More than 18,000 students have finished the course since its inception in 2014. The initiative has not been evaluated yet.

172 <http://www.consob.it/web/investor-education/home>

173 For instance, the lecturers ask the students if they accept to play the following game: they will earn JPY15,000 if the flipped coin lands on head, but they must pay JPY10,000 if it comes up tail. Although the expected value of this game is positive (JPY 2,500), several students actually choose not to play the game due to loss aversion.

Québec AMF commissioned FinÉcoLab¹⁷⁴, a financial literacy tool that applies gamification and experiential learning techniques, targeted at high school and college students. The computerised tool contains 16 interactive games where students are encouraged to make financial decisions related to savings, investments, taxation, consumption, and other topics. FinÉcoLab provides teachers with a pedagogical guide and a control module that enables them to view the outcomes of each student in one game, in order to introduce the appropriate economics and financial concepts based on the game results. The project started in 2013 and the tool is currently used by 35 high schools and 13 colleges in Québec.

Ontario OSC's newly redesigned and mobile-friendly GetSmarterAboutMoney.ca, provides investors with unbiased information and interactive resources to help them make informed investment decision. During the redesign, the OSC used behavioural insights to better understand what influences people's online behaviours, how they consume information and make decisions. The screen effect can be an important influence on the way that people process information, especially given that there is often a visual bias impact upon their decision-making. Throughout the redesign consideration was given to the visual influences such as design and layout, colour and brightness, ease of navigation and choice to achieve the optimal outcome of investor engagement with the potential to steer investors towards more appropriate educational tools and resources in a timely manner. Similar behavioural insights were applied in developing a new interactive website investmentreporting.ca to help investors navigate their new annual reports on investment performance and the cost of advice. An interactive tool that includes the ability to simulate the effect of fees and costs on the investor's account performance was included to prompt investors to ask questions of their financial advisors.

Belgium FSMA is building a Centre on Financial Education (opening expected for 2019) as a physical site and a website. The Centre is being planned to be a place for learning and trying out fundamental mechanisms and behaviours related to money, and it seeks to decode specific human behaviours, when it comes to handling financial questions, in a playful and interactive manner.

Kenya CMA conducted a survey with qualitative, quantitative, and desk research components in 2011 to evaluate CMA investor education efforts and inform the new investor education strategic plan elaborated in 2014. The survey report found two behavioural factors that discourage participation in capital markets: low confidence in the markets and fear of capital loss. Accordingly, the organisation has developed several educational materials to increase confidence, such as a rights and responsibilities brochure, and adopted a customised approach, using vernacular radio campaigns, brochures, and local staff to reach the several existing ethnic communities.

¹⁷⁴ www.finecolab.com (in French only)

Brazil CVM employed a model of behavioural change to evaluate a financial literacy programme offered to public servants. CVM used the 'Transtheoretical Model of Change (ITM)' in 2016 to assess whether there was an overall improvement in the participants' stages of change for several financial behaviours, after receiving the pilot financial literacy course. Each participant's stage of change for each behaviour was recorded prior to the training, right after, and four months after the end of the initiative. As the 2016 pilot programme proved to have limited effect on the participants' financial behaviour, CVM developed and applied a second pilot in 2017 with new content about behavioural biases and group activities (e.g., case studies) to let participants discuss and reflect upon course lessons.

CVM has published the "CVM Comportamental" educational series on behavioural biases since 2015¹⁷⁵. The two existing volumes describe selected biases that affect investment and saving decisions. CVM published a volume on consumption biases at the end of 2017.

CVM launched the "Educação Financeira para além do Conhecimento" (Financial Education Beyond Knowledge) project in 2016, whose objective is to elaborate a new financial literacy product for the Brazilian middle class, which comprises more than half of the country's population. The project had a multidisciplinary team in its planning phase, with researchers from Economics, Design, and Psychology fields. Psychology scientists studied the applicable models and proposed an evaluation questionnaire with constructs from the Theory of Planned Behaviour, the Transtheoretical Model of Change, plus other psychological and socioeconomic variables. The Design team applied design thinking techniques to conduct a qualitative study where the subjects described their financial life during a live interaction with the researchers. This study provided insights on the pedagogical content of the product. The Economics group worked on the economic data of the target audience. According to the original project plan, the product prototype is expected to be tested in a Randomised Controlled Trial (RCT). In October 2017, CVM published a report¹⁷⁶ with a literature review on the main barriers and behavioural biases that hinder savings behaviours. The report also describes some past experiments and behaviourally-informed educational initiatives around the world intended to foster savings. CVM is using the report to inform the next steps of the project.

Spain CNMV has published information sheets and guides to educate investors about risks and influence their behaviours. The material has been based on the Commission's analysis of the prevalent biases among Spanish investors. In addition to desk research, CNMV has also examined data collected from reports on claims, questionnaires distributed to investors in events and face-to-face conversations with investors. The guidelines deliver clear messages, such as:

- ask all the questions you have, think thoroughly, and take the needed time to make an informed decision with no pressure;
- let the intermediary know about your investment knowledge, experience in the securities markets, financial situation, and investment objectives;
- keep track of your investments; and
- do not sign any documents without having all your questions answered.

175 Available for download in Portuguese at <http://www.investidor.gov.br/publicacao/ListaCVMComportamental.html>. In Spanish at <http://www.investidor.gov.br/publicacao/listacvmcomportamentalespanhol.html>

176 Available for download in Portuguese at: http://www.investidor.gov.br/portaldoinvestidor/export/sites/portaldoinvestidor/publicacao/Estudos/Relat_COP_CVM_-Educ_fin_para_alem_do_conhecimento-v1.pdf

CNMV and the Bank of Spain have developed since 2010 an annual programme to transfer financial competences and knowledge to high school students. The programme content considers aspects of the financial decision-making process, such as its context, preferences, beliefs, motivation, and the persuasion effect. The programme is reinforced by an annual contest, serving an element of motivation of students. Various evaluation exercises conducted during 2015 show that several measures of attitudes changed after the programme delivery and the fraction of students who discussed economic matters with their parents increased. A change in the attitudes of students with respect to temporary consumption preferences after taking the financial education course was detected, increasing their “patience” in relation to making hypothetical monetary choices. After the course, more students were receiving money to work in the family business or perform household chores, indicating that the programme might have motivated participants to take part in their families’ financial matters. It is expected that these short-run changes in attitudes improve participants’ financial decision-making capability and outcomes in the long term.

Since 2016, **Armenia CB** has been using behaviourally-informed research and design methodologies that leverage a human-centred design process to develop and complement financial education interventions aimed at solving the financial needs of low-income rural Armenians. The Central Bank of Armenia and its partners¹⁷⁷ are conducting in-depth and intercept interviews¹⁷⁸, mapping, ranking activities, and co-design workshops¹⁷⁹ to create financial heuristics related to several aspects of the financial life of the rural population, such as seasonality, farming, planning & budgeting, comparison shopping, saving, and debt management. These initiatives are being piloted and evaluated through experimental impact evaluation methods including Randomised Control Trials (RCTs).

Armenia CB is also in the process of producing messages and educational materials inspired by behavioural insights, particularly for social media. These initiatives also include a redesigned financial education webpage¹⁸⁰ and a comparison-shopping tool that reduces the time spent on comparing the terms of financial services proposed in the market to few minutes. The results are filtered from the least to the most expensive financial services based on their actual price (Annual Percentage Rate, Annual Percentage Yield, etc.), taking into account the preferences of consumers, as well as the most important terms and conditions proposed by financial institutions. Accordingly, consumers have the possibility to see all available offers matching their needs in one place and to choose the most appropriate one. This approach reduces the negative impacts of choice overload and procrastination, thus facilitating more effective decision-making.

177 Including CGAP (<http://www.cgap.org/>) and GRID Impact (<http://www.gridimpact.org/>)

178 Armenia CB has conducted intercept interviews which are a qualitative method of research, carried out ‘in-situ’ with the target groups. They are fast interviews, with few questions lasting no more than 7-8 minutes.

179 The content and format of the co-design workshops have been developed through consultation with the target groups concerned.

180 www.abcfinance.am

Denmark FSA is applying behavioural insights to reach consumers and help them with their financial habits. These initiatives include: (i) an app (named Lommebudget¹⁸¹) designed with behavioural principles to enable consumers to track their spending and meet their budgeting goals; (ii) a project (under development) intended to provide consumers with rule-of-thumb heuristics towards sound financial behaviour; and (iii) “The Banking Game” (Bankspillet¹⁸²), a tool based on gamification to empower and motivate consumers to behave more actively in the financial market and in their negotiations with banks. The game applies tools and principles such as segmenting information, goal setting, progress tracking, appraising messages, and in-game prizes in the form of the ‘badges’ to incentivise the user to read information and fill out forms.

New Zealand CFFC has developed a personal finance website, Sorted¹⁸³, that provides information and tools to help individuals and families to build strategies and behaviours to improve their long-term financial health. It was redesigned in 2015/16 focusing on the way decisions are framed. For example, sliders and visuals were included to allow users to see the impact of potential changes to their mortgage repayments. The Sorted comparison engine for retirement savings, named KiwiSaver Fund finder¹⁸⁴, was designed with a specific behavioural hierarchy to enable users to consider the most relevant criteria in order when making investment choices. Website users can personalise their experience, uploading their own goals and creating a budget with pictures that appeal to them. In this way, personalisation allows for greater commitment and loyalty. The Sorted weekly blog emphasises behavioural change and frequently discusses strategies for overcoming behavioural biases.

CFFC has also designed a Maori Financial Capability programme based on the Maori conceptualisation of the world, and partnered with a health provider to design and deliver a financial capability and smoking cessation programme for Maori smokers.

In the Peruvian National Plan for Financial Education (NPFE), led by the Ministry of Education and **Peru SBS**, two approaches of behavioural insights are used. One of them is the concept of “golden rules”, such as concrete messages and rules that are easy to apply by all the participants of the SBS’s financial education programme. SBS has prepared financial education materials taking into account these golden rules which aim to induce reflection and prevent unnecessary expenditures or borrowing money from friends.

The second BI approach in the Peruvian NPFE is that financial education programmes provide information according to the “life cycle” in which the participant is, i.e. the information given should be useful, at the precise moment when people are in the financial decision making regarding their life. For example, teaching young people about saving to achieve a goal, or teaching micro-entrepreneurs how to access a loan.

181 <https://www.raadtilpenge.dk/penge-beregner/Lommebudget>

182 www.bankspillet.dk

183 <https://sorted.org.nz/>

184 <https://fundfinder.sorted.org.nz/>

SBS applied the behavioural framework EAST¹⁸⁵ to the design of two financial education programmes: Finanzas en el Cole and Finanzas para Ti. The first initiative has trained teachers since 2007 to deliver financial education to secondary school students. The second programme was created in 2010 and is directed at the workplace, for employees interested in receiving training in personal and family finances. The EAST framework guided both programmes' approaches. The initiatives use clear language, simple concepts, and short messages to facilitate comprehension ("Make it Easy", in EAST terms). Edutainment elements, such as comics and videos, help participants find the delivered information entertaining and familiar ("Make it Attractive"). The "Make it Social" EAST component is also applied, as Finanzas en el Cole also involves the community around the school to provide support by proposing activities that generate income, for example. Finanzas para Ti also makes use of social resources as the dramatic relief technique, where participants are encouraged to describe their successful behaviour change stories to inspire others. Finanzas en el Cole can be considered to be a programme delivered at a teachable moment, since many high-school students will move into the labour market ("Make it Timely"). The SBS's financial education programme for schools reported an increase in the student's knowledge about the financial system (general indicator up by 30% at the end of the programme for participants) and a better management of resources (general indicator 18% higher). For the workplace initiative, participants improved financial habits such as saving, budgeting, and reduced credit card usage.

Case studies

Australia ASIC's MoneySmart Financial Advice Toolkit¹⁸⁶ is a web-based tool designed with an evidence-based approach that aimed to understand investor behaviour. The objective of the tool is to empower investors participating in the financial advice process by providing a step-by-step guide to help them understand the end to end process, to prepare to meet an adviser, also to understand and challenge the advice they receive. An evidence base was established through the use of consumer research, including developmental research using focus groups to explore:

- factors that prevent consumers from seeking formal financial advice;
- attitudes to financial advice; and
- factors affecting consumer confidence.

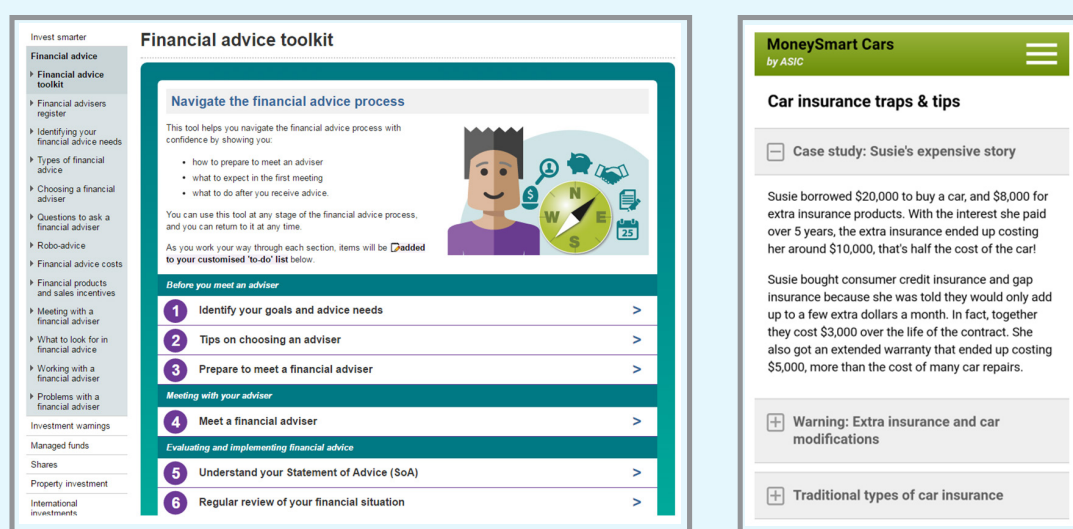
During the development phase, multiple prototype toolkits went through one-on-one user testing with a range of investors. The tests showed that mobile apps were not the most appropriate medium, as the toolkit was designed to be used at different points in the advice process and investors felt the tasks involved in the toolkit were better suited to a computer/desktop than an app.

Another case of educational tool development by Australia ASIC based on behavioural evidence is the MoneySmart Cars mobile app. ASIC's behavioural approach applied across

185 The EAST framework is explained in Section 4.4.

186 <https://www.moneysmart.gov.au/investing/financial-advice/financial-advice-toolkit>

research, testing, development and promotion. The regulator commissioned a qualitative research study¹⁸⁷ to understand the experience of consumers who bought add-on insurance products when buying a vehicle through a dealership. The analysis produced insights on how the sales process plays on the cognitive biases of consumers and influences their decisions to purchase add-on insurance products. ASIC also conducted three phases of research for the app development, all with people who were actively seeking to buy a car in the next six months. The first phase consisted of testing the concept with focus groups with a mix of genders and ages. The second and third phases comprised alpha and beta version user testing, respectively, by means of face-to-face interviews with participants using the app on a smartphone. The combined research showed that supply-side measures were required over demand-side ones and that the only relevant time to try to reach consumers via an app might be at the point of time when they are shopping around and gathering information and to only focus on things that could be influenced at that particular stage. It is too late once the consumer is in the car yard because an app cannot readily compete with the psychological sales techniques in that environment. Therefore, the app has been aimed and promoted at consumers when they are searching for information online. ASIC is continuously monitoring and evaluating the app through analytics (e.g., every selection users are making within the app), and plans to use those insights to inform future versions.



MoneySmart Financial Advice Toolkit and Moneysmart Cars

5.2.2. Experiments, surveys, and other research

Qualitative and quantitative surveys, as well as literature reviews, are important tools to inform the design of frameworks or initiatives to promote investor education or enhance financial literacy. Although considering context and the characteristics of the target audience is important to improve the chances of developing a successful educational programme, testing and proper evaluation are crucial since the possible reactions to behaviourally-informed policies are not perfectly predictable. In this sense, randomized controlled trials and surveys were the most common methods adopted by IOSCO and OECD/INFE members to test and assess the effectiveness in changing behaviours.

187 Australian Securities & Investments Commission. 2016. Report 470. *Buying Add-on Insurance in Car Yards: Why It Can Be Hard to Say No*. Available at <http://download.asic.gov.au/media/3549387/rep470-published-29-february-2016.pdf>

Survey respondents have conducted quantitative and qualitative research in various behavioural aspects related to financial literacy and investor education. They also produced or commissioned literature reviews and discussion papers concerning investor behaviour, decision making, and cognitive biases.

Examples

Italy CONSOB ran a behaviourally-informed experiment¹⁸⁸ to discover how different risk-return representations are appraised in terms of complexity, usefulness and information content, and how these varied templates affect risk perception and investment choices. CONSOB tested four different frames for return and cost according to four investment products found in the Italian market: an outstanding structured bond, a newly issued structured bond, and two stocks. A sample of 254 experienced Italian investors was randomly selected from a geographically stratified sample of banks' customers in 8 cities. The results showed that investors with a higher level of financial literacy are prone to the disposition effect and other cognitive biases. The study concluded that personal traits, financial knowledge, and investment habits of individuals might strengthen framing effects, leading to biased risk perception and investment decisions. Another conclusion is that simplifying financial disclosure is not sufficient to ensure correct risk perception and unbiased investment choices. This supports the idea that "optimal" disclosure may not exist and the one-size-fits-all approach may not be effective in ensuring a suitable level of investor protection.

In 2017 **CONSOB** published a working paper with essays on how to measure financial knowledge, target beneficiaries, and deliver educational programmes¹⁸⁹. This collective work was occasioned by the participation in the World Investor Week (WIW) promoted by IOSCO from 2 to 8 October 2017 to raise awareness about the importance of investor education and protection. Following a multidisciplinary perspective, the work gathers views on how behavioural finance, neuroscience, sociology, cognitive psychology, and pedagogy may contribute to improve measurement of financial knowledge, elicitation of personal attitudes, targeting audiences, and delivery of educational programmes. The aim of the work is to give food for thought with regard to methods and tools that may foster effective initiatives and coordination among the academia and the stakeholders involved in the design and delivery of educational programmes.

CONSOB is currently involved in a research project aimed at evaluating how automated advice (i.e. robot advice) may affect investors' investment choices. The experimental study intends to evaluate whether and to what extent individuals' investment choices differ in a digital environment with respect to the physical channel and which issues need to be considered to ensure investor protection. In particular, CONSOB – in cooperation with the Luiss Cesare Lab researchers and the University of Genoa – is implementing an experimental setting where either a computerised algorithm or a human consultant provide the same investment advice to a potential investor, who is then called to make his/her investment decision.

K. Jeremy Ko of **US SEC** staff has proposed a risk calculator that could help U.S. federal government employees better assess risk and return by displaying simulated portfolio returns¹⁹⁰. Unlike online financial calculators that characterise risk at a single point in the distribution, the proposed calculator, which was developed using data from the Thrift Savings Plan, a retirement plan for U.S. federal employees (similar to a 401(k) plan),

188 Gentile, M., N. Linciano, C. Lucarelli and P. Soccorso. 2015. *Financial Disclosure, Risk Perception and Investment Choice: Evidence from a Consumer Testing Exercise*. CONSOB Quaderni di Finanza 82. Available at <http://www.consob.it/web/consob-and-its-activities/research-papers>

189 Linciano N. and P. Soccorso (Eds.). 2017. *Challenges in Ensuring Financial Competencies: Essays on How to Measure Financial Knowledge, Target Beneficiaries and Deliver Educational Programmes*. CONSOB Quaderni di Finanza 84. Available at <http://www.consob.it/web/consob-and-its-activities/research-papers>

190 Ko, K. J. 2014. *White Paper on Computing Tools for Promoting Sound Investment Decisions*. US SEC Staff Paper. Available at <https://www.sec.gov/dera/staff-papers/white-papers/risk-calc-05-2014.pdf>

characterizes a portfolio's risk at multiple points in time. With more information on the probabilities of different outcomes, investors could potentially be steered towards superior allocations and contribution rates. Greater familiarity and confidence with portfolio allocations may also help prevent common investment “mistakes” and increase savings rates generally. The proposed calculator attempts to avoid problematic or implicit assumption about risk aversion. Unlike risk calculators that require users to input a risk-tolerance level, which is then used to generate an optimal or benchmark portfolio based on unspecified algorithms, the calculator enables users to choose their own optimal portfolio based on a more accurate assessment of risk and return.

SEC commissioned in 2010 two studies to gather findings from the existing research on the behaviour of U.S. investors. The first report¹⁹¹ is an annotated bibliography with 52 abstracts of academic articles on the behavioural characteristics of U.S. investors, in the fields of economics, business, finance, psychology, sociology, and business law. The second paper¹⁹² identifies common investment mistakes (biases), the way investors make the initial decision to invest, and the reasons for eventually being reluctant to invest at all.

Two surveys from **Japan FSA**¹⁹³ and **UK MAS**¹⁹⁴ concluded that the mindset of individuals is a critical factor to achieve financial behaviour change. Japan FSA research posited that someone with a positive mindset toward finance tends to have more favourable outcomes after receiving financial literacy training, while fearful feelings about financial or economic matters (probably due to biased past information) are likely to neutralise the impact of financial education. The questionnaire and indexes are interesting tools to help instructors to know upfront whether the audience mindset is positive or negative.

UK MAS qualitative study showed that mindset is important as it defines the extent to which people are driven to develop and apply the needed skills and knowledge. In other words, people intuitively are aware of the desirable financial behaviours and the consequences of bad financial decisions, but they lack the motivation, resilience, or confidence to take active control of the finances, adopt new behaviours, or make decisions about their money. The survey and subsequent analysis has highlighted a number of important issues about financial capability in the U.K. These include that interventions need to be targeted directly at aspects of financial behaviour and also at the enablers and inhibitors that facilitate or hinder that behaviour. Both consumers' wellbeing and financially capable behaviour have both a current and longer-term aspect. Consumers are considerably better at managing day-to-day than planning for the future – a consistent finding in MAS's research. The three key dimensions of managing money well day-to-day have been identified by the U.K. research as managing credit, active saving, and keeping track of one's finances. Preparing for and managing life events is best measured through building resilience and working towards goals.

