

The Application of Behavioural Insights to Retail Investor Protection

Final Report



IOSCO

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1. Introduction

Understanding and applying behavioural insights can improve the effectiveness of retail investor protection. They provide additional tools regulators can use to, among other things, identify, analyze, communicate to the public about, and select appropriate responses to, problems and harms investors face. Behavioural insights can also aid in the design of programs and initiatives that reflect a more complete understanding of how investors make decisions.

At the same time, however, understanding and predicting the likely effects of interventions designed in light of behavioural insights can be difficult. Interventions motivated by good intentions may nonetheless have perverse effects. In addition, the effectiveness of particular interventions may rely in large part on the context in which that intervention occurs, such that an intervention that produces a particular set of results in one jurisdiction may not necessarily produce the same results in another.

There is a shared interest among members of the International Organization of Securities Commissions (IOSCO) and other intergovernmental organizations in better understanding behavioural insights by sharing information among each other about their current and planned work applying these insights to better meet the needs of financial consumers. This interest is reflected in, for example, the Organization for Economic Cooperation and Development (OECD)'s 2017 report on the use of behavioural insights in public policy¹ and its 2017 working paper on behavioural economics and financial consumer protection,² the European Commission's 2016 report on the application of behavioural insights to public policy,³ and research carried out by securities regulators around the world on the application of behavioural insights to investor protection and education.⁴

The mandate of IOSCO Committee 8 (C8) includes advising the IOSCO Board of emerging retail investor protection matters and conducting investor protection policy work as directed by the IOSCO Board. Behavioural insights have played and will continue to play an important role

¹ OECD, *Behavioural Insights and Public Policy: Lessons from Around the World* (2017), <https://bit.ly/2JyTJ9X>.

² OECD, Working Paper on Finance No. 42, *Insurance and Private Pensions* (2017), <http://bit.ly/2yodoUc>.

³ European Commission, *Behavioural Insights Applied to Policy* (2016), <https://bit.ly/1OrU8VO>.

⁴ See section 2 below.

in this work, as reflected in IOSCO C8’s 2018 report on the application of behavioural insights to investor education programs and initiatives, co-authored with the OECD.⁵

1.1 Report summary

Building on that important research, this report provides a literature review and reports on the results of a survey of IOSCO C8 jurisdictions focusing on how behavioural insights could be, and are being, used to respond to the following questions relevant to retail investor protection (the “**Topic Areas**”):

- **Disclosure design:** How can we apply behavioural insights to the presentation of disclosures⁶ to optimize retail investors’ absorption of essential information and resulting behaviour, and to what extent does the answer to this question vary for different segments of retail investors and different product types?
- **Online interfaces:** Many entities provide online interfaces primarily directed at attracting investments from retail investors. What design features, such as layout, reminders, and warnings, can online interfaces incorporate to help investors make informed investment decisions?
- **Timeliness of information:** When are retail investors most receptive to relevant disclosure or educational content (*e.g.*, when the investor begins a new job or is about to make key decisions about retirement)?

This report acknowledges that, while behaviourally-informed measures in these areas have the potential to promote informed investor decision-making, their potential comes with limits. Disclosure and information, no matter how well-designed and no matter how well-timed their delivery, may not be sufficient on their own to achieve comprehensive retail investor protection.⁷ Standards of conduct imposed on the investment professionals on whom retail investors rely to recommend and manage their investments, as well as the regulation of investment products sold

⁵ IOSCO and OECD, *The Application of Behavioural Insights to Financial Literacy and Investor Education Programs and Initiatives* (2018), <https://bit.ly/2JrjOh>.

⁶ The term “disclosures” refers to written or electronic documents that present information material to an investment decision. Examples include documents required to be provided to a prospective investor at the time of sale (*e.g.*, a prospectus), as well as documents required to be presented or made available to investors on a continuous basis (*e.g.*, financial statements and management’s discussion and analysis).

⁷ See Gill North, *Efficiency, Fairness & Irrationality: Incompatible or Complementary?*, 24 *Banking & Finance Law Review* 311 (2009), at pp. 333-34.

to retail investors, will continue to be part of the comprehensive set of measures employed by regulators to further retail investor protection.

Section 2 of this report reviews literature relevant to the Topic Areas, including the application of behavioural frameworks that have been discussed in prior work by C8, such as EAST⁸ and MINDSPACE,⁹ to the project scope, as well as methods for designing and evaluating behavioural interventions. This review, as well as the report more broadly, reflects comments from and consultation with academics who have conducted work in these areas, as well as behavioural scientists working in government, and international forums and networks that are carrying out work or possess expertise relevant to the Topic Areas. The working group thanks each of these individuals—Paul Adams and Jeroen Nieboer of the U.K. Financial Conduct Authority, and Prof. Dilip Soman, Prof. Lu Han, Prof. Tanjim Hossain, Kim Ly, and Patrick Rooney with Behavioural Economics in Action at Rotman (BEAR) at the University of Toronto’s Rotman School of Management, and Prof. Lauren Willis of Loyola Law School, Los Angeles—for their significant contributions to this report. The literature review also relies heavily on the work carried out by C8 and the OECD with respect to the application of behavioural insights to investor education programs and initiatives.

The insights gained from this research were used to develop a survey of IOSCO C8 members aimed at identifying additional initiatives related to the project scope, along with the outcomes of and challenges faced in implementing these initiatives.

The results of this survey are discussed in Section 3. The survey results show that regulators’ behavioural insights initiatives are at very different stages of development. Some respondents have developed a track record of applying behavioural insights in their work, while many are just starting to build capacity in this area. The survey results also showed that many respondents are focused not only on the Topic Areas, but also on understanding the investor context surrounding these topics. They are, for example, carrying out research on investor knowledge, preferences, and behaviours; the investor decision-making process; and investment professionals’ relationships with their clients. This type of research provides vital information that can be used to identify market failures or other policy problems (*e.g.*, mis-selling of investment products and services) and select and design appropriate tools to address these problems. Accordingly, the discussion of survey results in Section 3 describes this contextual research in substantial depth.

⁸ UK Behavioural Insights Team, *EAST: Four simple Ways to Apply Behavioural Insights* (2014), <http://bit.ly/2vOwftJ>.

⁹ UK Institute for Government, *MINDSPACE – Behavioural Economics* (2010), <http://bit.ly/2pGnr26>.

With respect to the Topic Areas, many respondents discussed projects on disclosure design and testing. These projects yielded findings that reflect the diverse contexts in which respondents carried out their research. They illustrated not only methods of testing disclosures with potential consumers to optimize their potential usefulness, but also methods of determining whether disclosure is an appropriate tool for an identified policy problem.

The survey results also highlight the challenges faced by many respondents in integrating behavioural insights into their work, most prominently a lack of internal expertise. Section 3 of this report discusses means by which respondents have sought to overcome or mitigate the effects of this challenge.

1.2 Insights from this report

The survey results illustrate that retail investors' needs and priorities can vary widely depending on context, making it difficult to extract from the research any simple or universal rules securities regulators can apply when addressing the Topic Areas. However, the research completed by the respondents, together with the literature review included in this report, offers insights that may prove helpful in designing and developing research falling within the Topic Areas:

- **Look at the role a particular disclosure plays in the investor's experience:** Disclosures face substantial competition for investors' attention—for example, from a sales pitch or marketing materials.¹⁰ This context can help inform the development of disclosures that make the most of the limited attention they receive, or that could capture a greater share of investors' attention relative to competing factors. This context can also help regulators determine whether changes to disclosure requirements are the most appropriate tool for fostering improved outcomes for investors, or whether other regulatory tools ought to be explored. This context tends to be dynamic—investors may react differently to new disclosures and products over time, and firms may adapt their behaviour in light of new disclosure requirements.¹¹
- **Shorter does not always mean simpler or better:** Even short, one-to-two page disclosures can be complex and confusing for investors. Elements that ease comparison between different products, such as pie charts or ratings, could be easier for investors to

¹⁰ See, e.g., notes 41-42, 114-115 and 138 below and accompanying discussion.

¹¹ See, e.g., notes 62-64 below and accompanying discussion.

process, but behavioural biases may lead investors to interpret or use these elements in different ways from what was intended.¹²

- **One-size-fits-all solutions may prove difficult (perhaps impossible) to find:** Different investors tend to interpret and use disclosures and other products differently.¹³ As a result, the challenge for regulators may not necessarily be to find solutions that work equally well for all investors, but to find solutions that work well for a plurality of investors and that minimize potential perverse effects on other investors. Online interfaces offer new possibilities for customizing and tailoring the presentation of information to fit individual investors' needs and circumstances, though research in this area remains nascent.¹⁴
- **Expect the unexpected:** Respondents' research and testing illustrate how seemingly intuitive assumptions about investor behaviour may not reflect actual investor behaviour. Research and testing can help regulators uncover faulty assumptions that might otherwise have the potential to reduce the effectiveness of retail investor protection initiatives.¹⁵
- **Experimental results may not always translate in the real world:** Experimental conditions may not always align with the conditions that exist in the real world. These misalignments may be anticipated when an experiment is designed, or may only be discovered after the fact.¹⁶ Monitoring and evaluating how experimentally-informed initiatives operate in the real world may be a helpful tactic for identifying potential shortcomings. However, collecting and analyzing the data necessary to do so is likely to be a challenge.

These insights are intended merely as a resource. This report is not intended to constrain future research or other action on the part of IOSCO members. It is hoped, however, that this report will help IOSCO members identify new ways in which they can learn more about retail investors, relevant examples of retail investor protection initiatives carried out in other jurisdictions, and methodologies for testing the effectiveness of these initiatives prior to implementation.

¹² See, *e.g.*, notes 127-128 below and accompanying discussion.

¹³ See, *e.g.*, notes 56, 124, 129 and 137 below and accompanying discussion.

¹⁴ See generally Section 2.2 below.

¹⁵ See, *e.g.*, notes 124, 127-128 and 133-134 below and accompanying discussion.

¹⁶ See notes 97-101 below and accompanying discussion; see also Section 3.3 below.

2. Literature Review

This section begins by outlining how behavioural insights help explain human behaviour, and explains why these insights are relevant to investing. It then reviews implications that behavioural insights may have for the Topic Areas, as illustrated in the literature. Finally, it reviews different frameworks and methodologies for gathering information on and carrying out testing relevant to the Topic Areas.

2.1 Behavioural insights and retail investors

In many jurisdictions, individuals are increasingly called upon to take a central role in making investment choices to secure their own financial futures.¹⁷ Individuals' choices as to investment advice providers and investment products are seemingly endless, given the growing complexity of the global financial system and the number and ranges of choices available.¹⁸ Even if choices were limited, selecting from among competing investment products and advice providers involves complicated judgments about expected future returns and risk, as well as review of often complex and opaque fee structures.¹⁹

These circumstances raise significant challenges for individuals who are already inundated with information and choices every day—not just in their financial lives, but in their lives more broadly. Nobody has the time or resources to fully analyze all of this information, let alone take full advantage of it.²⁰ The only way the human mind can cope with this complexity is by filtering out much of the information received and making choices based on only a few criteria.²¹ The mental shortcuts relied upon to simplify decision-making, called heuristics, are manifold and have been documented extensively in the behavioural insights literature.²² While the use of

¹⁷ Russia's G20 Presidency and OECD, *Advancing National Strategies for Financial Education* (2013), at p. 16, <https://bit.ly/2sMF594>.

¹⁸ G20 and OECD, note 17 above, at p. 16.

¹⁹ Claire Célérier and Boris Vallée, *What Drives Financial Complexity? A Look into the Retail Market for Structured Products* (Working paper, 2013), <https://hbs.me/2sJB6d6>.

²⁰ Daniel Kahneman, *Why We Contradict Ourselves and Confound Each Other* (Interview transcript, 5 October 2017), <https://bit.ly/2l6yJQ7>.

²¹ See, e.g., SEC Commissioner Troy A. Paredes, *Twelfth Annual A.A. Sommer, Jr. Lecture on Corporate, Securities and Financial Law* (27 October 2011), <http://bit.ly/2vONefr>; Simonna Botti & Sheena S. Iyengar, *The Dark Side of Choice: When Choice Impairs Social Welfare*, 25(1) *Journal of Public Policy & Marketing* 24–38 (2006), <http://bit.ly/2ft5t3H>.

²² See generally OSC Staff Notice 11-778, *Behavioural Insights: Key Concepts, Applications and Regulatory Considerations* (2017), <http://bit.ly/2ftNrP7> (reviewing the development of behavioural insights literature); Australia Securities and Investments Commission (“ASIC”), *ASIC and behavioural economics: Regulating for real people* (2016), <https://bit.ly/2sHwwfF>.

mental shortcuts is essential to coping with everyday life, it can result in decisions that run contrary to an individual’s goals and stated preferences. Biased decision-making resulting from incorrect beliefs or preferences influenced by emotions and experiences may also lead to problematic decisions.²³

The biases that influence human decision-making are numerous and are catalogued in various sources; accordingly, this report does not aim to repeat this work. For ease of reference, however, below is a list of common biases relevant to financial decision-making reproduced from the UK FCA’s Occasional Paper No. 1, *Applying behavioural economics at the Financial Conduct Authority*:

Ten behavioural biases and effects in retail financial markets²⁴		
Our preferences are influenced by emotions and psychological experiences	Rules of thumb can lead to incorrect beliefs	We use decision-making short-cuts when assessing available information
Present bias <i>e.g.</i> , spending on a credit card for immediate gratification Reference dependence and loss aversion <i>e.g.</i> , believing that insurance added on to a base product is cheap because the base price is much higher Regret and other emotions <i>e.g.</i> , buying insurance for peace of mind	Overconfidence <i>e.g.</i> , excessive belief in one’s ability to pick winning stocks Over-extrapolation <i>e.g.</i> , extrapolating from just a few years of investment returns to the future Projection bias <i>e.g.</i> , taking out a payday loan without considering payment difficulties that may arise in the future	Framing, salience and limited attention <i>e.g.</i> , overestimating the value of a packaged bank account because it is presented in a particularly attractive way Mental accounting and narrow framing <i>e.g.</i> , investment decisions may be made asset-by-asset rather than considering the whole investment portfolio Decision-making rules of thumb <i>e.g.</i> , investment may be split equally across all the funds in a pension scheme, rather than making a careful allocation decision Persuasion and social influence <i>e.g.</i> , following financial advice because an advisor is likeable

²³ UK FCA, *Applying behavioural economics at the Financial Conduct Authority* (Occasional Paper No. 1, April 2013), at p. 6, <https://bit.ly/2xmvOXt>; David A. Hirshleifer, *Investor Psychology and Asset Pricing*, 61 *Journal of Finance* 1533 (2001).

