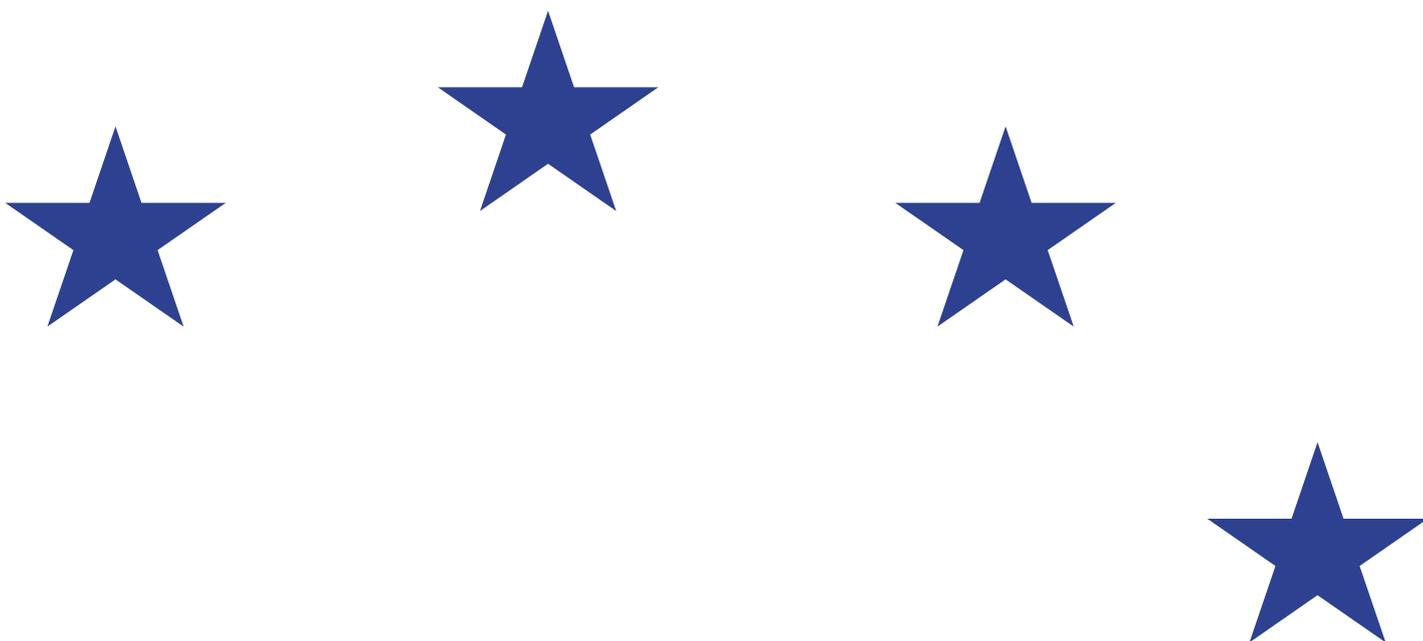


TRV Risk
Analysis

Key Retail Risk Indicators for the EU single market



ESMA Report on Trends, Risks and Vulnerabilities Risk Analysis

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Investor Protection

Key Retail Risk Indicators for the EU single market

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Summary

Monitoring retail risks aims to provide policymakers and supervisors with the information they need to better protect investors. ESMA has a longstanding mandate in this regard and regularly publishes Trends, Risks and Vulnerabilities (TRV) analysis and indicators on consumers. Underscoring the importance of such work, ESMA recently received an additional, explicit mandate to develop retail risk indicators (RRIs). Building on the existing TRV analysis, this article proposes a conceptual framework that defines key terms, considers how to measure risks practically and identifies sources of risk to consumers. Within this framework the set of RRIs should aim to reflect market developments, especially the rise of online- or mobile-based retail trading. Based on regulatory data this article presents a first selection of possible RRIs. These highlight risks around inexperienced investors, use of digital tools by younger investors and spikes in overall trading during periods of market stress.

Introduction

Identifying and understanding the risks that retail investors face is key to ensuring regulatory frameworks and supervision can protect them. In line with this imperative, ESMA has a **longstanding mandate to monitor retail investor trends and risks**. For many years, ESMA has been publishing analyses and indicators relating to consumers in its biannual risk monitor of its Report on Trends, Risks and Vulnerabilities (TRV). Reflecting the importance of retail risk monitoring, since 2020 ESMA has had an additional specific mandate to develop “retail risk indicators for the timely identification of potential causes of consumer and investor harm”.²

Based on **comprehensive and sound retail risk monitoring**, regulators and supervisors can enhance their general risk identification efforts and gain important insights for their prioritisation of supervisory activities in the area of consumer protection. Conversely, information gained from supervision activities on market developments

and on the risk sources identified above can theoretically be a valuable way to assess retail risks.

To provide a basis for extending analysis in this area, ESMA has recently worked on a possible **conceptual framework** specific to retail risk and a set of **proof-of-concept indicators** to complement its existing analysis. This article sets out key ideas explored so far and the outstanding issues for further work.

Consumer risks in markets in the ESMA remit

In using financial products and services, consumers aim at optimising the returns and costs related to their financial assets and liabilities. In doing so, they are naturally confronted with a **wide variety of risks**. Our existing monitoring and analysis highlight that consumers can be subject to such risks in many different ways. A first task in a project to develop retail risk indicators (RRIs) is, therefore, to

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² Article 9(1ab) of the revised ESMA Regulation, which entered into application on 1 January 2020

consider what forms of consumer or investor harm should be the object of focus.