Brazil CVM conducted an online survey in 2015-16 to investigate possible relationships between investors' financial literacy level, investment portfolio, and personality traits (Big Five Inventory). The results¹⁹⁵ revealed that individuals with higher scores of financial literacy and/or lower scores in the extraversion trait are more likely to hold at least one investment product, which is in line with findings of similar studies. CVM intends to run a second wave of the survey, with a more detailed questionnaire, to explore additional financial behaviours and study their relationship with personality.

191 Elan, S. L. 2010. *Annotated Bibliography on the Behavioral Characteristics of U.S. Investors*. The Library of Congress, Federal Research Division. Available at: <http://www.sec.gov/investor/locinvestorbehaviorbib.pdf>

192 Elan, S. L. 2010. *Behavioral Patterns and Pitfalls of U.S. Investors*. The Library of Congress, Federal Research Division. Available at: <http://www.sec.gov/investor/locinvestorbehaviorreport.pdf>

193 S. Kawanishi, Hashinaga, M. 2016. *Application of Behavioural Economics to Financial Education*. Financial Research Center, Financial Services Agency. Available at <http://www.fsa.go.jp/frtc/english/seika/discussion2015.html> (in Japanese).

194 Money Advice Service. 2015. *Financial Capability and Wellbeing*. Available at https://www.moneyadvice.service.org.uk/en/corporate_categories/research

195 Two presentations with the results are available at: <http://www.investidor.gov.br/publicacao/Apresentacoes/IECBrazil/Lista.html> (06/12/2016)

British Columbia BCSC is undertaking a panel study to explore the gap between investor intentions and actions when it comes to understanding investment fees. The longitudinal study has three waves (first one conducted in November/December 2016) and intends to understand the impact of the new regulation effective in July 2016, that requires investment advisory and dealer firms to provide their clients with annual fee and performance reports. The first wave report¹⁹⁶ found that 3-in-10 investors are not aware of how their advisers are remunerated, so there might be a significant gap in knowledge of fees, likely to be filled when investors receive their first annual fee report. The results also showed that investors with smaller portfolios (under CAD 50,000) are less informed and less likely to communicate with their advisers. The second wave surveyed investors, between March 1, 2017 and April 5, 2017, who received their reports for the first time. The objective was to measure changes in their knowledge, attitudes and behaviour, such as adjusting their fee arrangements or portfolios, or even changing their advisers. The last wave (June 2017) checked the extent to which the respondents followed through on their previously reported intentions. The study showed that more confident investors who received the CRM2 report followed through on their intention to communicate more with their investment advisor, change their fee arrangement, modify the product mix in their portfolios, or change their advisor or firm. The first wave's results informed the development of the "Take a Look" public awareness campaign about adviser fees. The next two waves will supply evidence for future campaigns.

In **Japan**¹⁹⁷ and **Italy**¹⁹⁸, three financial literacy surveys executed in 2015 and 2016 also enquired about investors' behaviours to test the presence of cognitive biases and personal traits, such as loss aversion, certainty effect, herd behaviour, and disposition effect.

New Zealand FMA has conducted a first RCT to investigate how changes in the design and phrasing of enrolment communications can prompt new superannuation investors to assess and change their fund choice to suit their retirement expectations. This first experiment involved an amendment to the 'welcome' communication sent to members of the KiwiSaver retirement savings plan, after being automatically enrolled by their employers. Based on the EAST framework, the revised communication encouraged them to start thinking immediately about investment fund choice (as the default allocation is in a conservative fund) by explaining three easy steps to follow, framing the investment decision as the opportunity 'to finish setting up' the KiwiSaver account with a visually engaging layout, and invoking social norms. The trial ran from August 2016 to February 2017 and included 3,000 new entrants to the KiwiSaver. The treatment group was 47% more likely to make an active fund choice than the control one and the service provider where the experiment was conducted had fewer account closures than the others¹⁹⁹. KiwiSaver providers are expected to contact their members and help them to make an active fund choice to leave or stay in the default fund. FMA publicly reports the results of each provider's efforts to stimulate competition among them. FMA intends to run a second RCT with behavioural insights applied to a communication to KiwiSaver investors aged 55, encouraging them to act to improve their retirement outcomes. The trial will test different communication messages and measure their effectiveness at stimulating action.

US CFTC ran a survey²⁰⁰ in 2014 among pre-retirement investors to understand which fraud prevention messages appeal to investors. The study found that it was necessary to validate investors' pride as responsible, competent, and independent as the initial inroad

196 British Columbia Securities Commission. *Survey Report Investor Readiness for Better Investing*. 2016-2017 Panel Study: Part 1, Part 2, Part 3 and Final Report. 2017. Available at: http://www.bsc.bc.ca/About_Us/Publications/

197 The Central Council for Financial Services Information. *Financial Literacy Survey: 2016 Results*. Available at <https://www.shiruporuto.jp/e/survey/kinyulite/pdf/16kinyulite.pdf>

198 Commissione Nazionale per le Società e la Borsa. *Report on Financial Investments of Italian Households: Behavioural Attitudes and Approaches*. Survey 2015 and 2016. Available at <http://www.consob.it/web/consob-and-its-activities/report-on-investments-households>

199 Financial Markets Authority. June 2017. *Encouraging Fund Choice in KiwiSaver*. Available at <https://fma.govt.nz/assets/Reports/170602-KiwiWealth-behavioural-insights.pdf>

200 Commodity Futures Trading Commission. 2014. *How To Appeal To Investors With Fraud Prevention Messages: Survey Findings From a Survey Among a Segment of Pre-Retirement Investors*. Available at www.cftc.gov/ide/groups/public/documents/file/messagetestingsurveyreport.pdf

for communication. Messaging should be framed to embrace the positive aspects (e.g., how to better evaluate an opportunity) and not the negative (losing because of fraud). The survey also revealed that the offered resources and website could drive interest if they were seen as tools to help investors to be “smarter” about their research and stay ahead of new trends or latest scams. CFTC applied these insights to the SmartCheck campaign, to be described later in this report.

Québec AMF is running the two-year Nudge and Financial Literacy experiment to understand savings and investment decisions better. The project has two phases and consists of an online simulation of a life cycle. In the first phase, the savings behaviour of the participants is studied by analysing how much of their uncertain income they decide to set aside for emergencies and save for retirement during each period. Afterwards, subjects will be treated in three ways:

- i. researchers will provide them with a savings account for retirement and no further instructions;
- ii. researchers will establish a default amount to be saved in every period and participants are able to change the fund allocation anytime; or
- iii. they will receive training with the FinÉcoLab tool (described in the previous subsection) to be able to calculate their retirement needs and decide how much to save.

The researchers will assess the quality of savings decisions of the three treatment groups, by comparing the decisions made with optimal choices. Therefore, it will be possible to compare the effects of the establishment of an explicit retirement savings account (exploring mental accounting), a nudge (automatic contribution relying on the status quo bias), and financial literacy training. In the second phase of the experiment, participants will be asked to choose an investment portfolio mix over a simulated life cycle. The study will compare the participants’ decisions to their risk preferences.

Australia ASIC commissioned two laboratory behavioural experiments in 2015. The first one studied how behavioural biases and risk attitudes may influence preferences towards hybrid securities²⁰¹. Results showed a positive relationship between the presence of some cognitive biases (illusion of control, framing, and overconfidence biases) and allocation to hybrid securities. Ambiguity aversion bias in participants resulted in a higher preference for shares. Hybrids were perceived as riskier than stocks and bonds, due to distrust of issuers/products and poor knowledge of the product. However, the difficulty in understanding hybrids did not deter participants from acquiring them, probably because investors focused on some hybrids’ features and ignored important descriptive information, due to framing bias.

ASIC’s second experiment tested the effectiveness of a nudge designed to increase compliance by directors of failed companies²⁰². Researchers held a workshop with ASIC staff and interviewed liquidators to elaborate the experiment, where participants were engaged in a business simulation in which they operated companies placed in liquidation. The research found that simply rearranging the order of the information, provided in the letter sent by ASIC to directors, improved the recollection of data. Compliance increased when legal or accounting assistance was offered to directors. The researchers recommended ASIC to conduct an RCT in the field where five alternative letter styles would be sent to separate groups of company directors. These suggested letters used behavioural insights related to social norms, engagement (help offering), moral suasion, and punishment uncertainty. In this way, ASIC would attempt to overcome psychological barriers normally found in a situation of involuntary liquidation, such as unwillingness to cooperate with liquidators in a stressful environment, cognitive overload, and procrastination.

201 Australian Securities & Investments Commission. 2015. Report 427. *Investing in Hybrid Securities: Explanations Based on Behavioural Economics*. Available for download at <http://asic.gov.au/regulatory-resources/find-a-document/reports/rep-427-investing-in-hybrid-securities-explanations-based-on-behavioural-economics/>

202 Australian Securities & Investments Commission. 2015. Report 428. *Improving Communication with Directors of Firms in Liquidation*. Available for download at <http://asic.gov.au/regulatory-resources/find-a-document/reports/rep-428-improving-communication-with-directors-of-firms-in-liquidation/>

ASIC published a report in 2011²⁰³ with findings from a literature and research review on financial literacy and financial behaviour of the Australian population. The report highlights how environmental factors and cognitive biases affect financial decisions (e.g., information and choice overload, complexity and uncertainty, time factors and pressures, over and under confidence, self-control, and ‘framing’ (i.e., how information is presented)). The report details the limitations of financial awareness and education campaigns due to inherent behavioural drivers. It also raises shortfalls in the evaluation of such campaigns and programmes. It cites a behaviourally-informed report²⁰⁴ by the Australian Public Service Commission that outlines twelve social marketing principles devised by Kotler and Lee to influence peoples’ behaviour that may be of value. These principles are:

- Take advantage of existing campaigns
- Target the people most ready for action
- Promote single, doable behaviours
- Identify and remove barriers
- Bring real benefits into the present
- Highlight costs of competing behaviours
- Promote a tangible object or service
- Consider non-monetary incentives
- Have fun with messages
- Use media channels at the point of decision-making
- Get commitments and pledges

US FINRA, through the FINRA Investor Education Foundation, has supported several research projects to test behavioural approaches to achieve desired financial outcomes or avoid cognitive biases. The Borrow Less Tomorrow (2010) field experiment²⁰⁵ tried a debt reduction tool combining financial planning, reminders, and peer support, but there was only suggestive evidence that the tool improved the overall financial health of the treatment group. The Commitment Savings project²⁰⁶ (2010-11) randomly evaluated an intervention combining counselling and commitment contracts to increase savings. Small sample size, non-compliance with treatment assignment, high variance in outcome variables and other factors limited the ability to precisely measure treatment effects, which were not significant. Two other reports²⁰⁷ analyse the presence of cognitive biases in decision-making experiments and recommend some interventions to help investors to overcome them. Some suggested interventions are:

- investing in mass and online media to prompt people to recognise and aim to correct for the influence of biases;
- incorporating the process of itemising expenses into existing investing websites to convince investors of the need to invest for retirement (hence overcoming the excess of confidence); and
- requiring a time interval for website users to think thoroughly before making a particular investment decision.

203 Australian Securities & Investments Commission. 2015. Report 230. *Financial Literacy and Behavioural Change*. Available for download at <http://www.asic.gov.au/regulatory-resources/find-a-document/reports/rep-230-financial-literacy-and-behavioural-change/>

204 Australian Public Service Commission. 2015. *Changing Behaviour: A Public Policy Perspective*. Available at <http://www.apsc.gov.au/publications-and-media/archive/publications-archive/changing-behaviour>

205 Innovations for Poverty Action. *Project Evaluation: Borrow Less Tomorrow*. Available at: <http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p126765.pdf>

206 Innovations for Poverty Action. *Project Evaluation: Commitment Savings*. Available at: <http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p126766.pdf>

207 Pronin, E. 2007. *Overcoming Biases*. Princeton University. FINRA Investor Education Foundation; Pronin, E. *Pitfalls of Investor Decision-Making in the Social Interaction Context*. Available at: <http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p118416.pdf>. <http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p122332.pdf>

Mexico CNBV ran a study in 2012 to understand the impact of irrelevant options on the responses to two questions of an existing financial capability survey²⁰⁸. The questions had two options each with different expected values to test intertemporal choice and risk aversion. For the treatment group, researchers included one suboptimal choice into each question. A large group of respondents chose the original option with smaller expected value, contradicting the traditional economics assumption of rationality. On the other hand, the introduction of an irrelevant choice did not significantly affect the portion of individuals who self-assessed as highly capable in both control and treatment groups. Therefore “irrational” behaviours do not occur every time to all individuals. This result showed that comparing between diverse options is not trivial and it is important to pre-test interventions/nudges, as outcomes are hard to predict.

Malaysia SC’s Behavioural Analytics unit within the Consumer and Investor Office is a dedicated unit tasked to conduct research and the application of behavioural insights to inform its regulatory and investor empowerment initiatives.

Throughout 2017, Malaysia SC has been actively carrying out periodic surveys and studies at its investor education events to gauge investors’ preferences, understanding, and participation in the capital market. The conducted surveys also seek to understand investors’ susceptibility to scams to help form appropriate interventions, particularly on scam awareness initiatives.

Last year, Malaysia SC further embarked on a survey to comprehend the effectiveness of the disclosure instruments, as well as the motivations and barriers of entry among existing and potential investors.

In order to strengthen Malaysia SC’s resources on behavioural insights, SC had conducted a series of workshops to enhance the skillset of over 100 staff. For this purpose, SC had engaged a notable academician to impart knowledge and share insights on the subject matter.

France AMF has studied the behaviour of the French retail investor and the effectiveness of the questionnaires used by financial institutions to comply with MiFID (Markets in Financial Instruments Directive). In the past ten years, AMF analysed the reasons for the low participation of individual investors in the French stock market and concluded that risk aversion and ambiguity aversion are likely explanations²⁰⁹. Possible remedies are:

- to enhance measurement of risk aversion and ambiguity aversion in MiFID questionnaires.
- to reduce perceived ambiguity of financial products and presence of cognitive biases via investor education since childhood. Neuroeconomics can be a useful source of insights for the design of educational methods for the early age;
- to apply the MiFID questionnaire as a true measurement tool of investor education level, implementing it among professional investors to calibrate the financial knowledge of individual investors in relation to this level of reference; and
- to stimulate financial advice as a means of mitigating investors’ biases.

208 Jaimes, M. and P. Peña. 2013. *Decision-Making when Faced with Irrelevant Alternatives: Neither Rational Nor Irrational*. Comisión Nacional Bancaria y de Valores. CNBV Economic Studies Vol. 2. Available at <http://www.gob.mx/cnbv/documentos/estudios-de-investigacion>

209 Broihanne, M. 2015. *The Behaviour of Individual Investors: a State of the Art and Some Teachings*. AMF Scientific Advisory Board Review No. 2. Available at: http://www.amf-france.org/en_US/Publications/Lettres-et-cahiers/Revue-du-Conseil-scientifique/Annee-en-cours.html

Schourné, B. 2006. *Why Is the Behaviour of French Savers so Inconsistent with Standard Portfolio Theory?* AMF Working Papers No. 1. Available at: http://www.amf-france.org/en_US/Publications/Lettres-et-cahiers/Cahiers-scientifiques/Archives.html

Another study²¹⁰ commissioned by **France AMF** concluded that MiFID questionnaires should be improved to correctly assess the investors' experience, preferences regarding risk and cognitive biases. The instruments should objectively evaluate investor experience, looking at investment choices actually made and how long the individual has been investing. AMF also recommended including quantitative questions to measure risk tolerance, loss tolerance, and the ability to evaluate probabilities of investors. In addition, questions should always be asked in a specific investment context.

In a 2014 discussion paper commissioned by **France AMF**²¹¹, researchers posited that the causes of financial crises were to be found in investors' behaviour. Neuroeconomics and cognitive biases were able to explain why investors tend to follow trends (leading to bubbles) and their reactions to unexpected market movements. In addition to improving the quality of information available to investors, the authors recommended that the curriculum of financial professionals should include behavioural finance topics, while brokers should provide risk management tools, with quantitative indicators, to enable clients to make better and unbiased decisions.

Italy CONSOB analysed 20 MiFID questionnaires used in the Italian market to investigate how investors' risk tolerance was assessed²¹². Several limitations were found: questions regarding investment knowledge and experience often relied on self-evaluation and did not verify important notions, such as risk-return relationship and portfolio diversification; risk attitude was not measured independently; and questions regarding risk tolerance did not control for cognitive and behavioural biases. Use of ambiguous and complex language was also identified. Moreover, banks were not training their staff about how biases could negatively affect the administration of questionnaires.

Ontario OSC published in March 2017 a report on how leading practitioners and regulators are achieving better investor outcomes through the application of behavioural insights²¹³. The report contains a literature review of behavioural economics/finance research and the results of interviews with academics, governments, and financial regulators. The OSC is using the report to build awareness, understanding, and capacity in the use of behavioural insights in policy development and operational processes both within the OSC and amongst stakeholders. The OSC is also conducting pilot projects for testing using a behavioural insights lens over the coming year.

210 de Palma, A. and N. Picard. 2010. *Evaluation of MiFID Questionnaires in France*. Autorité des Marchés Financiers. Available at: http://www.amf-france.org/en_US/Publications/Rapports-etudes-et-analyses/Epargne-et-prestataires.html?currentPage=2

211 Bouchard, J. and D. Challet. 2014. *Behavioral Finance and Financial Markets: Arbitrage Techniques, Exuberant Behaviors and Volatility*. Institut Louis Bachelier. Opinions & Débats No. 7. Available at: <http://www.louisbachelier.org/finance-comportementale-et-marches-financiers-techniques-darbitrage-comportements-exuberants-et-volatilite/>

212 Linciano, N. and P. Soccorso. 2012. *Assessing Investors' Risk Tolerance Through a Questionnaire*. CONSOB Discussion Paper 4. Available at: <http://www.consob.it/web/consob-and-its-activities/research-papers>

213 Ontario Securities Exchange Commission. 2017. *Behavioural Insights: Key Concepts, Applications and Regulatory Considerations*. Available at: http://www.osc.gov.on.ca/en/SecuritiesLaw_sn_20170329_11-778_behavioural-insights.htm

Spain CNMV and the Bank of Spain are jointly working on the development of a national survey to track the financial literacy level of the Spanish adult population. Besides covering aspects related to attitudes and knowledge, the questionnaire will seek to understand their financial behaviour in terms of money management, short- and long-term financial planning, and the selection of financial products. The results will be applied to the design of future educational actions, which will focus on influencing knowledge, attitudes, and behaviours of retail investors.

UK FCA published their first occasional paper on behavioural economics in 2013²¹⁴. The paper analysed the reasons of existing more behavioural problems in financial services, the effects of ten key cognitive biases on financial decision-making, the way firms profit from consumer biases, and the potential remedies. FCA also described the framework adopted to apply behavioural insights and listed the following possible actions to protect consumers:

- provide information;
- change the choice environment;
- control product distribution; and
- control products.

Subsequently, **FCA** conducted several experiments to investigate the effects of disclosure interventions and reminders on investors' behaviours. In 2013, FCA tested simple changes to seven features of the letter sent to consumers, encouraging them to claim redress due to product mis-selling²¹⁵. The results showed that using salient bullets, simplifying the text, and including a sentence to emphasise the simplicity of the claims process produced the highest response rates. Combining a reminder letter and the salient bullets increased response rate by over seven times compared to control. The paper proved the importance of experimenting different treatments, as it is difficult to predict their impacts.

FCA carried out a survey in 2013 to assess investors' understanding of five structured products²¹⁶. Respondents consistently overestimated expected returns of these products and appeared to distort valuations when making comparisons to risk-free substitute investments. A sample portion even expected product returns to be systematically higher than of the underlying index, which was unlikely. The researchers also tested the effects of additional disclosure (expected performance, a risk measure, and hidden costs) and found that investors were more likely to adjust overestimated returns after receiving the information. FCA concluded that cognitive biases, combined with characteristics of structured products that can exploit these biases, may lead investors to make valuation mistakes. Hence, these complex investments probably must be sold only via advisers, who should receive enough information to address the effects of investor biases. Costs need to be separately disclosed because investors may not consider them when estimating returns. The paper also posited that although additional information might be helpful, it is not a panacea for all behavioural problems.

214 Erta, K., S. Hunt, Z. Iscenko and W. Brambley. 2013. *Applying Behavioural Economics at the Financial Conduct Authority*. Financial Conduct Authority Occasional Paper No. 1. Available at: <https://www.fca.org.uk/publication/occasional-papers/occasional-paper-1.pdf>

215 Adams, P. and S. Hunt. 2013. *Encouraging Consumers to Claim Redress: Evidence from a Field Trial*. Financial Conduct Authority Occasional Paper No. 2. Available at: <https://www.fca.org.uk/publication/occasional-papers/occasional-paper-2.pdf>

216 Hunt, S., N. Stewart and R. Zaliauskas. 2015. *Two Plus Two Makes Five? Survey Evidence That Investors Overvalue Structured Deposits*. Financial Conduct Authority Occasional Paper No. 9.

In 2014, **FCA** published the results of an experiment to study how investors' preferences changed whether information was presented in a consumption frame or an investment frame²¹⁷. Consumers aged from 55 to 75 were asked to choose between an annuity and a drawdown strategy. The consumption frame presented the options in terms of the available income for consumption in retirement and the availability of funds for bequest in the event of death. The investment frame showed the size of the pension pot at retirement, the amount earned on that investment, and the availability of any bequest. Other framing effects were also tested: the influence of using the word 'annuity', whether or not the investor had children, and the investor's income level. Although the pension pot value was not a relevant information for decision-making, the investment frame appeared to reduce the preference for annuities. Investors with children were also less likely to choose annuities. Fewer people preferred the annuity option when it used the term 'annuity', suggesting that it might be associated with poor value products.