²⁴ UK FCA, note 23 above, at p. 6.

The effects of heuristics and biases on individual well-being depends on the nature of the decision being made. This section focuses on why these effects are especially significant in the context of investment decision-making.

First, for most people, investing is both unfamiliar and complex. Individuals face a seemingly infinite array of choices of investment products.²⁵ Evaluating different investment products requires significant numeracy skills, including the evaluation of percentages and fractions, as well as large dollar values. It also requires that individuals read and understand unfamiliar, technical language and consider complicated risks. This level of complexity can lead to information and choice overload, such that an individual feels too overwhelmed or afraid to choose an investment. How investment products are presented can also influence the decisions that individuals make.²⁶ Investment choices may vary depending on whether numbers or percentages are presented, by defaults, or by the way in which choices are framed. When faced with three options of varying risk, for example, individuals may be drawn to the middle option, regardless of the absolute levels of risk associated with each option.²⁷

Second, investing is not merely about dollars and cents or risk and return. For retail investors, it involves high emotional stakes. Investment choices may determine one's quality of life in retirement or one's ability to provide for family members.²⁸ Emotionally charged decisions can be particularly stressful, and this stress occupies cognitive resources that could otherwise be spent evaluating investment choices, leading individuals to rely even more heavily on heuristics to make decisions.²⁹ Individuals may be unwilling to deal with the emotional consequences of a poor investment decision, and as a result exhibit overconfidence, confirmation bias, and loss aversion in their investment choices.³⁰ For example, the disposition effect—whereby individuals hold losing investments for too long (out of reluctance to admit the investment is a losing one and optimism that the investment will recover) and sell winning investments too early (as a way

²⁵ Célérier and Vallée, note 19 above.

²⁶ Lauren E. Willis, *When Nudges Fail: Slippery Defaults*, 80 *University of Chicago Law Review* 1154 (2013).

²⁷ Shlomo Benartzi & Richard H. Thaler, *How Much Is Investor Autonomy Worth?*, 57 *Journal of Finance* 1593, 1594-95 (2002).

²⁸ Lauren E. Willis, *Against Financial Literacy Education*, 94 *Iowa Law Review* 197 (2008-2009), at p. 230.

²⁹ Giora Keinan, *Decision Making Under Stress: Scanning of Alternatives Under Controllable and Uncontrollable Threats*, 52 *Journal of Personality and Social Psychology* 639 (1987), at p. 642.

³⁰ Willis, note 28 above, at p. 233.

of locking in existing gains, reaffirming their confidence as investors, and possibly to “make up” for losing investments)—has been observed in a number of studies focusing on retail investors.³¹

Third, investing involves uncertainty and regard for the long-term consequences of one’s actions. Weighing these consequences means mentally visualizing and emotionally experiencing a future contingency to give it appropriate weight in decision-making and when, as is the case when investing, these consequences feel abstract or uncertain, individuals are less likely to give them appropriate weight.³² Relevant biases include present bias, ambiguity discounting and certainty preference. These biases may lead individuals to avoid risky investments even if that individuals has a long time horizon; more significantly, however, these biases may also lead individuals to underestimate or discount risk factors that do not feel immediate or relevant to them when making an investment decision. For example, individuals routinely ignore warnings that are not tailored to their circumstances; they assume that these warnings are meant for others.³³

2.2 Behavioural insights and the Topic Areas

This section provides a brief summary of relevant literature on the application of behavioural insights to disclosure design, the design of online interfaces, and the timing of delivery of information to retail investors, including their respective effects on retail investor choices and other behaviour. For purposes of this report, “disclosure” refers to documents (written or electronic) that present material information that an investor requires to decide whether to buy, sell, or hold an investment. It includes documents required to be provided to a prospective investor at the time of sale (*e.g.*, a prospectus) as well as documents required to be presented or made available to investors on a continuous basis (*e.g.*, financial statements, management’s discussion and analysis, and proxy circulars).

Before turning to this literature, however, an important cautionary note is necessary. While disclosure is central to informed investor decision-making, disclosures and other informational

³¹ Terrance Odean, *Are Investors Reluctant to Realize Their Losses?*, 53 *Journal of Finance* 1775 (1998); Hersh Shefrin and Meir Statman, *The disposition to sell winners too early and ride losers too long: Theory and evidence*, 40 *Journal of Finance* 777 (1985).

³² Sean A. Malkoc, Gal Zauberaman and James R. Bettman, *Unstuck from the concrete: Carryover effects of abstract mindsets in intertemporal preferences*, 113:2 *Organizational Behavior and Human Decision Processes* 112 (2010), <https://bit.ly/2JBwhZS>; Yaacov Trope and Nira Liberman, *Construal-Level Theory of Psychological Distance*, 117:2 *Psychology Review* 440 (2010), <https://bit.ly/2JKaKBn>. In addition, the propensity to visualize and act on the future consequences of one’s actions may vary from person to person. See Elizabeth Howlett, Jeremy Kees and Elyria Kemp, *The Role of Self-Regulation, Future Orientation, and Financial Knowledge in Long-Term Financial Decisions*, 42:2 *Journal of Consumer Affairs* 223 (2008).

³³ Willis, note 28 above, at p. 236.

resources, even if informed by behavioural insights, are not guaranteed to succeed. A well-designed disclosure may nonetheless become lost in the total mix of information provided to a prospective investor before they make a decision. For example, a salesperson may use marketing materials or a compelling sales pitch to direct a prospective investor's attention away from a mandated disclosure. Even if a salesperson is not actively seeking to direct attention away from a mandated disclosure, providing an individual with multiple disclosures and pieces of information may lead to an "accumulation effect," whereby the individual becomes overwhelmed by the various disclosures presented.³⁴ An individual may focus on price information or ratings assigned by an online interface rather than reviewing mandated disclosures themselves. The context in which individuals purchase investments may also change over time, such that interventions that were helpful at the time they were designed become less effective over time.³⁵ In addition, the effects of a given disclosure can be difficult to predict, and may diverge significantly from what the party requiring the disclosure intended.³⁶

We must also recognize that disclosure and information, no matter how well designed and no matter how well-timed their delivery, may not be sufficient on their own to achieve comprehensive retail investor protection.³⁷ Standards of conduct imposed on the investment professionals on whom retail investors rely to recommend and manage investments and the regulation of investment products sold to retail investors, will continue to be part of the total mix of measures employed by regulators to further retail investor protection.

These factors are not reasons to ignore the possibility of improving the quality and usefulness of information provided to prospective investors through behavioural insights. Rather, they emphasize the importance of designing interventions with reference to the environment in which investing decisions are made, and updating one's understanding of this environment as time passes. Accordingly, in addition to reviewing the relevant literature on the Topic Areas, this report also discusses methodologies for understanding the context in which investor decisions are made in a given jurisdiction, as well as the implications this context may have for mandated disclosure or other information to be communicated to prospective or current investors.

³⁴ Omri Ben-Shahar and Carl E. Schneider, *The Failure of Mandated Disclosure*, 159 University of Pennsylvania Law Review 687 (2011).

³⁵ Willis, note 26 above.

³⁶ See note 91 below and accompanying text.

³⁷ See North, note 7 above, at pp. 333-34.

2.2.1 Disclosure design

Disclosure of all material information is necessary to promoting more informed decision-making—research indicates that consumers frequently rely on the information given to them in assessing a product; if information is missing, they do not seek this information out.³⁸ However, such disclosure may not always be sufficient to meet this end.³⁹ Individuals’ review of disclosed information may be colored by their internal heuristics and biases that may lead them to filter out or fail to notice relevant information and, as a result, make choices that run counter to their economic interests and financial goals.⁴⁰ In addition, individuals do not review disclosures in isolation: mandated disclosures are only one part of the package of interactions and pieces of information given to an individual in the investment decision-making process.⁴¹ An individual may rely more heavily on what they are told by a salesperson or on outside marketing materials, or information from friends or family,⁴² for example, as opposed to mandated disclosures, for example. Firms may structure disclosures and interactions with clients in a way that hinders the investors’ disclosure review, taking advantage of individuals’ limited cognitive resources and pre-existing heuristics and biases to achieve desired business outcomes.⁴³

Nonetheless, a number of tactics have been suggested for improving the effectiveness of disclosures in encouraging informed decision-making. These tactics are intended to organize disclosures in a way that reflects the time and other constraints faced by these disclosures’ intended audiences. It has been cautioned, however, that these tactics should be used selectively. Using design elements to try to direct users’ attention to all information, regardless of its importance, could prove self-defeating, as users may remain overwhelmed by the mass of information presented to them.⁴⁴ The objective should be to direct users’ attention to the most

³⁸ Frank R. Kardes *et al.*, *Debiasing Omission Neglect*, 59 *Journal of Business Research* 786, 786 (2006).

³⁹ See Amelia Fletcher, *The role of demand-side remedies in driving effective competition: A review for Which?* (Centre for Competition Policy (UK), 2016), at pp. 36-39, <https://bit.ly/2JlbX2J>.

⁴⁰ See, *e.g.*, SEC Commissioner Troy A. Paredes, *Twelfth Annual A.A. Sommer, Jr. Lecture on Corporate, Securities and Financial Law* (27 October 2011), <http://bit.ly/2vONefr>; Office of Fair Trading (UK), *What does behavioural economics mean for competition policy?* (2010), at p. 37, <https://bit.ly/2kZBhNi>.

⁴¹ Omri Ben-Shahar and Carl E. Schneider, *The Futility of Cost Benefit Analysis in Financial Disclosure Regulation*, 43(S2) *Journal of Legal Studies* S1 (2014), <https://bit.ly/2HFJteu>; UK FCA, note 23 above, at p. 60.

⁴² See, *e.g.*, Leonardo Bursztyrn *et al.*, *Understanding peer effects in financial decisions: evidence from a field experiment*, 82:4 *Econometrica* 1273 (2014).

⁴³ Willis, note 26 above.

⁴⁴ John Kozup and Jeanne M. Hogarth, *Financial Literacy, Public Policy, and Consumers’ Self-Protection: More Questions, Fewer Answers*, 42:2 *Journal of Consumer Affairs* 127 (2008), at p. 130.

important information included in a disclosure, and to design disclosures such that the most important disclosures are also the most engaging.⁴⁵

First, important pieces of information should be placed where most consumers would be expected to focus their attention.⁴⁶ This generally means that important information should be placed prominently and in intuitive places in a disclosure, and should be easily accessible by readers.⁴⁷ Testing can help identify how consumers respond to different disclosure designs and, accordingly, the most intuitive places and ways to disclose important information in a given context. Issuers present information in this way as a matter of course, though their focus is on emphasizing those elements of information that are most helpful for marketing purposes. For example, the cover page of a prospectus may contain key information that the issuer wants to bring to the attention of prospective investors, and slide decks or other marketing materials prepared by an issuer may be intended to draw prospective investors' attention to certain pieces of information by presenting it in a more digestible way. Form requirements for "summary" prospectuses, which are intended to bring key information to the attention of prospective investors, may require issuers to organize information in a way designed to bring key information to the attention of the reader. Regulators may also require that disclosure design be standardized, to allow readers to more easily compare different investments.⁴⁸

Second, regulators may encourage or seek to ensure that disclosure providers simplify the language used in their disclosures where possible.⁴⁹ Many regulators have issued guidance on the use of plain language.⁵⁰ Regulators or firms may also use one or more of the testing techniques described later in this section to identify areas where language may be causing confusion among prospective investors as well as ways in which this language could be rephrased to make it easier to comprehend. One area on which a significant degree of research has been conducted is with respect to presentation of disclosures on fees charged for purchasing, holding, and selling an investment. For example, it has been suggested that fees should be disclosed as dollar amounts to

⁴⁵ Oxera, *Review of literature on product disclosure* (prepared for UK FCA), at p. 2 (2014), <https://bit.ly/2ekMXco>.

⁴⁶ Oxera, note 45 above, at p. 21.

⁴⁷ Oxera, note 45 above, at p. 18.

⁴⁸ Oxera, note 45 above, at pp. 17-18.

⁴⁹ U.S. Office of Information and Regulatory Affairs, *Memorandum on Disclosure and Simplification as Regulatory Tools* (18 June 2010), <https://bit.ly/2t0v1Z6>.

