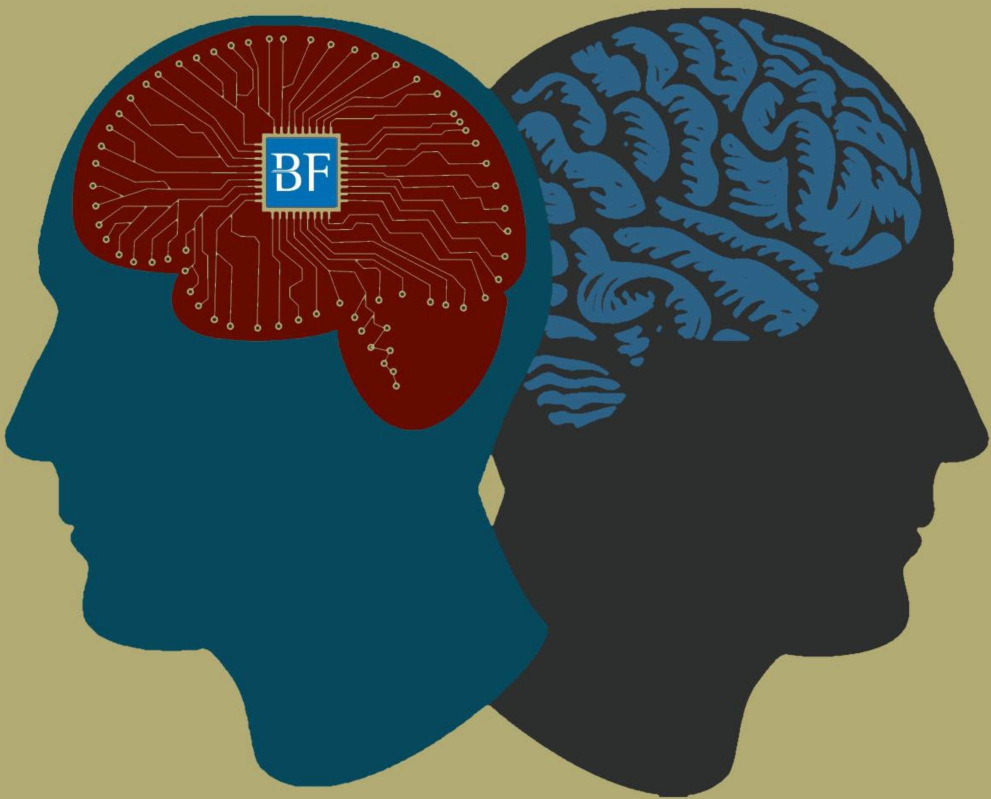
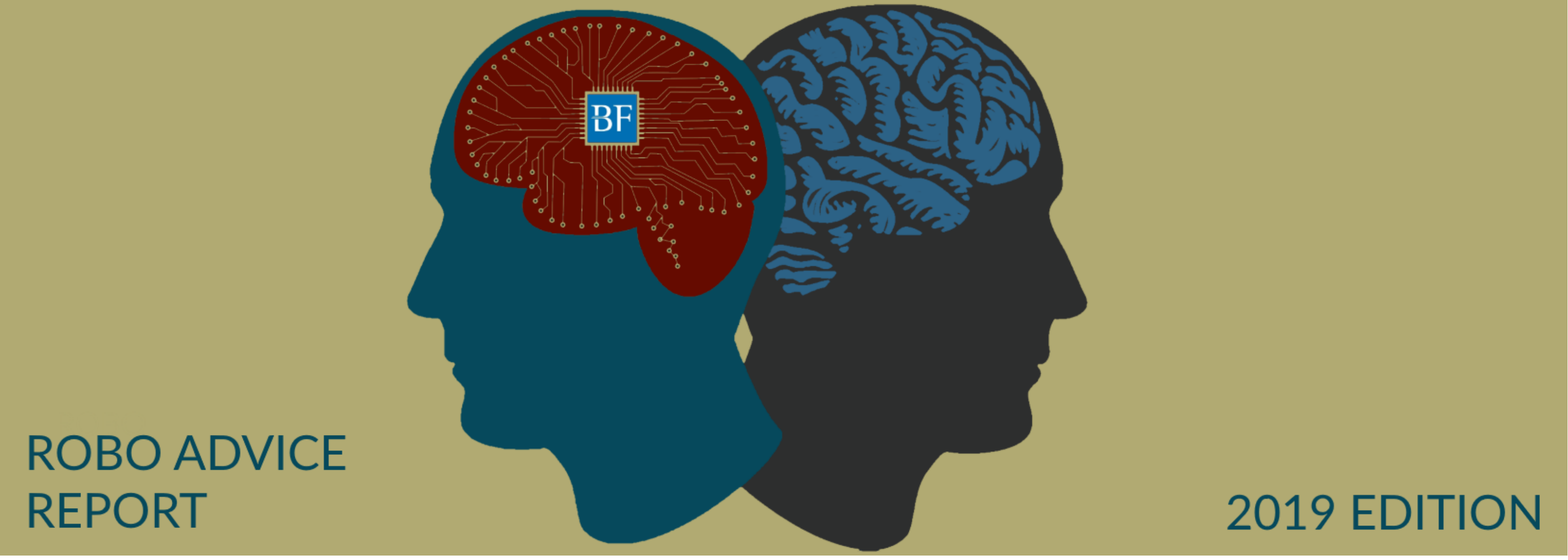
ROBO-ADVICE:
A LOOK UNDER THE HOOD 2.0.



a BETTER FINANCE
Research Paper

November 2019

BETTER FINANCE
The European Federation of Investors and Financial Services Users
Fédération Européenne des Épargnants et Usagers des Services Financiers



ROBO ADVICE:

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A Research Report by BETTER FINANCE

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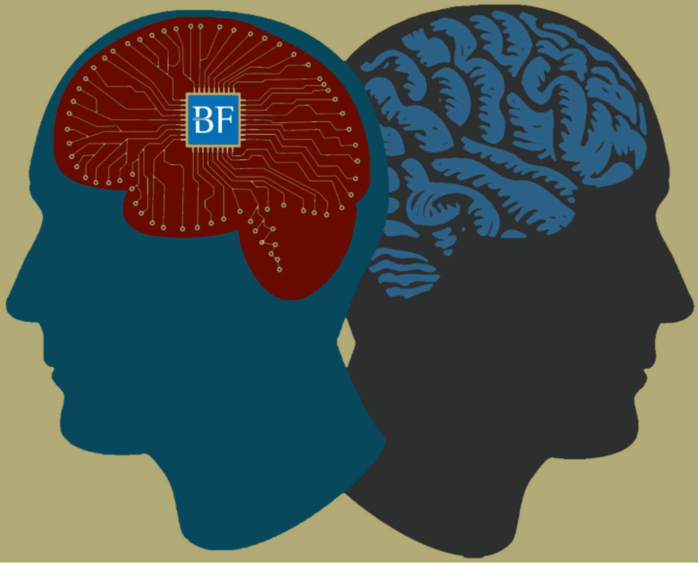
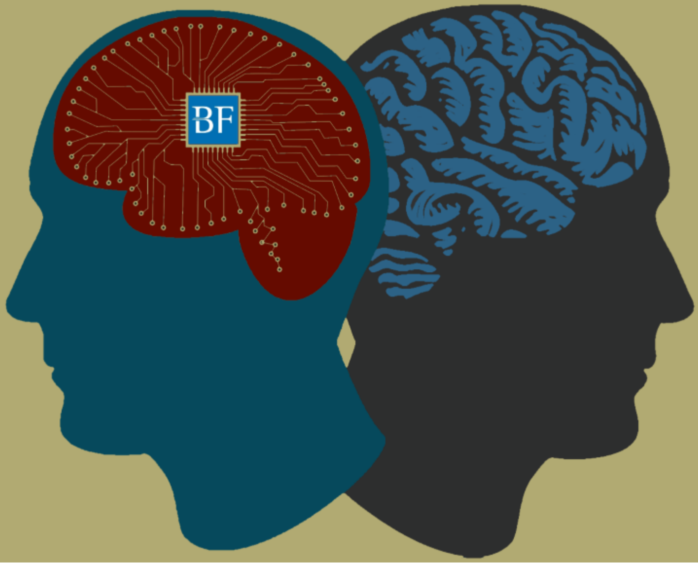


Contents



Executive Summary

For the fourth year in a row BETTER FINANCE took a closer look at the emerging Robo advisory business from the perspective of individual investors and savers. This year 16 platforms found their way into this study: 11 platforms from EU countries and 5 from North America. In addition, we compared the results obtained from this year with the results of the previous year's report in order to observe the evolution of these platforms in the market.

- **A more independent (largely fee-based), more efficient and less conflicted distribution channel**

BETTER FINANCE continues to believe that Robo advice could go a long way towards attracting retail investors back into capital markets. Our findings once again illustrate that these automated financial advice services (all duly registered as financial advisers, and in many cases also as investment firms) are considerably less expensive than their traditional counterparts and can offer individual investors much better value for money. Such reduced fees are possible thanks to the fact that most platforms covered in this report are fee-only [1] and use mostly Index Exchange Traded Funds (ETFs) unlike their traditional mostly commissioned-based or fee-based counterparts, who rarely if ever promote these low fee investment products. And, since BETTER FINANCE's 2019 research on *the Correlation between Costs and Performance of EU Retail Equity Funds* confirmed a negative correlation between fund returns and costs[2] (with costs being nearly single-handedly to blame for the disappointing returns of many actively managed funds), investing in low-cost ETFs is all the more a valuable investment option.

- **But still essentially catering to the happy few**

However, since financial literacy and trust in financial services amongst EU citizens as savers and investors are very low, it will take more than just a better alignment with investors' interests and lower fees to attract them back into capital markets. Indeed, notions such as "fee-based", "commission-based", index ETFs are not intelligible for the vast majority of EU savers.

- **And using algorithms for investment advice that do not seem reliable**

Also, BETTER FINANCE takes the algorithms used by the platforms to provide personalised investment advice for a test-drive for a second year in a row.

[1] Fee-only distributors of investment products such as most robo-advisors get compensated for their work by a fee disclosed to – and paid by the client; as opposed to "fee-based" r advisor that charges the client for the investment advice but at the same time gets a compensation from a "third party," for example a commission from a fund provider to encourage the advisor to buy shares in the fund. This can produce a conflict of interest (inducement).

[2] Research on the Correlation between Cost and Performances in EU Equity Retail Funds.

Other key findings are based on the review of the web sites and their contents, and on our 'mystery shopping' approach. To this end, two individual investor profiles were used again - the millennial and the baby-boomer - to reply to the questionnaires and get investment advice.

Robo advice overall **fees** remain significantly higher in Europe than they are in the US, as investment–related fees are also overall much higher in Europe. Nevertheless, the study shows a downward trend from last year in overall fees charged by Robo-advisors in Europe where the lower-end fees went down from 69 basis points in 2018 to 42 basis points in 2019. Lower but not innovative, as they are still all asset-based, and not performance- based.