Institutional perspective

One way of conceptualising consumer risk sources is from an institutional perspective, i.e. looking at the financial institutions with which consumers enter into contracts. ESMA's mandate includes many **different types of financial entities**.

Consumers may come into **contact with some of these directly**. For example, a consumer may interact directly with one of the 6,000 investment firms providing investment services in the EU under the markets in financial instruments directive (MiFID). Interactions could take the form of financial advice or execution-only services, for example. Such firms can provide consumers with access to many different financial products and may offer different modes of communication (e.g. telephone, chatbots, in-branch) and interfaces (e.g. mobile or online platforms). Consumers may also interact directly with credit institutions and asset managers when investing in funds, or with firms manufacturing and distributing packaged retail investment and insurance products. Taking the consumer experience as a starting point, consumers may be exposed to poor service from these firms relating to transparency (e.g. missing or non-compliant product disclosures), poor customer services or operational outages.

Consumers are also **exposed to risks indirectly**. For instance, the asset manager of a retail investment fund may be exposed to counterparty risk from other asset managers, from firms providing prime brokerage or from centralised counterparties.

Products and services

A second important aspect in understanding consumer risks in financial markets within ESMA's remit is the **wide variety of products and services** consumers have access to in the EU single financial market.

As investors, EU consumers can decide to **invest** directly in securities, choosing among 8,300 shares, 64,000 bonds and more than 20 million derivative contracts outstanding at any time. Alternatively, they can invest indirectly through fund-style vehicles, which in the EU include more than 35,000 undertakings for collective investment in transferable securities (UCITS) investment funds, 30,000 alternative investment funds, or can purchase one of the 9 million structured retail products. All of these financial instruments come

with different risk and return profiles and varying levels of complexity which, optimally, a consumer should understand before entering into a contract.

In undertaking these investments, consumers purchase **related financial services**, ranging from investment services provided by investment firms to securities trading services from one of the 450 EU trading venues to financial advice and other ancillary services. Again, risks and returns from using these services, along with their quality and speed of provision, can be expected to vary widely.

Sources of consumer risks

Retail risk can arise from a range of sources. We can categorise these into **demand- and supply-based sources** of risk (Table 1). For example, cognitive or behavioural biases are a **demand-based** source, as they arise from consumers' characteristics and impact their decision-making. Such biases may lead investors to select products that are poorly suited to their needs or to 'chase losses', for example. Biases may be generated or exacerbated by **supply-based** sources, such as products being sold with insufficient or misleading information. Some sources of risk – such as market risk – are an integral part of investing and are often accompanied with potential benefits (e.g. higher expected returns). Identifying risks does not necessarily mean that ESMA or authorities need to take action, but a comprehensive account of risk sources helps provide a firm foundation for understanding the risk profile faced by investors.

Some major recent **market developments** are highly relevant to retail risks. As illustrated in this article, retail trading increased markedly during the early stages of the COVID-19 pandemic, amid high market volatility. It appears that at least some of this increase in activity has persisted to the present day. Possible drivers include large increases in household savings rates at the time. Trading has also been an outlet for the increased time spent online during lockdowns. Retail trading rose substantially also in the two months following Russia's invasion of Ukraine.

Digitalisation and new technological tools are a crucial supply-based driver of increased retail trading, giving consumers ready access to markets via online and mobile trading platforms. Digital trading and online forums facilitated the GameStop episode of 1Q21, which highlighted major risks to retail investors.³ In February 2022 the European Supervisory Authorities (ESAs)

³ ESMA (2021), [Statement on episodes of very high volatility in trading of certain stocks](#), ESMA 70-155-11809, 17 February. The GameStop episode chiefly concerned US-based equities but illustrates the ways in which social

media channels can create new kinds of risks for retail investors generally.

published their report in response to the European Commission's Call for Advice on Digital Finance (ESAs, 2022; European Commission, 2021). The report describes structural changes in the financial sector resulting from innovative technologies, including changing value chains, new dependencies on digital platforms and the rise of mixed-activity groups. These trends create opportunities for consumers but also risks, including gamification of financial services.⁴ An important task in developing RRI is to identify the extent to which consumers are exposed to risks that arise in the new and evolving digital environment.

Developing effective RRIs depends on having **suitable data**. A promising candidate data source is transaction data reported under the markets in financial instruments regulation (MiFIR), available at national level since 2018. The data cover purchases and sales of reportable financial instruments.⁵ Although much work is still needed to standardise methodology across national competent authorities (NCAs), the ESMA and NCA staff working on the RRIs project have produced a set of proof-of concept indicators – i.e. a first set of indicators expected to be refined over time – based on this data source. Examples of such indicators are discussed further below.

The proof-of-concept indicators are intended as part of a **pragmatic approach** to extend ESMA retail risk monitoring, whereby a set of indicators is developed as one input alongside expert judgement to determine an overall risk assessment. This approach stands in contrast to the alternative possibility of a structural approach, in which pre-specified criteria are applied to a set of indicators to produce a deterministic risk assessment.⁶ The criteria would typically include threshold values of indicators that trigger (either individually or in some combination) a certain risk rating. A structural approach would require much fine-tuning and back-testing. It could be very hard to achieve given data limitations, the many interacting sources of retail risk and a fast-changing digital environment.

Conceptual framework

Definitions

To develop a framework for understanding and measuring retail risk, we first define key theoretical terms. While there are no canonical definitions of risk and detriment specifically in relation to retail investors, there are more general existing definitions that we can use as a basis. We then move on to how the definitions can be applied, i.e. we provide a practical approach to measuring retail risk via indicators.