⁵⁰ See, e.g., U.S. SEC, *A Plain English Handbook: How to create clear SEC disclosure documents* (1998), <https://www.sec.gov/pdf/handbook.pdf>.

increase the likelihood that readers will understand them (though this research also notes that this preference for dollar amounts is not universal among retail investors).⁵¹

Third, graphical elements may also affect how a reader understands and uses a disclosure (whether for good or ill). For example, with respect to investment fees, one means of overcoming individuals' tendency to overlook fees that are charged after a product is sold, may be to roll all fees applicable to a product into one rating or other metric that could be displayed graphically (such as a 5-star rating).⁵² Graphical elements may also be employed to help describe the risk level of an investment. For example, a graphic may depict an investment as being "high," "medium," or "low" risk rating based on prescribed metrics.⁵³ Disclosures of particular risk factors may also incorporate graphical elements or color coding to better enable comparability and help prospective investors better understand which risks are most salient—for example, an issuer may be required to state whether a risk factor's probability of occurrence and financial impact are "high," "medium," or "low."⁵⁴ In addition, graphics may be used to depict potential good and bad outcomes associated with holding an investment as a means of countering overconfidence.⁵⁵

In designing disclosures, relevant literature also emphasizes the importance of having regard for the diverse needs of different demographics of retail investors.⁵⁶ Font size, colors and color combinations used, as well as text alignment may all affect different individuals' ability to read and understand textual disclosure.⁵⁷ Some may rely more heavily on oral explanations of disclosures provided by an investment professional or a trusted friend or family member. Reflecting on how one would explain a written disclosure orally to a third party may be helpful

⁵¹ See, e.g., Ageing Agendas, *Summary of the Outcomes of Consumer Testing of the ASFA Super Choice Key Features Statements* (Report Prepared for the Association of Superannuation Funds of Australia Ltd, 2000); UK FCA, note 23 above, at p. 59.

⁵² Jessica An, Melanie Kim, and Dilip Soman, *Financial Behaviour Online: It's Different!* (2016), at p. 15; Oxera, note 45 above, at p. 3.

⁵³ Oxera, note 45 above, at pp. 27-28.

⁵⁴ CFA Institute, *Designing a European Summary Prospectus Using Behavioural Insights* (2017), at p. 18, <https://bit.ly/2q4A3mb>.

⁵⁵ Oxera, note 45 above, at p. 17.

⁵⁶ See Kirsty Johnston, Christine Tether and Ashley Tomlinson, *Financial Product Disclosure: Insights from Behavioural Economics*, Ministry of Business, Innovation and Employment (New Zealand) Occasional Paper 15/01 (2015), <https://bit.ly/1TYW5Np>.

⁵⁷ Public Health Agency of Canada, *Age-Friendly Communication: Facts, Tips and Ideas* (2010), at pp. 33-34.

not only in designing disclosure in a way that meets the needs of these individuals, but in phrasing disclosure in a way that is more comprehensible to all prospective investors.

Testing different design elements with potential users can be a useful way of identifying possible problems with the comprehensibility of disclosures for different groups. In addition, testing disclosures to see how individuals interpret and act on them can reveal unintended effects of existing disclosure designs. For example, a laboratory experiment testing how research participants used simplified disclosures to choose between different investments found that users tended to be most heavily influenced by a pie chart showing the asset allocations of different investments (users tended to pursue “naïve diversification,” choosing investments with pie charts with more slices of equal size), with more critical information on expected return, risk, and time frame seeming to have less influence on their choices.⁵⁸ The experiment illustrated how visual features designed to be helpful to consumers could be give rise to perverse negative outcomes or be manipulated by motivated service providers.

Another experiment testing summary disclosures of insurance policies found that individuals appeared to have trouble comparing the textual descriptions of coverage conditions, exclusions, and limits presented in the summary disclosures, often choosing policies that provided narrower coverage despite having the option of choosing broader policies at the same cost (the summaries did not include graphical or other elements that might have helped consumers review and compare the scope of the different policies).⁵⁹

One study focusing on income drawdown products (which provide retirees with continued exposure to capital markets while also allowing them to draw down a set amount from their accounts each year) found that giving consumers an all-in, summary cost metric helped them choose lower-fee products. That study tested several potential metrics and found that two

⁵⁸ Hazel Bateman *et al.*, *As easy as pie: How retirement savers use prescribed investment disclosures* (Quantitative Finance Research Centre, Research Paper 326, March 2013), <https://bit.ly/2LA9BKe>. Naïve diversification is a form of correlation neglect (people’s tendency to ignore or not fully incorporate correlation across information sources when making financial decisions); it refers to individuals’ tendency to equate choosing multiple investments with choosing multiple *uncorrelated* investments, which may result in their choosing multiple correlated (and possibly similar or redundant) investments that are not truly diversified. See Benjamin Enke and Florian Zimmerman, *Correlation Neglect in Belief Formation*, *The Review of Economic Studies* (2017); Erik Eyster and Georg Weizsäcker, *Correlation Neglect in Portfolio Choice: Lab Evidence* (Working paper, 2017), <https://bit.ly/2EpDzjz>; Tanjim Hossain and Ryo Okui, *Belief Formation Under Signal Correlation* (Working Paper, 2018), <https://stanford.io/2QxXIAN>; Ido Kallir and Doron Sansino, *The Neglect of Correlation in Allocation Decisions*, 75(4) *Southern Economic Journal* 1045 (2009); Yoram Kroll, Haim Levy, and Amnon Rapoport, *Experimental Tests of the Separation Theorem and the Capital Asset Pricing Model*, 78(3) *American Economic Review* 500 (1988).

⁵⁹ Justin Malbon, Harmen Oppewal, *(In)effective disclosure: An experimental study of consumers purchasing home contents insurance* (Monash Business School and Monash Faculty of Law, research report of a study commissioned by the Financial Rights Legal Centre, September 2018).

measures—*pension savings available after costs* and *average cost per year*—were most effective.⁶⁰

As illustrated by IOSCO’s and the OECD’s behavioural insights research, a number of regulators are using a variety of testing techniques to understand the effects of disclosure design on investors’ understanding and use of the information provided through mandated disclosure.⁶¹

The literature suggests that there may be value in taking an iterative approach to disclosure design and testing—monitoring the effects of new disclosures on behaviour and adapting as these effects change. For example, people tend to become habituated to new stimuli over time, such that a disclosure design element that captures attention initially may become less likely to be noticed as investors become more accustomed to it.⁶² Firms may also change their behaviour in response to new disclosure requirements, potentially in ways that support the intended purpose of the new requirements (*e.g.*, by improving environmental performance in response to new disclosure requirements covering this area),⁶³ but also potentially in ways that may undermine this purpose (*e.g.*, by designing disclosures and reframing choices in ways that reduce the likelihood that investors will review and use a new disclosure).⁶⁴

2.2.2 Online interfaces

Investments are widely available through online channels. For example, online crowdfunding portals provide an interface by which individuals can review and invest in start-up companies, and online investment advisors called “robo advisors” provide investment advice or investment

⁶⁰ Oxera and the Nuffield Centre for Experimental Social Sciences (commissioned by the U.K. FCA, *Annex 5: Identifying metrics to aid consumer choice in the income drawdown market* (March 2017), <https://bit.ly/2sTbkRS>).

⁶¹ IOSCO and OECD, note 5 above, at pp. 75-78.

⁶² Soyun Kim and Michael S. Wogalter, *Habituation, Dishabituation, and Recovery Effects in Visual Warnings*, 53 Proceedings of the Human Factors and Ergonomics Society Annual Meeting 1612 (2009).

⁶³ See, *e.g.*, Anil R. Doshi, Glen W.S. Dowell, and Michael W. Toffel, *How Firms Respond to Mandatory Information Disclosure* (Harvard Business School Working Paper No. 12-001, 2011), <https://hbs.me/2GluhaQ>; Sunita Sah and George Loewenstein, *Nothing to Declare: Mandatory and Voluntary Disclosure Leads Advisors to Avoid Conflicts of Interest*, 25(2) *Psychological Science* 575 (2013).

⁶⁴ Lauren Willis, *Performance-Based Consumer Law*, 82 *University of Chicago Law Review* 1309 (2015). Willis suggests that regulators consider leveraging firms’ ability to quickly measure and adapt to investor behaviour by engaging firms in the disclosure design process (*e.g.*, by working with them to carry out “confusion audits” that measure how their clients respond to a new disclosure (or disclosure design element)). See Lauren Willis, *The Consumer Financial Protection Bureau and the Quest for Consumer Comprehension*, 3 *Russell Sage Foundation Journal of the Social Sciences* 74 (2017); Lauren Willis, *Performance-Based Remedies: Ordering Firms to Eradicate their Own Fraud*, 80 *Law & Contemporary Problems* 7 (2017).

management services and interact with their users primarily via an online interface, with moderate to minimal or no human interaction. Many discount brokerages have online interfaces that allow users to buy and sell investments, often without any human interaction prior to trading. Retirement account providers often provide online interfaces that allow individuals to choose investments for their retirement.

While the use of online investing tools is widespread, the academic literature on online investment behaviour remains nascent. The available literature indicates that individuals tend to make different decisions when interacting with an online interface as opposed to interacting with a human or with print materials. A few of the more significant differences highlighted in research are outlined below.

First, individuals are less inhibited online. The social friction “arising from the normal feelings of anxiety and self-consciousness of being judged” when interacting with a human are less present when interacting with an online interface.⁶⁵ As a result, individuals may be more honest online than with a human: for online investment advisors, this may mean that responses to an online know-your-client questionnaire may tend to be more honest than responses given to questions posed by a human investment advisor.⁶⁶ But it also means that individuals may be more likely to make impulsive and biased choices—based, for example, on price information displayed on an online interface or based on financial news or other information.⁶⁷

The relative ease with which decisions can be made online or in a mobile environment—with one tap of a smartphone, for example, individuals can order and pay for transportation, groceries, and other goods and services⁶⁸—likely reinforces this dynamic by allowing people to think “faster” and with more shallow attention. For example, an individual may be more likely to speculate and try to time the market through frequent trading, chasing trends, and selling gaining investments too soon.⁶⁹ The introduction of no-fee online trading interfaces may affect this dynamic—while, on the one hand, these interfaces may reduce barriers to investors’ regularly allocating savings to investments in accordance with a financial plan, they also may encourage

⁶⁵ An, Kim and Soman, note 52 above, at p. 16.

⁶⁶ An, Kim and Soman, note 52 above, at p. 16.

⁶⁷ An, Kim and Soman, note 52 above, at p. 16.

⁶⁸ See generally Shlomo Benartzi and Jonah Lehrer, *The Smarter Screen: Surprising Ways to Influence and Improve Online Behavior* (2015).

⁶⁹ J.J. Choi, D. Laibson, and A. Metrick, *How does the internet affect trading? Evidence from investor behavior in 401(k) plans*, 64 *Journal of Financial Economics* 397 (2002); B. Barber and T. Odean, *Online investors: Do the slow die first?*, 15 *Review of Financial Studies* 455 (2002); Natalie Y. Oh, Jerry T. Parwada and Terry S. Walter, *Online investors’ trading behaviour and performance: Evidence from the Korean equity market*, 16 *Pacific-Basin Finance Journal* 26 (2008), <https://bit.ly/2GrRBDy>.

more impulsive trading. Biased investment choices—particularly the disposition effect—may be compounded by the biases influencing the frequency with which one visits an online investment interface. When an individual’s investments rise in value, individuals become more likely to check these values more frequently, but when these investments decline in value, individuals become less likely to check their accounts.⁷⁰ It has been suggested that giving users of online discount brokerages a nudge in the form of online messages reminding them of behavioural biases may help reduce instances of biased decision-making and improve investors’ returns over time.⁷¹

Second, rather than reviewing investment options one-by-one, in isolation, individuals may be more likely, given the availability of online comparison and choice engines, to compare investments side-by-side, based on the metrics displayed by the relevant online interface.⁷² For example, rather than reading mandated disclosures one-by-one, an individual may review risk, fee, and performance ratings assigned by an online interface side-by-side and rely on these ratings, rather than any single disclosure, to choose an investment. Social comparisons, to the extent available, may also prove salient: rather than reviewing prospective investments at first instance, an individual may choose to rely on “typical” investments made by individuals in comparable financial circumstances, subject to certain adjustments.⁷³ By organizing and ordering information in different ways, comparison and choice engines offer the possibility of customizing the amount of choices and information presented to fit the user’s appetite for reviewing this information.⁷⁴

Third, graphical elements, the organization of information, and the use of plain language are as important for users of online interfaces as they are for users of disclosure. Perhaps even more so—visual biases are especially relevant in screen environments.⁷⁵ Importantly, however, design elements that work well in print may not necessarily work well online: users may skim through information that is presented online in a format similar to that used in print.⁷⁶ For example, users are accustomed to skipping through dense “Terms and Conditions” presented on various

⁷⁰ Nachum Sicherman, George Loewenstein, Duane Seppi and Stephen Utkus, *To look or not to look: Financial attention and online account logins* (Working Paper, 2012), <https://bit.ly/2pYIrUH>.

⁷¹ Maria De Paola, Francesca Gioia & Fabio Piluso, *Does Reminding of Behavioural Biases Increase Returns from Financial Trading? A Field Experiment* (IZA – Institute of Labor Economics Discussion Paper No. 10983, September 2017), <http://ftp.iza.org/dp10983.pdf>.

⁷² An, Kim and Soman, note 52 above, at p. 16.

⁷³ An, Kim and Soman, note 52 above, at p. 17.

⁷⁴ Benartzi and Lehrer, note 68 above.

⁷⁵ Benartzi and Lehrer, note 68 above.