As for **transparency**, the study found important divergences between the different platforms as it analysed the degree to which essential information is clearly disclosed with regards to fees portfolio allocation, risk and past performance.

The research also compared the results of the algorithms, thereby uncovering important **divergences between the advertised expected returns and the equity allocation** provided by the different platforms. These divergences have significantly increased compared to the previous year in particular for the baby-boomer:

- very different future potential returns for the same profiles
- very dispersed proposed equity allocations for the same client and same expressed objectives
- the proposed equity allocation did not always seem to take the risk profile into account, nor did it seem highly correlated with the expected returns
- the mandatory prominent warning on future performance information is often missing or inadequate.

These alarming findings put again the reliability of the algorithms used into question and jeopardize the suitability of the investment advice provided. This serious issue of the reliability of algorithms is of course not specific to robo advisors, but to any other intermediary using them.

They also once again question the validity of using future performance forecasts instead of the far more robust and less misleading long-term past performance relative to the providers' objectives (benchmarks).

As for **suitability** we assessed whether the investment advice is personalised and suitable for investors. In order to verify if the Robo-advisors comply with regulatory standards[3] in providing a personal a suitable advice we developed the RPA (Risk Profile Alignment) indicator. Different degrees of suitability emerge from this analysis questioning the quality of the investment advised in relation to the investor profiles.

We also checked how many platforms propose to invest more **sustainable assets.** The few that do offer such products, unfortunately do not clearly explain what a sustainable investment is (concepts such as SRI, impact investing, ESG investments, etc.), thereby failing to address the complexity and lack of clarity surrounding these particular products.

If Robo-advisors are to attract a critical mass of individual investors, they would do well to keep it simple and transparent, with clear explanations of concepts and their impact, given the low level of financial literacy of EU citizens.

[3] MiFID II and subsequent legislation (level 2 and level 3): EU Commission Delegated Regulation (EU) 2017/565 of 25 April 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council as regards organisational requirements and operating conditions for investment firms and defined terms for the purposes of that Directive.

Introduction

BETTER FINANCE firmly believes that a sound financial system must serve society and the real economy by carrying out capital allocation and help channel savings into investments, thereby supporting economic growth. The 2018 edition of the European Commission's Consumer Markets Score Board ranked financial services among the worst performing markets in Europe[4]. This is mainly due to the poor value of long-term investment services offered to EU citizens, a low level of financial literacy and a lack of trust in financial institutions.

There is untapped potential for economic growth in the idle savings of EU citizens, mainly uninvested due to the three abovementioned factors. When choosing to invest, EU citizens are in large part relying on traditional providers of financial advice who are charging high fees for the services provided and thereby eat into the returns on the initial investment. In addition, investors relying on traditional (non-independent) financial advisors frequently consider that the product they are going to purchase is free of charges and are unaware of incentive schemes and potential conflicts of interests. Consumers very often complain about the high fees charged for the investment product due to the fact that these fees are actually higher than those explained during the advice process.[5]

The lack of trust in the financial system can also be blamed on mis-selling[6]. Individual investors, frequently complain about mis-selling because of unclear information regarding the risks that are linked to the product but also regarding the mismatch between the product offered and the risk appetite of the investor.[7]

The EC study acknowledges that the potential for new distribution models based on FinTech is promising but still needs to be monitored carefully. In fact, for the last 4 years BETTER FINANCE has been studying the market and reported on the emerging market of Robo-advisors, operating as an alternative to more traditional financial advisors, with comparatively lower fees. For BETTER FINANCE's Robo-advice report in 2019, the focus will once more be on algorithm testing of the different platforms offering financial advice, promising personalised investment portfolios and advice based on simple online questionnaires. Market trends and developments will also be covered, with a particular focus on impact investment and a shift from independent start-up Robo-advisors to a market dominated by

[4] https://ec.europa.eu/info/policies/consumers/consumer-protection/evidence-based-consumer-policy_en
[5] https://ec.europa.eu/info/sites/info/files/180425-retail-investment-products-distribution-systems_en.pdf
[6] BETTER FINANCE, A major enforcement issue: mis-selling of financial products https://betterfinance.eu/wp-content/uploads/publications/Misselling_of_Financial_Products_in_the_EU_-_Briefing_Paper_2017.pdf
[7] https://ec.europa.eu/info/sites/info/files/180425-retail-investment-products-distribution-systems_en.pdf

institutional providers who have incorporated the strategies of Robo-advisors into their business models.

The Business Model

Misnomer: BETTER FINANCE maintains the view that "Robo-advice" does not accurately describe the service and that "Robo-Investing" would be a more apt term.

The European MiFID II Directive (Article 4, 1.4) defines Investment Advice as "the provision of personal recommendations to a client, either upon its request or at the initiative of the investment firm, in respect of one or more transactions relating to financial instruments". The-platforms included in this study provide investment advice under this definition, although the degree of personalisation is debatable and varies between them. Most providers ask prospective clients to fill out a questionnaire regarding needs, tolerance to risk or risk appetite and on their existing financial situation. Based on their answers, customers are either directed to a rather limited number of predefined investment strategies or portfolios, whereas others tend towards a more personal approach.

That being said, the majority of the platforms under review also provide asset management services, since they typically implement the personal recommendations provided to their clients. In addition to executing the proposed investments, several of the platforms included in this study rebalance investments periodically to stick to the agreed asset allocation. In fact, several of the providers are registered as asset management companies with their National Competent Authority, or partner with an asset management company. Therefore, terms such as "robot investing" or "robot investment management" would designate this emerging business more appropriately than Robo-advice.

State of Play

The emergence of Robo-advisors, as covered by BETTER FINANCE for the 4th year in a row following its first report on the issue in 2016, are quickly becoming an important and disruptive force, fostering change in the wealth and management industries of today. While the growth potential is vast, little is still known about the core portfolio optimisation and asset allocation methods applied[8].

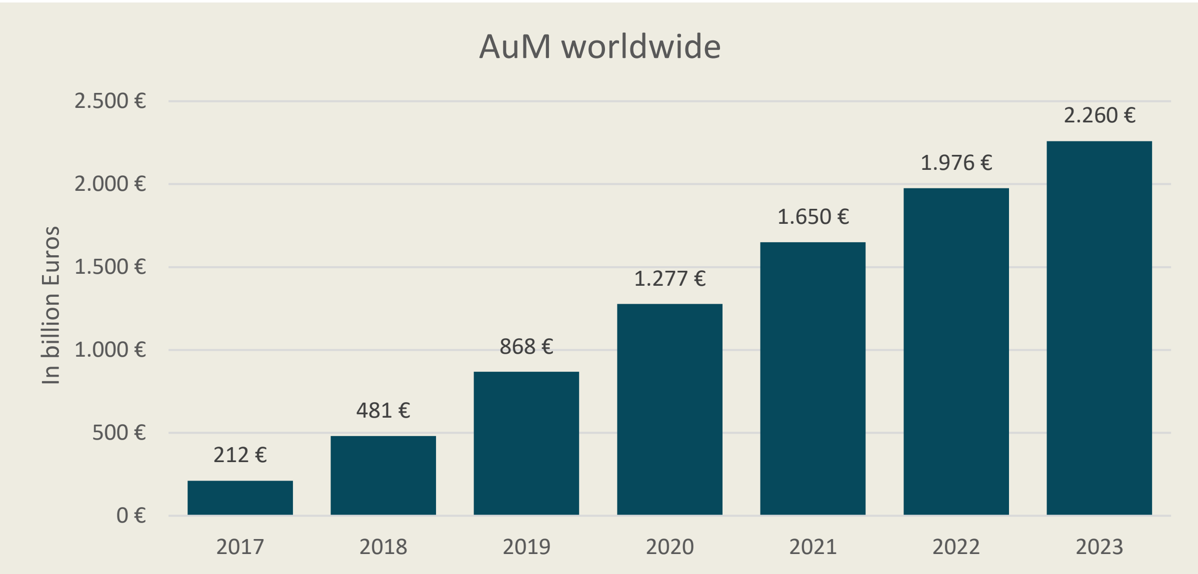
At the beginning of 2019, assets under management (AuM) in the Robo-advice market amounted to **868 Billion EUR**[9], with forecasts predicting that by 2023 Robo-advisors will globally manage 2 Trillion

[8] Robo advisors: quantitative methods inside the robots Journal of Asset Management
October 2018, Volume 19, Issue 6, pp 363–370
[9] Ibid

EUR, as shown in Figure 1. Globally, the US dominates the market with the most assets under management, reaching nearly 750 Billion USD at the beginning of 2019.[10]

By comparison, the biggest European market, in terms of total transaction value, is the UK - accounting for 13 billion EUR, followed by Germany with 7 billion EUR.[11]

Figure 1



Source: Statista (Robo advisors' data 2019 - Robo advisors AUM, projections) [12]

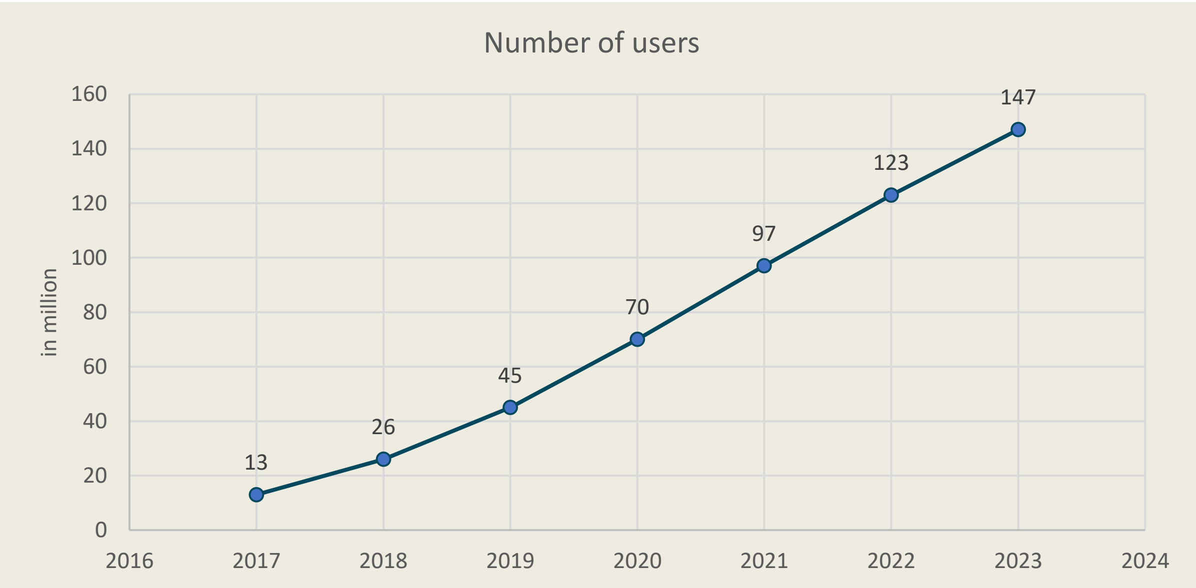
Besides a steady growth in AuM numbers around the world, the last few years also witnessed an increase in the number of clients signing up for Robo-advice services. In recent years the wealth management industry encountered a new generation of clients, receptive to digital technology and with a preference for having active control over their investments as opposed to a more "hands-off" investment strategy reliant on traditional financial advisors.