In 2015, **FCA** tested the effects of sending a reminder letter to savings account customers whose interest rate was about to decrease or had just been lowered²¹⁸. Researchers also tested different messages in the reminder and its timing. The results showed that simply receiving the reminder was more important than its content and it increased switching account rate by at least 8% relative to not being warned. Displaying the amount gain or loss in the reminder due to switching or not accounts was more effective than without this information. Therefore, the study demonstrated that, through timing, salience and framing techniques, FCA was able to mitigate the effects of present bias, procrastination and limited attention on investors. The organisation ran a second RCT in 2015²¹⁹ to test the efficacy of five disclosure interventions and reminders²²⁰ in promoting savings account switching. A pre-filled return switching form and SMS/e-mail reminders produced the highest increases in switching rates. However, only 17% of all participants switched accounts and no significant provider changes were observed. This suggested that limited attention affected savers with higher balances while some amounts were too low to justify switching.

FCA commissioned an experiment to test how different information prompts would induce a sample of 1,996 annuities consumers to shop around²²¹. In 2015, the researchers designed five kinds of information on benefits of switching in order to help consumers aged 55-65 to overcome loss aversion, regret avoidance, and present biases. The five treatments resulted in an increase of 8 to 27 percentage points, compared to the control group, in the proportion of participants who started looking for options other than those offered by their current pension provider. The study concluded that personalised information on the highest quote possibly obtained by shopping around and a short statement invoking social comparison were the two most effective prompts. The experiment required participants to

217 Financial Conduct Authority. 2014. *Does the Framing of Retirement Income Options Matter? A Behavioural Experiment*.

218 Adams, P., S. Hunt, L. Vale and R. Zaliauskas. 2015. *Stimulating Interest: Reminding Savers to Act When Rates Decrease*. Financial Conduct Authority Occasional Paper No. 7. Available at: <https://www.fca.org.uk/publication/occasional-papers/occasional-paper-7.pdf>

219 Adams, P., S. Hunt, C. Palmer and R. Zaliauskas. 2016. *Attention, Search and Switching: Evidence on Mandated Disclosure from the Savings Market*. Financial Conduct Authority Occasional Paper No. 19. Available at <https://www.fca.org.uk/publication/occasional-papers/occasional-paper-19.pdf>

220 1. a switching box showed in the front page of the notification letter; 2. a switching box showed in the reverse page of the communication; 3. a pre-filled return switching form to a higher rate-paying account; 4. a rate decrease reminder sent via e-mail or SMS reminder closer to or after the date of an individual rate change; and 5. a rate decrease reminder sent by SMS one week before or after the rate decrease, or on the day of rate change.

221 Smart, L. 2016. *Full Disclosure: A Round-up of FCA Experimental Research into Giving Information*. Financial Conduct Authority Occasional Paper No. 23. Complete technical report: *Increasing Consumer Engagement in the Annuities Market: Can Prompts Raise Shopping Around?* Oxera and the Nutfield Centre for Experimental Social Sciences. June 2016.

perform multiple tasks and process a great deal of information to simulate real decision-making environment. These design features induced biases normally experienced while actually shopping around, such as status quo bias, inattention, and fatigue.

FCA issued a paper in April 2017 on how consumers process information in the form of advertisements of financial products, based on a literature review²²². To explain this, FCA conceived a novel framework divided into three stages: see, interpret, and act. The first process (see) has two main factors: salience and motivation, which may lead to loss of relevant information or lack of attention by investors. FCA reports that it is exploring the use of eye tracking to understand how consumers engage with adverts and how visual attention affects decision-making. The paper analyses the systematic errors people make when processing numbers (interpret) and how framing can mislead consumers, as well as the importance of financial literacy to the understanding of financial products. Adverts can encourage consumers to act by appealing to their emotions and their reliance on heuristics when making decisions. The paper concludes that there are still open questions, such as what the acceptable limits of advertising techniques based on heuristics are and how customers interact with risk warning at different occasions during a purchase process.

The Netherlands MinFin has attempted to change financial behaviours through their Money Wise²²³ platform, which enables coordinated work with different partners from the business community, as well as government and civil society organisations. In 2013, Money Wise concentrated its efforts on understanding how behaviour impacts on financial outcomes and two studies were conducted in this direction. The first one was designed to assess the determinants of financial behaviours among the Dutch²²⁴. Its main focus is on understanding how personal and socio-demographic factors impact three different dimensions of financial behaviour: money management, financial planning, and selection of financial products. The study found that, among personal factors, basic values (attitude to risks, lifestyle, and openness to change) and engagement (interest in one's money matters, awareness of a problem, and a desire to improve one's financial situation) had a high impact on at least one dimension of financial behaviour. Income and work situation were identified as the social-demographic factors correlated with one or more dimensions. The second study²²⁵ sought to understand pension behaviour, reflecting Money Wise's recent change in focus from raising awareness to the behavioural aspects of financial education. The study tried to determine how social-demographic and personal factors (attitude, knowledge, and behaviour) influence each other, as well as the possible barriers to adopting sound financial behaviour towards pensions. Reported results showed that more than half of the Dutch working population consider themselves to be financially prepared for retirement, while only one in four respondents plans ahead when making financial decisions. The study did not manage to find any significant correlation between attitude, knowledge, socio-demographic variables, and behaviours towards pensions. The influence of the proposed barriers (lack of knowledge, unwillingness, and one's financial possibilities and impossibilities) on the previous elements was not significant either.

222 Adams, P. and L. Smart. 2017. *From Advert to Action: Behavioural Insights into the Advertising of Financial Products*. Financial Conduct Authority Occasional Paper No. 26.

223 <https://www.wijzeringeldzaken.nl/english/>

224 Wijzer in geldzaken. 2013. *Responsible Financial Behaviour: the Three Dimension*. Available at: <https://www.wijzeringeldzaken.nl/bibliotheek/media/pdf/7712-wig-toelicht-publmonitor-engv1.pdf>

225 Wijzer in geldzaken. 2013. *Pension Monitor*. Available at: <https://www.wijzeringeldzaken.nl/bibliotheek/media/pdf/7712-wig-toelicht-pensioenmonitor-engv1.pdf>

Money Wise also aims to teach children how to handle money from an early age. To accomplish this Money Wise developed a series of lessons for primary schools (third through eighth grade). Together with Leiden University, Money Wise set up a study²²⁶ on the effectiveness of the materials prepared for the seventh grade in the school year 2016/2017. This study shows that financial education – provided that it is designed in the right way – can be effective. Along with education professionals, the platform developed didactically sound lessons that are aligned with the development stage and the daily lives of children to address both their knowledge and skills. The Netherlands MinFin believes that these lessons can have significant effect on students' financial competencies.

In 2017, Money Wise and Nibud (Dutch National Institute for Family Finance Information) published a paper²²⁷ on effective ways to promote responsible financial behaviour. The report considers financial education as one possible resource to be used alongside, for example, information provision, upbringing, regulation, and supervision. The study recognises the importance of making use of insights from behavioural science, effectiveness research, and evaluation when developing interventions since traditional forms of education and information provision, which focus mainly on expanding knowledge, have turned out to be less effective in bringing about the desired change in behaviour. Research shows – ever more clearly – what does work.

US CFPB conducted different studies, whose reports were made available to the public in 2016 and 2017, to understand consumer financial decision making in three dimensions: spending management²²⁸, rules of thumb²²⁹, and retirement²³⁰. Researchers conducted focus groups for each subject to assess common opinions, beliefs, and values voiced by consumers. These studies did not intend to obtain generalisable results, but to gather general information on consumers' opinions and feelings. In the research on spending management, CFPB tested different approaches and found that real-time spending feedback and budgeting tools would be useful. Consumers reported that the tested tools helped them to curb impulse spending, alleviate their worries about uncertainty, make budgeting easier, and close the gap between their intentions to follow a budget and their real-time spending decisions. In the second study (rules of thumb), CFPB held focus groups to learn which rules consumers knew, the way rules were applied, and how useful they were for financial decisions. The results showed that individuals construe rules of thumb as a wide range of financial goals and aspirations, common financial advice, and specific short procedures. Consumers felt that pre-specific rules are not appropriate to everyone, and when simple principles are applicable, they need to be tailored to one's circumstances and life stage. The Bureau concluded that financial rules of thumb need to be flexible and preferably presented at moments of crisis, such as unemployment or emergencies, when users are more likely to adopt new procedures. CFPB also commissioned a study on the main barriers surrounding retirement planning that tested new tactics and communications on consumers near the end of working life to evaluate their effectiveness in motivating planning in advance. Limited time frame, inertia,

226 Wijzer in geldzaken. 2017. *Do Education Materials Contribute to the Financial Capability of Primary School Students?* Available at <https://www.wijzingeldzaken.nl/bibliotheek/media/pdf/contribution-to-financial-capability.pdf>

227 Wijzer in geldzaken. 2017. *Effective Ways to Advance Responsible Financial Behaviour.* Available at <https://www.wijzingeldzaken.nl/bibliotheek/media/pdf/English/Effective-ways-to-advance-responsible-behaviour.pdf>

228 Consumer Financial Protection Bureau. 2017. *Consumer insights on managing spending.* Available at: https://s3.amazonaws.com/files.consumerfinance.gov/f/documents/201701_cfpb_Financial-Education-Research-Brief.pdf

229 Consumer Financial Protection Bureau. 2016. *Consumer Voices on Financial Rules to Live By.* Available at: http://files.consumerfinance.gov/f/201603_cfpb_rules-to-live-by_consumer-voices-report.pdf

230 Consumer Financial Protection Bureau. *Consumer insights on managing funds at the time of retirement.* Available at: https://s3.amazonaws.com/files.consumerfinance.gov/f/documents/201706_cfpb_Consumer-Insights-on-Managing-Funds-at-Retirement.pdf

“good enough” decisions, salience bias, as well as risk and return misjudgement were identified as the main biases posed to retirement planning. Consumers were interested in tools designed to simplify planning process and retirement account management, such as e-mail communications encouraging them to make decisions using visual elements, and pre-commitment forms with clearly stated options and projections.

In 2017, **CFPB** published a study using an RCT design to test how rules of thumb could be utilised as a form of “light-touch” financial education²³¹. The light-touch approach²³² comprises large-scale initiatives that seek to facilitate consumers’ decision-making process, often using technological tools. Fourteen thousand ‘low frequency’ credit cards users who paid by credit card around five times per month, on average, and had revolving credit for at least two months were selected and divided into three groups.²³³ Credit-related messages were sent to the two treatment groups while the control group received no intervention. The rules-based messages were created with inputs from a literature review and interviews with customers. One rule warned users about the interest rate paid on outstanding card balances and advised them to pay expenses under twenty dollars with cash. The experiment lasted six months. On average, participants’ credit card balances were reduced by 2% in the treatment group that received a message suggesting to use cash for expenses under USD 20, when compared to the control – a modest but statistically significant result. The messages helped consumers aged forty and under to decrease their outstanding balance by 5% and slightly reduce credit card spending. Savings also increased in this specific group. CFPB concluded that rules of thumb could create behaviour change but they need to be customised to fit the particular circumstances of the customers who adopt them because particular groups (e.g., younger participants) have different reactions to the same rule.

US SBST²³⁴ made a number of attempts in different fields of research and intervention to apply behavioural insights to policies in order to generate evidence on the effectiveness of public programmes. According to its report published in 2016²³⁵, SBST performed several field experiments related to financial education and financial well-being, in the areas of military pension and student loans. The Federal Government of the United States operates a defined contribution programme for its employees known as Thrift Savings Plan (TSP). Since active duty service members of the U.S. Armed Forces were not automatically enrolled in the plan and less than half of them were participants at the time of the experiment, SBST conducted in 2015 two active choice tests at large Army installations seeking to increase new enrolments during the orientation sessions service members received during their assignment to a new base. At one facility, soldiers received and were required to submit an Election Form with options framed to propel enrolment. At another site, service members were asked whether they desired to join TSP and, if agreed, were immediately taken to computers to enrol online. The pilot results showed that, compared to the control group, treated soldiers were more likely to enrol in TSP (an 8% higher probability), and the paper form led to better results than the computer-based intervention.

231 Consumer Financial Protection Bureau. 2017. *The Power of Light-Touch Financial Education: A Demonstration with Credit Card Revolvers*. Available at: https://s3.amazonaws.com/files.consumerfinance.gov/f/documents/201701_cfpb_Financial-Education-Research-Brief.pdf

232 An example of the opposite or “high-touch” approach is financial coaching, where individuals are assisted with personalised procedures.

233 According to the study, altogether, these users began the study as infrequent users of their credit card who tended to “park” their debt, rather than paying it off each month. Less than one in five used their credit card more than eight times per month, and one in three made virtually no purchases each month before the study began.

234 Reported by US CFPB in response to the survey circulated by OECD.

235 Social and Behavioral Science Team. 2016. *2016 SBST Project Abstracts*. Available at: <https://sbst.gov/download/2016%20Abstracts.pdf>. Social and Behavioral Science Team. 2016. *2016 Annual Report*. Available at: <https://www.sbst.gov/download/2016%20SBST%20Annual%20Report.pdf>

SBST also tested the impact of sending emails with suggested contribution rates to non-enrolled members in 2015. Ten different groups were randomly formed: one group was assigned as control (without emails), one received messages with no mention of a contribution percentage, and each of the eight remaining groups received different emails with proposed rates ranging from one to eight percent. Service members who received the anchoring messages had an average enrolment rate 0.7 percentage point higher than those of the control group. Results also showed that, for each of the eight proposed contribution rates, there was some evidence suggestive of an anchoring effect – service members were more likely to contribute at exactly the suggested rate than those who were not given a contribution percentage. The highest enrolment rate was observed for individuals who were offered the lowest contribution rate (1%). Messages suggesting higher contribution levels (3 to 8 percent) were related to slightly fewer new enrolments, but there were no significant differences in enrolment rates across the different emails with these suggested percentages.

SBST has also carried out field experiments on student loans. The behavioural team tested ways to promote student access to financial aid programmes and more favourable payment plans. The method applied by the SBST consisted of sending physical mail or email messages to students (non-subscribers) with framing messages informed by behavioural insights to seek higher participation in the targeted programmes that would benefit them. Results varied according to the message framing, target group, and promoted programme or plan. The first study aimed to increase the completion of the Free Application for Federal Student Aid (FAFSA) among youth and full-time students living in subsidised housing. The SBST and its partners tested nine different mailings that varied in format and messenger. One variation tried to motivate educational aspiration and reduce low-income students' anxiety about college with a personal story from the former First Lady Michelle Obama. Another type of mailing was a postcard that presented information without the need to open an envelope (i.e. reducing the hassle factor). However, there was no significant increase in FAFSA completion rates after sending messages to students and no significant difference was found across letter variations. Another experiment was designed as a pilot followed by a scale-up test. The objective was to increase enrolment in Revised Pay As You Earn (REPAYE) and Income-Driven Repayment (IDR) programmes. The pilot showed promising results for students who had previously demonstrated interest in IDR plans by tailoring message content to the borrowers' circumstances. The scale-up experiment utilised the most promising messages from the previous pilot and managed to increase submission rates of the treated groups, on average, by 0.35 percentage point over the control group rate of 4.74% (a statistically significant difference)²³⁶. A third RCT sought to increase the number of student loan borrowers completing the annual IDR recertification needed to keep some IDR benefits. The trial found that showing the actual payment increase the borrower would be subject to for not recertifying was the most effective framing method in terms of recertification rates. SBST also attempted to help student loan borrowers in default to join a loan rehabilitation plan. The main finding of this investigation was that framing messages emphasising the negative consequences of default is more effective than describing default more generically. The last reported study on student loan programmes was an experiment that attempted to increase the number of borrowers submitting Employer Certification Forms (ECFs) – a requirement to receive loan forgiveness after ten years of qualifying payments. The research compared email opening rates across four different subject lines and estimated the effects of receiving any email on ECF submission rates. The most effective subject lines were the ones with more assertive framing²³⁷. As sending

236 The control and treatment had a total of 3 million individuals, randomly assigned.

237 “Verify your eligibility for loan forgiveness” and “[Borrower name] your student loans could be forgiven”. The two lesser effective subject lines were: “How to get your student loans forgiven” and “The surprising way to have student loans forgiven.”

any email, independent of the subject line, tripled the ECF submission rate, the Office of Federal Student Aid used the related findings to inform a subsequent large-scale campaign.

US DOL²³⁸ performed in 2015-16 a behaviourally-informed experiment to increase employee participation in the Thrift Savings Plan²³⁹. DOL Behavioural Interventions team (DOL-BI) designed email messages that made retirement vivid and emphasised the concrete benefit of retirement savings. The communication also had positive and negative framing to highlight matching benefits, prompted DOL employees to change their contribution level, and provided easy pathways to access the TSP. These strategies intended to address present bias, lack of attention, information overload, procrastination, and hassle factors DOL-BI identified as behavioural bottlenecks preventing U.S. federal civilian employees from taking full advantage of the available employer match (up to five percent of their salary). The DOL-BI also tested sending messages with descriptive social norms and reminders to individuals who failed to take action after the initial email. This RCT resulted in a 7.5 percentage-point significant increase in the number of employees receiving full match TSP contributions. However, the designed messages did not manage to bring new participants to the plan significantly. The largest impact was reported for employees who were already contributing and younger ones. After realising the effectiveness of simple solutions with behavioural elements, DOL is currently focusing on alternative approaches for non-contributors.

In 2015, **UK MAS** applied a survey²⁴⁰ to identify financial behaviours and capabilities across the population of the UK. Financial behaviour was categorised into three different domains: managing money day to day, preparing for and managing life events, and dealing with financial difficulties. Each domain comprised factors impacting financial performance, such as budgeting, self-control, saving, healthy use of credit, income maximisation, having plans, resilience building, preparation for retirement, and debt management. Financial capability was analysed in three aspects: abilities, mindset (attitude and motivation), and connection (ease and accessibility). For each of these elements, a threshold score was pre-defined as the desirable outcome for the surveyed individuals. MAS identified key population groups with difficulty in managing their finances according to their scores in the investigated domains, although results showed a variation between domains and lower scoring groups. Survey results indicated that savings behaviour was most strongly correlated with having goals, having specific reasons for saving, and future-focused attitudes, while skills/knowledge and ease/accessibility were shown to be less relevant. The survey helped MAS to identify the main financial behaviours²⁴¹ and the strategic populations²⁴² to be targeted in future educational interventions with behavioural elements. The survey was based on a model of financial capability factors, developed from the COM-B²⁴³ behavioural model. To understand in greater detail the relationships between the various components of financial capability, MAS has conducted further analysis of the survey, using a variety of statistical techniques to identify the 'building

238 Reported by US CFPB in response to the survey circulated by OECD.

239 Amin, S., G. Chojnacki, A. Moorthy, I. Perez-Johnson, M. Darling, and J. Lefkowitz. 2017. *Using Behavioral Insights to Increase Retirement Savings: Trial Design and Findings*. Washington, D.C.: Mathematica Policy Research, April

240 The Money Advice Service. 2015. *Technical Report for the 2015 Financial Capability Survey*. Available at: https://prismic-io.s3.amazonaws.com/fincap-two%2F5bdea584-c07c-4173-95ab-af8e6dcdafe9_mas_fincap_technical_report.pdf; The Money Advice Service. 2015. *Financial Capability in the UK: Initial results from the 2015 UK Financial Capability Survey*. Available: https://prismic-io.s3.amazonaws.com/fincap-two%2Fd08746d1-e667-4c9e-84ad-8539ce5c62e0_mas_fincap_uk_survey_2015_aw.pdf

241 (i) To encourage non-savers to save by setting specific goals and (ii) to stimulate current goal savers to increase saving.

242 Young adults, older people in retirement, benefit recipients, unemployed, social housing tenants, private renters, and ethnic groups.

243 The COM-B model is explained in Section 4 of this report.

blocks' of financial capability: the key drivers or inhibitors of capability. MAS published a report²⁴⁴ on this at the end of 2016.

MAS published in 2017 a literature review²⁴⁵ examining evidence of what works in improving savings among working-age adults. The report posited that current evidence from interventions is mixed, showing different degrees of success. Whilst noting that income is a strong determinant of savings, the review also emphasises that many low-income individuals do save and some higher income individuals face barriers to building reserves. MAS analysed interventions that focused on either directly influencing behaviour or designing products to encourage savings behaviour. The review identified three types of interventions with existing evidence suggesting causal attribution: setting savings goals²⁴⁶, commitment contracts (only from the health field), and financial incentives (for matched saving). Some studies concluded that once saving habits are developed, they seem to be largely unaffected by conscious thoughts or emotions. MAS's What Works fund is addressing some of the evidence gaps identified in the report.

Thailand BOT has applied insights from behavioural sciences in order to shape Generation Y's financial behaviour. Thailand BOT conducted a research called Financial Literacy Lab in the first half of 2017 to define the appropriate model to enhance financial literacy, especially financial planning, among university and vocational college students. The sample covered approximately 3,000 students from 13 institutions from four regions of Thailand. The students in each institution were randomly divided into three groups: a control group (no intervention), a treatment group which received only financial knowledge, and a second treatment group which received an intervention combining knowledge and a particular nudge, such as goal setting. Thailand BOT collected qualitative and quantitative data with surveys and focus groups to evaluate the test. The institution found that students are mostly influenced by senior fellows, so they prefer to learn from their seniors' real life experience in comparison to receiving theoretical knowledge from teachers or instructors. Thailand BOT concluded that financial education should be operated along with compatible nudges to develop financial awareness and stimulate students to act towards their financial goals.

BOT conducted in the second half of 2017 a field experiment aiming to design activities and contents that fit vocational college students' interests. The test was run with 1,300 students from 17 colleges across the country. Besides demonstrating the usage of educational tools, the Bank of Thailand staff also encouraged teachers and students to brainstorm how to make that initiative scalable and sustainable. A preliminary finding is that vocational college students are good at "learning by doing". In other words, they can effectively learn by practicing at the workplace. As a result, activity-based and project-based activities are possibly more effective in enhancing their financial skills than a traditional classroom learning approach. With the experiment results in mind, Thailand BOT developed educational content that fit the life context and interest of vocational college students. Thailand BOT has designed games and activities to encourage them to reflect upon how to manage their money according to their life events. Such educational tools comprise a life-event game (that simulates life events and emergency cases students are likely to face after they get their first job) and a nudge, where students are asked to set their financial goals and write them down on a postcard which will be sent to remind them

244 The Money Advice Service. 2016. *Measuring Financial Capability – Identifying the Building Blocks*. Available at: https://masassets.blob.core.windows.net/cms/files/000/000/570/original/A4_MAS_Fincap_Measuring_Financial_Capability_Building_Blocks_Nov2016.pdf

245 The Money Advice Service. 2017. *Savings evidence review*. Available at: https://masassets.blob.core.windows.net/cms/files/000/000/795/original/Savings_review_FINAL.pdf

246 Although there is no sign of effects over the longer term, i.e., sustained saving habits.

after a period of two months. Thailand BOT will hold a project competition in 2018 to scale up the initiative. The competition will encourage teachers to generate teaching innovations to enhance students' financial literacy and motivate students to create real life projects applying financial literacy concepts into practice. Seed money will be provided to selected projects to support teachers and students to execute their projects and deduce lesson learned from reality.