⁷⁶ Oxera, note 45 above, at p. 22.

websites.⁷⁷ Requiring users to choose whether to review or skip required disclosures may increase the likelihood that this disclosure will be reviewed.⁷⁸

One must also be mindful of the fact that individuals interact with online interfaces on a variety of different screens—from desktop computer monitors to mobile phones—and that a user may interact with information differently depending on the screen they use to view that information.⁷⁹ For example, users may tend to think “faster” and make quicker, shallower decisions when working on smaller screens (which may lead them, for example, to skip through warnings and make impulsive financial decisions).⁸⁰ Regulators have used oculometric tests (recording eye movement), as well as audio and video recordings as means of testing how users interact with and review information provided within online portals, in addition to face-to-face questions.⁸¹ Online interfaces also provide new avenues for designing and testing different ways of bringing important information to the attention of the user. For example, a 2018 study by the UK FCA found that users of a simulated online trading interface were more likely to choose lower fee investment products if the interface displayed a warning message, immediately before purchase, about the impact of fees on returns, especially when the message was coupled with a chart showing the impact of charges or a summary of charges.⁸²

2.2.3 Timeliness of information

The timeliness of information delivered to investors is also relevant to investors’ likelihood of reviewing and acting on that information. The challenge is to identify when an investor is most likely to be receptive to a given piece of information—something that can vary not only from situation to situation, but from person to person—and deliver information at that time.⁸³ One means of bringing management and other fees charged to investors’ attention after they have purchased an investment may be to provide fee reports at the time these fees are charged. While general disclosures on fees may have been made available at the point of sale, individuals tend to

⁷⁷ See, e.g., Jonathan A. Obar and Anne Oeldorf-Hirsh, *The Biggest Lie on the Internet: Ignoring the Privacy Policies and Terms of Service Policies of Social Networking Services*, Information, Communication & Society (2018), <https://bit.ly/2B82Qdl>.

⁷⁸ OECD, note 1 above, at p. 177.

⁷⁹ Oxera, note 45 above, at p. 22.

⁸⁰ Benartzi and Lehrer, note 68 above.

⁸¹ IOSCO and OECD, note 5 above, at p. 76.

⁸² UK FCA, *Now you see it: drawing attention to charges in the asset management industry* (Occasional Paper No. 32, April 2018), <https://bit.ly/2qa2DDj>.

⁸³ UK Behavioural Insights Team, note 8 above.

be less likely to pay attention to fees that are charged farther out in the future.⁸⁴ One study by the UK FCA applied this concept to overdraft charges, finding that sending consumers a text message notifying them that they had reached their overdraft limit and could avoid charges by making a deposit into the relevant account before a given cut-off time reduced overdraft fees charged by 25 per cent.⁸⁵ Contextual factors cited in the study as indicating that such a tactic could reduce fees paid by consumers included that many consumers reported incurring overdraft fees largely as a result of inattention, or not realizing that they had insufficient funds in a given account to make a purchase, rather than having insufficient savings.⁸⁶

Another promising strategy that could be applicable outside the context of disclosing investment fees, such as in delivering investor education materials or materials encouraging individuals to plan for retirement, may be to capitalize on the “fresh start effect” by presenting this information when individuals have reached a particular milestone: birthdays, the start of a new job, or the beginning of a new year can lead people to step back from their day-to-day routine and take in new information about newly available choices. People may be more likely to change their habits or tackle ambitious goals in these moments.⁸⁷

2.3 Frameworks for generating ideas as to potential reasons for investor behaviour and potential actions to address problems and harms

Jurisdictions looking to apply behavioural insights to enhance retail investor protection can look to a number of frameworks as a starting point. For example, the “MINDSPACE” and “EAST” frameworks developed by the Behavioural Insights Team (“BIT”), describe common influences on individual behaviour and possible tactics for influencing behaviour, respectively. These frameworks can serve as helpful aids for generating ideas as to possible reasons for a particular pattern of behaviour, as well as options for behaviourally-informed interventions that could affect this behaviour.⁸⁸ These frameworks may also be helpful in identifying potential limits or roadblocks to changing investor behaviour through interventions that focus on disclosure: for example, the MINDSPACE framework reminds us to pay attention to the messenger communicating information to a user. A persuasive messenger in the form of a salesperson, for

⁸⁴ Oxera, note 45 above, at p. 31.

⁸⁵ UK FCA, *Sending out an SMS: The impact of automatically enrolling consumers into overdraft alerts* (Occasional Paper No. 36, May 2018), <https://bit.ly/2LzyghW>.

⁸⁶ UK FCA, note 85 above.

⁸⁷ H. Dai, K.L. Milkman, and J. Riis, *The Fresh Start Effect: Temporal Landmarks Motivate Aspirational Behavior*, *Management Science* (2014), <https://whr.tn/2nrQo2n>.

⁸⁸ BIT was established as a unit within the UK Cabinet Office, but now operates as a social purpose company jointly owned by the UK Government, Nesta (an innovation charity) and its employees.

instance, may lead prospective investors to discount or ignore the importance of required disclosures, even if the disclosures are well-designed.

MINDSPACE ⁸⁹	
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
Saliency	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
EAST ⁹⁰	
1. Make it Easy	
<ul style="list-style-type: none"> • <i>Harness the power of defaults.</i> We have a strong tendency to go with the default or pre-set option, since it is easy to do so. Making an option the default makes it more likely to be adopted. • <i>Reduce the ‘hassle factor’ of taking up a service.</i> The effort required to perform an action often puts people off. Reducing the effort required can increase uptake or response rates. • <i>Simplify messages.</i> Making the message clear often results in a significant increase in response rates to communications. In particular, it’s useful to identify how a complex goal can be broken down into simpler, easier actions. 	
2. Make it Attractive	
<ul style="list-style-type: none"> • <i>Attract attention.</i> We are more likely to do something that our attention is drawn towards. Ways of doing this include the use of images, colour or personalisation. • <i>Design rewards and sanctions for maximum effect.</i> Financial incentives are often highly effective, but alternative incentive designs — such as lotteries — also work well and often cost less. 	
3. Make it Social	
<ul style="list-style-type: none"> • <i>Show that most people perform the desired behaviour.</i> Describing what most people do in a particular situation encourages others to do the same. Similarly, policy makers should be wary of inadvertently reinforcing a problematic behaviour by emphasising its high prevalence. • <i>Use the power of networks.</i> We are embedded in a network of social relationships, and those we come into contact with shape our actions. Governments can foster networks to enable collective action, provide mutual support, and encourage behaviours to spread peer-to-peer. 	

⁸⁹ UK Institute for Government, note 9 above.

⁹⁰ UK Behavioural Insights Team, *EAST: Four simple Ways to Apply Behavioural Insights* (2014), <http://bit.ly/2vOwftJ>.

- *Encourage people to make a commitment to others.* We often use commitment devices to voluntarily ‘lock ourselves’ into doing something in advance. The social nature of these commitments is often crucial.

4. Make it **Timely**

- *Prompt people when they are likely to be most receptive.* The same offer made at different times can have drastically different levels of success. Behaviour is generally easier to change when habits are already disrupted, such as around major life events.
- *Consider the immediate costs and benefits.* We are more influenced by costs and benefits that take effect immediately than those delivered later. Policy makers should consider whether the immediate costs or benefits can be adjusted (even slightly), given that they are so influential.
- *Help people plan their response to events.* There is a substantial gap between intentions and actual behaviour. A proven solution is to prompt people to identify the barriers to action, and develop a specific plan to address them.

In making use of these frameworks, it is vital not to use them beyond their intended purpose: these frameworks are intended to help generate ideas, not conclusions or final policy recommendations. The principles laid out above are not intended to be “one size fits all” solutions—not all of these principles will apply in every situation. In the case of EAST, making choices “easier” will not always result in better outcomes. In some circumstances, it may be more desirable to slow down an individual’s decision-making process so that they have more time to reflect on their choices: for example, a mandatory cooling-off period after deciding to purchase an investment may help a prospective investor thinking about their options more clearly and perhaps counteract the influence of a persuasive salesperson. In addition, simplifying choices through “defaults” may be inappropriate unless the default path is clearly favoured by most users.

The potential perverse effects of interventions relating to disclosure—which can be unintuitive and accordingly difficult to predict absent testing—have been well documented. For example, mandated disclosure of conflicts of interest, while giving individuals access to additional, salient information relevant to their decision to contract with an investment salesperson, may have the perverse effect of leading both the client to place an even higher degree of trust in the salesperson (as a result of the salesperson’s candidness), and leaving with the salesperson with the feeling that, having made appropriate disclosure, they are morally licensed to recommend biased investment choices to a client.⁹¹ Even interventions that are inspired by behavioural insights and have previously been tested may nonetheless fall short of meeting their intended

⁹¹ Daylian M. Cain, George Loewenstein, and Don A. Moore, *When Sunlight Fails to Disinfect: Understanding the Perverse Effects of Disclosing Conflicts of Interest*, 37 *Journal of Consumer Research* 836 (2011).

goals. It is important to be humble when it comes to applying behavioural insights in any public policy area and predicting the likely effects of these applications on public policy goals.

As outlined below, testing can help regulators confirm or refine their hypotheses about sources of potential harms to consumers and test the effectiveness of interventions intended to address these harms.

2.4 Testing methodologies

There exist a range of quantitative and qualitative testing methodologies that can be used to, among other things, gather information about potential harms to retail investors, design and measure the effectiveness of interventions intended to address these harms, and assess the effectiveness of existing disclosure and other measures. Testing helps ensure that regulatory actions achieve their desired effects, and the use of testing in OECD jurisdictions is widespread. As documented in the OECD's recent report on behavioural insights in policy-making, jurisdictions are using a variety of testing techniques to test interventions relating to financial consumer protection,⁹² and, as noted in the joint report by IOSCO and the OECD on the application of behavioural insights to financial literacy and investor education programs and initiatives, testing is important to the development of behavioural insights initiatives directed towards retail investors.⁹³

This section describes a number of these testing methodologies. While each methodology is described separately, in practice, a research project often may employ multiple methodologies in combination. These "mixed methods" projects may, for example, use qualitative and quantitative research techniques in combination identify potential market harms, or use qualitative techniques to design and refine potential interventions and quantitative techniques to test the effectiveness of the interventions developed.

2.4.1 Qualitative methodologies

Qualitative research can help identify policy problems and design potential interventions informed by behavioural insights that may respond to that problem. While qualitative techniques may not provide an exact measure of the effectiveness of a disclosure document, they can help identify aspects of disclosures that individuals find unhelpful or confusing. They also can be

⁹² OECD, note 1 above, at pp. 153-221.

⁹³ IOSCO and OECD, note 5 above, at pp. 79-81.

used to refine options for revised disclosures that can be tested through quantitative methodologies.⁹⁴

Examples of qualitative research include interviews, focus groups, ethnography, and human-centered design. In addition, mystery shops can be used for qualitative research (though mystery shops may also be designed to collect quantitative information).

Ethnography is the scientific description of the customs of individual people and cultures (including organizational cultures). It involves observing people interacting in ordinary settings, including what they do, say, or make and use. Potential outputs of ethnographic research include a description of the group being studied, as well as common patterns or themes that arise from researchers' observations of the group. For instance, computerized tools such as eye tracking software can help researchers see what people pay attention to when presented with information.

Mystery shopping is a form of consumer market research in which individuals, acting as potential customers, are trained to objectively record their observations and interactions with service providers. Mystery shoppers may also use recording devices to keep records of their interactions. Mystery shopping has been used by a number of securities regulators to gain insight into firms' ordinary course interactions with potential retail investors and identify potential patterns of noncompliance with regulatory requirements or potential harms to retail consumers.⁹⁵

Human-centered design provides a framework for approaching the design of products, services, and programs that is widely used in the private sector in a variety of contexts:

⁹⁴ Oxera, note 45 above, at p. 39.

⁹⁵ See, e.g., OSC Staff Notice 31-715, IIROC Notice Number 15-0210, MFDA Bulletin #0658-C, *Mystery Shopping for Investment Advice: Insights into advisory practices and the investor experience in Ontario* (2015), <https://bit.ly/1iA2ItX>.

Stages of Human-Centered Design⁹⁶

1. **Empathize.** Empathize with your target user (i.e., retail investors) by using interviews, observation, and other techniques to understand the way they do things and why, their physical and emotional needs, how they think about world, as well as what is meaningful to them and when.
2. **Define.** Use the information gathered to craft a meaningful and actionable problem statement (e.g., retail investors are confused by fee information presented to them in disclosures).
3. **Ideate.** Identify a broad range of ideas for addressing the problem statement (e.g., disclose fees in dollar amounts, provide reminders of fees when they are about to be charged, give a five-star rating comparing a product's fees to those of similar products). Ideas should not be prioritized or filtered at this stage.
4. **Prototype.** Choose one or more ideas and use them to develop a work product that a user can interact with and provide feedback on (e.g., a mock-up of a standardized disclosure form presenting fee information).
5. **Test.** Solicit feedback from users on the prototype. Testing may take the form of qualitative interviews. As a potential intervention moves past the "prototype" stage, it could be tested using one of the quantitative testing methods described below.

Human-centered design is meant to be iterative—this means moving back and forth between the stages listed above. For example, feedback received on a prototype may lead to refinement of that prototype, or it may reveal that the problem at issue has not been properly defined, requiring that one move back to an earlier stage of the design process.

2.4.2 Quantitative methodologies

Quantitative testing, like qualitative techniques, can be used to diagnose potential retail investor harms, thought through a different lens. For example, analysis of market data on the nature and characteristics of products being sold to investors (quantitative research) may lead researchers to conduct focused interviews with retail investors on what influenced them to purchase a particular product (qualitative research) to help determine whether a market harm justifying regulatory intervention exists.