This new group of clients is also more inclined to rely on information from online sources rather than individual financial advisors. In addition, demographic changes are complemented by older generations

[10] Statista: statistics portal Robo advisors: https://www.statista.com/outlook/337/100/robo-advisors/worldwide#marketStudy
[11] *Ibid (2019 data)*
[12] Statista: statistics portal Robo advisors: https://www.statista.com/outlook/337/100/robo-advisors/worldwide#marketStudy

that are becoming more tech-savvy, demanding more digital investment services to meet their demands.[13] In 2019, the number of clients of Robo-advisors reached 45 million worldwide and the number of users is projected to grow up to 147 million in 2023 (Figure 2).[14]

Figure 2



Source: Statista (Robo-advisors - Number of users, projection)

The emergence of Robo-advisors, as part of a fast-paced and changing Fintech market, has attracted the attention of the more traditional players of the financial industry. As a result, it is possible to see an emerging trend of more traditional institutional providers of financial services acquiring stakes, in full or in part, of this emerging market, thereby often influencing the independence of Robo-advisors.

Within the IT and digital sector, the acquisition of start-ups by big established companies is a common occurrence. This strategy allows for established providers and companies to limit future competition, as well as increase the level of in-house innovation and expanding their range of services available to their clients. An additional trend reported on in this 2019 BETTER FINANCE Research Report on Robo-advisors, is the merger of smaller Robo-advisors and smaller Robo-advisors being acquired or taken over by larger and more established Robo-advisors.

[13] *Robo advisors: quantitative methods inside the robots* https://link.springer.com/article/10.1057/s41260-018-0092-9#CR3
[14] Statista: statistics portal Robo advisors: https://www.statista.com/outlook/337/100/robo-advisors/worldwide#marketStudy

Algorithm testing as part of BETTER FINANCE's work on Robo-advisors was introduced in 2018 and, following its successful reception, also forms part of the research for 2019. While some Robo-advice platforms analysed in the 2018 BETTER FINANCE report avoided the trends mentioned above, others were either partially sold to institutional financial services providers, merged with them or were acquired by more established Robo-advisors. For example, in 2019 **Goldman Sach**s took a stake in Robo-adviser **Nutmeg** as part of a funding round,[15] and **BlackRock** bought a minority equity stake of **Scalable Capital**.[16] Earlier in 2016, the private bank **Hauck & Aufhauser** acquired a stake in **Easyfolio**,[17] and **Allianz** bought a stake in **Moneyfarm**.[18]

Moneyfarm, now a pan-European Robo-advisor already active in the UK and Italy, acquired the German platform Vaamo, covered in the 2018 BETTER FINANCE Robo-advice report. For this reason, Vaamo could not be taken up in this year's report.

Research Approach

The intent of this report is not to establish a comprehensive ranking review of the Robo-advisory landscape, but to establish to what extent automated investment advice can deliver on its promises to individual investors as a valid and valuable alternative to more traditional providers of investment advice and asset management.

Taking the low levels of trust in traditional financial services providers and equity investments among European savers, Robo-advisors can contribute to regaining parts of this trust, by providing simple and understandable products coupled with lower fees. This in turn will lead to more engagement of European savers with capital markets, leaving less savings idle and uninvested and reducing the untapped potential of economic growth. Nonetheless, BETTER FINANCE wants to verify whether this fintech innovation lives up to its promises.

To conduct the algorithm testing of the **16 platforms** taken up in this year's report, BETTER FINANCE has developed **2 mock profiles** reflecting the real-life profiles of non-professional investors as European savers. With these two profiles, BETTER FINANCE has conducted "**mystery shopping**" by accessing the different platforms covered in this Research Paper, analysing not only the final investment portfolios, returns and advice provided, but also the underlying process and information on which these are based.

[15] https://citywire.co.uk/new-model-adviser/news/goldman-sachs-takes-stake-in-nutmeg/a1193965
[16] https://www.fnlondon.com/articles/blackrock-acquires-stake-in-robo-adviser-20170620
[17] https://www.hauck-aufhaeuser.com/en/about-us/easyfolio-and-hauck-aufhaeuser
[18] https://www.ft.com/content/f140a26c-8182-11e6-8e50-8ec15fb462f4

The criteria for the two profiles are the same as for the 2018 BETTER FINANCE Robo-advice research in order to provide consistency and comparability across the two years. Our approach is to replicate the experience of two individual investors and their engagement with the different platforms. Since investing should not be a full-time job for EU citizens as savers and investors, the usability and understandability of the services on offer should not depend on or involve any research that could or would not be carried by an individual investor. More specifically, this research aims to examine Robo-Investment providers for their reliability, user-friendliness, transparency, costs and suitability for retail investors.

SELECTION OF ROBO-ADVISORS

BETTER FINANCE limited the selection to the largest Robo-advice firms with an **AuM (asset under management) value of at least 30 million euros** in order to ensure platforms that have gained a certain degree of market penetration and experience are included. Another criterion applied by the research team was the possibility to access the platform without having to register with personal and sensitive data, or to pay up-front for the service. We consider that one of the positive features of the services provided by Robo-advisors is the possibility to obtain an overview of the potential investment advice on offer and other important information (disclosure of fees, portfolio characteristics, etc) before having committed to any sort of contract. This enhances transparency and the possibility for the investor to make a better and more informed choice between different Robo-advisor providers.

During the research and work leading up to the 2019 Research Report, the BETTER FINANCE team noted that an increasing number of Robo-advice platforms are now requiring more details from potential investors than in 2018. This leads to potential investors having to give away sensitive personal data such as social security number, copy of ID card, phone number and bank account, just to do a test-run of the platform.

As previously mentioned, **Moneyfarm** has been left out from this year's research for this reason. Keeping up with the frequent changes and fast pace of the Robo-advice market, BETTER FINANCE also included two new Robo-advice platforms that were not included in the 2018 report: Spanish **Feelcapital** and German **Easyfolio.** These two new platforms only feature in the results for 2019 but are excluded from the comparison between 2018 and 2019 due to lack of data for 2018.

ALGORITHM TESTING AND EVALUATION CRITERIA

The team has performed a comparative analysis between the data collected in 2018 and 2019. In order to provide a complete and accurate picture of the platforms in 2018 and 2019, the team has used the same criteria and the same investor risk profiles applied in the previous Robo-advice research.

As mentioned before, it is not so much the aim of this report to single out the best Robo-advice platforms as it is to establish whether Robo-advice lives up to its promises to individual investors. The criteria used for testing the algorithms are designed to determine to which extent the Robo-advisors deliver on 4 important elements for the individual investors: **user-friendly platforms, transparent investment services, suitable advice and portfolio planning for a competitive fee**. Even if the central approach is to carry out the observation from the perspective of the layman investor, the research is necessarily subjective. The team applied evaluation criteria in order to establish what, in its view, are the best practices in this emerging market. Therefore, the research uses objective criteria to lay down an impartial overview of the market.

Investor Profiles

In order to perform the algorithm testing, we used two investor profiles with the following characteristics:

I. **Millennials,** with a shorter investment horizon but a higher risk appetite,
II. **Baby-boomers**, with a long-term goal, more savings to invest but also a less risky approach

Further developing the different characteristics of our investor profiles, we chose an initial investment amount of 10.000 EUR for the Millennial and 100.000 EUR for the Baby-boomer[19]. Considering how many years an average employee in the European Union would need to save in order to accumulate the previously mentioned amount to be invested, we chose the age of the two profiles based on this criterion[20]. Hence, the millennial would accumulate around 10.000 EUR by the age of 30[21] and the Baby-boomer would have accumulated 100.000 EUR by the age of 50. The investment goal of the millennial is to raise money towards a real estate property over 5 years' time. Considering that the millennial is more financially literate, he is willing to take higher risks for higher returns in short-term markets.

[19] Net of liabilities
[20] Based on Eurostat data, the average monthly net income in the EU is 1,500 EUR – see here. In addition, we use an annual income increase rate of 2% based on an assumption used in the Bocconi study – see A. Berardi, C. Tebaldi, F. Trojani, 'Consumer Protection and the Design of The Default Investment Option of a Pan-European Pension Product' (2018) SDA Bocconi School of Management.
[21] Modest savings ratio of 1:9 of the income (10% per month)

Millennial

- Single
- No children
- Master's degree in banking and economics
- Financially literate
- Own risk assessment: high
- No real practical experience with investments

Baby-boomer

- Married
- With grown-up children
- Degree in engineering
- Not financially literate
- Own risk assessment: low
- Some experience with investments (pension savings, life insurance)

The investment goal of the baby-boomer is planning for retirement. She knows that the poor return of her occupational pension plan needs to be adjusted with additional savings.[22] She has an investment horizon of 20 years which results in a more conservative investment with lower risk tolerance compared to the Millennial. She would like to have a more stable and reliable investment accepting a lower expected return. For complex questionnaires also focusing on, for instance, personal situation and financial status, the team calculated the net monthly and annual income and the expenses-to-savings ratio.

In order to perform a comparative analysis, the two profiles used in 2018 and 2019 have exactly the same characteristics.

What we found

Fees

Notwithstanding all the different pros and cons of Robo-advice, the success of the concept hinges on the capacity to keep costs low. And in this respect Robo-advisors don't disappoint! Whichever way you look at it, Robo-advisors are far cheaper than equivalent services provided by banks or traditional financial advisors.