Case study

UK MAS carried out a small 'test and control' study in 2016 with debt solution provider, Aperture IVA, as a precursor to a potentially larger study. The test sought to examine the effectiveness of a budgeting intervention aimed at improving the general money management skills of clients entering into an Individual Voluntary Arrangement (IVA), a debt solution that allows clients to make reduced payments to their creditors over a fixed period of time. The hypothesis was that an improvement in the management of general household finances would lead to an increase in 'on-time' IVA payments received by Aperture IVA.

With insights obtained through live call listening and focus groups with advisers, UK MAS redesigned the income and expenditure documentation sent to clients during the IVA set up process and produced a new budget summary sheet. This new sheet made use of behavioural change devices to encourage the three main budgeting behaviours of paying bills on time, making 'cash' last from one pay day to the next, and saving for occasional costs.

The behavioural change principle of 'norming' was used to position desired behaviours as 'tricks used by people who successfully pay their IVA'. Budgeting was made to appear easier by grouping spends into just three desired behaviours (paying bills, making money last, and saving) as opposed to approximately 50 lines of financial data contained within the previous income and expenditure document. Commitment devices, such as checklists, were added to ensure intention was tuned into action.

To test the impact of the new budget sheet, a 'test' group of new IVA clients were given the new budget sheet at the point of set up of their IVA. Advisers involved in the test were trained to give a verbal explanation of the budget sheet and promote its use as a budgeting tool. A control group was given the existing income and expenditure document with no additional explanation on budgeting. The formative study showed an 11% uplift in on-time IVA payments within the 'test' group. The increase in on-time payments was sustained consistently throughout the first year of the IVA. A larger scale study is under development to further explore causality and ensure replicability.

CFS Common Financial Statement

SUMMARY
All amounts are monthly
20 January 2016

Client Address: _____ Agency Address: _____
Case ref: _____ Caseworker: _____
Licence No: _____
Number of vehicles in household: 0 Number of dependent children under 14: 0
Number of dependent children aged 14+: 0

Monthly Income £ Amount

44 Monthly Total Salary / Wages	0.00
45 Monthly Total Other Income	0.00
46 Monthly Total Pensions	0.00
47 Monthly Total Income	0.00

Please confirm you have discussed the use of any assets to make lump sum payment: ☐ Yes

Monthly Expenditure £ Amount

32 Rent	0.00
33 Groceries, utilities, council charges, fuel, food	0.00
34 Mortgage	0.00
35 Other secured loans	0.00
36 Mortgage Interest / Mortgage Fee	0.00
37 Building and contents insurance	0.00
38 Pension and life insurance	0.00
39 Council Tax (Rates in UK)	0.00
40 Gas	0.00
41 Electricity	0.00
42 Water (NIA in Scotland or NI)	0.00
43 Other utility bills (oil, water, gas)	0.00
44 TV licence	0.00
45 Magistrates' or sheriff court fine	0.00
46 Maintenance or child support	0.00
47 New Purchase / Conditional Sale	0.00
48 Childcare costs	0.00
49 Adult care costs	0.00
50 Other	0.00
51 Other	0.00
52 Other	0.00
53 Monthly Total Phone	0.00
54 Monthly Total Travel	0.00
55 Monthly Total Housekeeping	0.00
56 Monthly Total Other Expenditure	0.00
57 Monthly Total Expenditure	0.00

Priority debts £ Owed

58 Rent	0.00
59 Mortgage	0.00
60 Other secured loans	0.00
61 Magistrates' or sheriff court fine	0.00
62 Council tax	0.00
63 Maintenance or child support	0.00
64 Gas	0.00
65 Electricity	0.00
66 New purchase or conditional sale	0.00
67 Other	0.00
68 Other	0.00
69 Total Priority Debts	0.00

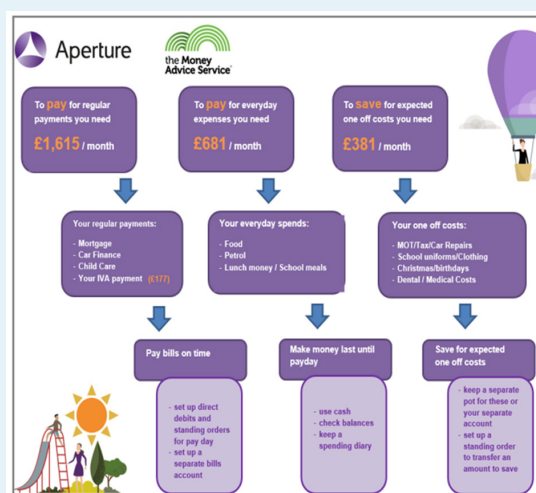
Non-priority debts £ Owed

70	0.00
71	0.00
72	0.00
73	0.00
74	0.00
75	0.00
76	0.00
77	0.00
78	0.00
79	0.00
80	0.00
81	0.00
82	0.00
83	0.00
84	0.00
85	0.00
86	0.00
87	0.00
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102	0.00
103	0.00
104	0.00
105	0.00
106	0.00
107	0.00
108	0.00
109	0.00
110	0.00
111	0.00
112	0.00
113	0.00
114	0.00
115	0.00
116	0.00
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118	0.00
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126	0.00
127	0.00
128	0.00
129	0.00
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138	0.00
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144	0.00
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149	0.00
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154	0.00
155	0.00
156	0.00
157	0.00
158	0.00
159	0.00
160	0.00
161	0.00
162	0.00
163	0.00
164	0.00
165	0.00
166	0.00
167	0.00
168	0.00
169	0.00
170	0.00
171	0.00
172	0.00
173	0.00
174	0.00
175	0.00
176	0.00
177	0.00
178	0.00
179	0.00
180	0.00
181	0.00
182	0.00
183	0.00
184	0.00
185	0.00
186	0.00
187	0.00
188	0.00
189	0.00
190	0.00
191	0.00
192	0.00
193	0.00
194	0.00
195	0.00
196	0.00
197	0.00
198	0.00
199	0.00
200	0.00

Total Available for Creditors £0.00
Total for Non-priority Creditors £0.00

Display Trigger Figure warnings (not printed)
This financial statement is an accurate record of the information provided by your client(s).
Reasons for indebtedness / Expenditure Notes / Other Notes (Please continue on the next page if needed)

Signed: _____ Date: _____ Print



Old and new versions of the budget summary sheet

In another experiment, **MAS** asked 24 members of its online community to save GBP 100 each month, for three months, and keep an online diary²⁴⁷. Halfway through the project, the organisation prompted them with several savings ideas to increase their financial skills. This small-scale intervention was designed according to the EAST framework: it established a realistic saving goal, provided simple and relevant tips to achieve the objective, formed savings habits and framed saving as an attractive challenge. All participants managed to save at least something, many reached the target, and most of them maintained the savings habits three months after the experiment. The diaries enabled UK MAS researchers to understand the participants' reactions and motivations, in order to check what and how worked. From the findings of the current and previous research, MAS recommends the following approaches to tackle persistent under-saving:

- promote a regular savings habit for through effective messages, goal-setting, peer-to-peer support, and reward/incentive schemes;
- develop and maintain a resilience buffer against financial shocks by implementing training and guidance that helps people to plan ahead, manage their finances with confidence, and avoid meeting unexpected costs through unnecessary or inappropriate use of credit; and
- work to reduce attitudinal barriers to saving by providing practical opportunities to save within existing budgets and through use of existing products and apps²⁴⁸.

MAS has developed six outcomes frameworks²⁴⁹ to help organisations to plan and evaluate interventions to improve the financial capability of different groups: adults, young adults, children/young people (and parents), youth practice, older people in retirement, and teachers.

MAS is creating in partnership with the UK Behavioural Insights Team a Financial Capability Lab to run a set of activities to help generate new ideas by, for example, running a series of structured workshops with industry, academic and government experts in financial capability and related behaviours. The three topics examined by the Financial Capability Lab are: how working-age adults can build up a savings buffer, how people can more easily find and engage with help they need on money issues, and how consumers can better understand and make choices about using credit. MAS is also conducting exploratory work (focus groups and direct observation) to understand how financial capability challenges are being experienced by individuals. The produced ideas will be tested using an online experimentation platform called Predictiv, and qualitative methods. Predictiv will be able to provide test results in a few days and enable MAS to identify the most effective approaches. Qualitative techniques, such as face-to-face interviews, mini-group discussions, and workshops, will be used to evaluate the ideas that are not suited for online experiments. These procedures will help MAS to identify the most promising interventions to be piloted and tested at scale afterwards.

247 Money Advice Service. 2016. *Closing the Savings Gap: Insights from Money Advice Service Research*. Available at <https://www.moneyadviceservice.org.uk/en/corporate/research>

248 See Money Advice Service. 2015. *Financial Capability Strategy for the UK: Evidence & Analysis*. Available at https://prismic-io.s3.amazonaws.com/fincap-two%2Fa7749148-1272-4ceb-843f-36f01c9ea934_uk+financial+capability+strategy+-+with+supplementary+evidence+and+analysis.pdf

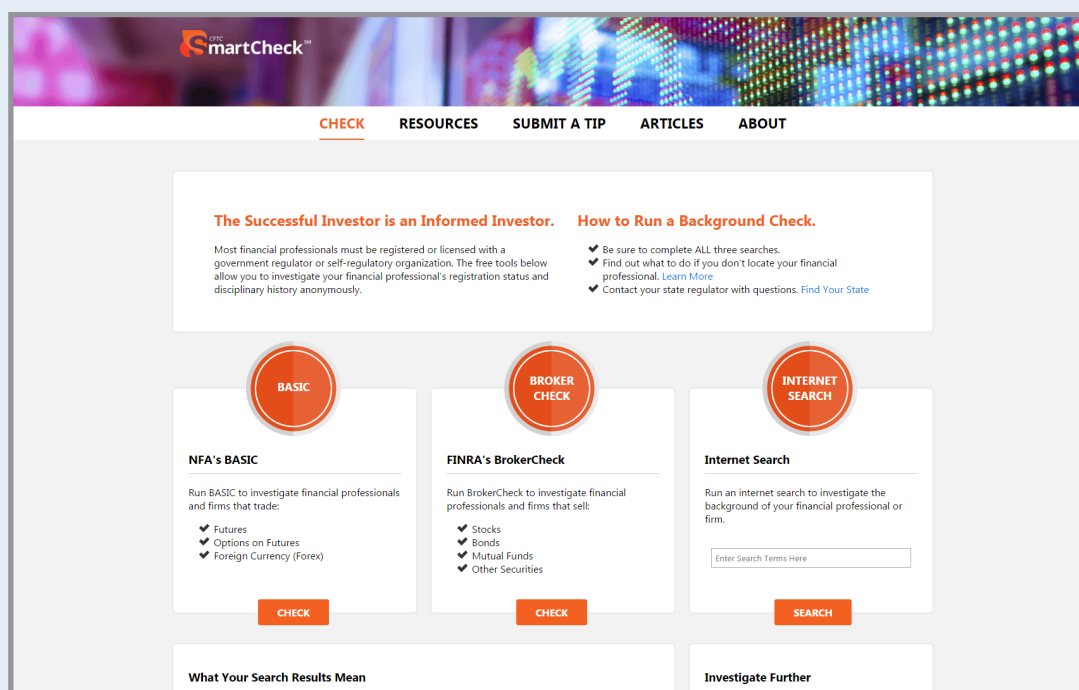
249 Bagwell, S., C. Hestbaek, E. Harries, A. Kail. 2014. *Financial Capability Outcome Frameworks*. New Philanthropy Capital. Available at <http://www.thinknpc.org/publications/financial-capability-outcome-frameworks/>

5.2.3. Campaigns

The application of behavioural insights have helped IOSCO members to develop effective campaigns that raised retail investors' awareness to the importance of checking registrations, financial planning, considering investment fees, and analysing reports received from investment firms. Messages and quizzes designed with behavioural concepts in mind are useful tools to attract people, retain their attention, and encourage them to take action during a campaign.

Examples

US CFTC's SmartCheck is a social marketing initiative to encourage investors to check the registration of their financial adviser, broker, or firm, before investing. Past research indicated that a significant number of fraud victims did not take this step. The most common victim profile identified was male, ages 50-65, middle-to-upper income, financially literate, and with higher levels of education. Therefore, SmartCheck addressed this demographic with the goal of getting them to run a registration check. CFTC, partnered with the National Futures Association, used paid advertising on television and online. The campaign made it easy for investors to conduct the checks, as the online advertising took them directly to a landing page that gathered the relevant search engines. Applying insights from previous evidence, SmartCheck appeals to the audience's overconfidence bias and use social norming to explain that they should do registration checks just as savvy investors do – and at least once a year. CFTC conducts annual surveys on campaign awareness and measures advertising and website metrics monthly²⁵⁰.



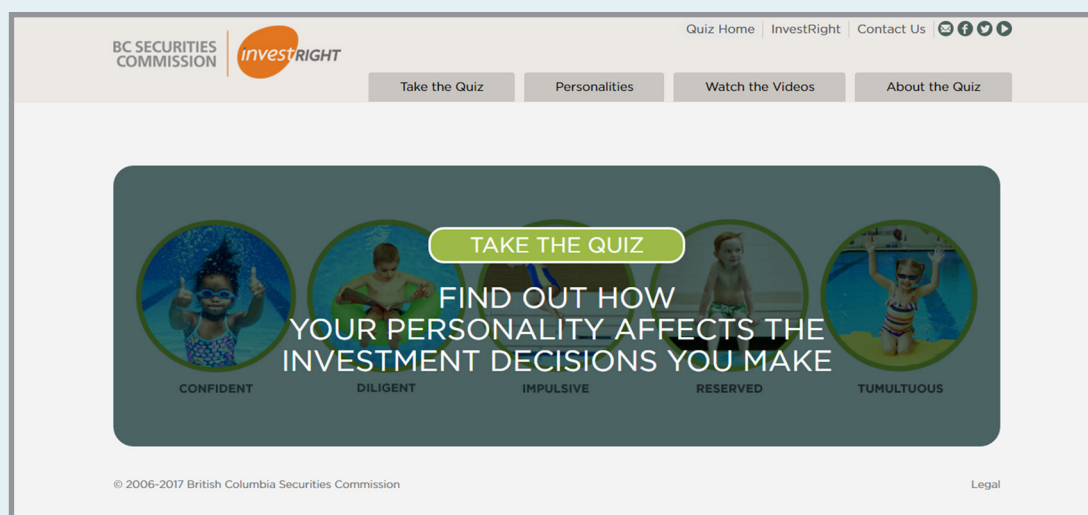
SmartCheck

250 CFTC reported that ads created as part of its SmartCheck.gov campaign performed at or above industry benchmarks and, for 2016, goal conversion on the site (the number conducting checks divided by the total number of online sessions) was 6%. The 2016 campaign awareness survey showed that 21% of the respondents were aware of the website, and 13% knew about the overall campaign. CFTC saw a significant increase in the number of respondents who can identify red flags of fraud, know where to check registrations, and are willing to report suspected or actual fraud.

FPSB reported that, in November 2016, the Financial Planning Standards Council (FPSC) promoted the Financial Planning Week in Canada to raise awareness about financial planning and its importance to overall well-being. The campaign capitalised on the results of the national survey (conducted by FPSC) named “Canadians and Their Finances”²⁵¹, which attracted the attention of print, online, radio, and television media throughout the country. These efforts resulted in significant traffic to the search tool of FindYourPlanner.ca website and the consumer outreach website FinancialPlanningForCanadians.ca. The campaign sought to acknowledge behavioural biases and provide actionable solutions to consumers’ financial fears and lack of financial literacy. This annual and ongoing initiative will be evaluated by the observed changes in the Canadians and Their Finances survey.

Case study

British Columbia BCSC’s Smarter Investor campaign (2015/16) aimed to get investors thinking about investment fees. To inform the initiative, BCSC conducted a national survey²⁵² in August 2015 that identified five main personality types in the sample, based on the Big Five personality traits. The survey supplied data to build a short questionnaire available online²⁵³, that became a pop-culture quiz (gamification) and an attention-grabbing focal point. After answering ten short questions, investors are to find out their personality type and the related behaviour toward investment fees and communications with advisers. The survey provided a media hook (the message “Personality matters when it comes to investing”) for promoting the Smarter Investor Campaign and a framework for measuring the four key components of Smarter Investing (goals, suitability, understanding and confidence) with the Smarter Investor Index. BCSC invested in mass, digital, and social media advertising to engage consumers with the campaign. The programme is evaluated using online surveys and social media metrics²⁵⁴.



InvestRight Personality Quiz

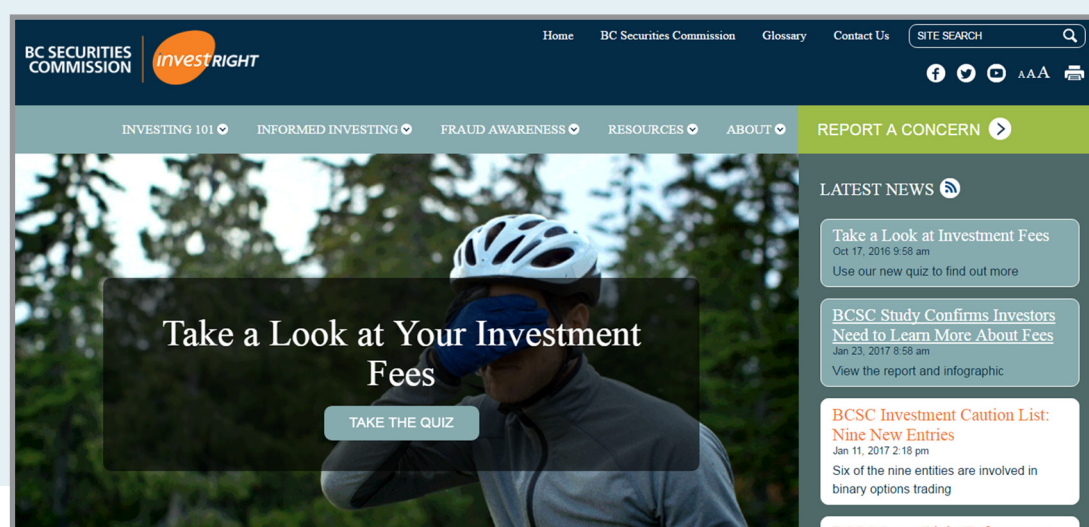
251 Some results of the result are available at <http://www.fpsc.ca/alerts-updates/2016/11/10/one-in-five-canadians-say-they-would-run-out-of-money-in-less-than-a-week-if-they-lost-their-job>

252 British Columbia Securities Commission. *National Smarter Investor Survey*. 2015. Available at: http://www.bcsbc.ca/About_Us/Publications/

253 Available at <http://quiz.investright.org/>

254 The BCSC 2015-16 Annual Report informed that the online quiz received 19,000 completions, a seven-fold increase over previous BCSC engagement tools.

The **BCSC** 2016/17 'Take a Look' campaign supported the introduction of new securities regulations requiring investment firms to deliver detailed fee and performance reports to their clients. Before developing the campaign, BCSC conducted four focus groups to better understand how investors relate to their investment advisers and the fees paid for investment advisory and transaction services. This qualitative study found significant hurdles that prevent retail investors from acting in their best interest: low financial knowledge; low knowledge about investment fees; poor understanding of the impact of fees on net return; satisfaction with existing return; and a strong relationship of trust between client and adviser. Moreover, investors are typically not engaged (and are not willing to) in thinking, talking, or acting on fees. During the focus groups, some participants indicated, after a short educational intervention (i.e., reading a one-page summary of investment fee information), that they would discuss their fees with their adviser. BCSC also conducted an online survey to test four distinct concepts and choose the best priming approach (Empowerment). These findings were applied to the campaign, which features an online quiz about investment fees, an online fee comparison calculator, and a guide to investment fees. The campaign used a modified form of gamification in introducing the fees quiz, which framed a number of key ideas for investors, such as “even a 1% difference in fees can make a difference over time”. The fee comparison calculator provides a simple tool to help investors frame their understanding of investment fees and perceive the compound interest effect.



InvestRight Take a Look Campaign

5.3. Behavioural insights applied to regulation

Although not directly relating to the scope of this report, members of IOSCO and the OECD/INFE also reported applications of behavioural insights to their regulatory activities. Impacts of different disclosure formats, as well as consumers' and investors' perceptions, comprehension, and experiences with financial products were studied mostly to inform the elaboration of new rules. Behavioural insights are gained mostly through qualitative and quantitative surveys.

US FINRA and the Municipal Securities Rulemaking Board (MSRB) have conducted an experiment to evaluate the usefulness and effectiveness of adding pricing information to retail investor trade confirmations. The project explored investor understanding of mark-up/mark-down disclosures, including the effects of showing mark-ups as a dollar amount, as a percentage of the principal of the customer transaction, as a percentage of the prevailing mark-up price, or some combination.

FINRA, through the FINRA Investor Education Foundation, has also supported behavioural studies to test the impact of alternative disclosure formats on investor understanding. A 2010 experiment²⁵⁵ found that showing investors the overall portfolio return instead of the yield of each individual asset did not cause them to choose riskier portfolios, contrary to previous research. However, participants who viewed historical returns graphs chose more equities and reported increased confidence in their investment decision. A separate trial conducted in 2008²⁵⁶ revealed that a mutual fund simplified (summary) prospectus being proposed did not lead investors to respond to front-end loads more optimally or avoid naïve diversification (allocating the result of available investment amount divided by a number of asset options). The summary prospects did not increase participants' confidence but managed to decrease the average investment decision time.