In addition, if a proposed intervention intended to affect behaviour has already been developed, quantitative testing can provide for more precise testing of that intervention on potential users. Quantitative methods lie on a spectrum. At one end are methodologies that offer a high degree of control over the testing environment, but that, due to the artificial environment in which testing occurs, may not produce findings applicable to the real world. At the other end are

⁹⁶ Hasso Plattner Institute of Design, Stanford University, *An Introduction to Design Thinking: Process Guide* (2010), <https://stanford.io/2foBN7V>.

methodologies that offer the possibility for findings more directly applicable to the real world, but that, due to lack of control over the testing environment, may make it more difficult to determine whether the intervention being tested is having its desired effects, or whether some other factor is responsible for test results.⁹⁷

Typology of Experiments⁹⁸

- Laboratory experiment – hypothetical choices
- Laboratory experiment – real choices
- Natural experiment – archived or archivable data
- Natural experiment – generates data from existing conditions
- Field experiments – real world situation with new intervention or variable, data generated on relatively smaller scale
- Large scale randomized controlled trials (RCTs) – running condition tests simultaneously

Laboratory experiments are carried out in a controlled environment with standardized procedures. These experiments can be divided into two categories: experiments that provide subjects with hypothetical choices and those that provide subjects with real choices. Hypothetical choice experiments (*e.g.*, consumer surveys) provide subjects with a series of hypothetical choices. These experiments are typically low-cost, and results can be gathered quickly. However, their results may be less reliable due to subjects’ choices not coming with any consequences. For example, subjects may overstate any action they feel they *should* be doing, and be more easily swayed by small influences (*e.g.*, a slightly different wording of text) than would be the case if they confronted similar choices with real consequences. Choice experiments with consequences attach direct consequences to the choices subjects make. For example, a subject may receive a payment based on how well a hypothetical investment “performs” over time. Common platforms for these types of experiments include university-run labs, as well as Amazon’s Mechanical Turk (“MTurk”), which provides access to a broader demographic of research subjects online. One disadvantage of MTurk is that researchers have limited control over how subjects complete tasks assigned to them: for example, they may ask someone else for help when completing these tasks.⁹⁹

⁹⁷ Dilip Soman, *The Last Mile: Creating Social and Economic Value from Behavioural Insights* (2015), at p. 130-31. See also John Beshears *et al.*, *Does Aggregated Returns Disclosure Increase Portfolio Risk-Taking?* (2016), <http://faculty.som.yale.edu/jameschoi/aggregation.pdf>.

⁹⁸ Soman, note 97 above, at p. 131.

⁹⁹ Oxera, note 45 above, at p. 40. For purposes of this report, online experiments that are similar in nature to traditional laboratory experiments (in that the research subjects know they are in an experiment and testing procedures are standardized) are classified as a type of laboratory experiment, but we note that the question

Natural experiments are observational studies that do not assign subjects to treatment or control conditions. Natural experiments can be carried out using archived data (existing data that can be accessed and analyzed, such as stock or other asset prices) or archivable data (data that can be collected through surveys or observations of behaviour).¹⁰⁰

Field experiments introduce intervention in the real world, and as result offer the clearest insight into the effects that a proposed intervention may have on real consumers' choices. The testing methodology most commonly associated with behavioural insights research is a type of field experiment called a randomized controlled trial (RCT). An RCT is a time-limited introduction of an intervention into the real world. Participants are real users of investment products and are randomized into different treatments, with some participants experiencing different variations of a proposed intervention, and others experiencing a status-quo control condition. In each case, the behaviour of interest is measured to see whether one or more of the interventions are more successful than the status quo. Because an RCT includes a control group, it is possible to determine whether it is the intervention that achieves a desired effect (*e.g.*, greater comprehension of a potential investment) and not some other factor. In addition, results may be more reliable than those gained from other research techniques because the research subjects are not aware that their behaviour is being observed.¹⁰¹

Support may also come from private institutions: the US Consumer Financial Protection Bureau's "Project Catalyst" program invites private sector actors to propose trial disclosures for testing.¹⁰² The UK FCA has also worked with regulated firms to carry out RCTs involving these firms' clients.¹⁰³

The BIT has developed the "Test, Learn, Adapt" framework for designing RCTs. This framework is reproduced below:

of whether these experiments are best classified as laboratory experiments, field experiments, or ought to stand as a separate category of experiment is open to debate. See, *e.g.*, Glen W. Harrison and John A. List, *Field Experiments*, 42:4 *Journal of Economic Literature* 1009, at pp. 1013-14 (2004).

¹⁰⁰ Soman, note 97 above, at pp. 129-30.

¹⁰¹ Oxera, note 45 above, at p. 41.

¹⁰² See <https://www.consumerfinance.gov/about-us/project-catalyst/>.

¹⁰³ See, *e.g.*, UK FCA, note 85 above.

Test, Learn, Adapt¹⁰⁴

Test

1. Identify two or more policy interventions to compare (*e.g.*, old vs new policy; different variations of a policy).
2. Determine the outcome that the policy is intended to influence and how it will be measured in the trial.
3. Decide on the randomization unit: whether to randomize to intervention and control groups at the level of individuals, institutions (*e.g.*, schools), or geographical areas (*e.g.*, local authorities).
4. Determine how many units (people, institutions, or areas) are required for robust results.
5. Assign each unit to one of the policy interventions, using a robust randomization method.
6. Introduce the policy interventions to the assigned groups.

Learn

7. Measure the results and determine the impact of the policy interventions.

Adapt

8. Adapt your policy intervention to reflect your findings.
9. Return to Step 1 to continually improve your understanding of what works.

Field experiments can also operate on a smaller scale, however, and treatments need to be randomized. For example, an intervention may be introduced via “staggered introduction,” by which an intervention is tested on users in a particular group (such as a specific region within a jurisdiction), while users outside that group act as a control group. This approach is lower-cost than an RCT and may allow medium-term effects to be gathered with greater ease than would be the case with a time-limited RCT. However, staggered introduction may only allow for one potential intervention to be tested, and because the intervention is delivered to a particular group, potentially over a long period of time, the intervention may be more difficult to reverse when the experiment is concluded.¹⁰⁵

3. The application of behavioural insights to retail investor protection among IOSCO C8 members

The working group received survey responses from 24 regulators located in five continents. These responses described dozens of initiatives applying a variety of methodologies to understand potential market failures and design new, and assess the effectiveness of existing, retail investor protection initiatives. The responses also show that respondents are at different

¹⁰⁴ UK Cabinet Office, *Test, Learn, Adapt: Developing Public Policy with Randomised Controlled Trials* (2012), at p. 5, <https://bit.ly/1luU6nS>. Qualitative research can be leveraged at various stages of this framework to inform RCT design and to better understand the impact of an intervention in the real world.

¹⁰⁵ Oxera, note 45 above, at p. 41.

stages when it comes to applying behavioural insights in their work. While some have dedicated staff and a long track record of carrying out behavioural insights research, most are only starting to build capacity and are looking to other jurisdictions for examples of how to develop and apply behavioural insights research in their work.

The summary of survey results included in this report casts a broad net. It captures information on behavioural insights research, as well as a variety of means regulators use to gather information that, even if they would not be classified by academics as behavioural insights research, nonetheless provide insight into investor behaviour and can inform the design of subsequent behavioural insights research. In addition, because behavioural insights research results are context-dependent, the summary below discusses the significant efforts made by many jurisdictions to understand the context in which retail investors make decisions.

This summary of survey results opens by discussing respondents' research aimed at understanding the retail investor context, and goes on to discuss respondents research and initiatives that touch on the Topic Areas (disclosure design, online interfaces, and timeliness of information). It concludes with a discussion on key constraints respondents reported facing in applying behavioural insights to their work, as well as ways in which respondents are adapting to these constraints.

3.1 Research aimed at understanding the investor context

Survey respondents are focused on understanding of the context in which individuals make investment decisions. For a regulator, this means more than identifying common behavioural biases identified in academic literature. It means gathering information on the social and economic factors that influence individuals' investment decisions in a given jurisdiction. This context helps inform regulators' assessment of potential market failures and opportunities to develop or refine policy and programs to help retail investors make more informed decisions. The working group's survey identified three broad categories of contextual research undertaken by respondents: (a) research into financial attitudes, knowledge and behaviour, (b) research into the retail investor decision-making process, and (c) research on investment sales practices and the investment professional-client relationship.

3.1.1 Financial attitudes, knowledge and behaviour

Many respondents collect general information on the financial attitudes, knowledge, and behaviours of retail investors and other individuals. This type of research can identify, among other things, potential knowledge gaps, inconsistencies in investor attitudes and behaviours, and risk-taking by investors.

A number of respondents reported using surveys to collect information on retail investor attitudes, knowledge, and behaviours, including Belgium FSMA, Brazil CVM, Indonesia IFSA, Italy CONSOB, Mexico CNBV, Netherlands AFM, Ontario OSC, Portugal CMVM, Quebec AMF, Bank of Russia, and US FINRA. For example:

- Brazil CVM conducted an online survey in 2015-16 to investigate possible relationships between investors' financial literacy level, personality traits, and investment portfolios. The survey revealed that individuals with higher financial literacy scores and individuals with lower scores in extraversion were more likely to hold at least one investment product than the general population.
- US FINRA's *Investors in the United States 2016* report¹⁰⁶ described the results of a survey of 2,000 retail investors who own non-retirement accounts. The survey found, among other things, that respondents who report high comfort and knowledge levels with investing were *more likely* to answer objective investment knowledge questions *incorrectly* than those with less positive self-perceptions. The report notes that it appears these respondents are more likely to guess (and sometimes guess incorrectly) than to admit they do not know the answer to a question.

Several respondents conducted surveys focused on a specific group of retail investors. For example:

- Italy CONSOB conducted an online survey to determine what factors make a retail investor more likely to seek professional investment advice, finding that demand for advice was positively related to financial knowledge and negatively related to overconfidence. Individuals holding these traits tended to be wealthier than the rest of the population, indicating that advice acts as a complement rather than as a substitute for financial capability. The findings thus confirmed Italy CONSOB's concern about regulation of investment advice being insufficient to protect less sophisticated investors.
- Netherlands AFM carried out behavioural research on self-directed investors, using an online survey as well as in-depth interviews and a scan of current market practices to ground its findings.¹⁰⁷ The research illustrated how three common assumptions about investor behaviour—that investors have a well-defined investment goal, that investors

¹⁰⁶ FINRA Investor Education Foundation, *Investors in the United States 2016* (2016), <https://bit.ly/2EcbFJp>.

¹⁰⁷ Netherlands Authority for the Financial Markets, *Self-directed investors: important insights* (2015), <https://bit.ly/2IJLpVq>.

compare options and, finally, that knowledge and experience are good predictors of investor behaviour—tend not to align with real-world investor behaviour.

Some projects focused on a specific demographic of investors. Examples include France AMF's study, currently underway, on aging populations and loss of cognitive skills and abilities. This research aims to understand how older individuals' decision-making processes change as they age, to identify specific challenges that may exist when they are buying or selling investment products as well as potential regulatory tactics for addressing these challenges.

In addition, Ontario OSC completed companion qualitative and quantitative studies on older investors and Millennials in 2017-18. *Investing As We Age*¹⁰⁸ found that many pre-retired Ontarians don't have a retirement plan and are relying on rising home prices to fund their retirement. The companion study *Encouraging Retirement Planning through Behavioural Insights*¹⁰⁹ identified behaviourally-informed tactics stakeholders can apply to make retirement planning simpler and less stressful, and tested some of these tactics using an RCT. *Missing Out: Millennials and the Markets*¹¹⁰ found that while four in five Ontario millennials (aged 18–36) have savings, only one in two have investments, and that factors keeping millennials out of the capital markets were not limited to economic constraints—they also included low knowledge of investing and fear of losing money in the markets. The companion study *Getting Started: Human-Centred Solutions to Engage Ontario Millennials in Investing*¹¹¹ used qualitative interviews with millennials to examine key barriers to investing and identify principles that can guide the design of products, services and programs that better engage with younger prospective investors.

US FINRA also recently published a report on the challenges faced by millennials in the capital markets: *Uncertain Futures: 7 Myths about Millennials and Investing*,¹¹² an October 2018 research study by the FINRA Foundation and the CFA Institute, focused on U.S. millennials' investing behaviours and attitudes, as well as their perceptions of the investment profession. The study used an online survey of 2,828 millennials and eight webcam focus groups with millennials, plus an additional webcam focus group with millennial financial advisers, to shed

¹⁰⁸ OSC Investor Office, *Investing As We Age* (2017), <https://bit.ly/2Obo98N>.

¹⁰⁹ OSC Staff Notice 11-783, *Encouraging Retirement Planning through Behavioural Insights* (2018), <https://bit.ly/2Cy7CWq>.

¹¹⁰ OSC Investor Office, *Missing Out: Millennials and the Markets* (2018), <https://bit.ly/2FpQL6h>.

¹¹¹ OSC Staff Notice 11-782, *Getting Started: Human-Centred Solutions to Engage Ontario Millennials in Investing* (2018), <https://bit.ly/2OPuvdo>.

¹¹² Zeldis Research Associations, FINRA Investor Education Foundation, and CFA Institute, *Uncertain Futures: 7 Myths about Millennials and Investing* (2018), <https://bit.ly/2C7bZGQ>.

light on barriers to investing and effective means to increase the percentage of millennials investing for their future, among other topics. The report concludes, among other things, that while debt and income are major barriers to investing, a lack of knowledge is also a major hurdle to getting started. The report adds that access to an employer-sponsored retirement account is a key stepping stone to investing.

Many respondents are also applying qualitative and quantitative research on retail investors to design educational programs. For example, Brazil CVM's multidisciplinary Financial Planning for Communities project, which aims to design a new financial literacy product for the Brazilian middle class, will conduct a qualitative study (guided by design thinking) where research subjects describe their financial life in a live interaction with researchers. The project is also informed by economic data on the target audience, and psychologists are designing an evaluation questionnaire based on relevant psychological and socioeconomic frameworks. In addition, Brazil CVM's "Financial Wellness Program," an educational initiative whose main goal is to improve the financial well-being of participants and their families by providing concepts, practices, and tools to help them plan, manage and organize their financial lives, is under qualitative evaluation in its pilot phase.