In theoretical microeconomics, in general terms a risk relates to the likelihood of a specified bad or undesirable outcome.⁷ Given this, we can understand the **retail risk** of a financial investment/service within a specified time as a function of the probability that it will cause harm or detriment to the investor and the severity of the detriment.⁸

Much of the relevant literature addresses the general case of **consumer detriment**, rather than detriment that is specific to financial investing. Different general definitions have been proposed. The Organisation for Economic Cooperation and Development (OECD) highlights that consumer detriment may be financial or non-financial (OECD, 2010). In principle, consumer detriment from financial products can therefore involve financial or psychological detriment.

Regarding consumer detriment associated with financial detriment, the European Commission Consumers, Health, Agriculture and Food Executive Agency, following Europe Economics (2007),⁹ uses the notion of **reasonable expectations**. Poor financial performance in this context does not need to be an absolute loss but extends to the case of underperformance versus a benchmark. For simplicity, we assume that 'reasonable expectations' means realistic, well-informed expectations.¹⁰

⁴ Gamification of financial services involves the introduction of game-like features or interfaces to online investment or money management tools.

⁵ Ideally, in addition to transaction data it would be useful to develop RRIs based on holdings data. ESMA already publishes indicators using [ECB Securities Holdings Statistics](#) for the EU household sector as part of its TRV analysis on consumers. However, this monitoring would be enhanced if ESMA were to gain access to data at the level of financial holdings by individual households or investors. For example, such data could be used to estimate aggregate portfolios held by different demographic groups of investors.

⁶ Though in a financial stability context, see for example the [OFR Financial Stress Index](#) published and regularly updated by the US Office of Financial Research.

⁷ See for example the treatment in Mas-Colell, A., Whinston, M. D. and Green, J. R. *Microeconomic Theory*, Oxford University Press.

⁸ In its fullest sense, a risk profile would include a probability distribution over all possible negative impacts. More concretely, suppose that a product may lose half its value with 10% probability and may lose all its value with 2% probability. Retail risk in this situation relates to the probability of the detriment arising in each case.

⁹ See also OECD (2010) and OECD (2014).

¹⁰ Alternatively 'reasonable expectations' could be construed more broadly by including unrealistic expectations held by an individual who could not reasonably be expected to have corrected them in advance. For example, an individual who was mis-sold a product may not understand the risks involved.

OECD (2010) further notes that consumer detriment arises if consumers are misled into buying products or services, or if they pay more than they would have done if better informed. This highlights the area of conduct risk and the broader issue of concerns around the suitability of a product or service for a consumer.

Based on these definitional insights and assumptions around consumer detriment, retail risk can be broken down into two components.

- **Financial underperformance risk** (relative to a benchmark of reasonable expectations), which encompasses market risk, counterparty risk and potentially the risk of excessive costs.
- **Suitability risk**. A consumer may invest in an unsuitable product due to a problem with the information available to them (e.g. because the product is mis-sold or because the product disclosures are missing or otherwise inadequate). Suitability risk may also arise from a consumer’s cognitive traits, such as forms of bias (e.g. loss aversion¹¹,

overconfidence), a disposition to certain attitudes or emotional states (e.g. financial anxiety)¹² or a low level of financial literacy.

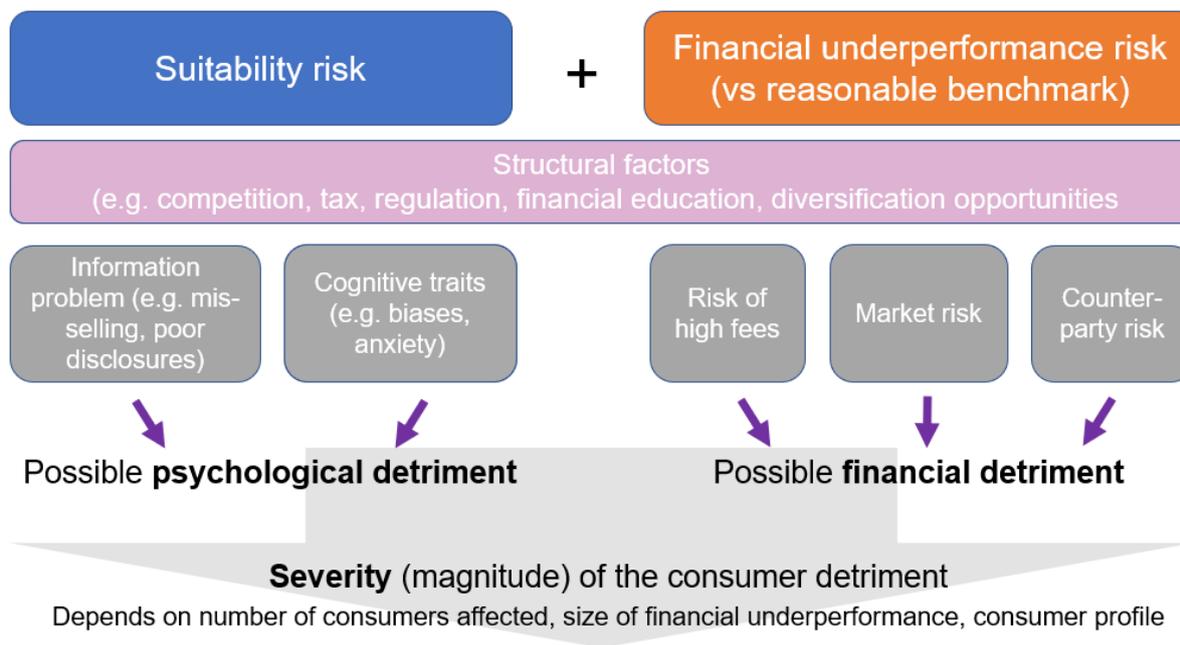
While these components are considered from the perspective of a transaction for a given product, it is also important to recognise that structural and market factors may play a role in determining these risks. For example, if consumers are unable to access a range of investment products, they may be unable to diversify their portfolio optimally. A strong regulatory framework may mitigate retail risk in various ways (e.g. effective disclosures can ameliorate problems arising from poor information available to consumers).