Québec AMF ran a user test in 2014 with 30 participants to investigate how they interacted with an equity crowdfunding site in a real investment situation. The research comprised an oculometric test, video/audio recordings and face-to-face questions. The results showed that the participants' attention decreased after the fourth risk was presented in a list, while some subjects had difficulty in understanding technical financial terms. The researchers recommended that:

- risk warnings should be placed at several sections of the crowdfunding platform;
- a risk list and a risk awareness questionnaire should be presented before the investment decision (entering the amount to be invested); and
- AMF should require platforms to describe the authority's role and responsibility in their websites.

Sweden FI has encouraged the banks to introduce amortisation plans where amortising was the default option. Customers could opt-out of the amortisation choice. This measure had a positive effect on amortisation rates.

255 Beshears, J., J.J. Choi, D. Laibson, B. Madrian. 2010. *Can Psychological Aggregation Manipulations Affect Portfolio Risk-Taking?* Available at: <http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p121993.pdf>

256 Beshears, J., J.J. Choi, D. Laibson, B. Madrian. 2010. *How Does Simplified Disclosure Affect Individuals' Mutual Fund Choices?* Available at: <http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p121994.pdf>

Italy CONSOB applied behavioural insights to the design of the crowdfunding regulation issued in 2013. CONSOB considered that the online decision-making process could lead to suboptimal or unsuitable investment decisions, due to the speed and convenience. Therefore regulation required investors to read a mandatory educational material and fill in a questionnaire to check their understanding of characteristics/risks of the product. Platforms were required to offer specific “nudging-designed” options in the investment process. CONSOB ran a survey to evaluate the effectiveness of these mechanisms and found that the main users of crowdfunding platforms were mainly sophisticated investors and venture capital funds, who perceived the information requirements provided by the rule to be of little relevance. With this evidence in mind, CONSOB revised the regulation three years after its implementation and revoked some requirements, such as the questionnaire on risks.

US SEC commissioned a three-part survey to understand investors’ perception, use, and comprehension of mutual fund annual reports²⁵⁷. Participants were surveyed with homework assignments, via focus groups and an online questionnaire. Researchers tested four redacted annual reports and found that investors had difficulties understanding the key information, language/wording, and available resources. The participants regarded fund performance, fund’s portfolio holdings and fund expenses as absolutely essential information. Most of the respondents reported their belief that the annual report was written more for financial professionals or advanced investors than for ordinary/casual investors.

Brazil CVM conducted a quantitative survey in 2015 to identify the investors’ preferences and perceptions regarding equity crowdfunding. CVM carried out a second quantitative wave with a larger sample in 2017 to inform the new rule published in the same year for the investment product and tested some provisions, such as the annual investment limit for retail investors. CVM got a better understanding of participants’ risk attitudes, their reasons to invest or not via crowdfunding, the information about the invested companies they wish to receive, the presence of home bias, and the most important aspects considered when investing. CVM also commissioned one-to-one interviews with 22 investors selected from the quantitative phase to understand their information needs and evaluate their comprehension of risks and characteristics related to equity crowdfunding. Based on the participants’ feedback, the Brazilian securities regulator changed the product name in English proposed in the draft rule to a simpler version in Portuguese for the final rule. The interviewees declared that they would prefer short videos and chat rooms to obtain information about equity crowdfunding from CVM and ask questions.

257 *Investor Testing of Target Date Retirement Fund (TDF) Comprehension and Communications*. 2012. Available at: <https://www.sec.gov/comments/s7-12-10/s71210-58.pdf>

Spain CNMV will apply the RECAP nudge²⁵⁸ (Record, Evaluate and Compare Alternative Prices) in the future. The web page will present a tool to compare the rates and commissions practised by investment firms and credit institutions.

Along with the partners from the financial sector, **Armenia CB** has sought to encourage consumers to compare financial products before making final decision and help them better understand the complaint and dispute resolution mechanism, by developing new disclosure formats. After performing desk-research, in-depth interviews, focus groups, and prototype testing, Armenia CB has designed and implemented new versions of key facts statements informed by behavioural insights. The improved statements have generic and personalised variations to enable consumers to compare loans and credit lines among different institutions. Similarly, Armenia CB created new standardized statement forms for banking services such as deposits, accounts, cards, credit lines, and consumer loans. The redesigned forms are simpler and intended to help consumers easily access the same set of information, easily follow the flow of the money, prevent the frauds and make comparisons. In addition, they are able to get statements in Excel format, which will support their effective budgeting. The institution also developed and implemented new information sheets for financial consumers containing a simple step-by-step guide on how to make a complaint and the respective procedures.

258 Introduced by Thaler, R. H. and C. R. Sunstein. 2008. *Nudge: Improving Decisions About Health, Wealth, and Happiness*. New Haven & London. Yale University Press.

6

APPROACHES

The available research as well as the identified experience and approaches of institutions responding to the IOSCO and OECD/INFE surveys provide helpful information for regulators, policy-makers, and other organisations and practitioners to consider about behavioural insights and their possible application to educational programmes and activities targeted at investors and/or financial consumers in general.

1. Establish a concrete understanding of the problem.



This first step of policy-making is crucial to achieving an effective solution while avoiding action bias which may often be present when facing ambiguous situations. Organisations should resist designing the solution or jumping to execution before carefully assessing the problem confronted by consumers or investors. Whenever possible, quantitative and qualitative analysis should be carried out to understand current experiences, detect the main biases affecting the financial decisions under study, and identify where behavioural insights' applications make sense. Defining precisely the behaviour changes to be attained is crucial.

2. Design the intervention taking the context into account.



Policy-makers should be aware of all the processes and people involved in the situation being studied (potential participants, staff, advisors, managers, etc.), as they can provide valuable insights²⁵⁹ and help to refrain from designing burdensome interventions. It is important to avoid assumptions about behavioural responses to particular actions or interventions, especially due to the intention-behaviour gap²⁶⁰. When considering a replication or an adaptation of a previous application, practitioners should carefully examine its context, methodology, scope, evidence of impact, and limitations, and take into account the needs of the intended audience.

3. Start small.



Even after careful analysis and design, applying behavioural insights in the real world is complex as the success of an intervention may be changed or compromised by uncontrolled or overlooked factors. For new programmes, it is therefore advisable to perform small-scale field tests to gather feedback and make adjustments. Whenever possible, different ways of testing should be explored: one-on-one, multiple prototypes, A/B testing, etc. After the pilot stage, policy-makers should continue to listen to participants and service staff, because new and different issues arise as projects scale up.

²⁵⁹ In the EAST framework description, the U.K. Behavioural Insights Team reports that they spend several weeks at the intervention environment, just to understand the problem context. See Service, O., M. Hallsworth, D. Halpern, F. Algate et. al., *op. cit.*: 46.

²⁶⁰ People do not always act according to the intentions, beliefs, or attitudes they inform. See Service, O., M. Hallsworth, D. Halpern F. Algate et. al., *op. cit.*: 43-44.

4. Evaluate rigorously.



Ideally, interventions need to be evaluated experimentally (e.g., randomised control trials), or at least quasi-experimentally²⁶¹ against a control group, to identify their impact on behavioural responses accurately. Where an initiative is designed to be of wide-ranging benefit, it is important to test and assess responses of the intended target groups, possibly across geographical areas, in order to provide accurate and usable evidence. The evaluation process should be designed alongside the programme and carried out continuously. Evaluators should consider using established survey instruments and outcome indicators such as those developed by the OECD and the World Bank²⁶² to facilitate international comparisons and future meta-analyses²⁶³.

5. Interact, learn, and keep track.



The field of behavioural science is relatively new, especially in terms of its application to financial literacy and investor education. Organisations should seek to accumulate knowledge and experience through the available literature, partnerships, networks, events, and other institutions that have already used behavioural insights in their efforts. Ideas for behavioural applications and initiatives, and the results of evaluations should be shared within the organisation. When data and evidence are collected to inform behavioural interventions, consideration should also be made to sharing these with universities and research centres for additional analyses to further develop scientific understanding. Once successful approaches have been identified, practitioners should build an evidence base matching situations that pose considerable risks of undesirable outcomes for consumers and investors with tried and tested solutions that work to reduce such risks²⁶⁴. During the implementation phase, it is important to identify stakeholders who can help to scale the educational message or build trust and credibility with the target audience.

261 Having an experimental design with random-assignment elements (RCT) allows researchers to establish causal relationships between the applied insights and the obtained outcomes. This principle is explained in detail in: Financial Literacy & Education Russia Trust Fund. 2013. *Evaluating Financial Education Programmes: OECD/INFE Stocktake and Framework*:25-26.

It is important to note that the RCT methodology was not developed by behavioural economists, but its application to studies of behavioural insights can be considered as an innovation in social policy evaluation.

262 Some examples of questions and indicators can be found at OECD/INFE. 2016. *International Survey of Adult Financial Literacy Competencies*; Financial Literacy & Education Russia Trust Fund. 2013. *A Toolkit for the Evaluation of Financial Capability Programmes in Low- and Middle-Income Countries*. International Bank for Reconstruction and Development / The World Bank.

263 The choice of outcome measures is a critical issue. For example, the IOSCO report on anti-fraud messaging (2015) states that “C8 members wish to change investor behavior, but specific goals, plans, and metrics are not yet in place” (p.35).

From the IOSCO report on investment risk education (2015): “While C8 members acknowledge that measuring the impact and outcomes from investment risk education initiatives can be challenging, particularly as behavioural change is a long-term journey (and typically impacted by a combination of many inputs and experiences, as well as factors such as environment, product availability and life stage), work by C8 members in this area continues to evolve”.

264 The website of Financial Capability for the UK offers the Financial Capability Evidence Hub to help practitioners to design interventions. See http://www.fincap.org.uk/evidence_hub

Australia ASIC keeps a useful repository of Australian and international financial literacy research, as well as evaluation resources. See <http://www.financialliteracy.gov.au/research-and-evaluation>

ASIC also builds an evidence base to understand potential risks for financial consumers. See <http://asic.gov.au/about-asic/media-centre/speeches/asic-and-behavioural-economics-regulating-for-real-people/>

6. Create thought leadership.



Before starting to work with behavioural insights, review²⁶⁵ published white papers and reports on the prevalent biases, the available frameworks, and the behavioural remedies that are already being applied to inform national stakeholders; develop understanding; and encourage acceptance of new approaches to supporting consumers and investors. This document is intended to add to the thought leadership, providing all government agencies and financial market providers with up-to-date information about the benefits of employing behavioural insights.

7. Consider combining traditional approaches and those based on behavioural insights.



Applications of behavioural sciences (e.g., nudges) may be considered a complement to, rather than a substitute for, traditional delivery models of investor education and financial literacy. Programmes that combine behavioural insights and cognitive-based approaches may be able to reach further into both automatic (1) and analytical (2) mental systems, being thus more capable of attaining behaviour change²⁶⁶. Similarly, since behaviourally-informed regulation may not be enough to solve critical public policy problems, regulators may wish to consider it as a supplement to other or stronger interventions, such as taxes, bans, subsidies, and educational campaigns²⁶⁷.

8. Review programmes/initiatives regularly.



Existing educational methods, means, services, and materials should be reassessed through a behavioural insights lens, as they might be actually working against the grain of human behaviour and thus using valuable resources whilst making little or no impact. It is important to examine all components of a policy or initiative critically and re-examine regularly, taking into account even the most embedded components. Evaluation naturally plays a key role in the review process.

²⁶⁵ New Zealand FMA: Financial Markets Authority. 2016. *Using Behavioural Insights to Improve Financial Capability*. UK FCA: Occasional Paper No. 1, *op. cit.*

US SEC: *Annotated Bibliography on the Behavioral Characteristics of U.S. Investors and Behavioral Patterns and Pitfalls of U.S. Investors*, *op. cit.*

Australia ASIC: Report 230, *op. cit.*

Ontario OSC: *Behavioural Insights: Key Concepts, Applications and Regulatory Considerations*, *op. cit.*

²⁶⁶ Ferreira, V.R., *op. cit.* and Yoong, J., *op. cit.* In Organisation for Economic Co-operation and Development, Russia Trust Fund for Financial Literacy & Education. 2013, *op. cit.*: pp. 34, 56.

²⁶⁷ Bhargava, S. and G. Loewenstein. 2015, *op. cit.*

7

CONCLUSION

Initial evidence suggests that behavioural insights are an important complement to traditional approaches to education, particularly as they can be scaled-up and applied to new situations that may arise. Not surprisingly, an increasingly large proportion of IOSCO C8 and OECD/INFE members are employing behavioural insights in their work. Consequently, these organisations encourage those authorities and organisations who are not yet applying behavioural insights to do so when developing or reviewing their approaches to financial literacy and investor education programmes, as a way to maximise the efficacy of their work.

This report identifies several approaches that stakeholders, including regulators, public authorities and other organisations, may consider when applying behavioural insights to educational programmes and activities targeted at investors or financial consumers.

The numerous applications reported in response to the survey conducted by C8 and the OECD/INFE (Section 5) show that behavioural insights are increasingly being applied to the design of their investor education and financial literacy initiatives, in order to promote informed decisions and better outcomes for investors and consumers.

This report also describes seven frameworks for designing behaviour change interventions. These frameworks differ by the mental system(s) activated, the underlying theory of behaviour change, and degree of complexity. While some survey respondents reported the usage of EAST and MINDSPACE, organisations and practitioners may wish to consider or test other models, or build their own as they gain experience. Indeed, new behavioural frameworks are still being generated, mostly in health sciences.

The literature review of Section 3 indicates that behavioural sciences have given rise to a number of new findings, largely in the twenty-first century. Insights not only come from behavioural economics and psychology but also from anthropology, data science, pedagogy, sociology, neuroscience, social marketing, and other fields. Still, education in financial matters is in need of more cost-effective approaches, as the complexity of financial products and decisions continues to increase. It is thus important to consider, develop, test, and implement behavioural components in existing and new educational programmes.

Although outside the scope of this report, it is important to note that some regulators also apply behavioural insights to areas and activities other than education. For example, UK FCA applies these insights to supervision (analysis of business models, behaviour, and products), enforcement (building evidence), regulation, and communication with customers²⁶⁸. IOSCO and the OECD consider behavioural economics a means to enhance the effectiveness of market regulation²⁶⁹.

Finally, IOSCO and OECD/INFE members believe that sharing knowledge and experience, as well as collaborating with other institutions, is key to developing a deeper understanding of investor decision-making and behaviour. Therefore, this report will hopefully serve as a useful resource for practitioners, policy-makers, and organisations interested in building and improving investor education and financial literacy strategies and initiatives.

²⁶⁸ Financial Conduct Authority Occasional Paper No. 1, *op. cit.*

²⁶⁹ International Organization of Securities Commissions. 2013. *op. cit.*

Appendix A

IOSCO AND OECD/INFE MEMBERS PARTICIPATING IN THE SURVEY

IOSCO members participating in the survey

Jurisdiction	Abbreviation	IOSCO Member name
Albania	FSA	Financial Supervisory Authority
Angola	CMC	Comissão de Mercado de Capitais
Argelia	COSOB	Commission d'Organisation et de Surveillance des Opérations de Bourse
Argentina	CNV*	Comisión Nacional de Valores
Australia	ASIC*	Australian Securities and Investments Commission
The Bahamas	SCB	Securities Commission of The Bahamas
Bangladesh	SEC*	Securities and Exchange Commission
Belgium	FSMA	Financial Services and Markets Authority
Bolivia	ASFI	Autoridad de Supervisión del Sistema Financiero
Brazil	CVM	Comissão de Valores Mobiliários
British Columbia	BCSC	British Columbia Securities Commission
Cayman Islands	CIMA	Cayman Islands Monetary Authority
Costa Rica	SEGEVAL	Superintendencia General de Valores
Croatia	CFSSA*	Croatian Financial Services Supervisory Agency
Dominican Republic	SV	Superintendencia de Valores
Ecuador	SUPERCIAS	Superintendencia de Compañías, Valores y Seguros
El Salvador	SFS	Superintendency of Financial System
France	AMF	Autorité des Marchés Financiers
Germany	BaFin*	Federal Financial Supervisory Authority
Hong Kong	IEC	Investor Education Centre
India	SEBI	Securities and Exchange Board of India
Indonesia	FSA*	Financial Services Authority
Italy	CONSOB*	Commissione Nazionale per la Società e la Borsa
Japan	FSA	Financial Services Agency
Jersey	JFSC	Jersey Financial Services Commission
Kenya	CMA	Capital Markets Authority
Malaysia	SC	Securities Commission Malaysia
Mauritius	FSC	Financial Services Commission
Mexico	CNBV	National Banking and Securities Commission
New Zealand	FMA*	Financial Markets Authority
Ontario	OSC	Ontario Securities Commission
Palestine	CMA	Capital Markets Authority

Jurisdiction	Abbreviation	IOSCO member name
Pakistan	SECP	Securities and Exchange Commission of Pakistan
Québec	AMF	Autorité des Marchés Financiers
Republic of Panama	SSM	Superintendency of Securities Market
Russia	CBR	Bank of Russia
Rwanda	CMA	Capital Market Authority
Saudi Arabia	CMA	Capital Market Authority
Singapore	MAS	Monetary Authority of Singapore
Slovenia	SMA*	Securities Market Agency
Spain	CNVM*	Comisión Nacional del Mercado de Valores
South Africa	FSB	Financial Services Board
Sweden	FI	Finansinspektionen
Taiwan	SFB	Securities and Futures Bureau, Financial Supervisory Commission
Trinidad and Tobago	TTSEC	Trinidad and Tobago Securities and Exchange Commission
Turkey	CMB	Capital Markets Board
United Kingdom	FCA	Financial Conduct Authority
United Kingdom	MAS*	The Money Advice Service
United States of America	CFTC	Commodity Futures Trading Commission
United States of America	FINRA	Financial Industry Regulatory Authority
United States of America	SEC	Securities and Exchange Commission
Brazil	ANBIMA	Associação Brasileira das Entidades dos Mercados Financeiro e de Capitais
Canada	IIROC	Investment Industry Regulatory Organization of Canada
India	NSEI	National Stock Exchange of India
India	BSE	Bombay Stock Exchange
Japan	JSDA	Japan Securities Dealers Association
Pakistan	PSX	Pakistan Stock Exchange Limited
Taiwan	TSE	Taiwan Stock Exchange
Turkey	TCMA	Turkish Capital Markets Association
United States of America	FPSB	Financial Planning Standards Board Ltd.

Members marked with an asterisk answered to both IOSCO and OECD/INFE surveys.

OECD/INFE members participating in the survey

Economy	Abbreviation	OECD/INFE member name
Armenia	CB	Central Bank of Armenia
Argentina	CNV*	Comisión Nacional de Valores
Australia	ASIC*	Australian Securities and Investments Commission
Austria	ONB	Österreichische Nationalbank
Bangladesh	SEC*	Securities and Exchange Commission
Croatia	CFSSA*	Croatian Financial Services Supervisory Agency
Czech Republic	MinFin	Ministry of Finance of the Czech Republic
Denmark	FTNET	Danish Financial Supervisory Authority/The Money and Pension Panel
Dominican Republic	SV*	Superintendencia de Valores
Germany	BaFin*	Federal Financial Supervisory Authority
Indonesia	FSA*	Financial Services Authority
Italy	CONSOB*	Commissione Nazionale per la Società e la Borsa
Italy	BOI	Bank of Italy
Japan	BOJ	Bank of Japan
Latvia	FKTK	Financial and Capital Market Commission
Lebanon	CERD	Center for Educational Research and Development
Lebanon	IFBF	Institut de Finances Basil Fuleihan
Namibia	FLI	Financial Literacy Initiative
Namibia	NAMFISA	Namibia Financial Institutions Supervisory Authority
Malaysia	AKPK	Agensi Kaunseling dan Pengurusan Kredit
New Zealand	FMA*	Financial Markets Authority
New Zealand	CFFC	Commission for Financial Capability
Peru	SBS	Superintendencia de Banca, Seguros y AFP
Philippines	BSP	Bangko Sentral ng Pilipinas
Republic of Belarus	NBRB	National Bank of the Republic of Belarus
Republic of Poland	MinFin	Ministry of Finance
Saudi Arabia	SAMA	Saudi Arabian Monetary Authority
Serbia	NBS	National Bank of Serbia
Slovenia	SMA*	Securities Market Agency
Spain	CNVM*	Comisión Nacional del Mercado de Valores
Thailand	BOT	Bank of Thailand
The Netherlands	MinFin	Ministry of Finance
United Kingdom	MAS*	The Money Advice Service
United States of America	CFPB	Consumer Financial Protection Bureau

The members marked with an asterisk answered to both IOSCO and OECD/INFE surveys.