[22] BETTER FINANCE pensions savings, the real return: https://betterfinance.eu/wp-content/uploads/Pensions_Report_2018_-_Final_Version_-_for_Web.pdf

Figure 3	Annual Asset-based Management Fees		Annual Underlying ETF Fees (& Wrapper Fees)		Total: Management + ETF Fees	
	Millennial	Baby Boomer	Millennial	Baby Boomer	Millennial	Baby Boomer
Easyfolio – results (DE)	N/A	N/A	N/A	N/A	N/A	N/A
Easyfolio – website (DE)	1,03%	1,03%	N/A	N/A	N/A	N/A
Easyvest – results (BE)	1,00%	0,60%	N/A	N/A	N/A	N/A
Easyvest – website (BE)	1,00%	0,60%	0,30%	0,30%	1,30%	0,90%
Feelcapital – results (ES)	Just advice, fixed price €150/year					
Feelcapital – website (ES)	Just advice, fixed price €150/year					
Growney – results (DE)	0,69%	0,39%	0,18%	0,18%	0,87%	0,57%
Growney – website (DE)	0,69%	0,39%	0,27%	0,27%	0,96%	0,66%
Indexa Capital – results (ES)	0,63%	0,58%	0,19%	0,19%	0,82%	0,77%
Indexa Capital – website (ES)	0,63%	0,58%	0,19%	0,19%	0,82%	0,77%
Investify – results (LU)	1,00%	0,80%	0,18%	0,19%	1,18%	0,99%
Investify – website (LU)	1,00%	0,80%	N/A	N/A	N/A	N/A
Nutmeg – website (UK)	0,45%	0,25%	0,17%	0,17%	0,62%	0,42%
Nutmeg -results (UK)	0,45%	0,25%	0,18%	0,18%	0,63%	0,43%
Quirion – results (DE)	0,00%	0,48%	N/A	N/A	N/A	N/A
Quirion- website (DE)	0,00%	0,43%	0,21%	0,21%	0,21%	0,64%
Scalable Capital – results (UK- IT)	0,75%	0,75%	0,15%	0,15%	0,90%	0,90%
Scalable Capital – website (UK – IT)	0,75%	0,75%	0,16%	0,16%	0,91%	0,91%
Whitebox – results (DE)	0,97%	0,62%	0,22%	0,21%	1,19%	0,83%
Whitebox – website (DE)	0,95%	0,60%	0,20%	0,20%	1,15%	0,80%
Yomoni – results (FR)	0,50%	0,70%	0,90% (incl. wrapper fee)	0,90% (incl. wrapper fee)	1,40%	1,60%
Yomoni – website (FR)	0,70%	0,70%	0,90% (incl. wrapper fee)	0,90% (incl. wrapper fee)	1,60%	1,60%
Betterment – results (US)	N/A	N/A	N/A	N/A	N/A	N/A
Betterment – website (US)	0,25%	0,25%	0,11%	0,11%	0,36%	0,36%
Ellevest – results (US)	0,25%	0,25%	N/A	N/A	N/A	N/A
Ellevest – website (US)	0,25%	0,25%	0,12%	0,12%	0,37%	0,37%
SigFig – results (US)	N/A	N/A	N/A	N/A	N/A	N/A
SigFig – website (US)	0,00%	0,25%	0,11%	0,11%	0,11%	0,36%
Wealthfront – results (US)	0,25%	0,25%	N/A	N/A	N/A	N/A
Wealthfront – website (US)	0,25%	0,25%	0,12%	0,12%	0,37%	0,37%
Wealthsimple – results (CA)	N/A	N/A	N/A	N/A	N/A	N/A
Wealthsimple – website (CA)	0,70%	0,50%	0,18%	0,18%	0,88%	0,68%

Source: BETTER FINANCE own composition

Most Robo-advisors covered in this report present clients and potential investors with a simplified and easy-to-understand fee structure, generally consisting of a combination of an “all-in-one” management fee and an average of the underlying fund fees. Robo-advisors typically adopt a simple and transparent fee structure that translates into lower fees than those charged by “human” financial advisors or private bankers.

However, the robo advice fees are still almost all based on the amount of money managed (“assets under management”), which is an incentive to get new inflows, but less to achieve performance. Therefore, the alignment of interests with clients is better (no conflicts of interests allowing the selection of low fee investment options such as index ETFs) but not complete. There is one notable exception, the French Robo-adviser “Marie Quantier” [23] which has developed an interesting fee model based on the performance of the investment. The platform charges a performance fee of 5% on the realized gains of the year with a system called “higher water mark”.

Bar a couple of exceptions, Robo-advisors typically do not charge other fees such as entry fees, custody fees, transaction fees, performance fees, wrapper fees, etc. which are often to be found in standard “human” financial advice and private banking services.

The automation of the advice process, fewer intermediaries and lower fixed costs, all allow for competitive pricing. But the real trick in keeping costs low, lies in the fact that most platforms are “fee-based” and generally use low-cost exchange-traded index funds (ETFs). Because ETFs are publicly traded financial instruments that replicate the evolution of a stock market index in real time, their fees are minimal.

With overall fees (management fee + average underlying fund and wrapper fees) between 11 and 88 basis points in North America and 42 and 160 basis points in Europe, Robo-advisors compare very favourably with traditional players who typically charge fees far above 100 basis points. A downward trend over time in overall fees charged by Robo-advisors can also be observed, especially **in Europe where the lower-end fees went down from 69 basis points in 2018 to 42 basis points in 2019.**

Also, most robo advisors keep overall fees below 1% of assets. However, four Robo-advisors charge higher fees than 1%, in particular the one in France which is significantly above. The reason seems to be that this provider uses wrappers which include commissions levied by the insurer or the account holder and index fund fees, thus increasing total final fees for the investor.[24]

[23] Not covered in this report as the platform requires a subscription and an up-front payment in order to take the questionnaire
[24] See figure 4

Our findings once again illustrate that these automated financial advice services are on average less expensive than their traditional counterparts and can offer individual investors better value for money. In large part thanks to these low fees, BETTER FINANCE believes that Robo Advice can play a crucial role in attracting retail investors back into equity markets.

Fee Differences between Robo Advisors

When looking at fees, BETTER FINANCE only considered the fees disclosed by the Robo-advisor together with the proposed investment advice as well as the more generic fee information provided on the website. No other source of information was considered for the purpose of this section.

It is important to point out that some of the platforms only provided more generic fee information on their websites and failed to include the breakdown of fees in the results of the proposed investment advice. For other platforms the fee information provided with the results differed somewhat from the generic advice from the website. For the sake of this report, BETTER FINANCE prioritised the more adapted fee information given with the results over that of the website. When no information was provided with the results, the generic fee information was used instead.

To collect all relevant fee information, we:

- looked for the total ongoing charges (i.e. the total amount of fees deducted by the Robo-advisor on an annual basis) in the resulting investment advice proposal from the questionnaire for both investor profiles;
- looked for the average underlying fund fees in the resulting investment advice;
- looked for the total ongoing charges (generic or other) on the Robo-advisor website;
- looked for the average underlying fund fees and/or underlying wrapper fees on the website;
- looked for a breakdown of fees, to ensure all fees (management fees, ETF or underlying funds' fees, custodian fees, etc.) are taken into account;
- added up all relevant fee information (total robo advisor' own ongoing charges + average underlying fund and/or underlying wrapper fees) to provide an overall overview of the costs of Robo-advice for each platform.

A closer look at the fees allowed this study to identify the players with the most competitive fee structure. Since future returns on investment are unknown and not predictable, it is important to look at fees, since they are a key factor influencing the performance of retail investment products.[25]

[25] Please see BETTER FINANCE's Report on the real return of long-term savings in Europe.

Whereas we already covered transparency of the different costs and fees on each platform in the section on transparency, it is worth mentioning that investors would have a better overview of fees and their effect on performance if the platforms disclosed their fees together with the results and investment advice, instead of merely providing generic information on their webpages. However, the difference is quite small, as shown in Figure 4. Most European platforms do, but others, especially in the US, limit themselves to simply mentioning non-customized fees on their websites.

Figure 4

	Overall Fee provided with Investment Advice (results)		Overall Generic Fee Information provided on Website	
	Millennial	Baby Boomer	Millennial	Baby Boomer
Europe				
Easyfolio	No fee information		No fee information	
Easyvest	na	na	1,30%	0,90%
Feelcapital	Just advice, fixed price €150/year		Just advice, fixed price €150/year	
Growney	0,87%	0,57%	0,96%	0,66%
Indexa Capital	0,82%	0,77%	0,82%	0,77%
Investify	1,18%	0,99%	na	na
Nutmeg	0,63%	0,43%	0,62%	0,42%
Quirion	na	na	0,21%	0,64%
Scalable Capital	0,90%	0,90%	0,91%	0,91%
Whitebox	1,19%	0,83%	1,15%	0,80%
Yomoni	1,40%	1,60%	1,60%	1,60%
North America				
Betterment	na	na	0,36%	0,36%
Ellevest	na	na	0,37%	0,37%
SigFig	na	na	0,11%	0,36%
Wealthfront	na	na	0,37%	0,37%
Wealthsimple	na	na	0,88%	0,68%

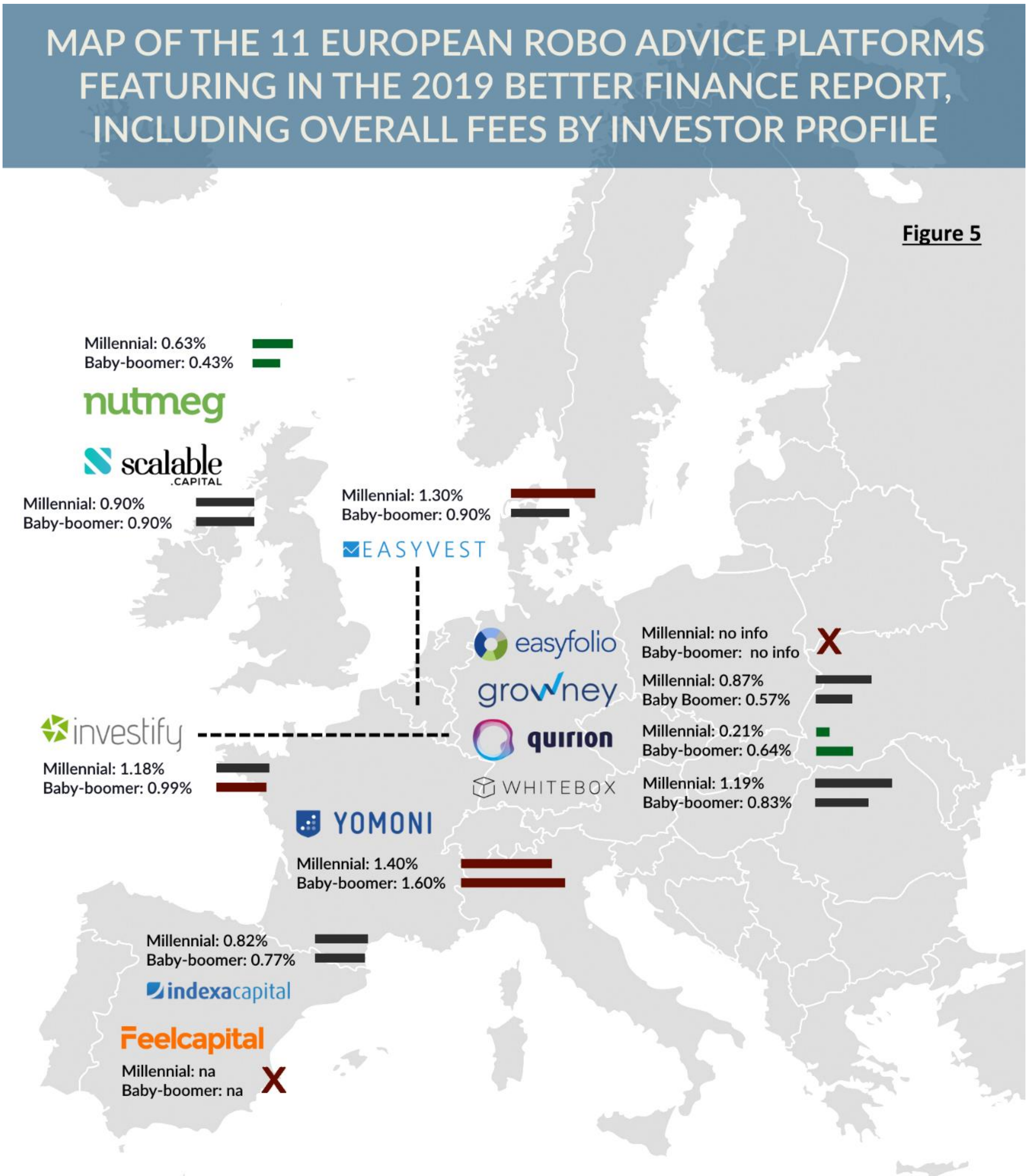
Source: Robo advice platforms; Own composition

We have chosen to present the fees as shown on the website alongside the fees as disclosed with the questionnaire results / investment advice. Whereas there are a few divergences, overall **fee disclosure is consistent between website and questionnaire results**, especially in Europe. In the United States we had to look at the generic website information in order to get an overview of the fees charged (not provided with results).