A final concept to consider is the **severity** of consumer detriment, i.e. the strength of the negative financial or psychological impact on consumers. The severity depends on context, such as the number of consumers affected, their financial resources and their investment horizon. The resulting conceptual scheme can be summarised in a diagram (Chart 1).

Chart 1

Components of retail risk from a product/transaction perspective

Risk of consumer detriment arises from financial underperformance and suitability risks



Applying the definitions in practice

In practice, it may be very difficult to measure the retail risk as presented theoretically above, and even harder to identify specific levels of such

detriment associated with each possible negative performance scenario. Reasons include the following.

¹¹ The concept of loss aversion was introduced by Kahneman, D, and A. Tversky (1974).

¹² See e.g. Shapiro, G. and B. Burchell (2012).

- Probabilities of negative outcomes may not be precisely known or specified.
- Quantifying or otherwise characterising psychological or social detriment is difficult, especially in the absence of detailed survey information or perhaps experimental evidence directly relevant to the circumstances at hand.¹³ For this reason, the Commission framework does not attempt to monetise psychological detriment.

To address these limitations, retail risk can be measured in practice by:

- focusing on financial underperformance relative to a benchmark;¹⁴ and
- focusing on segmented groups (clusters) of consumers, rather than just individuals, to give insight into suitability risk.

In particular, we adopt the following approach. From a practical macro perspective, **retail risk** is measured by assessing how severely a product may underperform a benchmark within a specified time.

The **severity** of the underperformance can be measured as:

- the number and profile of consumers affected – for instance, if many retail investors who are unlikely to understand the risks or to be able to afford to bear losses (high suitability risk) are involved; and
- the size of the financial underperformance.

Additional context, such as knowing the detailed **demographic characteristics** of the investor population, if available, is therefore useful for interpreting the risk.

The **benchmark** used may, for simplicity, be taken as zero, i.e. underperformance means making a loss. This approach may be refined by considering e.g. performance net of fees or

inflation (i.e. real returns). However, for certain products more sophisticated benchmarks may be relevant, e.g. a fund's performance may be compared against that of its prospectus benchmark.

Practically, the probability of the underperformance may need to be loosely specified (e.g. high risk) as opposed to a numerical value (e.g. 80%)

Mapping risk sources into the framework

Having conceptualised retail risk, we now move on to document sources of risk – i.e. what factors generate risks faced by retail investors.

Consumer detriment can arise from a range of demand- and supply-based sources (Tables 1 and 2). Some sources of risk have a compensating potential benefit (CPB) associated with them, as listed in the final column of each table. In other words, in taking on a given risk, the consumer gains the possibility of improved performance, greater convenience or some other upside potential. A fundamental example is the risk-reward trade-off: modern portfolio theory is based on the observation that greater financial reward is typically associated with greater market risk. Equally, financial innovation brings benefits as well as risks. On the other hand, misconduct or lack of transparency are sources of retail risk and potential consumer detriment, but do not typically offer a clear compensating potential benefit to the consumer.

To map the risk sources into the conceptual framework, they are further categorised by whether they primarily relate to (A) financial underperformance risk or (B) suitability risk.¹⁵ Some supply-based sources (Table 1) relate to financial underperformance, others to suitability. Demand-based sources (Table 2), however, naturally relate to suitability risk only.

¹³ However, some forms of non-financial detriment, such as time spent pursuing a complaint, may be more readily quantifiable.

¹⁴ A benchmark can be selected depending on the context. For example, investors in a fund may form expectations relative to a benchmark index, e.g. one specified in a fund prospectus. Investors in other settings may aim to earn a real return, in which case performance could be assessed

relative to inflation. In assessing severe detriment, we may simply assess the risk of financial loss (i.e. take zero nominal returns as the benchmark).

¹⁵ Table 1 also includes a category of 'other risk sources', covering cyber risk.