3.1.2 Insight into the retail investor decision-making process

Respondents also are using qualitative and quantitative research to understand how retail investors make decisions in practice, including the sources of information these investors use and the relative weights they place on these sources before making a decision. This type of research may be helpful in assessing the likely effects and effectiveness of disclosure in promoting more informed decision-making in a given context.

Several jurisdictions, including Australia ASIC, Germany BaFin, Hong Kong SFC, Malaysia SC, Ontario OSC, Portugal CMVM, Quebec AMF, Singapore MAS, and US FINRA, have carried out surveys and other forms of research aimed at understanding the retail investor decision-making process. For example, US FINRA's *Investor Survey 2016* included questions asking retail investors how they make decisions and use disclosures, finding that investors were most likely to rely on information from the company being invested in as well as financial services companies and financial advisors. The survey also found that investors tended to prefer receiving paper disclosures and tended to at least skim disclosures received. Portugal CMVM staff have been involved in several research projects focused on investor behaviour, including with respect to investors in structured retail products, the influence of home country bias on investor

behaviour, and whether the sources of information used by investors in making an investment decision influences the degree to which they are overconfident in their choices.¹¹³

A number of respondents supplemented, or plan to supplement, survey results with lab-based and other experiments that could further inform policymaking. For example, Malaysia SC's research on investor decision-making included a focus group and computer-aided personal interviews.

Several respondents chose to focus on investor decision-making within a specific channel or sector. For example, in 2016, Australia ASIC commissioned qualitative market research on retail investors in IPOs.¹¹⁴ The research included two stages of qualitative interviews with recent IPO participants (the first stage comprised 17 participant-led interviews, and the second comprised 24 semi-structured interviews focusing on specific issues raised in the first stage). These interviews were conducted by phone to increase geographic representation of the research. The research revealed that there was no one set decision-making path followed by retail IPO investors and that formal disclosure competed with a wide range of other influences. In general, however, retail investors valued information that they perceived to be independent and easy to understand and that had been prepared by someone they perceived as having a high level of expertise (*e.g.*, financial media).¹¹⁵ The prospectus was seen as a key source of information, although many retail investors said the document was hard to read and could not be relied on to tell the whole truth about an IPO (given that it was perceived to be a marketing document). A behavioural analysis of the market research findings by Australia ASIC staff described several potential behavioural factors that may influence a retail investor's IPO investment journey, such as social factors, cognitive overload and confirmation bias (*e.g.*, an initial recommendation from a financial commentator or friends and family can play an outsized role in influencing investment pathways and decisions).

In addition, in 2014, Australia ASIC commissioned research to examine how behavioural biases might affect individuals' decision to purchase "hybrid securities" (products that combine aspects

¹¹³ See Margarida Abreu and Victor Mendes, "The investor in structured retail products: Advice driven or gambling oriented?", 17 *Journal of Behavioral and Experimental Finance* 1 (2018); Margarida Abreu and Victor Mendes, "Information, Overconfidence and Trading: Do the Sources of Information Matter?", 33 *Journal of Economic Psychology* 868 (2012); Margarida Abreu, Victor Mendes and João A.C. Santos, "Home Country Bias: Does Domestic Experience Help Investors Enter Foreign Markets?", 35(9) *Journal of Banking and Finance* 2330 (2011); Victor Mendes, "The Investor in Warrants" (CEFAGE-UE Working paper 2012/19).

¹¹⁴ ASIC Report 540, *Investors in initial public offerings (IPO)* (2017), <https://bit.ly/2zZI4yT>.

¹¹⁵ *Ibid.*

of equity and fixed income investments).¹¹⁶ Australia ASIC was concerned that investors may be underestimating the risks associated with these investments. In the laboratory experiment, research participants developed a hypothetical investment portfolio, allocating their money between shares, government bonds, and hybrid securities, and were told they would be compensated based on the simulated outcomes of their investments. Participants were also tested for certain behavioural biases and traits. The research found that participants more susceptible to illusion of control, overconfidence and framing were more likely to allocate a larger part of their portfolio to hybrid securities. Those more susceptible to ambiguity aversion (the tendency to react to ambiguity by making more conservative choices) were less likely to do so.

Brazil CVM conducted two waves of quantitative studies in 2015 to identify investor preferences and perceptions regarding equity crowdfunding. The studies provided Brazil CVM with a better understanding of participants' risk attitudes, their reasons for (not) investing via crowdfunding, the information they wanted to receive before making a purchase decision, and the most important factors investors consider when making an investment decision. 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. The research findings influenced the development of Brazil CVM's crowdfunding rule.

3.1.3 Insight into investment sales practices and the investment professional-client relationship

Examining how investment products are marketed and sold in practice was a third theme for respondents' contextual research. This type of research can identify market failures and provide an impetus for designing behaviourally-informed responses to these failures. It may also help highlight the limits of certain tools intended to promote informed investor decision-making, such as mandated disclosures.

Several respondents, including Australia ASIC, France AMF, Jersey JFSC, Ontario OSC, and Spain CNMV, reported using mystery shopping to identify potential market failures and topics for further thematic review. For example, France AMF's mystery shops focus on the financial advice bank employees provide to their clients or prospective clients, face-to-face or online.¹¹⁷

¹¹⁶ ASIC Report 427, *Investing in hybrid securities: explanations based on behavioural economics* (2015), <https://goo.gl/4SME9q>.

¹¹⁷ France AMF, *Binary options/Forex mystery shopping: the dubious practices of trading websites*, AMF Households Savings Observatory Newsletter No. 12 (2015), <https://bit.ly/2RIJ6ur>; France AMF, *Results of "Online investment subscription" mystery shopping campaign* (2018), <https://bit.ly/2S6UuPi>.

To carry out these mystery shops, France AMF hires a service provider to send “mystery shoppers” to different firms. In an online mystery shop, mystery shoppers attempt to open accounts, carry out transactions and try to recover what is left of the money they had deposited. In 2014, France AMF conducted online tests on trading websites offering binary options and forex trading. These mystery shops highlighted a number of compliance deficiencies, including customer questionnaires that were not administered, aggressive commercial practices (*e.g.*, many reminders or follow-up messages, and misleading statements), and significant difficulty in recovering the money invested. More recently, at the end of 2017, ahead of the coming into effect of the Markets in Financial Instruments Directive II (MiFID II), the AMF employed mystery shopping to gain a clear picture of the practices of internet operators, online banks, and fintech companies, and to measure the progress that traditional retail banks have made in relation to the subscription of online investments.

Respondents have also applied a behavioural lens to examine the likely effects of investment fee complexity on retail investors. For example, in 2017, Ontario OSC and Quebec AMF investment fund staff, as part of a Canadian Securities Administrators (CSA) project on embedded fees in mutual funds, found evidence that the lack of saliency of embedded commissions reduces investors’ awareness of dealer compensation costs and that embedded commissions add complexity to fund fees that inhibits investor understanding of such costs, even when these fees are fully disclosed.¹¹⁸

In a similar vein, in 2017, Quebec AMF held focus groups with individual retail investors to gain insights into investors’ perceptions, knowledge and viewpoints regarding investment fees.¹¹⁹ Three focus groups with 27 individual investors revealed that, in general, the majority of participants had limited knowledge about how their investment dealer is compensated and what services the dealer provides in exchange for this compensation. After receiving an explanation of three different compensation models used by investment dealers in Canada—fee-based compensation, trailing commissions, and deferred sales charges (DSC)—participants were generally able to discern the major advantages and disadvantages of the fee-based and trailing commissions options, and indicated they would like to be able to choose between these two options. Participants found the DSC model complex, opaque, and undesirable, with almost all of

¹¹⁸ CSA Consultation Paper 81-408, *Consultation on the option of discontinuing embedded commissions* (2017), Appendix A and Appendix C, <https://bit.ly/2PpWf5E>.

¹¹⁹ Quebec AMF, *Report on principal findings of Autorité des marchés financiers focus groups with individual investors* (2018), <https://bit.ly/2IJEc7G>.

them stating that they would not choose this option. The CSA has published for comment proposed rules that would discontinue the charging of DSCs.¹²⁰

In 2017, Australia ASIC conducted a mixed method project to explore investment advice given with respect to self-managed retirement funds (SMSFs) through quantitative and qualitative consumer research about SMSF investor experiences, a surveillance review of actual advice received by people who purchased investments through this channel, analysis of aggregate financial outcomes of investors using data from the Australian Taxation Office, and a literature review.¹²¹ The qualitative consumer research comprised 28 ethnographic interviews with a mix of relatively new and more established SMSF investors. The quantitative research comprised an online survey of 457 SMSF investors, again with a mix of newer and more established investors. Participants were sourced through an independent market research panel and through the Australian Tax Office. In addition, ASIC engaged an independent expert to review 250 real client files where personal advice to set up an account was provided to the client by an advice provider. The investor research revealed limited use and understanding by investors of disclosure documents such as Statements of Advice (SOAs). Instead, investors tended to be more influenced by convenience and social factors such as trust-based relationships.

Respondents have also examined the marketing practices of those selling investment products, again applying a behavioural lens. In 2017, France AMF published two studies analyzing forex and binary options marketing techniques, identifying key social influence techniques used to market speculative trading in these products.¹²² These studies included a qualitative analysis (content analysis) of marketing material collected by France AMF (made up of advertisements, emails, complaints, testimonials and Skype conversations between harmed investors and their trading advisor). The findings show that marketing of speculative trading is based on the use of persuasion criteria, including the credibility of trading companies and their advisors, and on the use of influence techniques, such as commitment, reciprocity and social proof. The studies also identified a process of escalating commitment that might lead investors to persist in an unprofitable course of action, as advisors encourage them to invest fresh money to recover their losses. The research findings influenced France AMF's enforcement and regulatory responses to

¹²⁰ CSA Notice and Request for Comment, *Proposed Amendments to National Instrument 81-105 Mutual Fund Sales Practices and Related Consequential Amendments* (2018), <https://bit.ly/2C5hHZB>.

¹²¹ ASIC Report 576, *Member experiences with self-managed superannuation funds* (2018), <https://bit.ly/2A03LP8>.

¹²² Lionel Rodrigues and Fabien Girandola, "Analysis of techniques used to market speculative trading in Forex and binary options with regard to research on compliance without pressure, persuasion techniques and nudges" (AMF Scientific Working Papers, 2017), <https://bit.ly/2CxeYcA>; France AMF, "Perspectives on the techniques used to market speculative trading on the Forex and binary options markets" (Risk and Trend Mapping, 2017), <https://bit.ly/2A0zdN8>.

the marketing of these products. It should be noted that forex and binary options have been banned or restricted in many jurisdictions, including France since mid-2018—purely disclosure-based approaches have widely been determined to be insufficient to address widespread fraud and misleading marketing in this sector.

Belgium FSMA also applied behavioural insights to identify areas where disclosure-based approaches to regulation are insufficient to address market failures. For example, Belgium FSMA imposed a moratorium on structured retail products in 2011 and has imposed other limits on the sales of other investment products.

Thailand SEC also carried out an examination of the marketing materials used by certain funds, finding that many had been framed in such a way that investors could easily be left with the false impression that these funds offer guaranteed returns. In response, Thailand SEC revised related disclosure rules in an effort to direct investors' attention towards factors other than past performance, such as risk. Thailand SEC plans to collect feedback on the changes through short investor surveys.

Consumer complaints and inquiries can also provide important data on potential market failures. Argentina CNV, for example, is examining ways of aggregating and analyzing data on consumer complaints and inquiries to influence its investor education activities and research on investor behaviour. Germany BaFin also evaluates calls to its consumer helpline and complaints received via other channels for patterns.

Italy CONSOB and Ontario OSC's independent Investor Advisory Panel ("IAP") also have carried out, and France AMF is carrying out, reviews of "know your customer" questionnaires.¹²³

- Italy CONSOB's review found that the questions used to assess customers' investment knowledge and experience were poor—questions were often vague or complex, and often relied on individuals' self-evaluation of their investment knowledge rather than testing verifying familiarity with basic concepts like the relationship between risk and expected return and portfolio diversification. The review also found that the way questions elicit risk tolerance does not control for those cognitive and behavioural biases which could induce flawed answers.

¹²³ N. Linciano and P. Soccorso, *Assessing investors' risk tolerance through a questionnaire* (Italy CONSOB Discussion paper no. 4, 2012), <https://bit.ly/2yprCG0>; Shawn Brayman *et al.*, *Current Practices for Risk Profiling in Canada And Review of Global Best Practices* (prepared for the Investor Advisory Panel of the OSC, 2015), <https://bit.ly/2C3vsrY>.

- Ontario OSC IAP’s study reached similar findings with respect to questionnaires used in Canada, concluding that only 16.7 per cent of the questionnaires reviewed would be considered “fit for purpose.” Many had poorly worded, confusing, or logically inconsistent questions; arbitrary scoring models; and no mechanism to recognize risk-averse consumers who should remain only in cash or cash equivalents.

Relatedly, Jersey JFSC is undertaking a themed examination program focused on assessing how client investment risk profiles are ascertained and the nature and extent of communication with the client to ensure their full awareness and understanding of the risks associated with particular products or strategies.

3.2 Research on the Topic Areas

Regulators are applying a variety of methodologies, in collaboration with a variety of partners—from vendors, to other regulators or government organizations, to universities and private sector firms—to review the effectiveness of existing initiatives falling under the Topic Areas and to help design new initiatives focused on improving outcomes for retail investors. This research illustrates, however, that retail investors’ needs and priorities can vary widely depending on context, making it difficult to extract from the research any simple or universal rules securities regulators can apply when addressing the Topic Areas.