Although the gap is closing somewhat compared to last year's results, **Robo-advice fees remain significantly higher in Europe than they are in the US**, indicating that investment–related fees are overall much higher in Europe. This can be attributed to the fragmentation of the European capital markets and to a lack of product standardisation as well as insufficient competition. In addition, in some countries, the use of an additional wrapper around the selected funds for tax optimisation purposes (e.g. Yomoni) contributes significantly towards higher fees.

Fee Differences between Investor Profiles

Differences in fees between the different investor profiles on the same Robo-advice platform can most of the time be explained by the business model that reduces the management fee proportionally to the amount of invested capital. Most platforms reduce the management fee significantly as the amount invested goes up, although some exceptions, such as **Quirion** and **SigFig,** take the opposite approach and allow for individual investors with less disposable capital to access their services for a reduced fee. Other platforms, such as **Scalable Capital, Betterment** and **Wealthfront**, apply a flat fee irrespective of the initial capital invested.



Source: BETTER FINANCE own composition

User-friendliness

In this section we want to take a deeper look at the extent to which the 16 Robo-advice platforms are user-friendly and can be easily understood by an average individual investor. We analysed the degree of engagement with the investors combined with information provided by the platform in terms of financial literacy. The platform should provide clear and non-misleading information in order to help the users through the questionnaire process. The main challenge for the Robo-advice platforms is to reach a balance between having enough questions to establish the most customised investment advice possible with the need to keep the questionnaire short and simple. Whereas online client engagement is relatively easy and less time consuming than face-to-face interviews, online clients might easily lose interest in a long online questionnaire and lose focus on some questions.[26]

In addition, considering the differences in terms of financial knowledge among individual investors the Robo-advisor should provide definitions of financial concepts which can be easily understood by a layman investor. Financial literacy can be an important tool if integrated in Robo advice platforms, fostering financial inclusion of households and help less financially literate households to invest in the capital market. However, it is important to note that being investor is not a full a time job and explanations of financial matters and concepts need to be simple and easily understandable.

The simplicity and accessibility of the platform

- Is the process self-explanatory?
- Is the questionnaire easy to use?
- Is the website multilingual?
- Does the platform provide tutorials on how to use it?
- Do users need to register?

Financial education

- Is there easily accessible information on terms and explanations for the layman investor?
- Are definitions and clarifications provided during the questionnaire?
- Does the platform include webinars or videos?
- Is there a human advisor available for help and questions?

Looking at the graph below we acknowledge that, based on our score, **Investify** and **Scalable Capital** score highest in terms of simplicity, accessibility and financial education. However, most of the platforms have a self-explanatory and easy-to-use questionnaire. From this group of platforms, 35% provide accessible videos and webinars in order to inform the users regarding financial concepts and issues. In addition, some platforms also provide blogs and various articles with the intent of informing investors of the recent evolutions of the financial market.

[26] https://www.dbresearch.com/PROD/RPS_EN-PROD/PROD0000000000449125/Robo-advice_%E2%80%93_a_true_innovation_in_asset_managemen.PDF

Looking at the simplicity of the service, **only 5 out of 16 platforms** provide tutorials or guidelines on how to use the platform.

We checked whether the platforms improved their score compared to 2018, but unfortunately found that no significant improvement was made overall (table below)[27]. Compared to the previous year it seems that only few Robo-advisors have recognised the importance of educating users on financial matters. Indeed, this year some platforms, such as **Indexa Capital** and **Wealthsimple**, have included **webinars and videos on financial education**. In addition, very few platforms have increased or changed the questions compared to the previous year. The questionnaire is one of the most important elements of the service, allowing for the formulation of tailor-made portfolios based on sufficient and adequate questions to the layman investor.

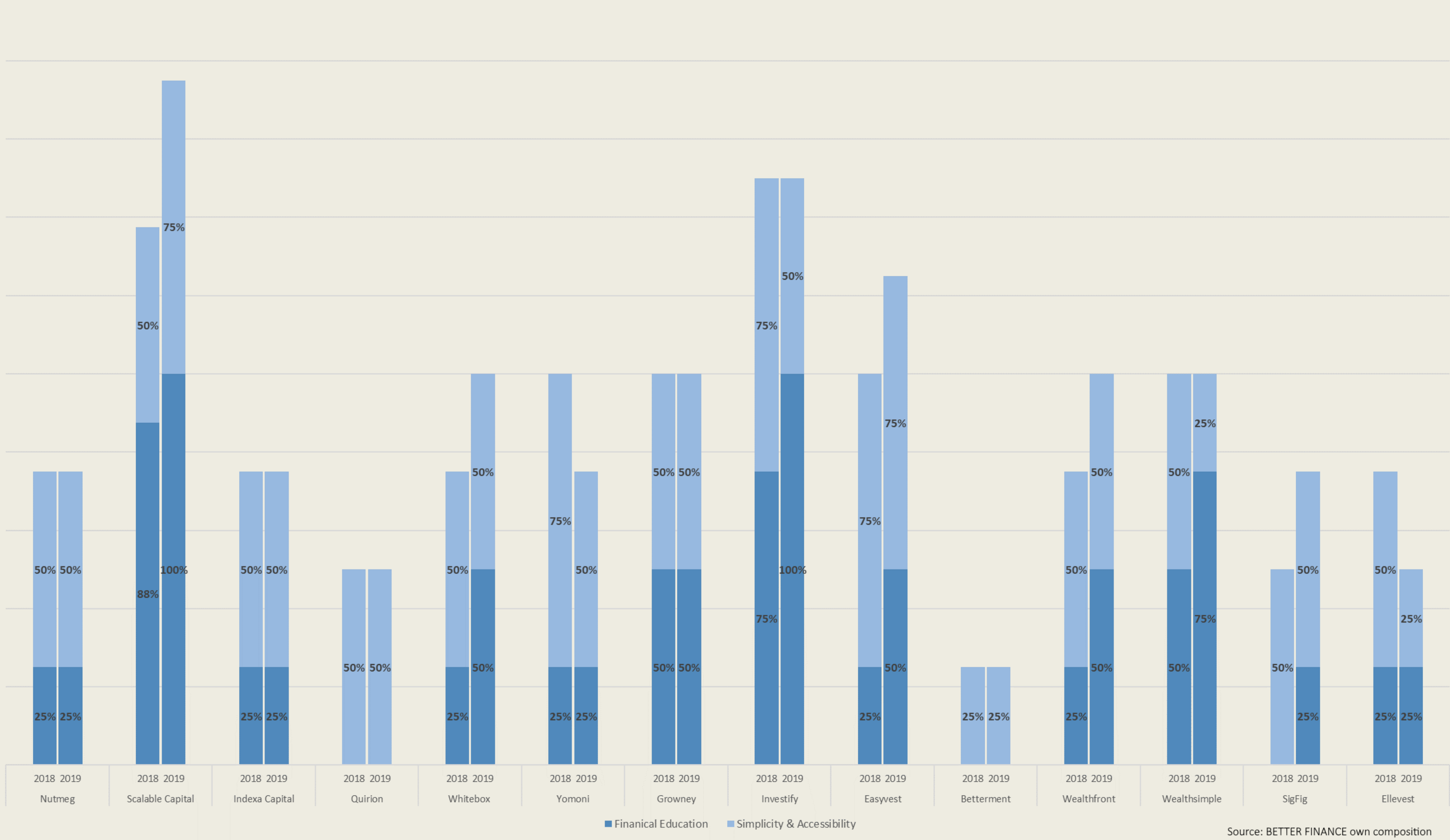
It is interesting to note that several platforms started to ask users to create an account before granting access the questionnaire. This year, 38% of platforms required to create an account before being able to use the platform, compared to 13% last year.

The registration might seem a less relevant indicator compared to the others, nevertheless we consider that one of the positive features of the services provided by Robo-advisors is the possibility to obtain investment advice and other important information (disclosure of fees, portfolio characteristics and etc) before having committed to sing-up to any sort of contract. This enhances transparency and the possibility for the investor to better choose among different automated advice services.

The possibility to choose among different services can be even more difficult if Robo-advisors such as **Moneyfarm** require potential clients to provide their social security number and a copy of their ID card in order to receive the investment advice.

[27] The comparison does not include the new platforms (Feelcapital and Easyfolio) which were not taken up in the last report. Therefore, 2018 data is not available.

Figure 6. Comparison User-friendliness 2018-2019



Source: BETTER FINANCE own composition

Transparency

The cornerstone of a sound financial industry, transparency, has been tested on 4 areas: **fees, portfolio allocation, risk and past performance**. As for the report in 2018, this year's research report analyses to what extent clear and intelligible information on these 4 key areas is disclosed to potential investors.

Transparency of Fees

One of the comparative advantages Robo-advisors have over more traditional providers of investment advice is lower fees on average. While the exact overview and comparison of fees is presented earlier in this Research report, this section will focus on the transparency of fees presented to the investors under the following criteria:

- Does the platform in question inform the investor about fees alongside the investment advice provided?
- Are the fees presented detailed? Are they showing the split between service or management fees and underlying fund fees?
- Do the future performance scenarios and or expected returns take fees into account?
- Are the fees presented with the result in line with fees presented on website? Ensuring that fees presented with the results are in line with actual fees presented in "fine print" of through conducting further research on the website?

BETTER FINANCE is not alone in bringing up the important issue of transparency on fees, already mentioned by **the European Commission's Study on retail investment products**[28]. While last year's report showed that half of the platforms tested did not disclose fees alongside the final investment advice provided, this year's study shows a small improvement with 68% of platforms disclosing fees with the investment advice. Of the 11 platforms disclosing fees, only 55% provide detailed fees. If you include those platforms who do not disclose fees at all, only 37.5% of all platforms covered in this report do.

Half of the platforms specify that their future scenario projections and expected returns are after fees. When looking at the extent to which the fees presented with the results are in line with the fees presented elsewhere on the website or in the fine print, **only 4 platforms satisfy the requirement**s set by the BETTER FINANCE team. In general, underlying additional costs are often not disclosed with the results, or they are presented lumped together with the management fee, leading to confusion for the potential investor as to the level of the actual management fees.