Table 1

Supply-based retail risk sources

Range of sources of retail risk may interact with each other

Source	Drivers	How it generates retail risk	Scope	CPB? *
A. FINANCIAL UNDERPERFORMANCE RISK SOURCES				
Market performance: risk of losses, or underperformance versus a reasonable benchmark, arising from adverse movements in market prices.	Many assets are sensitive to changing market conditions	Adverse unexpected movements of prices can cause financial losses. May cause financial vulnerability.	Affects all investors	YES
Charges and fees: reduction of the investment return or product return due to levy by provider.	A source of revenue for the professional involved in the selling and the management of a product	Lower returns than expected, than are affordable or than would arise under perfect competition.	Affects some retail investors	NO
Leverage: borrowing to finance part or all of an investment.	Investors may want exposure without tying up their capital Investors may want to speculate	Leverage amplifies market risk. It magnifies fees and charges, which apply to the notional amount. It creates the risk of close-out, which may lead to charges if investors repeatedly open positions as a result. Investors may lose more than the margin they pay.	Affects some products	YES (e.g. leveraged hedging may be cost-efficient)
B. SUITABILITY RISK SOURCES				
Financial innovation / digitalisation: act of creating and popularizing new financial instruments, technologies, institutions, and markets. ¹⁶	Structural factor brought about as firms aim to cut costs, enhance efficiency or improve service quality. Pandemic has accelerated digitalisation in certain areas.	Potential detrimental price optimization/ discrimination Reduced access for consumers not willing or able to use the technology Cyber threats Lack of transparency	Affects the whole market	YES
Product complexity: products that are inherently complex or products that are being designed in ways that increase their complexity. ¹⁷	Financial institutions' strategic use of complex products to mitigate competition effects and to mask market risks from consumers. Risk that consumers are not clearly informed.	Complex products associated with higher profitability for financial institutions and lower performance for investors. ¹⁸ Risk that the product is not-suited for the investor needs.	Affects some retail investors	YES (complexity may be needed for certain product features)
Misconduct: poor treatment of consumers, mis-selling of financial products, violation of rules and manipulation of markets. ¹⁹	Expectation of increasing profits at the expense of customers.	Mis-selling may lead to financial losses and damage investor confidence	Affects only clients of a certain firm	NO
Transparency: relevant and non-misleading information on the costs, functioning, risks and rewards of financial products/services.	Complex, new or innovative products may not have standardised disclosure templates. Disclosures may not be easy to find. ²⁰	Financial illiteracy can increase the risk of consumer detriment. Lack of transparency can harm market confidence. Conversely, in some situations (e.g. 2008) great financial crisis, may mean market participants are unaware of risks.	Typically affects some retail investors	NO

¹⁶ Lerner, J. and P. Tufano, (2011)

¹⁷ FCA (2012), Retail Conduct Risk Outlook.

¹⁸ Célérier, C. and B. Vallée (2016)

¹⁹ European Systemic Risk Board (2015)

²⁰ For instance, the securitization drive during the US housing boom led to both complex products which of themselves were highly opaque. The close relation between complexity and transparency complicates their measurement.

C. OTHER RISK SOURCES				
Cybersecurity: activities necessary to protect network and information systems supporting investment activity and to protect the users of these systems. ²¹	Digitalisation. New providers with range of business activities, some outside the supervision perimeter. Consumer actions may exacerbate cyber risks.	Data protection risks and operational outages associated with cyber incidents can cause consumer detriment.	Affects the whole market	NO

Note: * CPB = compensating potential benefit.

Table 2

Demand-based retail risk sources

Demand drivers relate to consumer characteristics

Source	Drivers	How does it generate retail risk?	Structural?	CPB? *
A. SUITABILITY RISK SOURCES				
Financial vulnerability: arises from financial literacy and from personal or household financial positions.	<ul style="list-style-type: none"> - Low resilience - Low capability or confidence managing money - Limited ability to do financial planning - Negative life event - Health condition 	Financial vulnerability depends not only on consumers' individual decisions but also on the macroeconomic environment. There is a close link between retail investors' financial decisions and market sentiment indicators. ²²	Affects a pool of retail investors	NO
Cognitive traits & emotionality: mental processing of information in a way liable to cause systematic and significant errors. ²³		Behavioural biases are very relevant to individual decision-making process, ' <i>such as limited attention, short-termism, inertia, and overconfidence</i> '. ²⁴ Emotionality (such as anxiety, impulsivity, affective heuristics) may also play a role.	Affects some retail investors more than others (e.g. over-confidence correlates with low financial literacy).	YES
Financial literacy: a combination of financial awareness, knowledge, skills, attitudes and behaviours necessary to make sound financial decisions. ²⁵	<ul style="list-style-type: none"> - Level of education - Income/wealth - Age 	People may make poorly-informed decisions that turn out to be unsuitable. ²⁶	Affects a pool of retail investors	NO

Note: * CPB = compensating potential benefit.

²¹ Regulation (EU) 2019/881 of the European Parliament and of the Council of 17 April 2019 on ENISA and on information and communications technology cybersecurity certification, (OJ L 151, 7.6.2019, pp 15–69).

²² Financial Services Authority (2012)

²³ Kahneman, D, and A. Tversky, A. (1974), *Judgment under Uncertainty: Heuristics and Biases*. Science, 185(4157):1124-31

²⁴ OECD Recommendation is available at. <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0461>

²⁵ See also Bellofatto, A., D'Hondt, C. & R. De Winne (2018)