Nonetheless, the research completed by the respondents does offer potentially helpful insights for designing and developing research falling within the Topic Areas, as outlined in Section 1.2 above. Applying these insights entails adopting a culture of testing: of understanding the investor context and testing initiatives in this context before implementing them. The survey responses received reflect regulators’ significant interest in and commitment to adopting such a culture.

3.2.1 Disclosure design

Respondents’ disclosure design research reveals that the effects of changes in disclosure on individuals’ perceptions and decisions (or lack thereof) are often surprising. For example, US FINRA, through the FINRA Investor Education Foundation, has provided grant funding to academic researchers looking at investors’ use of specific disclosures. These include:

- “Can Online Disclosure Design Affect Investor Understanding And Performance?”,¹²⁴ which suggests that formatting a financial prospectus within an accordion navigation design can benefit novice users, yet it may have adverse effects on experienced investors;
- “Empowering Investors With Social Annotation When Saving For Retirement,”¹²⁵ which suggests that exposing consumers to the online comments of other users, known as social annotation, may be an effective way to help non-expert investors make better-informed decisions;
- “Can Psychological Aggregation Manipulations Affect Portfolio Risk-Taking?”,¹²⁶ which suggests that changing the level of return disclosure aggregation (*e.g.*, weekly returns vs. six-month returns) is unlikely to have an impact on portfolio risk-taking in real-life financial portfolios; and
- “How Does Simplified Disclosure Affect Individuals’ Mutual Fund Choices?”,¹²⁷ which found that a summary prospectus did not change, let alone improve, portfolio choices among research subjects (though it enabled investors to make choices more quickly).

An Australian academic laboratory experiment studying the use of summary disclosures prescribed and independently user tested by Australia ASIC found that research subjects’ (university staff and students) investment choices were disproportionately influenced by the visual framing of asset allocation information included in the disclosures in the form of a pie chart—when this information was present, subjects tended to pursue “naïve diversification” by choosing investments with more, and more evenly weighted, asset class allocations, with information on expected return and risk appearing to be less influential. The experiment illustrated how easily visual features designed to be helpful to consumers could instead lead to perverse negative outcomes (*e.g.*, a situation in which a consumer choice reflects a heuristic rather than a true preference) and/or be easily manipulated by motivated financial service providers.¹²⁸

¹²⁴ Jeremy Burke *et al.*, “Can Online Disclosure Design Affect Investor Understanding And Performance?” (2018), <https://bit.ly/2Eco8vY>.

¹²⁵ Jeremy Burke *et al.*, “Empowering Investors With Social Annotation When Saving For Retirement” (2018), <https://bit.ly/2U8XjNP>.

¹²⁶ John Beshears *et al.*, “Can Psychological Aggregation Manipulations Affect Portfolio Risk-Taking? Evidence from a Framed Field Experiment,” 30(6) *Review of Financial Studies* 1971 (2017).

¹²⁷ John Beshears *et al.*, “How Does Simplified Disclosure Affect Individuals’ Mutual Fund Choices?” (NBER Working Paper No. 14859, 2010).

¹²⁸ Bateman *et al.*, note 58 above.

Respondents' research also indicates that different investors are likely to react to the same disclosure design differently. For example, in partnership with Marche Polytechnic University, Italy CONSOB tested disclosure templates offering different methods of framing the risk, return, and costs of four investment products (two bonds and two stocks) with a sample of 254 Italian investors under 70 years of age who had made a change to their portfolio at least once in the past year.¹²⁹ For each disclosure format, investors were asked to rank the products presented by risk level and say how much they would invest in each product. After reviewing each disclosure format, investors were also asked to rate the complexity and usefulness of the different framing modes. The research found that investors' risk preferences and financial decisions were sensitive to the way in which disclosure was presented, but also that investors' preferences and ability to use the different disclosure designs varied—no single design or means of presenting information stood out as optimal for all investors.

Several regulators have integrated or are integrating testing into their disclosure design and review processes. The US SEC, for example, has conducted a number of research projects involving investor testing focused on retail investors' understanding of disclosures. For example, the US SEC commissioned a three-part survey to understand investors' perception, use, and comprehension of mutual fund annual reports.¹³⁰ 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 portfolio holdings and fund expenses as essential information. Separately, the US SEC has also collected data on individual investors' use, comprehension, and perceptions of target date retirement funds, tested via an online survey of a national panel of individual investors.¹³¹

Thailand SEC, in designing mutual fund fact sheets to be more accessible to retail investors, conducted a focus group, survey, and interviews, collecting feedback in relation to investor behaviour in using information from fund fact sheets for investment decision-making. These methods were used to better understand investors' challenges with or unwillingness to read or use fund fact sheets and inform Thailand SEC's approach to disclosure requirements in this area.

¹²⁹ M. Gentile *et al.*, "Financial disclosure, risk perception and investment choices: evidence from a consumer testing exercise" (Italy CONSOB Working paper no. 82, 2015), <https://bit.ly/2OSiZOm>.

¹³⁰ Siegel + Gale, *Investor Testing of Selected Mutual Fund Annual Reports* (Commissioned by the US SEC, 2012), <https://bit.ly/2y814MI>.

¹³¹ Siegel + Gale, *Investor Testing of Target Date Retirement Fund (TDF) Comprehension and Communications* (Commissioned by the US SEC, 2012), <https://bit.ly/2CAB10X>.

Malaysia SC also made use of focus groups to test the design and content of a product highlights sheet for investments.

Additional examples of disclosure testing include Belgium FSMA's testing of a proposed risk label to be included on financial product disclosures; US FINRA's testing of recruitment disclosure documents aimed at educating consumers who are contemplating transferring assets to an account assigned to their broker at a new firm; Ontario OSC and Quebec AMF's research, as part of the CSA, on the effectiveness of annual fee and performance reports and point-of-sale disclosures delivered to retail investors (currently in progress); US FINRA's testing of pricing information included in retail investor trade confirmations for fixed income securities; and Sweden FSA's testing of a new form that life policy holders can use to transfer their pension capital from one life insurance company to another. France AMF also conducted in 2018 a study on investors' understanding of Key Information Documents and commercial brochures for structured products.¹³²

Netherlands AFM carried out two projects focused on the effects of disclosures included in marketing materials. They found that a required warning included in advertisements for consumer credit, reading "Caution! Borrowing money costs money", did not appear to have any short-term effects on consumer behaviour.¹³³ Netherlands AFM did find, however, that salient references to regulatory oversight in investment advertisements lead to significant increases in willingness to invest and decreases in perceived risks, suggesting that regulatory oversight of securities offerings can be perceived by retail investors as an endorsement of the products being offered.¹³⁴

Respondents planning to test new or existing disclosures include Hong Kong SFC, which is examining how investment decisions may be influenced by disclosure and its presentation in consumer facing documents of benchmarks and transaction costs; and Singapore MAS, which is also planning to use testing to influence proposed enhancements to existing product highlight sheets and its presentation of its investment rating framework.

¹³² France AMF, *Structured products: the legibility of information documents*, AMF Household Savings Newsletter No. 30 (2018), <https://bit.ly/2COV7Dj>.

¹³³ Netherlands AFM, *Caution! Borrowing money costs money: A study of the effectiveness of a warning in credit advertisements* (2016), <https://bit.ly/2y9qIhp>.

¹³⁴ Ruben Cox and Peter de Goeij, *Regulatory Certification, Risk Factor Disclosure and Investor Behaviour* (last revised 24 August 2018), <https://bit.ly/2ydajIX>.

3.2.2 Online interfaces

Respondents reported engaging in or planning to engage in a range of different types of research on online interfaces and retail investor behaviour. This includes research on the ways in which the online presentation of disclosure may provide opportunities for organizing and presenting disclosure in non-traditional ways, user experience research (involving user interaction with existing and/or prototype online interfaces), as well as testing on how changes in context – such as the screen used to view information, or the design of a particular interface – may influence what users focus on and how they understand and use information presented to them.

US FINRA Foundation has funded two studies focusing on the potential of online disclosure. The first, *Can the Internet Transform Disclosure for the Better?*,¹³⁵ identifies several promising means of leveraging the internet to achieve the goal of better disclosure, including by allowing for the layering and personalization of disclosure so that investors can choose the level of detail they wish to receive and how they prefer for it to be presented (for example, they could specify that investment fees be displayed as a dollar amount or as a percentage depending on their preference); the ability to package disclosures with tools, calculators, and other educational materials to improve investor comprehension; and increased capacity to incorporate graphic and video elements to make disclosure more appealing and accessible. The second study, *Transforming Disclosure through Interaction: The Effects of Using Interactive Disclosures on Consumers' Investment Behavior, Disclosure Understanding and Decision Competence*, is currently underway, and examines how variations of interactive disclosures impact consumers' willingness to invest, choice of funds, understanding of key features of investment products such as fees and risk, and subjective perceptions of making a sound investment decision.¹³⁶

Both Italy CONSOB and AMF Quebec have subsidized or carried out research focused specifically on crowdfunding portals. AMF Quebec subsidized research to help design new crowdfunding rules. The research examined how potential investors in Quebec behave on the internet in equity crowdfunding environments through laboratory experiments. Researchers also compared current practices on websites already offering equity crowdfunding around the world. The laboratory experiments found that it would be preferable to present crowdfunding risks and the risk awareness questionnaire before asking investors to enter the amount they want to invest. Italy CONSOB's research focused on the effectiveness of and regulatory burdens imposed by existing crowdfunding regulations. This research involved a targeted survey of 35 investors and

¹³⁵ Barbara Roper, *Can the Internet Transform Disclosure for the Better?* (Consumer Federation of America, with support from US FINRA, 2014), <https://bit.ly/2IQFTAB>.

¹³⁶ See notes 124 and 125 above and accompanying text.

operators identified through a mapping of representative stakeholders. It found that crowdfunding participants in Italy are overwhelmingly venture capital firms and highly sophisticated investors. The very low rate of retail investor participation in this sector led Italy CONSOB to adopt measures intended to reduce the regulatory burden of its crowdfunding rules.

Italy CONSOB is also planning to carry out an experimental study on the impact of robo advice on risk perception and risk attitude, as well as the role of robo advice on the demand for investment advice and on the advice gap.

Australia ASIC and US FINRA have employed user experience testing to design and assess the effectiveness of online disclosure interfaces. Australia ASIC’s testing focused on short form disclosure dashboards in Australia’s compulsory retirement savings sector.¹³⁷ ASIC commissioned market research to create an online community of Australians who either had a retirement account or were in the process of creating one. This methodology allowed researchers to present different versions and components of the dashboards to participants over several days. The dashboard user tests found, among other things, that people were sensitive to small design details (*e.g.*, size, order, consistency, placement, format, and terminology), but at the same time, that consumer preferences for information presentation varied significantly—there was no single, universal approach that suited everyone. In addition, support for the dashboards varied: some said they would use them, while other disengaged or expressed doubt that they would use the dashboards in the “real world”. US FINRA conducted focus groups and a quantitative survey to assess users’ overall impressions and potential usage of two websites directed at retail fixed income investors (the current “Market Data Centre” and a new “Concept” site). This research found that users preferred the new Concept website to the existing Market Data Centre, and bond price and credit quality were rated the most important pieces of content.

Investor education websites offered by many securities regulators provide additional opportunities to employ user experience testing. For example, Australia ASIC undertakes a range of user testing of some of the tools and apps on its MoneySmart investor education website during concept development, design and evaluation. At times eye-tracking software has been used to observe what people are paying attention to on apps and the website. Thailand SEC is in the process of redesigning its investor education website and plans to take user experience and user interface feedback into account in this redesign. Experience gained applying user experience testing to an investor education website could be applied to design and carry out user experience testing of other online interfaces discussed in this report. Findings from this research can provide

¹³⁷ ASIC Report 378, Consumer Testing of the MySuper Product Dashboard (2013), <https://bit.ly/2ILskSV>; ASIC Report 455, Consumer Testing of the Choice Superannuation Product Dashboard (2015), <https://bit.ly/2NvGasj>.

insight into user behaviour, though they may not necessarily reflect, in all respects, how consumers will or do use an interface in a real-world setting, and as a result it may be prudent to exercise a degree of caution in applying the results of such research.

3.2.3 Timeliness of information

Research on effects of the timing of delivery of information on investor decision-making remains relatively nascent, though regulators are acting on hypotheses regarding timing effects in their educational and other activities. In addition, broader projects focused on the effectiveness of disclosure or of an online platform sometimes uncover findings relating to timing.

Australia ASIC commissioned independent research to understand the process through which add-on insurance is sold through car yards.¹³⁸ Qualitative research was undertaken with people who had recently been sold add-on insurance. Australia ASIC staff also carried out a behavioural analysis of the qualitative research findings. The research showed that the time at which add-on insurance is sold to consumers—at the end of the vehicle sales process—leaves individuals with decision fatigue, which makes them less able to review relevant disclosures and think through the decision to buy. That many people had no awareness of add-on insurance before it was actively sold to them in the car yard does not help—these types of surprises are especially difficult to process when consumers were already overloaded with information and had made many decisions that day.

AMF Quebec’s research relating to crowdfunding, discussed above, uncovered findings relating to timing—this research found that it would be preferable to present crowdfunding risks and the risk awareness questionnaire before asking investors to enter the amount they want to invest.

Some regulators try to maximize the amount of attention given to new educational resources by “chunking” them together with related policy developments that are likely to attract media and financial sector attention. Thailand SEC, for example, seeks to release educational materials at the same time as related policy developments are announced.