[28] EC distribution system of retail investment products across the European Union https://ec.europa.eu/info/sites/info/files/180425-retail-investment-products-distribution-systems_en.pdf

PORTFOLIO COMPOSITION TRANSPARENCY

We have checked the degree of disclosure with regards to portfolio allocation along the following criteria:

- Does the platform in question present information on the portfolio composition, including the split between stocks and bonds, further asset class specifications, geographical spread and detailed overview of underlying funds?

A total of 14 platforms out of 16 provide the potential investor with a simple overview of the content and allocation of their investment portfolio. While the degrees to which details are provided vary, only 7 of the platforms provide the potential investor with information on underlying fund information when presenting the results.

PAST/ FUTURE PERFORMANCE

Central to the investment advice presented to potential investors by Robo-advisors is the projection of forecasted returns of the investment in question, often referred to as "future performance scenarios". The reliance on past performance data in such estimates is unfortunate. In addition to being inherently misleading, MiFID II clearly states that *"…such forecasts are not a reliable indicator of future performance"*. A clear warning of their inherent unreliability is therefore seen as absolutely necessary by BETTER FINANCE, as required by the EU financial framework to accompany future performance forecasts (and tested in this study under the risk transparency section). Such warnings are unfortunately missing from a majority of the Robo-advisors covered in this study. They are either completely left out or presented through vague and unsatisfactory formulations.

BETTER FINANCE strongly disagrees with the usage of future performance scenarios and finds the inclusion of the past performance of a proposed portfolio, or of a comparable fund, to be far more useful, enabling the potential investor to assess whether the fund achieved its objectives and take informed decisions. When looking at the Robo-advisors' transparency as pertaining to historical data, this study has focused on the below criteria:

- Does the platform show past performance alongside the investment advice presented to the potential investor?
- Does the platform show past performance against a benchmark for comparison alongside the results?

Out of the 16 platforms included in the 2019 BETTER FINANCE study on Robo-advisors, **only 5 include past performance for comparison for the potential investor. Out of these 5, only 2 include a benchmark for comparison: Indexa Capital** and **Easyvest**. Disappointingly, while there have been changes to the results of the algorithm testing, we could observe no change with regards to the inclusion of a benchmark for an easier comparison on past performance.

Risk Transparency

In order to ensure that the risk levels of the proposed investments by the Robo-advisors are clearly disclosed to the potential investor – all the more important taking into consideration the Do It Yourself nature of most Robo-advisors included – this study researches the risk transparency of the different Robo-advisors. The financial literacy level of the investor, crucial to their ability to assess and analyse the information on risk provided by the Robo-platforms in question, plays an important role and is further developed under the chapter on user-friendliness.

In estimating risk transparency, disclosure of said risk on the different platforms has been researched based on the following criteria:

- Does the platform clearly disclose the risk-level of the advised investment strategy, either set by the Robo-advisor based on input provided by the potential investor, or determined directly by the investor alongside the investment advice?
- If presented, do future performance scenarios or estimates include best- and worst-case scenarios alongside the investment advice?
- Does the platform present a clear and visible warning on the potential loss of value of the initial investment alongside the investment advice?
- Does the platform present a clear and visible warning on the unreliability of future performance scenarios alongside the investment advice?

As discussed above, a **prominent warning** on the unreliability of future performance scenarios is required by law[29] (BETTER FINANCE's view on this issue has already been disclosed), as is a clear warning on potential loss of value[30]. This study thus researches to what extent such warnings are presented with the results, and whether they are presented with the investment advice and expected projections of return on the initial investment.

Although it is the responsibility of the potential investor to go over the information provided on the website in order to make an informed investment decision, BETTER FINANCE believes that the responsibility to provide clear and non-misleading information falls squarely on the suppliers of financial services[31]. For this reason, it is not sufficient for the platform to limit itself to providing

[29] Annex 1, tick box 2 and 5
[30] Annex 1, tick box 5
[31] Annex 1, tick box 5

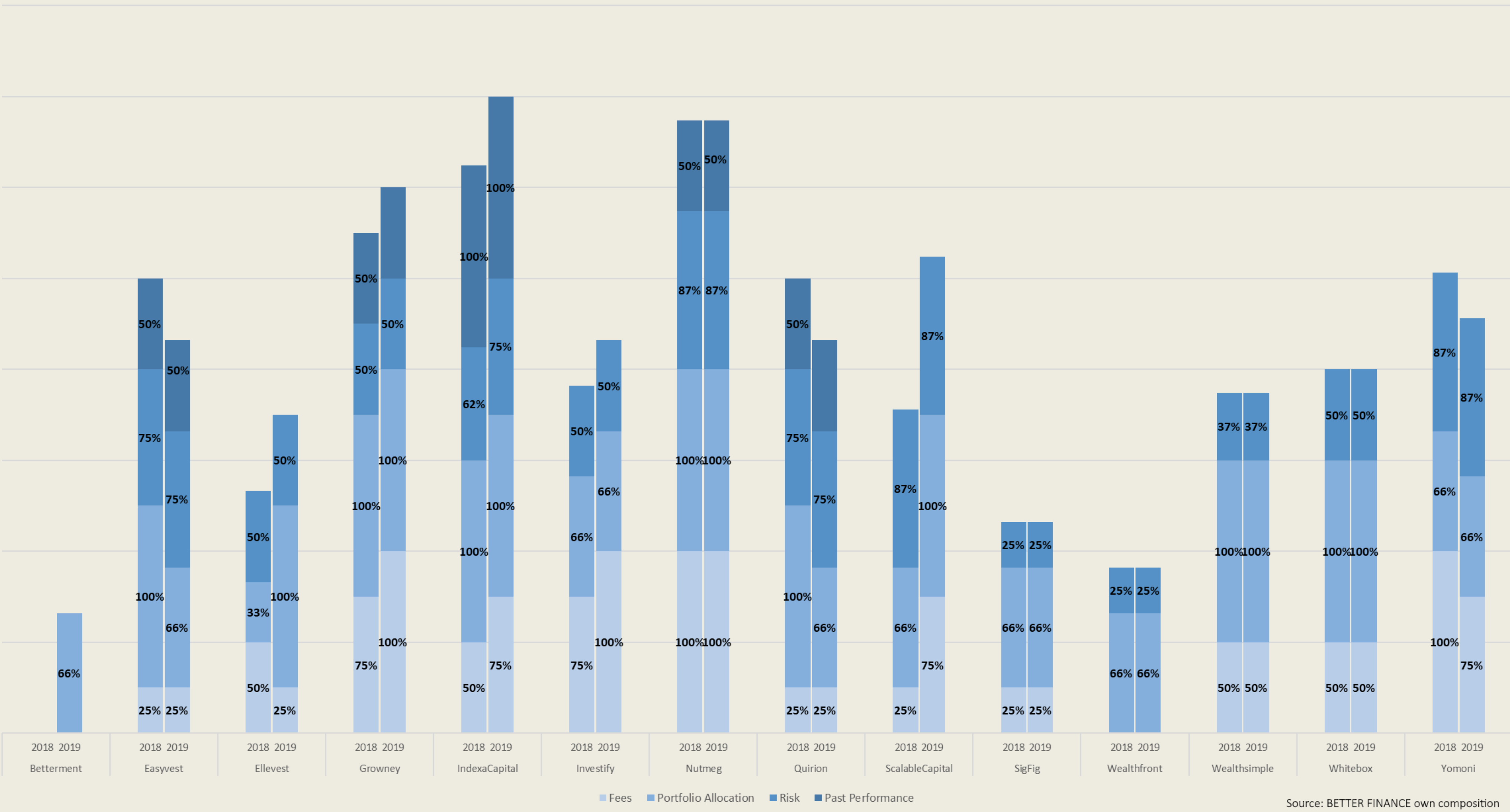
information somewhere on the website. Consequently, essential information should also be provided as part of the results of the questionnaire.

10 of the platforms covered in this report include **best and worst-case scenarios** in their presentation of future performance scenarios, though the detail level does vary (figure 7). However**, only 2 platforms provide warnings on the unreliability of past performance as an indicator of future performance** and its use in the development of future performance scenarios: **Quirion** and **Scalable Capital**. **None of the platforms present these warnings as prominently as the investment advice or the future performance scenarios**. For comparison, 5 platforms have partially been rewarded for including some kind of warning on the unreliability of the use of past performance as an indicator of future performance, though the formulations are more focused on the non-guaranteed nature of future performance scenarios as opposed to a clear warning on its unreliability.

15 of the platforms clearly disclose the **risk level of the portfolio** in question, though the underlying details of what the risk level contains in practise varies greatly and leaves much to be desired. In cases where the potential investors themselves set the risk-level, not based on specific tests of risk-carrying ability or preferences through scenarios, such information becomes all the more important. Further details on this are presented in the following section on the suitability of the questionnaires used by the platforms as well as the final investment advice presented. When looking at presented warnings of loss of value in initial investments, only 3 platforms have sufficient warnings presented with the results.

In line with BETTER FINANCE's findings, fair, clear and non-misleading information remains one of the least enforced investor protection rules in the EU. The full results of BETTER FINANCE's algorithm testing of the 16 platforms in this research report can be found below.

Figure 7. Comparison Transparency 2018-2019



Source: BETTER FINANCE own composition

Divergences in performance forecasts and assets mix advice

Robo-advisors should provide suitable and tailor-made recommendations for the potential investors. Considering that the exact same two investor profiles have been used to test each platform, we should not expect any relevant discrepancies in terms of investment advice.

However, this year again the research shows that there is a significant divergence between the investment advice provided for the two profiles. In this section we are going to analyse the following indicators for the two profiles (the Millennial and the Baby-boomer):

1. Expected returns on investment;
2. Proposed equity (ETF) allocation
3. Correlation between the expected return on investment and the equity allocation.

In addition, we are going to compare the results of this year with the results of last year's Robo-advice report (2018) in order to assess whether these divergencies remain for the same platforms. It is important to point out the following:

First, not all Robo-advisors present results for the indicated investment horizon for the baby-boomer and the millennial. For those who calculated performance forecasts on less or more than 20 years for the Baby-boomer (BB) and less or more than 5 years for the Millennial (M), the research team had to estimate and calculate the cumulative results with regards to the target date BB (2039) and M (2024).

Second, many Robo-advisors by default include a certain amount of monthly contributions to be added to the initial investment amount in their questionnaires, something the average investor might not always be aware of, and which would result in a higher final lump sum. While the research team could, in most cases, tweak the settings in order to obtain forecasts without monthly/annual contributions, for one advisor the results had to be re-computed without monthly contributions. Furthermore, 3 Robo-advisors did not present any performance forecasts at all (nor any past performance).

Last, some Robo-advisors focus on fees and annual growth rates, which is highly misleading since they do not take investment horizons into account. In some cases, a net return per year is shown, solely based on the risk profile of the potential investor (putting particular emphasis on the low level of fees), which remains the same irrespective of whether the target date is 5 or 20 years in the future.

Millennial Divergences

Significant divergences still persist in 2019 for the millennial profile, even when allowing for the short-term investment horizon of the investor (figure 10).