²⁶ CONSOB Report on investment choices of Italian households, 2021

Constructing RRIs

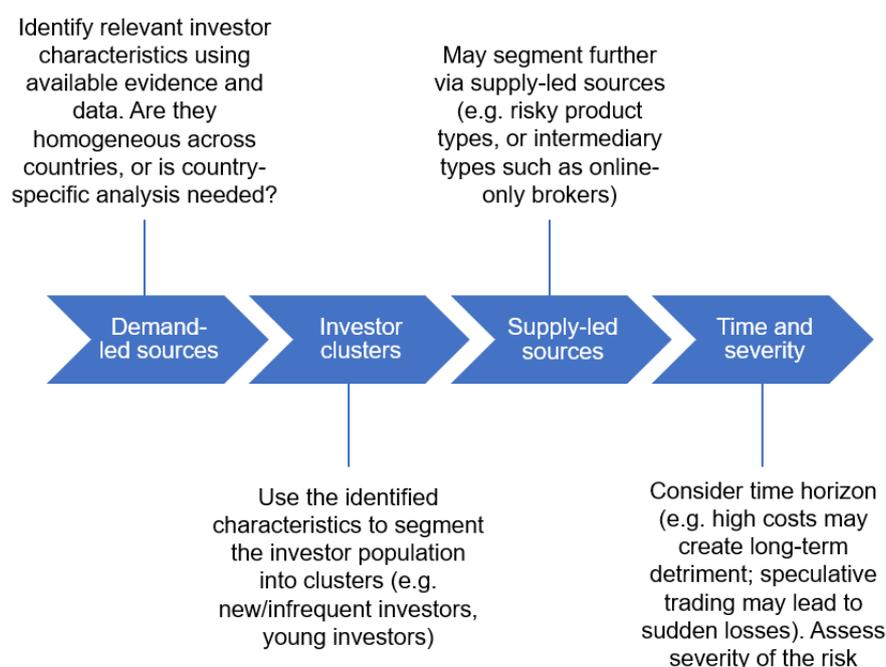
RRIs can be constructed based on the definitions and the demand- and supply-led sources of risk identified (Chart 2). First, relevant investor characteristics – such as financial vulnerability – may be associated with certain demographics, enabling the identification of **investor clusters**.²⁷ For instance, empirical evidence may suggest that young investors are especially prone to overconfidence, or that investors from a given demographic group in a particular country may be especially financially vulnerable. Another example would be to compare ‘new’ and ‘experienced’ investor clusters, highlighting how

far the former may be less financially and digitally literate (on average) than the latter.²⁸

The market may then be further segmented by intermediary type and/or product type. For example, it may be especially relevant to monitor young investors using digital platforms to trade leverage products. Finally, when interpreting the indicators, one should consider the time horizon and the likely severity of impact. For instance, trading of speculative products may lead to large financial losses over a short timescale.

Chart 2

Applying the conceptual framework
Segment retail market via risk sources



Existing ESMA indicators

ESMA publishes a biannual TRV report. The TRV includes a section on consumers with the analysis of a number of data-based indicators that cover the following.

- Resources available to households for investment, e.g. household savings and investment rates, disposable income. The data used are public data, mainly from the European Central Bank (ECB) Statistical Data Warehouse. These indicators relate to the demand-based risk source of financial vulnerability (Table 2). They give information – at aggregate level – on the likely severity of

²⁷ See e.g. De Beckker, K., De Witte, K., & Van Campenhout, G. (2019).

²⁸ Ibid.

the detriment from financial underperformance. For instance, if investors have low disposable income on average, a given level of financial underperformance will have a relatively high impact. Another indicator used measures investor sentiment, based on a commercial survey index. High sentiment levels among consumers, or consumer sentiment that far outstrips institutional sentiment, may indicate overconfidence. This cognitive trait is a demand-based risk source and may generate suitability risk.

- Fund and portfolio return and costs. These are covered in full detail in a separate ESMA Annual Statistical Report. High costs are a supply-based risk source (Table 1) that drag down financial returns, risking financial underperformance in the long run. A recently developed related indicator plots statistical measures related to closet indexing. As closet indexing involves misinforming prospective and current investors, its presence indicates suitability risk.
- Investor complaints. Several complaints charts are produced quarterly for updates to ESMA standing committees and published half-yearly in the TRV. Complaints may relate to a range of risk sources and must be interpreted carefully in the market context in which they were raised. For example, consumers may complain because of poor financial performance, because they believe they received bad advice, because they are unhappy with the level of service received (e.g. due to slow processing times, unavailability of support staff) or because of outright fraud. To gain insight into the nature of the detriment generating complaints (e.g. whether complaints trends indicate financial performance or suitability risk), ESMA indicators break down aggregate complaints in terms of MiFID service category, underlying cause (e.g. administrative problems), the type of firm involved and the type of financial instrument. NCAs also provide ESMA with information on the risk sources involved based on their analysis of the subject matter in the complaints.

Investor complaints are a rich source of information to supervisors individually. For example, they may identify conduct issues that should be scrutinised by the supervisor. At aggregate level, as used in existing ESMA indicators, complaints data may highlight issues

with particular services or financial products that warrant targeted monitoring. However, complaints data are subject to several limitations, including heterogeneity across countries in the way complaints are categorised and recorded, and significant and varying time lags in the data.

Extending the ESMA monitoring universe

Approach to developing new indicators

ESMA's development of RRIs will need to consider the range of data sources and existing indicators summarised in Section 2. Furthermore, to identify what kinds of retail risk indicators are most useful, and to help interpret new indicators, we will map them against the conceptual framework of Section 2, especially the different risk sources set out in Table 1.

Fundamentally, there are two approaches to devising RRIs as part of an overall risk assessment.

- i. A structural approach, in which a set of indicators is devised to which a pre-defined set of criteria are applied to determine a risk assessment. The criteria typically include threshold values of indicators which trigger (either individually or in some combination) a certain risk rating.²⁹
- ii. A pragmatic approach, in which a set of indicators is developed as one input alongside expert judgement to determine an overall risk assessment.

At least at present, given limited data and the complexity of retail markets (including the range of interacting risk sources in Tables 1 and 2), a pragmatic approach seems the more realistic option for developing RRIs. A pragmatic approach would also be consistent with ESMA's existing risk assessment. As a result, the macro-level indicators ESMA aims to produce will form one input into a broader assessment of retail risk.

To construct RRIs, we then need to set data-based indicators in a risk framework. Based on existing research and information, we can link demand-based sources of retail risk such as behavioural traits or financial vulnerability with particular investor groups. On the supply side, we can link certain investment services or products with risk sources such as product complexity.