3.3 Challenges faced in integrating behavioural insights

One challenge cited by many respondents in integrating behavioural insights into their work was lack of expertise. Some respondents reported that they are planning to establish free-standing behavioural insights units within their organizations to lead behavioural insights research and

¹³⁸ ASIC Report 470, *Buying add-on insurance in car yards: Why it can be hard to say no* (2016), <https://bit.ly/2CypRe6>.

application, while other respondents are integrating behavioural insights specialists into their normal regulatory and research staff. Many regulators may lack the resources to establish a free-standing behavioural insights research team capable of carrying out RCTs and other experiments on its own. These regulators may therefore rely on vendors and other partners with the expertise to design and carry out behavioural insights research on their behalf.

Of course, regulators are not faced with an “either or” choice between building in-house behavioural insights capacities and relying entirely on external vendors. A limited number of in-house staff with a background in regulatory policy and exposure to research methods can support behavioural insights research by acting as translators between the policy and research worlds—ensuring that a vendor’s research questions and outputs align with the regulator’s policy priorities. In-house staff can also bring market intelligence to the table by helping regulators select vendors with strong reputations in academic circles who can make substantial contributions to a regulator’s research agenda.

Educating regulatory staff on behavioural insights and its implications for securities regulation is a priority for many respondents. Respondents reported using a variety of tactics for doing so. Australia ASIC reports sending a behavioural update newsletter to staff, and making available a behavioural insights intranet, tools, and tip sheets for staff. Australia ASIC, Japan FSA, Ontario OSC, and US SEC report inviting behavioural insights scholars and practitioners to discuss their research with staff. Ontario OSC also organizes lunch and learns with staff focusing on particular topics identified by them.

A working paper or report focused on the application of behavioural insights to financial education, investor behaviour, or securities regulation more broadly, can serve as a basis for designing presentations to and otherwise educating internal staff and stakeholders on the relevance of behavioural insights to securities regulators’ work. Examples include Japan FSA’s discussion paper *The application of behavioural insights to financial education*, published in 2016,¹³⁹ Netherlands AFM’s *The application of behavioural insights*, also published in 2016,¹⁴⁰ Ontario OSC’s *Behavioural Insights, Key Concepts, Applications, and Regulatory Considerations*, published in 2017,¹⁴¹ and the US SEC’s *Annotated Bibliography on the*

¹³⁹ Satoshi Kawanishi and Makiko Hashinaga, *Application of Behavioral Economics to Financial Education: Shift in Focus from Behavioral Bias to Mindset Bias* (JFSA Financial Research Center, Discussion Paper 2015-3, 2016), <https://bit.ly/2Pod6pl> (Available in Japanese only).

¹⁴⁰ Dutch Authority for the Financial Markets, *AFM and the application of behavioural insights* (2016), <https://bit.ly/2OhlcU2>.

¹⁴¹ Ontario OSC, note 22 above.

*Behavioural Characteristics of U.S. Investors*¹⁴² and *Behavioural Patterns and Pitfalls of U.S. Investors*, each published in 2010;¹⁴³ France AMF has also published a series of working papers focused on different applications of behavioural insights to securities regulation, beginning in 2006.¹⁴⁴

Respondents that have already carried out behavioural insights research cited the applicability of findings from this research as another challenge. Findings are context-dependent, such that differences in age, geography, employment, and education level among a target population or an altered situation or time frame may mean different needs. That many experiments rely on games and scenarios has been cited as another limitation, as the choices made in these environments may differ from real-world choices.

¹⁴² Library of Congress, *Annotated Bibliography on the Behavioral Characteristics of U.S. Investors* (2010), <https://bit.ly/2OLpoeo>.

¹⁴³ Library of Congress, *Behavioral Patterns and Pitfalls of U.S. Investors* (2010), <https://bit.ly/2NyEDT6>.

¹⁴⁴ France AMF, “Scientific Advisory Board Conference of the Autorité des marchés financiers – Financial Education in the Digital Era: What challenges for Savings?” (20 June 2016), programme and conference papers available at <https://bit.ly/2pIpg10>; France AMF, “Scientific Advisor Board Review no. 2” (7 July 2015), papers available at <https://bit.ly/2ybxtPP>; Jean-Philippe Bouchard and Damien Challet, Behavioral finance and financial markets: arbitrage techniques, exuberant behaviors and volatility (Opinions & Debats No. 6, 2014), <https://bit.ly/2CyotIC>; Bruno Séjourné, *How do French investors integrate the time factor into their portfolio management?* (France AMF Working Paper No. 4, 2007), <https://bit.ly/2C6QfLh>; Bruno Séjourné, *Why Is the Behaviour of French Savers so Inconsistent with Standard Portfolio Theory?* (France AMF Working Paper No. 1, 2006), <https://bit.ly/2Pq76wr>.

APPENDIX A
WORKING GROUP MEMBERS

Australia ASIC

Brazil CVM

Italy CONSOB

Japan JFSA

Malaysia SC

Ontario OSC (Chair)

Singapore MAS

Spain CNMV

Sweden FI

APPENDIX B
SURVEY RESPONSES RECEIVED

1. Argentina CNV
2. Australia ASIC
3. Belgium FSMA
4. Brazil CVM
5. France AMF
6. Germany BaFin
7. Hong Kong IEC
8. Indonesia IFSA
9. Italy CONSOB
10. Japan FSA
11. Jersey JFSC
12. Malaysia SC
13. Mexico CNBV
14. Netherlands AFM
15. Ontario OSC
16. Portugal CMVM
17. Quebec AMF
18. Russia, Bank of
19. Singapore MAS
20. Spain CNMV
21. Sweden FSA
22. Thailand SEC
23. US FINRA
24. US SEC

APPENDIX C

SURVEY QUESTIONS

Survey of IOSCO Members: Application of Behavioural Insights to Retail Investor Protection

Behavioural insights originate from research findings from social sciences (such as psychology, behavioural economics, and anthropology) and other fields (such as neurosciences and psychiatry) dedicated to understanding how people behave and make decisions. The public sector is increasingly using behavioural insights to analyze problems and design more effective interventions (for instance, by changing the way options are presented or setting defaults), aiming to achieve behaviour change and policy goals.

In June 2013, the IOSCO Board agreed to embed these insights in IOSCO's approach to regulatory work. As part of this work, IOSCO Committee 8 (Retail Investors) is undertaking a research project on the application of behavioural insights to retail investor protection, with a focus on how the design of disclosures and online interfaces, as well as the timing of delivery of information to retail investors, influences the choices these investors make. The purpose of this survey is to collect IOSCO members' experiences applying behavioural insights in these areas to inform this project.

Additional background on behavioural insights can be found in *The Application of Behavioural Insights to Financial Literacy and Investor Education Programmes and Initiatives*, a joint research report published by IOSCO and the OECD in May 2018, available at <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD603.pdf>.

For additional information regarding this survey, please contact Tyler Fleming at tfleming@osc.gov.on.ca or Doug Sarro at dsarro@osc.gov.on.ca.

NOTE: To the extent this survey asks you to describe any research or initiatives on which information is already publicly available (e.g., in the form of a report), please feel free to simply refer us to the relevant report or working paper, and we will rely on the description included therein.

A. General questions

1. Contact information (we may contact you for points of clarification; contact details will not be disclosed without prior consent).
 - a. Organization name:

b. Primary survey contact:

c. Email address:

2. Please briefly describe your organization’s **past experience** applying and/or **plans** to apply behavioural insights to retail investor protection. In particular, has your organization already carried out research in this area or implemented initiatives in this area, or is your organization building its capacity in these areas?

Past experience:

Plans:

3. Please describe any studies your organization **has carried out** or **plans to carry out** in relation to disclosure requirements for retail investors (whether or not focused on behavioural insights). You do not need to respond to this question if you have already described behavioural insights-related research in response to question 2.

Past studies:

Planned studies:

4. Does your organization have **past experience** using any of the following techniques to apply behavioural insights to retail investor protection? Please select all that apply.

- Literature review** – This involves reviewing existing research and reports and developing recommendations based on this review.

- Qualitative research** – Examples of qualitative research include interviews, focus groups, ethnography, qualitative mystery shops (mystery shops may also be quantitative in nature), and human-centred design. These types of studies allow researchers to gather information on consumer preferences on what would be helpful in a disclosure document or other work product, and what is currently unhelpful or confusing.

- Natural experiments** – These include reviews of existing data that can be accessed and analyzed, such as stock or other asset prices, and reviews of data collected through surveys or observations of behaviour.
- Laboratory experiments** – These experiments are carried out in a controlled environment with standardized procedures. For example, research participants may be presented with disclosures for a range of investment products (in-person or via an online interface) and asked which product they would purchase; experimenters could vary the disclosure format to see if this affects participants’ choices. For purposes of this survey, online experiments that are otherwise similar in nature to laboratory experiments should be considered laboratory experiments.
- Field experiments** – These experiments, which include randomized controlled trials, introduce an intervention into the real world to test its effects on consumer behaviour.
- Mixed methods** – Research that employs more than one of the techniques listed above (to the extent your organization employs mixed methods in its research, please also check off each of the methods above that were employed in that research).

For each category (if any) selected above, please comment briefly on one example of an initiative that falls within this category. Please include a description of the specific methodology used, including, in the case of any natural, laboratory or field experiments, whether a control group was used or not.

In the case of any initiatives that employed mixed methods, please describe them under “Mixed Methods” below rather than the headings for the individual techniques (for example, if your organization undertook a mixed methods project employing both qualitative research and a laboratory experiment, please describe it under the space for “Mixed methods,” and feel free to leave the spaces for “Qualitative research” and “Laboratory experiment” blank):

Literature review:

Qualitative research:

Natural experiment:

Laboratory experiment:

Field experiment:

Mixed methods:

5. Does your organization have **past experience** using testing for any of the following purposes, in the context of retail investor protection? Please select all that apply.

- Developing new policy or rule changes
- Reviewing effects of existing policies or rules
- Learning how investors make decisions
- Diagnosing market failures or consumer protection issues

For each category (if any) selected above, please comment briefly on one example of an initiative that falls within this category. Please include a description of the specific methodology used, including, in the case of any natural, laboratory or field experiments, whether a control group was used or not.

Developing new policy or rule changes:

Reviewing effects of existing policies or rules:

Learning how investors make decisions:

Diagnosing market failures or consumer protection issues:

6. Is your organization **planning** on using testing for any of the following purposes, in the context of retail investor protection? Please select all that apply.

- Developing new policy or rule changes
- Reviewing effects of existing policies or rules
- Learning how investors make decisions
- Diagnosing market failures or consumer protection issues

For each category (if any) selected above, please comment on any plans for testing below, to the extent you are in a position to share this information. If available, please include a description of the specific methodology that would be employed, including, in the case of any planned natural, laboratory or field experiments, whether a control group would be used or not.

Developing new policy or rule changes:

Reviewing effects of existing policies or rules:

Learning how investors make decisions:

Diagnosing market failures or consumer protection issues:

7. Who works with your organization on behavioural insights research? Please select all that apply.

- Internal staff
- Academics/university researchers
- Other governments or intergovernmental organizations (e.g., IOSCO, OECD)
- Vendors (i.e., companies that are paid for their services)
- Private sector partners (i.e., banks or investment firms that are not paid to collaborate on an initiative)

If you selected options other than “internal staff,” please describe the organizations/partners with which your organization work below, including their industry and field(s) of expertise, as well as the nature of your organization’s relationship(s) with them:

B. Questions on areas of focus

8. **Disclosure design:** Please describe any **past, current, or planned** initiatives within your organization that use behavioural insights to design disclosures, or that research behavioural insights' implications for disclosure design.

Past initiatives:

Current/planned initiatives:

- a. To the extent these initiatives were (or will be) used to design disclosures, please describe any (planned) efforts to test, or otherwise review the effectiveness of, these design choices after implementation, if any. Please include a description of the specific methodology used, including, in the case of any natural, laboratory or field experiments, whether a control group was used or not.

Testing/review for past initiatives:

Testing/review for current/planned initiatives:

- b. Please describe any assumptions or circumstances that are key to the findings or outcomes of any initiatives described above:

9. **Online interfaces:** Please describe any **past, current, or planned** initiatives within your organization that use behavioural insights to set rules or provide guidance relating to the design of online interfaces (e.g., interfaces used to collect know your customer information, or allowing users to buy and sell investments), or research implications the design of online interfaces might have for investor behaviour:

Past initiatives:

Current/Planned initiatives:

- a. To the extent findings from these initiatives were (or will be) applied in online interface design, please describe any (planned) efforts to test, or otherwise review the

effectiveness of, these applications after implementation, if any. Please include a description of the specific methodology used, including, in the case of any natural, laboratory or field experiments, whether a control group was used or not.

Testing/review for past initiatives:

Testing/review for current/planned initiatives:

- b. Please describe any assumptions or circumstances that are key to the findings or outcomes of any initiatives described above:

10. **Timing of delivery of information:** Please describe any **past, current, or planned** initiatives within your organization that use behavioural insights to define the time at which disclosure or educational content should be delivered to retail investors, or research the times at which retail investors are most likely to be receptive to relevant disclosure or educational content.

Past initiatives:

Current/planned initiatives:

- a. To the extent these initiatives were (or will be) used to set the time of delivery of such materials, please describe any (planned) efforts to test, or otherwise review the effectiveness of, these actions after implementation, if applicable:

Testing/review for past initiatives:

Testing/review for current/planned initiatives:

- b. Please describe any assumptions or circumstances that are key to the findings or outcomes of any initiatives described above:

C. Additional Comments

11. Please describe any challenges or limitations your organization has encountered in undertaking, or seeking to undertake, behavioural insights research in relation to retail investor protection:

12. Please provide any additional comments or information that you believe would be relevant to our research:

APPENDIX D
RESEARCH REPORTS, WORKING PAPERS AND OTHER MATERIALS
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