Figure 10. MILLENNIAL FUTURE PERFORMANCE SCENARIOS of 10,000 €/$/£				
EUROPE				
5 years Investment Horizon	Annual growth rate	Investment gain	% increase	Equity allocation
Nutmeg	5,64%	£ 3.159	132%	80%
Scalable Capital	5,66%	€ 3.172	132%	33%
Indexa capital	2,72%	€ 1.436	114%	46%
Quirion	6,08%	€ 3.431	134%	60%
Whitebox	2,01%	€ 1.047	110%	64%
Yomoni	10,91%	€ 6.783	168%	36%
Growney	3,37%	€ 1.805	118%	30%
Investify	13,70%	€ 8.998	190%	47%
Easyvest	4,28%	€ 2.329	123%	48%
Easyfolio	N/A	N/A	N/A	70%
Feelcapital	3,80%	€ 2.049	123%	52%
NORTH AMERICA				
Betterment	N/A	N/A	N/A	90%
Wealthfront	N/A	N/A	N/A	89%
Wealthsimple	8,45%	$ 5.000	150%	50%
SigFig	N/A	N/A	N/A	84%
Ellevest	1,95%	$ 1.016	110%	31%

Source: BETTER FINANCE own composition

The differences in terms of investment gain are quite significant, **starting from Whitebox with 1.047 EUR, up to Investify with 8.998 EUR.** The majority of platforms offer ETFs which are marketable securities that track an underlying index and invest in traditional asset classes as equities, bonds and money-market instruments. In the absence of extremely speculative, high-yielding financial instruments such as derivatives, it is not clear how the platforms can provide such different outcomes.

Asset allocation (the mix between money market instruments, longer fixed income securities such as bonds and equities is by far the number one driver for investment performance (all studies show I has a much bigger impact than individual security picking). The extremely high dispersion of the asset allocation advice for the exact same client is therefore most alarming. For the 5-year horizon, the millennial investor received "personal recommendations" ranging between **30% (Growney)** and **90% (Wealthfront)** equity allocation. An allocation of 90% of equities in the investment portfolio doesn't match both the short time horizon and the risk profile of the Millennial.

This year also, the team has come to the conclusion that there is a clear disassociation between the equity allocation in the portfolio and the expected investment gain for the Millennial investor. This stands as clear proof that, not only are future performance scenarios based on the discretionary assumptions of financial advisors, but that performance forecasts have the potential of being highly misleading for investors.

COMPARISON

Comparing the figures in 2018 and 2019, some platforms provide a very different portfolio allocation with different investment gains between the two years (figure 11).

Figure 11. Millennial

Investment Horizon: 5y	Investment Gain		Equity Allocation	
	2018	2019	2018	2019
Betterment	N/A	N/A	N/A	90%
Easyvest	€ 2.702	€ 2.329	48%	48%
Ellevest	$ 1.035	$1.016	69%	31%
Growney	€ 2.678	€ 1.805	50%	30%
Indexa Capital	€ 1.259	€ 1.436	46%	46%
Investify	€ 3.163	€ 8.998	75%	47%
Nutmeg	£ 2.897	£3.159	87%	80%
Quirion	€ 3.509	€ 3.431	60%	60%
Scalable Capital	€ 1.924	€ 3.172	32%	33%
SigFig	N/A	N/A	87%	84%
Wealthfront	N/A	N/A	89%	89%
Wealthsimple	$ 9.756	$5.000	50%	50%
Whitebox	€ 2.641	€ 1.047	66%	64%
Yomoni	€ 1.100	€ 6.783	36%	36%

Source: BETTER FINANCE own composition

It is interesting to note that 6 Robo-advisors provide the same level of equity allocation for the same profile in both years. Two of them forecast similar investment gains for the same allocation and one platform does not disclose any information on investment performance. However, three Robo-advisors with the same allocation of equities provide different investment gains. **In particular, with an equity allocation of 34% for both years, one of these platforms forecasted an investment gain of 1.100 EUR in 2018 and 6.783 EUR in 2019.**

We need to keep in mind that the type of equities in the portfolio can differ from year to year, providing different returns on investment one year with respect to another, even if the portfolio keeps the same share of equities. In addition, expected returns on investment are calculated on the historical performance of the investment, therefore changes with regards to the timeframe on which the historical performance is calculated might have an impact on the forecasted investment gain. However, this cannot explain such high discrepancies in terms of return on investment between two consecutive years.

Another platform has forecasted a similar investment gain for the two years (1.035 USD in 2018 and 1.016 USD in 2019) with a big difference in terms of equity allocation (69% in 2018 and 31% in 2019). Therefore, discrepancies in terms of the advised investment occur not only between platforms in the same year but also for the same platform between two consecutive years.

BABY-BOOMER DIVERGENCES

For long-term investments, as is the case for the baby-boomer, even small differences in portfolio allocations and annual growth rates would generate higher differences in terms of investment gains after 20 years (figure 12). The discrepancies between the different investment advice proposed to the baby-boomer are analysed in terms of investment gains, equity allocation and their correlation. The outcome is again a very high divergence between platforms.

Figure 12. BABY-BOOMER FUTURE PERFORMANCE SCENARIOS of 100,000 €/$/£

20 Years Investment horizon	Annual growth rate	Investment gain	% increase	Equity allocation
EUROPE				
Nutmeg	4,55%	£ 143.635	244%	35%
Scalable Capital	3,54%	€ 100.572	201%	13%
Indexa capital	2,77%	€ 72.714	173%	46%
Quirion	4,14%	€ 124.886	225%	30%
Whitebox	0,92%	€ 20.000	120%	28%
Yomoni	5,80%	€ 208.843	309%	45%
Growney	6,12%	€ 227.829	328%	70%
Investify	6,21%	€ 233.660	334%	64%
Easyvest	6,10%	€ 226.819	327%	90%
Easyfolio	N/A	N/A	N/A	50%
Feelcapital	2,40%	€ 60.694	161%	24%
NORTH AMERICA				
Betterment	N/A	N/A	N/A	82%
Wealthfront	N/A	N/A	N/A	70%
Wealthsimple	7,2%	$ 300.297	400%	50%
SigFig	N/A	N/A	N/A	64%
Ellevest	3,43%	$ 96.326	196%	77%

Source: BETTER FINANCE own composition

Differences in terms of investment gain are even more remarkable this year, starting with Whitebox's forecast of 20.000 EUR up to **Wealthsimple**'s astounding 300,297 USD (269,300.51 EUR)[32], a **15-fold difference**. The results show also a very diverging allocation of equities ranging from **13% (Scalable Capital**) up to **90% (Easyvest**).

The correlation between annual growth rate, investment gain and equity quota appear once again surprisingly low in most cases. One Robo-advisor estimates an expected gain of 208.843 EUR with 45% of its portfolio invested in equities. While, another platform expected a very high gain of 300.297$ with 50% of equity in the portfolio.

Comparison 2018-2019 Baby-Boomer

Figure 13. Baby-Boomer

Investment Horizon: 20y	Investment gain		Equity Quota	
	2018	2019	2018	2019
Betterment	N/A	N/A	N/A	82%
Easyvest	€ 153.785	€ 226.819	80%	90%
Ellevest	$62.635	$96.326	64%	77%
Growney	€ 229.942	€ 227.829	70%	70%
Indexa capital	€ 33.892	€ 72.714	20%	46%
Investify	€ 94.000	€ 233.660	27%	64%
Nutmeg	£ 76.003	£143.635	64%	35%
Quirion	€ 270.825	€ 124.886	60%	30%
Scalable Capital	€ 102.377	€ 100.572	30%	13%
SigFig	N/A	N/A	67%	64%
Wealthfront	N/A	N/A	72%	70%
Wealthsimple	$155.702	$300.297	50%	50%
Whitebox	€ 50.097	€ 20.000	48%	28%
Yomoni	€ 116.997	€ 208.843	45%	45%

Source: BETTER FINANCE own composition

For the baby-boomer, like for the Millennial, divergences in terms of investment gain and equity quota are rather remarkable for 2 consecutive years (figure 13).

In 2019, 7 out of 11[33] Robo-advisors provide a portfolio with a much higher investment gain compared to 2018 for the same risk profile. However, out of 3 platforms with the same equity allocation, 2 have

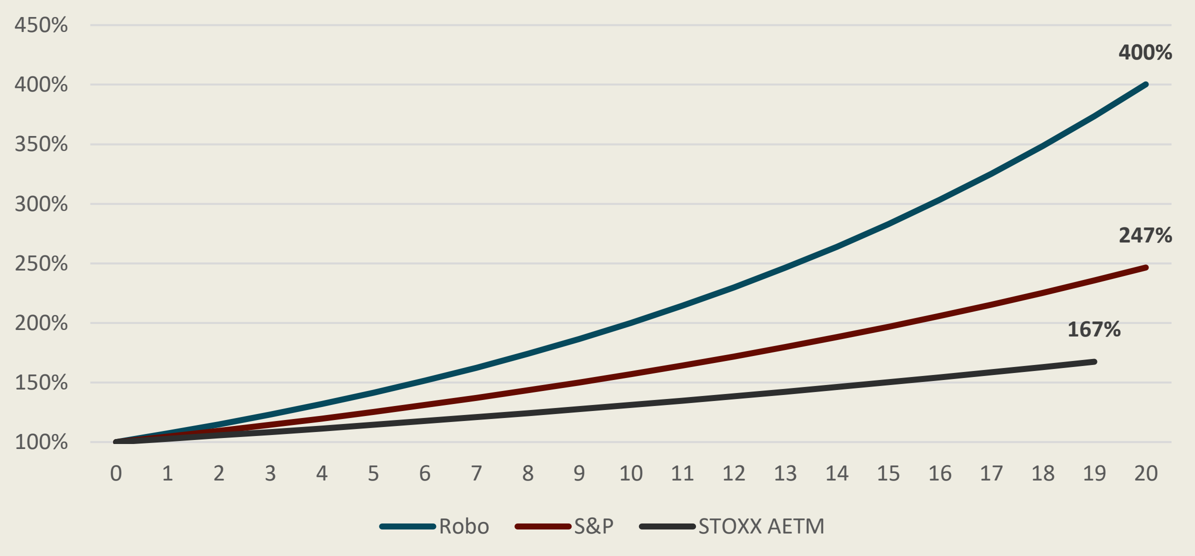
[32] According to the currency exchange announced by the European Central Bank on 21/06/2019, here.
[33] 3 Robo-advisors do not provide information on the return on investment

a very divergent investment gain. A platform with an equity allocation of 50% for both years forecasts an investment gain of $155.702 in 2018 and $300.297 in 2019. Inversely, another platform proposes an investment with a higher investment gain, but a lower equity allocation compared to 2018.

INVESTORS PROFILE DIVERGENCES

Some expected results indicate a cumulative return of 400%, which is 233 percentage points higher than the **STOXX AETM** (All Europe Total Market Index) since 1999, and the **S&P 500** also returned 153 percentage points less over 20 years, as shown in Figure 14. What is even more concerning is that, since the investment horizon of 20 years will surely experience a market correction with a downturn as some point, the market performance shown in figure 16 is most likely even too optimistic.