²⁹ For instance, financial conditions indices developed by central banks, international bodies and others are based on a set of financial market indicators, assigning weights to each indicator to form one overall measure of the tightness of financial market conditions. A similar indicator for retail risk would be interesting, though feasibility

remains an open question. Using threshold values will always imply a certain arbitrariness in the process and might miss important interlinkages between specific risks that separately might be deemed manageable but combined might be problematic.

New RRIs for ESMA risk monitoring

Based on MiFIR transaction data gathered by a small number of NCAs at national level, we present some proof-of-concept indicators grouped by theme: **overall indicators** (looking at aggregates for all trades in a given type of financial instrument), followed by breakdowns in terms of **new investors**, **investor age** and trades taking place on **digital platforms**.

The proof-of-concept indicators displayed below only cover transactions involving equities, bonds or investment fund shares, at this stage.

Despite these limitations in scope a sizeable share of EU household financial assets are in scope of the transactions covered by the indicators. The five countries able to provide data at this stage (AT, BE, DE, FR, IT) represent around 63% of EU financial assets by value and constitute 52% of the EU population.³⁰ Equities (EUR 7.7 billion), bonds (EUR 0.5 billion) and investment fund shares (EUR 3.5 billion) account for around a third of the value of financial assets held by EU households.

Monitoring the overall market for a given product (in this case, equities) using indicators such as Chart 3 can be interpreted using the conceptual framework as follows.

— Signs of financial underperformance risk.

High numbers of participants relative to a given cash value of purchases/sales may indicate high turnover, short-duration trading. Such trading is associated with high risk of loss and incurs transaction fees. Subject to available data, net purchases of particular equities with volatile prices and higher trading costs (e.g. small cap companies) indicate increased risk of losses. Subject to available data, net purchases of leverage products indicate increased risk of losses.

- **Signs of suitability risk.** As a general overview, the indicator gives more limited insight into suitability risk than might be obtained by examining specific investor clusters (as in Charts 4 and 5). However, some insight may be possible nonetheless. High numbers of participants relative to a given cash value of purchases/sales may indicate high turnover, short-duration trading, (a phenomenon that could be measured directly as a future extension to the project). Such trading typically incurs repeated fees or spreads which drag down the expected return, making it unsuitable for many investors. Spikes in selling, especially following price falls, suggest panicked/herding behaviour that may be

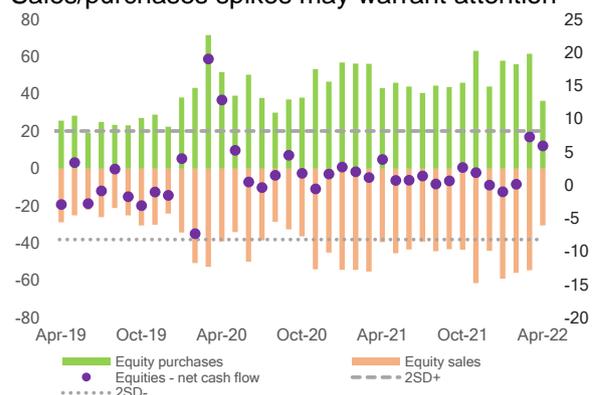
triggered or exacerbated if investors hold unsuitable products). Risk is heightened if such developments follow events that could prompt speculative / bubble-related activity, or if evaluations (e.g. cyclically-adjusted P/E ratios) are substantially above long-term averages.

- **Risk sources.** Market risk, product complexity, leverage (if monitoring scope expanded to leverage products), and others.

Chart 3

Volumes of equity trades by retail investors

Sales/purchases spikes may warrant attention



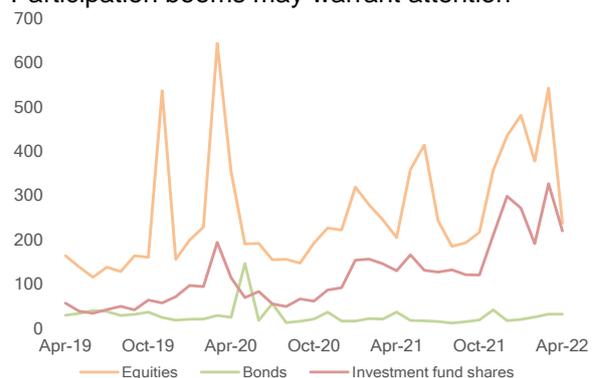
Note: Cash values of purchases and sales by retail investors of given types of financial instruments as reported by certain NCAs. EUR bn. "Net cash flow" equals the cash value of total purchases minus total sales. "2SD+" is 2 times the sample standard deviation of net cash flow for the time series; "2SD-" is -2 times the sample standard deviation of net cash flow. AT, BE, DE, FR, IT reporting.
Sources: NCA analysis of MiFIR transaction data, ESMA.

Examining particular segments of the market can reveal other retail risks. New or infrequent investors (Chart 4) may face different risks to the general investor population, for example.

Chart 4

Number of new/infrequent equity investors

Participation booms may warrant attention



Note: Numbers of new/infrequent retail participants trading given types of financial instruments as reported by certain NCAs, thousands. New/infrequent participants are those identified as not having traded in the 12 months prior to a given month. "IF shares"=investment fund shares. AT, BE, DE, FR, IT reporting for equities and IF shares; AT, DE, IT reporting for bonds.
Sources: NCA analysis of MiFIR transaction data, ESMA.