Appendix B

PUBLICATIONS FROM OECD, IOSCO, IOSCO MEMBERS, AND OECD/INFE MEMBERS ON BEHAVIOURAL SCIENCES AND INSIGHTS, RELATED TO INVESTOR EDUCATION AND FINANCIAL LITERACY

OECD

1. Lefevre, A. and M. Chapman. 2017. *Behavioural Economics and Financial Consumer Protection*. OECD Working Papers on Finance, Insurance and Private Pensions, No. 42, OECD Publishing, Paris. http://www.oecd-ilibrary.org/economics/behavioural-economics-and-financial-consumer-protection_0c8685b2-en
2. Lunn, P. 2014. *Regulatory Policy and Behavioural Economics*. OECD Publishing, Paris. <http://www.oecd.org/gov/regulatory-policy-and-behavioural-economics-9789264207851-en.htm>
3. OECD. 2005. *Improving Financial Literacy: Analysis of Issues and Policies*, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264012578-en>
4. OECD. 2005. *Recommendation on Principles and Good practices for Financial Education and Awareness* <http://www.oecd.org/finance/financial-education/35108560.pdf>
5. OECD. 2006. *Improving Financial Literacy: Analysis of Issues and Policies*. Financial Market Trends, vol. 2005/2. http://www.oecd-ilibrary.org/finance-and-investment/improving-financial-literacy_fmt-v2005-art11-en
6. OECD. 2013. Russia Trust Fund for Financial Literacy & Education. *Improving Financial Education Effectiveness through Behavioural Economics*. http://www.oecd.org/daf/fin/financial-education/TrustFund2013_OECDImproving_Fin_Ed_effectiveness_through_Behavioural_Economics.pdf
7. OECD. 2015. *Behavioural Insights and New Approaches to Policy Design: The Views from the Field. Summary of an International Seminar*. <http://www.oecd.org/gov/behavioural-insights-summary-report-2015.pdf>
8. OECD/INFE. 2016. *International Survey of Adult Financial Literacy Competencies*. <http://www.oecd.org/finance/oecd-infe-survey-adult-financial-literacy-competencies.htm>
9. OECD. 2016. *Protecting Consumers through Behavioural Insights: Regulating the Communications Market in Colombia*. OECD Publishing, Paris. <http://www.oecd.org/gov/regulatory-policy/protecting-consumers-through-behavioural-insights-9789264255463-en.htm>
10. OECD. 2017. *Behavioural Insights and Public Policy: Lessons from Around the World*. OECD Publishing, Paris. <http://www.oecd.org/gov/regulatory-policy/behavioural-insights-and-public-policy-9789264270480-en.htm>

11. OECD. 2017. *G20/OECD INFE Report on Ensuring Financial Education and Consumer Protection for All in the Digital Age*.
<http://www.oecd.org/daf/fin/financial-education/G20-OECD-INFE-Report-Financial-Education-Consumer-Protection-Digital-Age.pdf>
12. OECD. 2017. *Use of Behavioural Insights in Consumer Policy*. OECD Science, Technology and Innovation Policy Papers, No. 36. OECD Publishing, Paris.
http://www.oecd-ilibrary.org/industry-and-services/use-of-behavioural-insights-in-consumer-policy_c2203c35-en
13. Tapia, W. and J. Yermo. 2007. *Implications of Behavioural Economics for Mandatory Individual Pension Systems*. OECD Working Papers on Insurance and Private Pensions, No. 11. OECD Publishing, Paris.
<http://www.oecd.org/finance/private-pensions/39368306.pdf>

IOSCO

1. International Organization of Securities Commissions. 2013. *IOSCO Board Focuses on Behavioral Economics and Social Media*. Media Release IOSCO/MR/24/2013.
<http://www.iosco.org/news/pdf/IOSCONEWS286.pdf>
2. International Organization of Securities Commissions. 2014. *Strategic Framework for Investor Education and Financial Literacy*.
<http://www.iosco.org/library/pubdocs/pdf/IOSCOPD462.pdf>
3. International Organization of Securities Commissions. 2015. *Sound Practices for Investment Risk Education*.
<http://www.iosco.org/library/pubdocs/pdf/IOSCOPD505.pdf>

IOSCO and OECD/INFE members

Institution	Publication and download link
Australia ASIC	1. Australian Securities & Investments Commission. 2011. Report 230. <i>Financial Literacy and Behavioural Change</i>. http://www.asic.gov.au/regulatory-resources/find-a-document/reports/rep-230-financial-literacy-and-behavioural-change/ 2. Australian Securities & Investments Commission. 2015. Report 427. <i>Investing in Hybrid Securities: Explanations Based on Behavioural Economics</i>. http://asic.gov.au/regulatory-resources/find-a-document/reports/rep-427-investing-in-hybrid-securities-explanations-based-on-behavioural-economics/ 3. Australian Securities & Investments Commission. 2015. Report 428. <i>Improving Communication with Directors of Firms in Liquidation</i>. http://asic.gov.au/regulatory-resources/find-a-document/reports/rep-428-improving-communication-with-directors-of-firms-in-liquidation/ 4. Australian Public Service Commission. 2015. <i>Changing Behaviour: A Public Policy Perspective</i>. http://www.apsc.gov.au/publications-and-media/archive/publications-archive/changing-behaviour 5. Australian Securities & Investments Commission. 2016. Report 470. <i>Buying Add-on Insurance in Car Yards: Why It Can Be Hard to Say No</i>. http://download.asic.gov.au/media/3549387/rep470-published-29-february-2016.pdf

Institution	Publication and download link
Brazil CVM	1. Comissão de Valores Mobiliários. 2017. <i>Educação Financeira para além do Conhecimento: Estratégias de Intervenção no Comportamento de Poupança</i>. http://www.investidor.gov.br/portaldoinvestidor/export/sites/portaldoinvestidor/publicacao/Estudos/Relat_COP_CVM_-Educ_fin_para_alem_do_conhecimento-v1.pdf
British Columbia BCSC	1. British Columbia Securities Commission. <i>National Smarter Investor Survey</i>. 2015. http://www.bcsc.bc.ca/About_Us/Publications/ 2. British Columbia Securities Commission. <i>Survey Report Investor Readiness for Better Investing</i>. 2016-2017 Panel Study: Part 1, Part 2, Part 3 and Final Report. 2017. http://www.bcsc.bc.ca/About_Us/Publications/
France AMF	1. Broihanne, M. 2015. <i>The Behaviour of Individual Investors: a State of the Art and Some Teachings</i>. AMF Scientific Advisory Board Review No. 2. http://www.amf-france.org/en_US/Publications/Lettres-et-cahiers/Revue-du-Conseil-scientifique/Annee-en-cours.html 2. De Palma, A. and N. Picard. 2010. <i>Evaluation of MiFID Questionnaires in France</i>. Autorité des Marchés Financiers. http://www.amf-france.org/en_US/Publications/Rapports-etudes-et-analyses/Epargne-et-prestataires.html?currentPage=2 3. Séhourné, B. 2006. <i>Why Is the Behaviour of French Savers so Inconsistent with Standard Portfolio Theory?</i> AMF Working Papers No. 1. http://www.amf-france.org/en_US/Publications/Lettres-et-cahiers/Cahiers-scientifiques/Archives.html
Italy CONSOB	1. Commissione Nazionale per le Società e la Borsa. <i>Report on Financial Investments of Italian Households: Behavioural Attitudes and Approaches</i>. Survey 2015 and 2016. http://www.consob.it/documents/11973/287812/Report+famiglie+2015/00724064-668e-4751-902a-e933654b3a4c and http://www.consob.it/documents/11973/287812/Report+famiglie+2016/e275d816-e38a-4c55-aa21-13703a436469 2. Gentile, M., N. Linciano, C. Lucarelli and P. Soccorso. 2015. <i>Financial Disclosure, Risk Perception and Investment Choice: Evidence from a Consumer Testing Exercise</i>. CONSOB Quaderni di Finanza 82. http://www.consob.it/web/consob-and-its-activities/research-papers 3. Gentile M., N. Linciano and P. Soccorso. 2016. <i>Financial Advice Seeking, Financial Knowledge and Overconfidence: Evidence from the Italian Market</i>. Commissione Nazionale per la Società e la Borsa. Working Paper 83. http://www.consob.it/web/consob-and-its-activities/research-papers 4. Linciano, N. 2010. <i>Cognitive Biases and Instability of Preferences in the Portfolio Choices of Retail Investors: Policy Implications of Behavioural Finance</i>. CONSOB Working Paper 66. http://www.consob.it/web/consob-and-its-activities/research-papers 5. Linciano, N. and P. Soccorso. 2012. <i>Assessing Investors' Risk Tolerance Through a Questionnaire</i>. CONSOB Discussion Paper 4. http://www.consob.it/web/consob-and-its-activities/research-papers 6. Linciano N. and P. Soccorso (Eds.). 2017. <i>Challenges in Ensuring Financial Competencies: Essays on How to Measure Financial Knowledge, Target Beneficiaries and Deliver Educational Programmes</i>. CONSOB Quaderni di Finanza 84. http://www.consob.it/web/consob-and-its-activities/research-papers

Institution	Publication and download link
Europe ESMA (observer)	1. Lourenço, J. S., E. Ciriolo, S. R. Almeida, and X. Troussard. 2016. <i>Behavioural Insights Applied to Policy: European Report 2016</i> . European Commission Joint Research Centre.
Japan FSA	1. S. Kawanishi, Hashinaga, M. 2016. <i>Application of Behavioural Economics to Financial Education</i> . Financial Research Center, Financial Services Agency. http://www.fsa.go.jp/frtc/english/seika/discussion2015.html
Mexico CNBV	1. Jaimes, M. and P. Peña. 2013. <i>Decision-Making when Faced with Irrelevant Alternatives: Neither Rational Nor Irrational</i> . Comisión Nacional Bancaria y de Valores. CNBV Economic Studies Vol. 2. http://www.gob.mx/cnbv/documentos/estudios-de-investigacion
New Zealand FMA	1. Financial Markets Authority. 2016. <i>Using Behavioural Insights to Improve Financial Capability</i> . https://fma.govt.nz/assets/Reports/160420-Whitepaper-Behavioural-Insight.pdf 2. Financial Markets Authority. June 2017. <i>Encouraging Fund Choice in KiwiSaver</i> . https://fma.govt.nz/assets/Reports/170602-KiwiWealth-behavioural-insights.pdf
Ontario OSC	1. Ontario Securities Exchange Commission. 2017. <i>Behavioural Insights: Key Concepts, Applications and Regulatory Considerations</i> . http://www.osc.gov.on.ca/en/SecuritiesLaw_sn_20170329_11-778_behavioural-insights.htm
The Netherlands MinFin	1. Wijzer in geldzaken 2013. <i>Responsible Financial Behaviour: the Three Dimension</i> . https://www.wijzingeldzaken.nl/bibliotheek/media/pdf/7712-wig-toelicht-publmonitor-engv1.pdf 2. Wijzer in geldzaken. 2013. <i>Pension Monitor</i> . https://www.wijzingeldzaken.nl/bibliotheek/media/pdf/7712-wig-toelicht-pensioenmonitor-engv1.pdf 3. Wijzer in geldzaken. 2017. <i>Do Education Materials Contribute to the Financial Capability of Primary School Students?</i> https://www.wijzingeldzaken.nl/bibliotheek/media/pdf/contribution-to-financial-capability.pdf 4. Wijzer in geldzaken. 2017. <i>Effective Ways to Advance Responsible Financial Behaviour</i> . https://www.wijzingeldzaken.nl/bibliotheek/media/pdf/English/Effective-ways-to-advance-responsible-behaviour.pdf

Institution	Publication and download link
UK FCA	1. Adams, P and S. Hunt. 2013. <i>Encouraging Consumers to Claim Redress: Evidence from a Field Trial</i>. Financial Conduct Authority Occasional Paper No. 2. https://www.fca.org.uk/publication/occasional-papers/occasional-paper-2.pdf 2. Adams, P., S. Hunt, L. Vale and R. Zaliauskas. 2015. <i>Stimulating Interest: Reminding Savers to Act When Rates Decrease</i>. Financial Conduct Authority Occasional Paper No. 7. https://www.fca.org.uk/publication/occasional-papers/occasional-paper-7.pdf 3. Adams, P., S. Hunt, C. Palmer and R. Zaliauskas. 2016. <i>Attention, Search and Switching: Evidence on Mandated Disclosure from the Savings Market</i>. Financial Conduct Authority Occasional Paper No. 19. https://www.fca.org.uk/publication/occasional-papers/occasional-paper-19.pdf 4. Adams, P and L. Smart. 2017. <i>From Advert to Action: Behavioural Insights into the Advertising of Financial Products</i>. Financial Conduct Authority Occasional Paper No. 26. https://www.fca.org.uk/publication/occasional-papers/op17-26.pdf 5. Erta, K., S. Hunt, Z. Iscenko and W. Brambley. 2013. <i>Applying Behavioural Economics at the Financial Conduct Authority</i>. Financial Conduct Authority Occasional Paper No. 1. https://www.fca.org.uk/publication/occasional-papers/occasional-paper-1.pdf 6. Financial Conduct Authority. 2014. <i>Does the Framing of Retirement Income Options Matter? A Behavioural Experiment</i>. https://www.fca.org.uk/publication/research/rims-framing-experiment.pdf 7. Hunt, S., N. Stewart and R. Zaliauskas. 2015. <i>Two Plus Two Makes Five? Survey Evidence That Investors Overvalue Structured Deposits</i>. Financial Conduct Authority Occasional Paper No.9. https://www.fca.org.uk/publication/occasional-papers/occasional-paper-9.pdf 8. Smart, L. 2016. <i>Full Disclosure: A Round-up of FCA Experimental Research into Giving Information</i>. Financial Conduct Authority Occasional Paper No. 23. https://www.fca.org.uk/publication/occasional-papers/op16-23.pdf
UK MAS	1. The Money Advice Service. 2015. <i>Financial Capability and Wellbeing</i>. https://www.moneyadviceservice.org.uk/en/corporate_categories/research 2. The Money Advice Service. 2015. <i>Financial Capability in the UK: Initial results from the 2015 UK Financial Capability Survey</i>. https://prismic-io.s3.amazonaws.com/fincap-two%2Fd08746d1-e667-4c9e-84ad-8539ce5c62e0_mas_fincap_uk_survey_2015_aw.pdf 3. The Money Advice Service. 2015. <i>Technical Report for the 2015 Financial Capability Survey</i>. https://prismic-io.s3.amazonaws.com/fincap-two%2F5bdea584-c07c-4173-95ab-af8e6dcdafe9_mas_fincap_technical_report.pdf 4. Money Advice Service. 2015. <i>Financial Capability Strategy for the UK: Evidence & Analysis</i>. https://prismic-io.s3.amazonaws.com/fincap-two%2Fa7749148-1272-4ceb-843f-36f01c9ea934_uk+financial+capability+strategy+-+with+supplementary+evidence+and+analysis.pdf 5. The Money Advice Service. 2016. <i>Closing the Savings Gap: Insights from Money Advice Service Research</i>. https://www.moneyadviceservice.org.uk/en/corporate/research 6. The Money Advice Service. 2016. <i>Measuring Financial Capability – Identifying the Building Blocks</i>. https://masassets.blob.core.windows.net/cms/files/000/000/570/original/A4_MAS_Fincap_Measuring_Financial_Capability_Building_Blocks_Nov2016.pdf

Institution	Publication and download link
US CFPB	1. Consumer Financial Protection Bureau. 2016. <i>Consumer Voices on Financial Rules to Live By</i>. http://files.consumerfinance.gov/f/201603_cfpb_rules-to-live-by_consumer-voices-report.pdf 2. Consumer Financial Protection Bureau. 2017. <i>Consumer Insights on Managing Funds at the Time of Retirement</i>. https://s3.amazonaws.com/files.consumerfinance.gov/f/documents/201706_cfpb_Consumer-Insights-on-Managing-Funds-at-Retirement.pdf 3. Consumer Financial Protection Bureau. 2017. <i>Consumer Insights on Managing Spending</i>. https://s3.amazonaws.com/files.consumerfinance.gov/f/documents/201702_cfpb_Consumer-Insights-on-Managing-Spending.pdf 4. Consumer Financial Protection Bureau. 2017. <i>The Power of Light-Touch Financial Education: A Demonstration with Credit Card Revolvers</i>. https://s3.amazonaws.com/files.consumerfinance.gov/f/documents/201701_cfpb_Financial-Education-Research-Brief.pdf
US CFTC	1. Commodity Futures Trading Commission. 2014. <i>How To Appeal To Investors With Fraud Prevention Messages: Survey Findings From a Survey Among a Segment of Pre-Retirement Investors</i>. http://www.cftc.gov/idc/groups/public/documents/file/messagetestingsurveyreport.pdf
US DOL	1. Amin, S., G. Chojnacki, A. Moorthy, I. Perez-Johnson, M. Darling, and J. Lefkowitz. 2017. <i>Using Behavioral Insights to Increase Retirement Savings: Trial Design and Findings</i>. Washington, D.C.: Mathematica Policy Research. https://www.mathematica-mpr.com/our-publications-and-findings/publications/using-behavioral-insights-to-increase-retirement-savings
US FINRA	1. Beshears, J., J. Choi, D. Laibson, B. Madrian. 2010. <i>Can Psychological Aggregation Manipulations Affect Portfolio Risk-Taking?</i> http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p121993.pdf 2. Beshears, J., J. Choi, D. Laibson, B. Madrian. 2010. <i>How Does Simplified Disclosure Affect Individuals' Mutual Fund Choices?</i> http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p121994.pdf 3. Innovations for Poverty Action. <i>Project Evaluation: Commitment Savings</i>. http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p126766.pdf 4. Innovations for Poverty Action. <i>Project Evaluation: Borrow Less Tomorrow</i>. http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p126765.pdf 5. Pronin, E. 2007. <i>Overcoming Biases</i>. Princeton University. FINRA Investor Education Foundation. http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p118416.pdf 6. Pronin, E. <i>Pitfalls of Investor Decision-Making in the Social Interaction Context</i>. http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p122332.pdf

Institution	Publication and download link
US SBST	1. Social and Behavioral Science Team. 2016. <i>2016 SBST Project Abstracts</i>. https://sbst.gov/download/2016%20Abstracts.pdf. 2. Social and Behavioral Science Team. 2016. <i>2016 Annual Report</i>. https://www.sbst.gov/download/2016%20SBST%20Annual%20Report.pdf
US SEC	1. Elan, S. L. 2010. <i>Annotated Bibliography on the Behavioral Characteristics of U.S. Investors</i>. The Library of Congress, Federal Research Division. http://www.sec.gov/investor/locinvestorbehaviorbib.pdf 2. Elan, S. L. 2010. <i>Behavioral Patterns and Pitfalls of U.S. Investors</i>. The Library of Congress, Federal Research Division. http://www.sec.gov/investor/locinvestorbehaviorreport.pdf 3. <i>Investor Testing of Target Date Retirement Fund (TDF) Comprehension and Communications</i>. 2012. https://www.sec.gov/comments/s7-12-10/s71210-58.pdf 4. K. J. Ko, <i>White Paper on Computing Tools for Promoting Sound Investment Decisions</i>, US SEC Staff Paper, June 2014. https://www.sec.gov/dera/staff-papers/white-papers/risk-calc-05-2014-pdf

Appendix C

ONLINE RESOURCES AND EVENTS

Websites

1. Armenia CB: <http://www.abcfinance.am>
2. Australia ASIC: <https://www.moneysmart.gov.au/investing/financial-advice/financial-advice-toolkit>
3. Australia ASIC: <http://www.financialliteracy.gov.au/research-and-evaluation>
4. British Columbia BCSC: <https://www.investright.org/>
5. Brazil CVM: <http://www.investidor.gov.br/publicacao/Apresentacoes/IECBrazil/Lista.html>
6. Brazil CVM: <http://www.investidor.gov.br/publicacao/ListaCVMComportamental.html> and <http://www.investidor.gov.br/publicacao/listacvmcomportamentalespanhol.html> (in Spanish)
7. Canada FPSC: <http://www.fpsc.ca/find-a-planner-certificant>
8. Canada FPSC: <http://www.financialplanningforcanadians.ca/>
9. Canada FPSC: <http://www.fpsc.ca/alerts-updates/2016/11/10/one-in-five-canadians-say-they-would-run-out-of-money-in-less-than-a-week-if-they-lost-their-job>
10. Denmark FSA: <https://www.raadtilpenge.dk/penge-beregner/Lommebudget>
11. Denmark FSA: <http://www.bankspillet.dk>
12. Italy CONSOB: <http://www.consob.it/web/investor-education/home>
13. New Zealand CFFC: <https://sorted.org.nz/>
14. Ontario OSC: <https://www.getsmarteraboutmoney.ca/>
15. Ontario OSC: <http://www.investmentreporting.ca/>
16. Québec AMF: <http://www.finecolab.com>
17. The Netherlands MinFin: <https://www.wijzeringeldzaken.nl/english/>
18. UK MAS: <http://www.fincap.org.uk>
19. UK MAS: http://www.fincap.org.uk/evidence_hub
20. US CFTC: <https://smartcheck.gov/>
21. US SEC: <https://investor.gov/>

Events

1. Behavioural Sciences and Investor Education Conference (Brazil CVM): <http://www.iecbrazil.com.br/en/>
2. Financial Planning Week (Canada FPSC): <http://www.fpsc.ca/about-fpsc/financial-planning-week>

Appendix D

LITERATURE REVIEW REFERENCES

1. Abel, M., S. Cole and B. Zia. 2015. *Debiasing on a Roll: Changing Gambling Behavior through Experiential Learning*. The World Bank Research Group Policy Research Working Paper 7195.
2. Ackert, L. F. and Deaves, R. 2010. *Behavioral Finance: Psychology, Decision-Making, and Markets*. Mason, OH. South-Western, CENAGE Learning.
3. Ajzen, I. 1985. *From Intentions to Actions: A Theory of Planned Behavior*. In J. Kuhl & J. Beckmann (Eds.). *Action Control: From Cognition to Behavior*. Berlin, Heidelberg, New York: Springer-Verlag: 11-39.
4. Akbas, M., D. Ariely, D. A. Robalino, and M. Weber. 2015. *How to Help the Poor to Save a Bit: Evidence from a Field Experiment in Kenya*.
5. Ali, S., R. M. Zani, K. Kasim. 2014. *Intention-Behaviour Relations: A Conceptual and Literature Review*. Research Journal of Finance and Accounting, 5(19).
6. Ambuehl, S., B. D. Bernheim, F. Ersoy and D. Harris. 2017. *Social Transmission of Financial Decision Making Skills. A Case of the Blind Leading the Blind*. Rotman School of Management Working Paper No. 2891753.
7. Anginer, D., A. Coville, V. di Maro, M. Kanz et. al. 2014. *Understanding and Improving Household Investment Behavior in Brazil: A Stock Market Simulator as a Learning-by-doing Financial Literacy Tool*. In Lundberg, M. and F. Mulaj (Eds.). *Enhancing Financial Capability and Behavior in Low- and Middle-Income Countries*. The World Bank. Washington, D.C.: 105-138.
8. Ashraf, N., D. Karlan, and W. Yin. 2006. *Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines*. Quarterly Journal of Economics 121: 673–97.
9. Bachmann, K. and T. Hens. 2013. *Investment Competence and Advice Seeking*.
10. Bagwell, S., C. Hestbaek, E. Harries, A. Kail. 2014. *Financial Capability Outcome Frameworks*. New Philanthropy Capital.
11. Barr, M. S., S. Mullainathan and E. Shafir. *Behaviorally Informed Regulation*. In Shafir, E. (Ed.). *The Behavioral Foundations of Public Policy*. 2013. Princeton, NJ. Princeton University Press: 440.
12. Baumol, W. J. and R. E. Quandt. 1992. *Rules of Thumb and Optimally Imperfect Decisions*. In Quandt, R. E. The Collected Essays of Richard E. Quandt Vol. I. Hants. Edward Elgar: 24.
13. Benton, M., S. Meier and C. Sprenger. 2007. *Overborrowing and Undersaving: Lessons and Policy Implications from Research in Behavioral Economics*. Federal Reserve Bank of Boston. Department of Public and Community Affairs and Center for Behavioral Economics and Decision Making, 07-4.
14. Berg, G., B. Zia. 2013. *Harnessing Emotional Connections to Improve Financial Decisions*. The World Bank Africa Region Finance and Private Sector Development Unit & Development Research Group Finance and Private Sector Development Team. Policy Research Working Paper 6407.

15. Berriche, A., F. Salerno, M. Calciu. 2014. *Mediating Effects of Decisional Balance in the Trans-theoretical Model of Change for Customers who Mismanage their Money*. International Journal of Economic Practices and Theories, 4(5).
16. Beshears J., J. J. Choi, D. Laibson, B. C. Madrian and K. L. Milkman. 2010. *The Effect of Providing Peer Information on Retirement Savings Decisions*. Financial Literacy Center Working Paper Series.
17. Bhandari G., K. Hassanein and R. Deaves. 2008. *Debiasing Investors with Decision Support Systems: An Experimental Investigation*. Decision Support Systems 47(1): 399-410.
18. Bhargava, S. and G. Loewenstein. 2015. *Behavioral Economics and Public Policy 102: Beyond Nudging*. American Economic Review: Papers & Proceedings, 105(5): 396–401.
19. Binswanger, J., K. G. Carman. 2008. *How Real People Make Long-Term Decisions The Case of Retirement Preparation*. Tilburg University. Discussion Paper No. 2009-73.
20. Bouchard, J. and D. Challet. 2014. *Behavioral Finance and Financial Markets: Arbitrage Techniques, Exuberant Behaviors and Volatility*. Institut Louis Bachelier. Opinions & Débats No. 7.
21. Brown, A., J. M. Collins, M. Schmeiser, and C. Urban. 2014. *State Mandated Financial Education and the Credit Behavior of Young Adults*. Finance and Economics Discussion Series 2014-68. Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, Washington, D.C.
22. Brown, S. and K. Taylor. 2011. *Household Finances and the 'Big Five' Personality Traits*. Institute for the Study of Labor (IZA) DP No. 6191.
23. Burke, J., J. E. Luoto and F. Perez-Arce. 2014. *Soft versus Hard Commitments: A Test on Savings Behaviors*. RAND Labor & Population Working Paper WR-1055.
24. Butler, C. 2015. *Applied Behavioral Economics: A Game Designer's Perspective Investigating the Gamification of Modern Games and How Similar Techniques Can be Leveraged in Non-Game Environments*. In Reiners, T. and L. C. Wood (Eds.) *Gamification in Education and Business*. Switzerland. Springer, 2015: 81-104.
25. Cain, D. M., G. Loewenstein, and D. A. Moore. 2005. *The Dirt on Coming Clean: Perverse Effects of Disclosing Conflicts of Interest*. The Journal of Legal Studies, 34(1): 1-25.
26. Carpena, F., S. Cole, J. Shapiro and B. Zia. 2015. *The ABCs of Financial Education: Experimental Evidence on Attitudes, Behavior, and Cognitive Biases*. The World Bank Development Research Group Finance and Private Sector Development Team. Policy Research Working Paper 7413.
27. Choi, J., D. Laibson, B. Madrian, and A. Metrick. 2002. *Defined Contribution Plans: Plan Rules, Participant Decisions, and the Path of Least Resistance*. In J. Poterba (Ed.). *Tax Policy and the Economy*. vol. 16. Cambridge, MA. MIT Press: 67–113.
28. Cole, Shawn, B. Iverson, and P. Tufano. 2014. *Can Gambling Increase Savings? Empirical Evidence on Prize-linked Savings Accounts*. Saïd Business School Research Paper 2014-10.
29. Consumer Financial Protection Bureau. 2014. *Financial Wellness at Work: A Review of Promising Practices and Policies*.
30. Consumer Financial Protection Bureau. 2014. *Rigorous Evaluation of Financial Capability Strategies: Why, When, and How*.

31. Consumer Financial Protection Bureau. 2017. *The Power of Light-Touch Financial Education: A Demonstration with Credit Card Revolvers*.
32. Cookson, J. A. 2017. *When Saving Is Gambling*.
33. Coville, A., V. Di Maro, S. Zottel and F. A. Dunsch. 2014. *Nigeria's Nollywood Nudge*. In: Lundberg, M. and F. Mulaj (Eds.). 2014. *Enhancing Financial Capability and Behavior in Low- and Middle-Income Countries*. The World Bank. Washington, D.C.: 315-354.
34. Davis, K., G. Hustvedt. 2012. *It's a Matter of Control: Saving for Retirement*. *International Review of Social Sciences and Humanities*, 3(2): 248-261.
35. De Meza D., B. Irlenbusch and D. Reyniers. 2008. *Financial Capability: A Behavioural Economics Perspective*. Financial Services Authority. Consumer Research 69.
36. DeHart W. B., J. E. Friedel, J. M. Lown and A. L. Odum. 2016. *The Effects of Financial Education on Impulsive Decision Making*. PLoS ONE 11(7).
37. Döbrich C., J. Wollersheim, M. Spörrle and I. M. Welp. 2014. *Letting Go of Your Losses: Experimental Evidence for Debiasing the Disposition Effect in Private Investment Decisions*. *Journal of Management and Strategy*, 5(4).
38. Doi, Y., D. McKenzie and B. Zia. 2012. *Who You Train Matters: Identifying Complementary Effects of Financial Education on Migrant Households*. The World Bank Development Research Group, Finance and Private Sector Development Team & East Asia and Pacific Region Financial and Private Sector Department. Policy Research Working Paper 6157.
39. Dolan, P., M. Hallsworth, D. Halpern et al. 2012. *Influencing Behaviour: The Mindspace Way*. *Journal of Economic Psychology*, 33(1): 264-277.
40. Dolan, P., M. Hallsworth, D. Halpern, D. King and I. Vlaev. 2010. *MINDSPACE: Influencing behaviour through Public Policy*. Institute for Government, the Cabinet Office: 6.
41. Donkers, B., C. Lourenço, D. Goldstein and B. Dellaert. 2013. *Building a Distribution Builder: Design Considerations for Financial Investment and Pension Decisions*. Network for Studies on Pensions, Aging and Retirement. Design Paper 20.
42. Doorways to Dreams D2D Fund . *Playing the Savings Game: A Prize-Linked Savings Report*.
43. Doorways to Dreams D2D Fund. 2015. *Prize-Linked Savings: Creating Financial Confidence and Opportunity*.
44. Doorways to Dreams D2D Fund. *Saving to Win Impact: 2015 Overview*.
45. Drexler, A., G. Fischer and A. Schoar. 2014. *Keeping It Simple: Financial Literacy and Rules of Thumb*. *American Economic Journal: Applied Economics*, 6(2): 1–31.
46. Dupas, P. and J. Robinson. 2013. *Why Don't the Poor Save More? Evidence from Health Savings Experiments*. *American Economic Review* 103: 1138–71.
47. Eckel, C. and J. Carpenter. 2010. *Consumer Decision Making: Insights from Behavioral Economics*. Presented at: Consumer Decision Making: Insights from Behavioral Economics. Conference of the Federal Reserve Bank of Dallas.
48. Elliott, A., P. Dolan, I. Vlaev, C. Adriaenssens, and R. Metcalfe. 2010. *Transforming Financial Behaviour: Developing Interventions That Build Financial Capability*. Consumer Financial Education Body. CFEB Consumer Research Report 01.

49. Fernandes, D., J. G. Lynch Jr. and R. G. Netemeyer. 2014. *Financial Literacy, Financial Education and Downstream Financial Behaviors*.
50. Ferreira, V. R. 2013. *Can Economic Psychology and Behavioural Economics Help Financial Education?* In Organisation for Economic Co-operation and Development, Russia Trust Fund for Financial Literacy & Education. *Improving Financial Education Effectiveness through Behavioural Economics*.
51. Financial Literacy & Education Russia Trust Fund. 2013. *A Toolkit for the Evaluation of Financial Capability Programmes in Low- and Middle-Income Countries*. International Bank for Reconstruction and Development / The World Bank.
52. Financial Literacy & Education Russia Trust Fund. 2013. *Evaluating Financial Education Programmes: OECD/INFE Stocktake and Framework*.
53. Fischhoff, B. 1982. *Debiasing*. In D. Kahneman, P. Slovic and A. Tversky (Eds.) *Judgment Under Uncertainty: Heuristics and Biases*. Cambridge, UK. Cambridge University Press: 422-444.
54. Gentile M., N. Linciano and P. Soccorso. 2016. *Financial Advice Seeking, Financial Knowledge and Overconfidence: Evidence from the Italian Market*. Commissione Nazionale per la Società e la Borsa. Working Paper 83.
55. Ghazal, S., E. T. Cokely and R. G. Retamero. 2014. *Predicting Biases in Very Highly Educated Samples: Numeracy and Metacognition*. *Judgment and Decision Making*, 9(1): 15-34.
56. Glaser, M. and T. Walther. 2014. *Run, Walk, or Buy? Financial Literacy, Dual-Process Theory and Investment Behavior*.
57. Goldstein, D. G., E. J. Johnson and W. F. Sharpe. 2008. *Choosing Outcomes versus Choosing Products: Consumer-Focused Retirement Investment Advice*. *Journal of Consumer Research*, 35: 440-456.
58. Guion, L. A. and T. R. Free. 2010. *A Conceptual Framework for Infusing Behavior Change Theories into Programme Design, Delivery, and Evaluation: A Financial Education Example*. The Forum for Family and Consumer Issues, 15(1).
59. Gutman, L. M., I. Schoon. 2013. *The Impact of Non-Cognitive Skills on Outcomes for Young People*. Education Endowment Foundation. Institute of Education, University of London.
60. Gutter, M., Z. Copur and S. Garrison. 2009. *Which Students Are More Likely to Experience Financial Socialization Opportunities? Exploring the Relationship between Financial Behaviors and Financial Well-Being of College Students*. Networks Financial Institute at Indiana State University. 2009-WP-07.
61. Gyllenram, A., N. Hanes, J. Hellström. 2013. *The Influence of Non-Cognitive and Cognitive Ability on Individuals' Stock Market Participation*.
62. Halpern, D. 2016. *Behavioural Insights and Healthier Lives: VicHealth's Inaugural Leading Thinkers Residency*. Victorian Health Promotion Foundation.
63. Haynes, L., O. Service, B. Goldacre and D. Torgerson. 2012. *Test, Learn, Adapt: Developing Public Policy with Randomised Controlled Trials*. The Cabinet Office Behavioural Insights Team.
64. Hung, A. A. and J. K. Yoong. 2010 - *Asking for Help: Survey and Experimental Evidence on Financial Advice and Behavior Change*. RAND Corporation. Working Paper WR-714-1.
65. Innovations for Poverty Action. *Beyond the Classroom: Evidence on New Directions in Financial Education*. Financial Inclusion Programme Brief.

66. Innovations for Poverty Action. *Personalizing Information to Improve Retirement Savings in Chile*. Financial Inclusion Study Summary.
67. Kahneman, D. 2003. *Maps of Bounded Rationality: Psychology for Behavioral Economics*. The American Economic Review, 93(5): 1449-1475.
68. Kaiser, T. and L. Menkhoff. 2016. *Does Financial Education Impact Financial Behaviour, and If So, When?* German Institute for Economic Research (DIW Berlin). Discussion Paper 1562.
69. Kanz, M., A. Kaufman, K. Shue and B. Wahler. *Using Savings Lotteries to Promote Financial Inclusion in Nigeria*. In: Lundberg, M. and F. Mulaj (Eds.). 2014. *Enhancing Financial Capability and Behavior in Low- and Middle-Income Countries*. The World Bank. Washington, D.C.: 279-314.
70. Karlan, D. and A. L. Ratan. 2014. *Savings By and For the Poor: A Research Review and Agenda*.
71. Karlan, D. and L. L. Linden. 2014. *Loose Knots: Strong versus Weak Commitments to Save for Education in Uganda*. National Bureau of Economic Research Working Paper 19863.
72. Karlan, D., M. McConnell, S. Mullainathan and J. Zinman. 2013. *Getting to the Top of Mind: How Reminders Increase Saving*.
73. Kast, F., S. Meier and D. Pomeranz. 2012. *Under-Savers Anonymous: Evidence on Self-Help Groups and Peer Pressure as a Savings Commitment Device*. NBER Working Paper No. 18417. National Bureau of Economic Research.
74. Kaufmann, C., M. Weber, and E. Haisley. 2012. *The Role of Experience Sampling and Graphical Displays on One's Investment Risk Appetite*. Management Science, 59(2): 323-340.
75. Kaustia, M. and M. Perttula. 2012. *Overconfidence and Debiasing in the Financial Industry*. Review of Behavioral Finance, 4(1): 46-62.
76. Keeney, R. L. 2012. *Value-Focused Brainstorming*. Decision Analysis, 9(4): 303-313.
77. Kisaka, S. E. 2014. *The Impact of Attitudes Towards Saving, Borrowing and Investment on the Capital Accumulation Process in Kenya: An Application of the Theory of Planned Behavior*. Research Journal of Finance and Accounting, 5(9).
78. Ko, K. J. and Z. Huang. 2012. *Persistence of Beliefs in an Investment Experiment*. Quarterly Journal of Finance, 2(1).
79. Koriat, A., S. Lichtenstein and B. Fischhoff. 1980. *Reasons for Confidence*. Journal of Experimental Psychology: Human Learning and Memory, 6(2): 107-118.
80. Kramer M. and R. Lensink. 2012. *The Impact of Financial Advisors on the Stock Portfolios of Retail Investors*.
81. Kramer, M. K. 2014. *Financial Literacy, Overconfidence and Financial Advice Seeking*.
82. Kübilay, B. and A. Bayrakdaroglu. 2016. *An Empirical Research on Investor Biases in Financial Decision-Making, Financial Risk Tolerance and Financial Personality*. International Journal of Financial Research, 7(2).
83. Kuhnen, C. M. and B. T. Melzer. 2016. *Non-Cognitive Abilities and Financial Delinquency: The Role of Self-Efficacy in Avoiding Financial Distress*.
84. Larrick, R. P. 2004. *Debiasing*. In: Koehler, D. J. and N. Harvey (Eds.). 2004. *Blackwell Handbook of Judgement and Decision Making*. Malden, MA. Blackwell: 316-337.

85. Larrick, R. P., J. N. Morgan, and R. E. Nisbett. 1990. *Teaching the Use of Cost-Benefit Reasoning in Everyday Life*. *Psychological Science*, 1(6): 362-370.
86. Linciano, N. 2010. *Cognitive Biases and Instability of Preferences in the Portfolio Choices of Retail Investors: Policy Implications of Behavioural Finance*. CONSOB Working Paper 66.
87. Lobe, S. and A. Hölzl. 2008. *Why Are British Premium Bonds So Successful? The Effect of Saving with A Thrill*.
88. Loke, V., L. Choi and M. Libby. 2015. *Increasing Youth Financial Capability: An Evaluation of the MyPath Savings Initiative*. *The Journal of Consumer Affairs*, 49(1): 97–126; and Prizes Facilitate Saving by Youth: Report on a Pilot Project. Commonwealth.
89. Loke, V., L. Choi, L. Larin and M. Libby. 2016. *Boosting the Power of Youth Paychecks. Integrating Financial Capability into Youth Employment Programmes*. Federal Reserve Bank of San Francisco. Working Paper 2016-3.
90. Lusardi, A., A. S. Samek, A. Kapteyn, L. Glinert, A. Hung and A. Heinberg. 2014. *Visual Tools and Narratives: New Ways to Improve Financial Literacy*.
91. Lusardi, A., A. S. Samek, A. Kapteyn, L. Glinert, A. Hung and A. Heinberg. 2014. *Five Steps to Planning Success: Experimental Evidence from US Households*. 2014. *Oxford Review of Economic Policy*, 30(4): 697-724.
92. Lusardi, A., P. Keller and A. Keller. 2008. *New Ways to Make People Save: The Dartmouth Project*. TIAA-CREF Institute: Trends and Issues.
93. Madrian, B. C. and D. F. Shea. 2001. *The Power Of Suggestion: Inertia In 401(k) Participation And Savings Behavior*. *Quarterly Journal of Economics*, 116 (4): 1149-1187.
94. Magendans, J. 2014. *The Cost of Self-Protective Measures: Psychological Predictors of Saving Money for a Financial Buffer*. University of Twente.
95. Mandell, L. and L. S. Klein. 2007. *Motivation and Financial Literacy*. *Financial Services Review* 16: 105-116.
96. Mayfield, C., G. Perdue and K. Wooten. 2008. *Investment Management and Personality Type*. *Financial Services Review* 17: 219-236.
97. Maynard, N. W., P. Mehta, J. Parker and J. Steinberg. 2012. *Can Games Build Financial Capability? Financial Entertainment: A Research Overview*. Financial Literacy Center Working Paper WR-963-SSA.
98. Meier, S. and C. D. Sprenger. 2008. *Discounting Financial Literacy: Time Preferences and Participation in Financial Education Programmes*. Leibniz Information Centre for Economics. IZA Discussion Papers No. 3507.
99. Michie, S., M. Richardson, M. Johnston, C. Abraham et. al. 2013. *The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions*. *Annals of Behavioral Medicine*, 46 (1): 81-95.
100. Michie, S., M. Stralen and R. West. 2011 *The Behaviour Change Wheel: A New Method for Characterising and Designing Behaviour Change Interventions*. *Implementation Science* No. 6.
101. Miller, M., J. Reichelstein, C. Salas and B. Zia. 2014. *Can You Help Someone Become Financially Capable? A Meta-Analysis of the Literature*. The World Bank Development Research Group Finance and Private Sector Development Team & Financial and Private Sector Development Financial Inclusion and Infrastructure Practice.

102. Mitchell, D. J., J. E. Russo and N. Pennington. 1989. *Back to the Future: Temporal Perspective in the Explanation of Events*. Journal of Behavioral Decision Making, 2(1): 25-38.
103. Morewedge, C. K., H. Yoon, I. Scopelliti, C. W. Symborski, J. H. Korris and K. S. Kassam. 2015. *Debiasing Decisions: Improved Decision Making With a Single Training Intervention*. Policy Insights from the Behavioral and Brain Sciences 1-12.
104. Mullainathan, S., M. Noeth, A. Schoar. 2010. *The Market for Financial Advice: an Audit Study*. National Bureau of Economic Research. Working Paper 17929.
105. Newall, P. W. S. 2016. *Downside Financial Risk is Misunderstood*. Judgment and Decision Making, 11(5): 416-423
106. Niman, N. B. 2014. *The Gamification of Higher Education: Developing a Game-Based Business Strategy in a Disrupted Marketplace*. New York, NY. Palgrave MacMillan: 87-106.
107. Ormerod, P. *Economics*. In Johnson, J., A. Nowak, P. Ormerod, B. Rosewell and Y. Zhang (Eds.). 2017. *Non-Equilibrium Social Science and Policy*. Springer.
108. Palmer, L., D. L. Bliss, J. W. Goetz and D. Moorman. 2010. *Improving Financial Awareness Among College Students: Assessment Of A Financial Management Project*. College Student Journal, 44(3): 659-676.
109. Peña, P. A. 2016. *Personality and Financial Culture: A Study of Mexican Youths*. In Aprea, C. et al. (Eds.), *International Handbook of Financial Literacy*. Singapore. Springer Science+Business Media, 2016: 465-493.
110. Peters, E., D. Västfjäll, P. Slovic, C. K. Mertz, K. Mazzocco and S. Dickert. 2006. *Numeracy and Decision Making*. Psychological Science, 17(5): 407-413.
111. Prawitz, A. D., P. Shatwell, G. Haynes, K. C. Hanson et al. 2007. *Lifestyle Risk Factors, Health Status, and Financial Distress: Framing Interventions Using the Transtheoretical Model of Change*. Proceedings of the Association for Financial Counseling and Planning Education, 25: 153-161.
112. Prochaska, J. O. 1979. *Systems of Psychotherapy: A Transtheoretical Analysis*. Homewood, IL: Dorsey.
113. Robles, B. J. 2014. *Economic Inclusion and Financial Education in Culturally Diverse Communities: Leveraging Cultural Capital and Whole-Family Learning*. In: Forté, K. S., E. W. Taylor, and E. J. Tisdell. (Eds.). *Financial Literacy and Adult Education*. New Directions for Adult and Continuing Education, Number 141.
114. Sadi, R., H. G. Asl, M. R. Rostami, A. Gholipour and F. Gholipour. 2011. *Behavioral Finance: The Explanation of Investors' Personality and Perceptual Biases Effects on Financial Decisions*. International Journal of Economics and Finance, 3(5).
115. Schoar, A. and P. Tania. 2014. *The Financial Health Check: A Behavioral Approach to Financial Coaching*. New America Foundation.
116. Schoar, A. and S. Datta. 2014. *The Power of Heuristics*. Ideas42.
117. Service, O., M. Hallsworth, D. Halpern, F. Algate et. al. 2014. *EAST: Four Simple Ways to Apply Behavioural Insights*. The Behavioural Insights Team.
118. Shim, S., J. J. Xiao, B. L. Barber, and A. C. Lyons. 2009. *Pathways to Life Success: A Conceptual Model of Financial Well-Being for Young Adults*. Journal of Applied Developmental Psychology 30: 708-723.