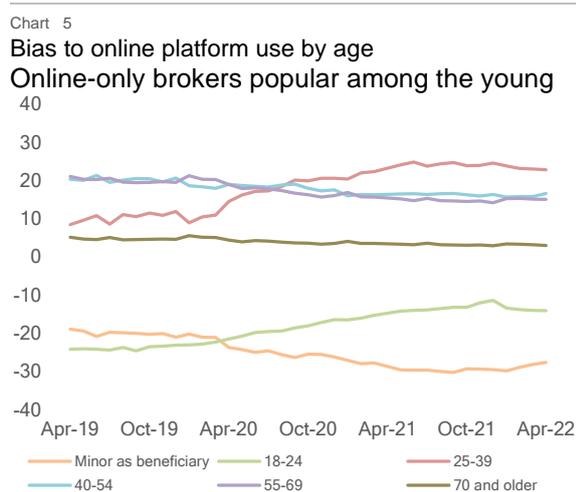
New or infrequent investors are defined as those trading a given product for the first time in at least

³⁰ Sources: Financial assets according to ECB Securities Holdings Statistics updated December 2021; population figures according to Eurostat.

12 months (subject to data availability). Such investors by definition have less experience of recent trading of a given product. However, experience does not necessarily relate to skill or to positive investor outcomes. With that caveat in mind, using the conceptual framework developed suggests the following interpretation of the proof-of-concept indicator in Chart 4.

- **Signs of suitability risk.** Spikes in trading by new/infrequent investors may indicate increased suitability risk, if those involved are less knowledgeable about their investments.³¹ Spikes in selling, especially following price falls, suggest panicked/herding behaviour). Risk of shocks associated with event risk, e.g. geopolitical crises, pandemics.
- **Risk sources.** Cognitive traits, financial literacy and others.

A final example of a proof-of-concept indicator is to focus on the use of digital or online-only broker platforms (Chart 5).



Note: Difference by age group in % of consumers buying or selling investment fund shares via sample of online brokers vs via all firms, pp, as reported by AT, BE, DE, FR. Age defined relative to given month in time series.
Sources: NCA analysis of MiFIR transaction data, ESMA

Chart 5 segments the market by focusing on investors by age group and measuring what percentage they make up of investors using online-only platforms versus the percentage they make up of the overall investor population. For instance, if half of investors using online-only brokers are aged under 35 but only 20% of all investors are under 35, the score for that age group would be +30 points. Given this, the chart flags retail risk in the following way:

- **Signs of suitability risk.** Growth in volumes of online retail trading suggests increased risk of gamification magnifying behavioural biases. Changes in age mix of investors on

online platforms may suggest underlying developments relevant to suitability. For instance, promotions on social media used particular by young adults may drive increased online trading by that group. Risk is heightened if such developments follow events that could prompt speculative / bubble-related activity (e.g. GameStop case).

- **Risk sources.** Financial innovation; shocks arising from event risk, e.g. geopolitical crises, pandemics; transparency; conflicts of interest (or misconduct); cognitive traits; financial literacy.

Outstanding issues

These RRIs are at a 'proof of concept' stage. They represent data provided by a few NCAs on a best-efforts basis.

More work needs to be done on the following.

- **Refining the set of RRIs** based on the variables examined so far, focusing on those that are most informative and/or developing new ways of representing the data fields examined;
- **Standardising the methodology** by adopting common conventions and technical definitions; and
- **Expanding the set of RRIs** to cover additional types of financial instruments (e.g. derivatives such as futures or contracts for differences), additional cross-sectional breakdowns where possible and new variables (e.g. inferring **trade duration** information, such as the proportion of sold positions that had been open less than a year) and **cross-country comparisons**. For instance, it could be useful to focus on investors frequently trading leverage products by country, by age bracket and by whether the intermediary chiefly offers mobile trading.

To identify risks in more detail using the available data, one could try (longer term) to match age groups with data on wealth, investment horizons and trade duration, for example. These could include survey data. Importantly, such data would help identify investor clusters, a key part of the proposed methodology for developing RRIs (Chart 2). More specifically, empirical data pertaining to the following areas could help identify investor clusters.

1. Basic financial knowledge (ideally covering key product types and risk categories).

³¹ This information would ideally be substantiated by a range of information sources (e.g. surveys, experimental

evidence and empirical data). Additionally, supervisory information could be used.

2. Knowledge of financial services and digital financial services.
3. Knowledge of sustainable products.
4. Motives for investing.
5. Investment experience (e.g. new vs experienced investors).
6. Investment habits (e.g. self-directed versus advice) and channels ('traditional' vs online).
7. Personal traits (e.g. overconfidence, risk attitude, trust in financial system) and socio-demographic categories (e.g. age, gender, income, financial wealth).

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Conclusion

This article summarises ESMA's initial, ongoing work with NCAs in relation to its recent mandate to develop Retail Risk Indicators (RRIs), complementing its longstanding mandate to monitor consumer trends. The work builds on the TRV analysis and indicators that ESMA regularly publishes on consumers.

The article presents a provisional conceptual framework to give a practical definition of retail risk and identify risk sources that can be used to segment the market for targeted risk analysis. Supervisory information may also be used to identify possible RRIs, with the output of the risk monitoring in turn used to inform the work of supervisors in an iterative process.

Using MiFIR transaction data, within this framework, it has been possible to construct some first examples of possible RRIs. These are based on a limited sample of NCAs but illustrate the kinds of RRIs that may be used in future.

Further work on this project will be needed to refine and expand the set of RRI and standardise the methodology used. Expanding the set of RRIs may be possible using MiFIR transaction data – for example to focus on certain types of products, such as leveraged speculative instruments – and to provide cross-country comparisons. Additional empirical evidence such as experimental or survey data could help identify relevant investor clusters.

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