119. Shim, S., J. J. Xiao, B. L. Barber, N. A. Card, and J. Serido. 2010. *Financial Socialization of First-Year College Students: The Roles of Parents, Work and Education*. Journal of Youth and Adolescence, 39(12): 1457-70.
120. Shockey, S. S., S. B. Seiling. 2004. *Moving Into Action: Application Of The Transtheoretical Model Of Behavior Change to Financial Education*. Financial Counseling and Planning, 15(1).
121. Simon, H. A. 1997. *Administrative Behavior: a Study of Decision-Making Process in Administrative Organizations*. New York, NY. The Free Press.
122. Skimmyhorn, W. L., B. Mitchell, E. R. Davies, D. Mun. 2015. *Assessing Financial Education Methods: Principles vs. Rules-of-Thumb Approaches*.
123. Soll, J. B., K. L. Milkman and J. W. Payne. *A User's Guide To Debiasing*. In G. Keren and G. Wu (Eds.) *The Wiley Blackwell Handbook of Judgment and Decision Making*. Vol. II. 2015. Chichester, UK. John Wiley & Sons, Ltd.: 924-951.
124. Spader, J. 2009. *The Bold and the Bankable*. Federal Reserve Bank of Boston Communities & Banking, Fall 2009.
125. Spader, J., J. Ratcliffe, J. Montoya and P. Skillern. 2009. *The Bold and the Bankable: How the Nuestro Barrio Telenovela Reaches Latino Immigrants with Financial Education*. Journal of Consumer Affairs, 43(1): 56-79.
126. Sprow, K. M., 2010. *Adult Financial Literacy Education and Latina Learners: A Qualitative Case Study*. The Pennsylvania State University (Doctoral Dissertation).
127. StepChange Debt Charity. 2015. *An Action Plan on Problem Debt*. Foundation for Credit Counselling.
128. Stockinger, T., M. Koelle, P. Lindemann, M. Kranz et al. 2015. *Towards Leveraging Behavioral Economics in Mobile Application Design*. In Reiniers, T. and L. C. Wood (Eds.) *Gamification in Education and Business*. Switzerland. Springer, 2015: 105-133.
129. Thaler, R. H. and C. R. Sunstein. 2008. *Nudge: Improving Decisions About Health, Wealth, and Happiness*. New Haven & London. Yale University Press.
130. Thaler, R., and S. Benartzi. 2004. *Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving*. Journal of Political Economy 112: 164-87.
131. The Central Council for Financial Services Information. *Financial Literacy Survey: 2016 Results*.
132. Theodos, B., M. Simms, M. Treskon, C. Stacy, R. Brash et al. 2015. *An Evaluation of the Impacts and Implementation Approaches of Financial Coaching Programmes*. Urban Institute (funded by the CFPB).
133. Tisdell, E. J. 2014. *The Role of Emotions and Assumptions in Culturally Responsive Financial Education Practice in a Capitalist Economy*. In Forté, K. S., E. W. Taylor, and E. J. Tisdell (Eds.). *Financial Literacy and Adult Education*. New Directions for Adult and Continuing Education, Number 141.
134. Tisdell, E. J., E. W. Taylor and K. S. Forté. 2013. *Community-Based Financial Literacy Education in a Cultural Context - A Study of Teacher Beliefs and Pedagogical Practice*. Adult Education Quarterly, 63(4): 338-356.

135. Tufano, P. 2008. *Saving whilst Gambling: An Empirical Analysis of U.K. Premium Bonds*.
136. Warner, L. A., S. Galindo-Gonzalez and M. S. Gutter. 2014. *Building Impactful Extension Programmes By Understanding How People Change*. Agricultural Education and Communication Department, UYF/IAS Extension.
137. Wendel, S. 2014. *Designing for Behavior Change: Applying Psychology and Behavioral Economics*. Sebastopol, CA. O'Reilly: xxii.
138. Winter, J., K. Schlafmann, R. Rodepeter. 2011. *Rules of Thumb in Life-Cycle Saving Decisions*. University of Munich. Munich Discussion Paper No. 2011-16; Love, D. A., 2013. *Optimal Rules of Thumb for Consumption and Portfolio Choice*. The Economic Journal, 123: 932-961.
139. *World Development Report 2015: Mind, Society, and Behavior*. The World Bank Group.
140. Xiao, J. J., B. O'Neill, J. M. Prochaska, C. Kerbel, P. Brennan, B. Bristow. 2001. *Application Of The Transtheoretical Model of Change To Financial Behavior*. Consumer Interests Annual, Vol. 47.
141. Yoong, J. 2013. *Can Behavioural Economics Be Used To Make Financial Education More Effective?* In Organisation for Economic Co-operation and Development, Russia Trust Fund for Financial Literacy & Education. *Improving Financial Education Effectiveness through Behavioural Economics*.

APPENDIX E

SURVEY OF IOSCO MEMBERS ON APPLICATION OF
BEHAVIOURAL INSIGHTS TO INVESTOR PROGRAMS AND
INITIATIVES, DECEMBER 2016-JANUARY 2017

For the purpose of this survey, we will consider that behavioural insights (BI) originate from research findings from social sciences (such as psychology, behavioural economics, and anthropology) and other fields (neurosciences, psychiatry), dedicated to understand how people behave and make decisions. The public sector is increasingly using BI to design simple and low-cost interventions (for instance, by changing the way options are presented or setting defaults), aiming to achieve behaviour change and policy goals.²⁷⁰

Questions marked with an asterisk (*) must be answered. Please answer all/any other questions that are applicable.

*1. Contact information (we may contact you for points of clarification and contact details will not be disclosed without prior consent).

- Name of person completing this survey:
- Organisation:
- Position:
- Email Address:
- Phone number (optional, please include country code):

*2. Would you or anyone from your organisation be interested in joining a network of IOSCO members to exchange information about BI applications, if available?

☐ Yes

☐ No

²⁷⁰ It also interesting to note that BI are not restricted to the field of behavioural economics, as Kahneman remarks: “We need a common label for our shared activities [between economics and psychology]. ‘Behavioral economics’ is not a good label, simply because psychologists are not economists and are not trained to think about markets. ‘Social psychology’ would cause similar difficulties to the economists, lawyers, and physicians who engage in Lewinian practice. A descriptively correct label is ‘applied behavioral science.’” (Shafir, E., “The Behavioral Foundations of Public Policy”, Princeton: Princeton University Press, 2013, IX).

***3.** Has your organisation published, supported the publication or presented material about BI? Please choose one answer and send the published and publicly available report(s)/article(s)/paper(s) to **cop@cvm.gov.br**.

- ☐ Yes, in the area of financial literacy/investor education, **but not** in other areas.
- ☐ Yes, in the area of financial literacy/investor education **as well as** in other areas.
- ☐ Yes, **but not** in the area of financial literacy/investor education.
- ☐ No

***4.** Has your organisation applied BI to the following areas? Please check all applicable boxes.

- ☐ Financial literacy / investor education
- ☐ Policy design/rulemaking (including disclosure)
- ☐ Policy enforcement
- ☐ Supervising / surveillance / investigation
- ☐ None
- ☐ Other areas of public policy. Please specify here:

If your organisation has applied BI to **other areas than financial literacy/investor education**, you can provide some details about these applications in the Appendix.

5. If not already doing so, does your organisation plan to apply BI to financial literacy/investor education in the future? Please choose one answer.

- ☐ Yes, in the next 12 months.
- ☐ Yes, in the next 24 months
- ☐ Yes, but we are not sure about the timeframe.
- ☐ No
- ☐ Still uncertain.

6. In your organisation, what types of groups are applying BI to financial literacy/investor education, if that is the case? Please check all applicable options.

- ☐ Central unit or department
- ☐ Multiple units or departments
- ☐ Informal/formal network of practitioners
- ☐ Consultancies
- ☐ Other. Please specify here:

7. Please describe all the new or existing frameworks (e.g. MINDSPACE²⁷¹ and EAST²⁷²) employed in the application of BI to financial literacy/investor education. Please provide web links where possible and send the explanatory report(s), if any, to **cop@cvm.gov.br**.

*8. Does your organisation employ behavioural scientists/experts?

☐ No

☐ Yes

What is their discipline?

271 MINDSPACE is a mnemonic that lists 9 influences on human behaviour and change (Messenger, Incentives, Norms, Defaults, Salience, Priming, Affect, Commitments and Ego). The first one, for example, states that people are heavily influenced by who delivers information. These tools, when jointly applied on the top of an existing public policy framework, are able to produce more effective behaviour change at low cost. A complete description of the framework and its application in 3 areas of policy can be downloaded at <http://www.instituteforgovernment.org.uk/publications/mindspace>.

272 EAST is a simpler development of MINDSPACE, created by the Behavioural Insights Team, that consists of 4 principles (Easy, Attractive, Social and Timely) for generating and applying BI. This framework is particularly useful for designing the interventions. The full report can be found at <http://www.behaviouralinsights.co.uk/publications/east-four-simple-ways-to-apply-behavioural-insights/>

9. Concerning the people and resources from your organisation involved in applying BI to **financial literacy/investor education**, please provide:

- **Number and job title of full-time employees:**
- **Annual budget for the BI application(s) (in US dollars):**

10. Concerning the people and resources from your organisation involved in applying BI to areas **outside** financial literacy/investor education, please provide:

- **Number and job title of full-time employees:**
- **Annual budget for the BI application(s) (in US dollars):**

*11. Is your organisation actively seeking/gaining knowledge on BI?

☐ Yes

☐ No

IF YOUR ANSWER IS NO, PLEASE JUMP TO QUESTION #14, OTHERWISE PROCEED TO THE NEXT QUESTION #12.

12. How does your organisation acquire knowledge of BI and other useful information to generate BI? Please check all the applicable options.

- ☐ Through the available literature
- ☐ Through external consultants
- ☐ Through partnerships/networks
- ☐ Through events (e.g. conferences, symposia, etc.)
- ☐ Through an external advisory board
- ☐ Through external support from other public bodies
- ☐ Other. Please specify:

13. Please identify the most relevant sources chosen in the previous question.

14. What advice would you give to those trying to apply BI to investor education / financial literacy in their organization?

15. Does your organisation offer or has offered training in BI to...

*a) ... investor education providers (instructors, tutors, etc.)?

☐ Yes

☐ No

*b) ... your organisation's staff?

☐ Yes

☐ No

16. If training in BI is offered, please describe the means, methods, contents, length, external/internal facilitators, etc.

*17. Has your organisation designed or implemented investor education/financial literacy programmes or initiatives based on evidence from research in behavioural economics and related behavioural sciences?

☐ Yes

☐ No

IF YOUR ANSWER IS NO, PLEASE JUMP TO **QUESTION #68**, OTHERWISE PROCEED TO THE NEXT QUESTION #18.

Please provide detailed information about the financial literacy/investor education programmes or initiatives based on evidence from research in behavioural economics and related behavioural sciences in the following pages. Programmes/initiatives in progress can be documented in your responses as well.

Case #1:

*18. What was the name of the programme/initiative?

*19. Which methods did your organisation use to assess the educational needs addressed by the programme/initiative? Please choose all the applicable options.

☐ Focus groups

☐ Surveys

☐ Experiments

☐ In-depth interviews

☐ Other. Please specify.

*20. Please describe the financial literacy/investor education programme or initiative (goals, target audience, relevant partners, scope, delivery methods, etc.).

*21. Which BI were applied? Please provide as much detail as possible.

22. Which behavioural change model(s), if any, has your organisation used when designing or implementing this investor education / financial literacy initiative?

*23. Was the programme/initiative evaluated?

☐ No.

☐ Yes.

What methodology of evaluation was used? What was the outcome? Is the evaluation being done on an ongoing basis? What were the benefits and costs for different groups? Which behavioural change model was used in the evaluation, if any?

If there is a public report specifically written for the evaluation of the programme/initiative, please send it to **cop@cvm.gov.br**.

24. If published, please provide link and send the report about the BI application to **cop@cvm.gov.br**.

Link:

*25. What were the key lessons of the programme/initiative that did or did not work?

26. For experiments, trials and Randomised Controlled Trials - RCTs used in the initiative/programme, please describe their main attributes (e.g. sample size and methodology (pure random / stratified / clustered, convenience), control and treatment group characteristics, evaluation metrics, evaluation methodology, etc.).

27. If published, please provide link and send the report or paper about the experiments, trials and RCTs to **cop@cvm.gov.br**.

Link:

IF YOU DO NOT WISH TO ENTER ANOTHER CASE, PLEASE JUMP TO QUESTION #68.

Questions #28 to #67 refer to additional cases eventually reported by IOSCO members. They have the same structure as questions #18 to #27, so they are omitted.

IF YOU WISH TO ENTER MORE CASES, PLEASE COPY AND PASTE QUESTIONS #58 TO #67 AS MANY TIMES IS NEEDED AND DO THE APPROPRIATE CHANGES. OTHERWISE, PLEASE PROCEED TO THE NEXT QUESTION #68.

68. Please feel free to write any comments in the box below.

SURVEY APPENDIX

If your organisation has applied BI to **other areas than financial literacy/investor education**, please provide some details about these applications (which and how BI were applied, brief description of the results obtained, how evaluation was done, key lessons).

Appendix F

OECD/INFE SURVEY ON THE APPLICATION OF BEHAVIOURAL INSIGHTS (BI) TO FINANCIAL EDUCATION AND FINANCIAL LITERACY PROGRAMMES AND INITIATIVES

Background to this questionnaire

The public sector is increasingly using insights into human behaviour, drawn from a number of fields, including psychology, behavioural economics, neuroscience and psychiatry²⁷³, to try to direct consumers towards more positive behaviours. Such Behavioural Insights (BI) are often used to design simple and low-cost interventions (for instance, by changing the way options are presented to consumers or setting default options for complex decisions), aimed at achieving specific policy goals such as increased retirement saving, that rely on widespread behaviour change. However, they may also be used to create more tailored education, training and guidance to individuals that provides incentives to make choices, change behaviour and act in ways that could improve well-being. The OECD has undertaken significant work on this, including various papers of significance to financial education and financial consumer protection. See for example:

- [Implications of behavioural economics for mandatory individual pension systems](#) (Tapia and Yermo, 2007)
- [Improving financial education effectiveness through behavioural economics](#) (OECD, 2013)
- [Behavioural insights and public policy: Lesson from around the world](#) (OECD, 2017)
- [Behavioural economics and financial consumer protection](#) (Lefevre and Chapman, 2017)
- See also the main [OECD Behavioural Insights portal](#), with information about a forthcoming [conference](#) on behavioural insights, to be held in Paris on the 11-12 May, 2017.

This questionnaire has been developed following discussions at the 6th OECD/INFE Technical Committee meeting in Auckland, New Zealand, as a complement to the IOSCO C8 survey on the application of BI into investor education programmes and initiatives. It is designed to take stock of the extent to which such BI are being used to guide financial education and financial literacy policies and practice. The questions are therefore directed to public authorities with responsibility for financial education and the questionnaire is being circulated to OECD/INFE members for completion.

INFE members are invited to respond by the **15 May 2017**. Authorities that have already submitted a response via IOSCO need not complete this version, unless they would like to flag specific financial education programmes that were not mentioned in the earlier questionnaire.

²⁷³ Behavioral Insights are not restricted to the field of behavioural economics, as Kahneman remarks: "We need a common label for our shared activities [between economics and psychology]. 'Behavioral economics' is not a good label, simply because psychologists are not economists and are not trained to think about markets. 'Social psychology' would cause similar difficulties to the economists, lawyers, and physicians who engage in Lewinian practice. A descriptively correct label is 'applied behavioral science.'" (Shafir, E., "The Behavioral Foundations of Public Policy", Princeton: Princeton University Press, 2013, IX).

The survey has three sections:

- **Section I.** Explores the extent to which organisations are gathering information about behavioural insights (BI) and applying them to address policy challenges.
- **Section II.** Looks specifically at how BI are being applied to develop financial education initiatives.
- **Section III.** Looks specifically at resource use and organisational models in those organisations that are already applying BI.

Next steps

A compilation of responses will be shared with OECD/INFE members at the 7th Technical Committee meeting in Paris in May 2017, and a draft joint report will be developed by IOSCO C8 and OECD/INFE for November.

SURVEY ON THE APPLICATION OF BEHAVIOURAL INSIGHTS (BI) TO FINANCIAL EDUCATION AND FINANCIAL LITERACY PROGRAMMES AND INITIATIVES

REVISED VERSION OF THE IOSCO C8 QUESTIONNAIRE

FOR CIRCULATION TO OECD/INFE MEMBERS

Respondent details

Responding organisation details and contact information:

Organisation

Department

Country

Contact details in case points
need to be clarified

Section I. Behavioural Insights (BI) applied to address policy challenges

This section is designed to collect information about the extent to which BI are used to develop financial education policy

1. Has your organisation commissioned or published any research, documents or guidance on the ways in which BI may be relevant to financial education policies or other policies under its remit?

☐ Yes ☐ No

1.1. If your organisation has commissioned such work, please provide titles and links to relevant report(s) or a brief summary, where possible.

2. Has your organisation applied the findings of BI to develop policies in financial education or other areas under its remit?

☐ Yes ☐ No

Please specify which policy areas:

2.1. If your organisation has applied the finding of BI, please provide examples of ways in which BI findings have been analysed and applied. Please also indicate if you would be interested in sharing a more detailed case study once the report is drafted.

2.2. If not already doing so, does your organisation plan to apply BI to financial education policies in the future?

☐ Yes ☐ No

3. Does your organisation (plan to) apply a BI framework (such as the UK frameworks MINDSPACE and EAST²⁷⁴) to financial education policies.

☐ Yes ☐ No

3.1. If your organisation applies/plan to apply a BI framework, please provide further information about the framework and its application.

4. Does your organisation combine BI with other approaches (e.g. economic theory, innovative pedagogy) when designing financial education policies?

☐ Yes ☐ No

4.1. If your organisation combines BI with other approaches, please describe the other approaches used and the role of BI.

274 MINDSPACE is a mnemonic that lists 9 influences on human behaviour and change (Messenger, Incentives, Norms, Defaults, Salience, Priming, Affect, Commitments and Ego). The first one, for example, states that people are heavily influenced by who delivers information. These tools, when jointly applied on the top of an existing public policy framework, are able to produce more effective behaviour change at low cost. A complete description of the framework and its application in 3 areas of policy can be downloaded at <http://www.instituteforgovernment.org.uk/publications/mindspace>.

EAST is a simpler development of MINDSPACE, created by the Behavioural Insights Team in the UK, that consists of 4 principles (Easy, Attractive, Social and Timely) for generating and applying BI. This framework is particularly useful for designing the interventions. The full report can be found at <http://www.behaviouralinsights.co.uk/publications/east-four-simple-ways-to-apply-behavioural-insights/>.

Section II. Behavioural Insights applied to develop financial education initiatives

This section is designed to gather detailed information about the [financial education](#) programmes or initiatives that have been developed based on BI or evidence from research in behavioural economics or other behavioural sciences. Programmes/initiatives in progress can be documented as well.

5. Has your organisation designed or implemented financial education programmes or initiatives based on evidence from research in BI?

☐ Yes ☐ No

5.1 *If your organisation has designed such programmes using BI*, please describe the programmes and the role of BI. Please also indicate if you would be interested in sharing a more detailed case study.

Please provide links to documents and/or include as much information as possible:

- Method used to assess the educational needs addressed by the programme/initiative?
- Goals, target audience, relevant partners, scope and delivery method of the programme
- The way in which BI was applied
- The behavioural change model(s), if any, used when designing or implementing the programme?
- Design and results of any evaluation
- Key lessons from this programme

Programme 1: Initiative name:

Programme 2: Initiative name:

Programme 3: Initiative name:

Section III. Resource use and organisational model in the application of BI

This section is designed to find out more about the human and financial resources invested in applying BI and the organisational models employed.

If your organisation is applying BI, please also answer the questions in this section.

6. Does your organisation employ specialists to apply BI to financial education?

☐ Yes: How many specialists: ☐ No

7. What level of resourcing is directed towards the application of BI to financial education?

Annual budget allocated to the application of BI to financial education; please state currency:

8. Does your organisation provide training or professional development on BI to staff?

☐ Yes ☐ No

8.1. *If your organisation is providing BI training*, please provide information about the training: the means, methods, contents, length, use of external/internal facilitators, number of individuals trained, etc.

9. Does your organisation apply BI to financial education, through any of the following organisational models? Please check all applicable options.

- ☐ Through a single unit or department acting autonomously
- ☐ Through multiple units or departments acting together
- ☐ Through a network of practitioners within the organisation
- ☐ Through a network of practitioners from across organisations
- ☐ Through work with consultants/external experts
- ☐ Other (please specify)

10. What advice would you give to other organisations considering applying BI to financial education?

11. Please provide any further comments, links or observations that you have about the application of BI to financial education, including any reasons for supporting/cautioning against this approach.

You have now reached the end of this questionnaire. Many thanks for your contribution.

APPENDIX G

IOSCO COMMITTEE 8 MEMBERS

Country	Organisation
Argentina	Comisión Nacional de Valores
Australia	Australian Securities and Investments Commission
Belgium	Financial Services and Markets Authority
Brazil	Comissão de Valores Mobiliários
People's Republic of China	Securities Regulatory Commission
Chinese Taipei	Financial Supervisory Commission
Europe	European Securities and Markets Authority (observer)
France	Autorité des Marchés Financiers
Germany	Bundesanstalt für Finanzdienstleistungsaufsicht
Hong Kong	Securities and Futures Commission
India	Securities and Exchange Board of India
Indonesia	Indonesia Financial Services Authority
Israel	Israel Securities Authority
Italy	Commissione Nazionale per le Società e la Borsa
Japan	Financial Services Agency Japan Securities Dealers Association (observer)
Jersey	Jersey Financial Services Commission
Republic of Korea	Financial Services Commission/Financial Supervisory Service
Grand Duchy of Luxembourg	Commission de Surveillance du Secteur Financier
Malaysia	Securities Commission
Mexico	Comisión Nacional Bancaria y de Valores
The Netherlands	The Netherlands Authority for the Financial Markets
Nigeria	Securities and Exchange Commission

Country	Organisation
Ontario, Canada	Ontario Securities Commission
Portugal	Comissão do Mercado de Valores Mobiliários
Québec, Canada	Autorité des Marchés Financiers
Romania	Financial Supervisory Authority
Russia	The Bank of Russia
Kingdom of Saudi Arabia	Capital Market Authority
Singapore	Monetary Authority of Singapore
South Africa	Financial Services Board
Spain	Comisión Nacional del Mercado de Valores
Sri Lanka	Securities and Exchange Commission of Sri Lanka
Sweden	Finansinspektionen
Thailand	Securities and Exchange Commission
Turkey	Capital Markets Board of Turkey
United Kingdom	Financial Conduct Authority
United States of America	Commodity Futures Trading Commission
United States of America	Financial Industry Regulatory Authority
United States of America	Securities and Exchange Commission