Figure 14. Past vs Future Performance



Source: BETTER FINANCE own composition

The research shows that significant divergences in terms of investment gain, equity allocation and correlation between the two (for the same risk profile) occur not only between platforms in one specific year, but also for the same platform between two consecutive years. In some cases, different future performance scenarios are provided in relation to products with the same equity allocation for the two years (2018-2019).

The millennial should have a portfolio composition that represents a riskier approach compared to the Baby-boomer. Considering the different investment horizon, an excessively larger equity allocation for the millennial would go over his risk tolerance. On the contrary, an equity allocation that is too low for the baby-boomer would overestimate her risk aversion. The results obtained this year once again show a remarkable inconsistency.

In addition, some portfolios present unusual asset classes such as, for example, money-market instruments and commodities (natural resources securities). Money-market instruments are considered unstable securities with a low-rate of return over the long-term compared to Bonds. Commodities are considered as even more unstable and highly risky products. For example, adverse economic, and political developments have a strong impact on natural resources securities overtime increasing volatility of the product.

Sustainable Investing and Performance

In this year's report, we looked at Robo-advisors also from the point of view of the sustainable investor. Investment strategies that include Environmental, Social and Governance (ESG) criteria have attracted more and more investors in recent years. Research found that three-quarters of investors are interested in sustainable investing with the most interest shown by millennials and women.[34] According to Morningstar data, assets under management in the ESG field increased by 60% from $655 billion in 2012 to $1.05 trillion in October 2018.[35]

Considering the increasing trend of sustainable investing, are Robo-advisers keeping up?

From the Robo-advisers analysed in this research, only 4 platforms claim to provide sustainable investments: **Ellevest**, **Investify**, **Wealthsimple** and **Betterment**.

Ellevest, after the questionnaire, gives the possibility to change from a "*core*" to an "*impact*" investment, changing the composition of the portfolio. The selection of "impact" for the **Millennial** provides a new investment advice with 37,6% of the portfolio invested in sustainable assets. However, looking at the composition of these assets in more detail, it is possible to observe that the majority of new assets (37% of new equities) are **ESG indexed products** and only a small part (6,13% of new bonds) is actually directed to funds that have a specific economic impact with the aim of helping communities and financing economic development projects.

We would like to stress that there is a difference between ESG investing and impact investing. An ESG investment focusses on investing in companies with good practices. Therefore, ESG factors are used by

[34] Rising investor interest pushes ESG funds past $1tn, https://www.ft.com/content/f1e98ec7-083e-3b95-8c6b-ecc4810b988e
[35] ibid

companies in order to enhance risk management.[36] Impact investing, instead, is a type of investment that aims to generate a societal and environmental impact alongside a positive financial return. This kind of investment goes a step further than ESG investing, as it explicitly aims at achieving more than a financial return.[37]

It is interesting to note that the change in asset allocations from “impact” investment does not affect the performance of the portfolio, with the same investment gain expected as for the “core” investment.

For long-term investments we have different results in terms of performance. For the **baby-boomer**, the selection of “impact” changes the composition of the portfolio, allocating 42% of the portfolio in new sustainable assets. In this case the performance of the new portfolio has slightly decreased. The platform expects an investment gain of $ 93.428 with the new asset allocation instead of $ 96.326 for the “core” investment.

Investify proposes various **thematic investments**, including “renewable energy” and “ethical investing”. When selecting these two themes at the end of the questionnaire for the **Millennia**l profile, 20% of the assets are allocated in renewable energy and ethical investing, with the remaining 80% to the “core assets”. However, no additional information is provided on the type of assets allocated for the thematic part.

The investment gain remains exactly the same for the two type of investments. It is not clear which methodology was used to allocate the new assets in the portfolio with the thematic selection.

In this case, the selection of a more sustainable portfolio has an impact on long-term investments. For the **Baby-boomer**, the platform proposes an investment with 20% of thematic assets in the portfolio but with a slightly lower investment gain and an annual growth rate of 6,05% instead of 6,21%. In addition, in terms of portfolio allocation, the share of equities is reduced for the “core” assets group, passing from 64% to 48%. However, as previously mentioned, the composition of the thematic assets is not provided.

Wealthsimple, like the other platforms, provides the possibility to change the proposed investment to a **Socially Responsible Investment (SRI)**. For both profiles the platform proposes a portfolio reallocation offering a new investment composed of 43% of Socially Responsible assets. Apparently, there are no differences in terms of investment gains and equity share for both risk profiles.

[36] ESG Forum :https://esg.theasset.com/ESG/35316/impact-investing-versus-esg-investing-arent-they-the-same-thing
[37] Dirk Schoenmaker & Willem Scramade, Principles of Sustainable Finance, Oxford 2019

Finally, **Betterment** claims to offer **Socially Responsible Investments (SRI)** in the portfolio. However, it is not possible to look at the portfolio composition since the platform requires a full registration in order to have a detailed overview of the investment performance.

Battle for the Sexes – Gender Perspective in the Robo-advice Market

For the 2019 Report, BETTER FINANCE also included a gender perspective in its algorithm testing – to see whether gender plays a role in the provision of investment advice. Our experience is that most platforms do not place much importance on gender. **US-based Ellevest**, the only platform covered that **specifically targets women**, argues that the "by men, for men" way the finance industry operates today "hasn't worked very well for women", financially hampering women in their capacity to plan their future and live the lives they want. It was Ellevest's perspective on the matter which prompted the BETTER FINANCE to test whether gender has an impact in the algorithms used by Robo-advisors. In conducting our research, we have therefore included both male and female investor profiles for both the Millennial and the Baby Boomer. We have found that only Ellevest in fact asks for the gender of the investor.

Taking gender into consideration when preparing a savings plan is of great importance, especially due to divergences in salaries over time and potential work absence affiliated with parental leave, disproportionately affecting women. However, for an investment plan in which monthly contributions are excluded, as is the case in this report and for our specific investor profiles, such salary considerations should not be taken into account unless specified. We also noticed that, as a general rule, Ellevest assumed a 13% higher monthly savings rate for female investors which is added to their Individual Retirement Account (IRA), leaving women with a 0.8% higher annual income than men. This monthly contribution, however, is adjustable, and when adjusted to 0 per month, women's projected return on investment is 2.64% lower than for men on an annual basis, based on retirement income. To our great surprise, the one and only platform targeting women, is in fact also the only platform promising higher returns for men than for women. It is important to note, however, that this was only the case for the Baby Boomers with an investment horizon of 20 years, while the returns on investment for the Millennials with an investment horizon of 5 years were equal, independent of gender.

BETTER FINANCE contacted Ellevest for clarification but has yet to receive a reply. In the methodology documents provided on their website, Ellevest claims that women generally are more "risk aware and prefer less volatility and more certainty of achieving their goal to taking big bets that may or may not be accompanied by greater investment returns". It follows that Ellevest could be ascribing a higher risk-appetite to their male investors compared to their female counterparts. In estimating a potential investor's risk appetite, however, basic questions on financial situation must be covered. Ellevest at no point asks about expenses or specific financial goals, other than the general set aim of achieving retirement income.

With no basis other than a very broad stereotype of women being more “risk aware” than men, Ellevest is at risk of painting all women (and all men) with the same brush, thereby disproportionately affecting women’s returns and limiting personalisation of portfolios for all potential investors.

Suitability

One of the objectives of the research conducted by BETTER FINANCE is to determine to what extent Robo-advisors gathering information through automated online questionnaires provide suitable investment advice based on the different needs, **investment goals, risk carrying capabilities and financial situations** of the two investors profiles developed. Although detailed information on the specific algorithms used by the different platforms is not available, our findings show that the different platforms seems to be operating under quite different perceptions of what information is necessary to present such suitable investment advice.

Such divergencies could potentially be troublesome and lead to situations in which investment advice is perceived as ‘personalised’ even though no information on the financial or personal situation of the potential client has been collected by the provider. The different information gathered by the different platforms is particularly interesting when analysing to what extent Robo-advisors can operate as a viable alternative to more traditional providers of investment advice. In this chapter of the 2019 Research Report, BETTER FINANCE first created an overview of the information collected by the different platforms from the investor. We then tested the suitability of the investment advice provided, based on specific criteria, before we moved on test to what extent the detailed information collected results in more suitable investment advice.

Testing the Questionnaires

While all platforms ask simple questions about the desired sum to be invested, the table below shows to what extent the different platforms ask about the investor’s background:

- Financial Situation: Income, expenses, liquid and illiquid assets, debt and actual risk carrying ability, etc.
- Personal Situation: Level of education, age, marital status, dependence persons (children), years until retirement etc.
- Level of financial literacy: Previous knowledge and experience with investing and the products on offer, etc.
- Desired level of risk
- Investment goal and horizon: The aim of the investment in question and timeframe to reach said goal etc.

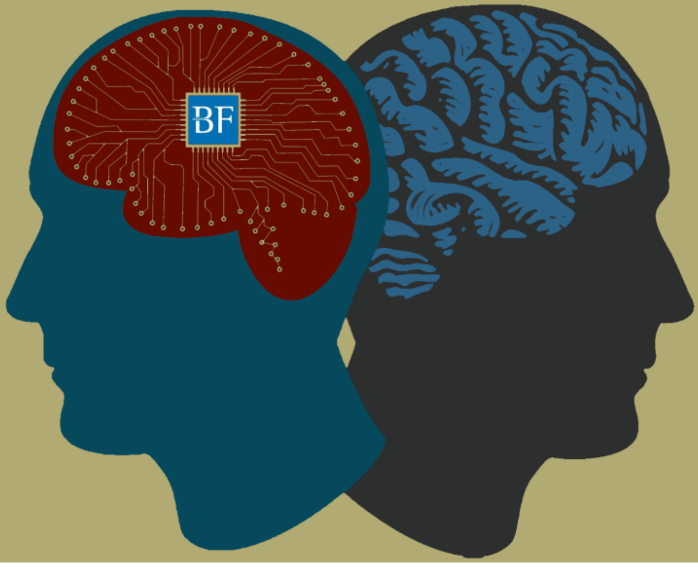


Figure 8

Platforms	Financial Situation 2018	Financial Situation 2019	Personal Situation 2018	Personal Situation 2019	Financial Literacy and Previous Experience 2018	Financial Literacy and Previous Experience 2019	Risk Apetite 2018	Risk Apetite 2019	Investment Goal and Horizon 2018	Investment Goal and Horizon 2019
Betterment	✗	✗	✗	✓	✗	✗	✗	✗	✗	✓
Easyfolio		✓		✗		✓		✓		✓
Easyvest	✓	✓	✗	✓	✗	✗	✗	✗	✓	✓
Ellevest	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓
Feelcapital		✓		✗		✗		✓		✓
Growney	✓	✓	✗	✓	✗	✓	✓	✓	✗	✓
Indexa Capital	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓
Investify	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nutmeg	✓	✓	✗	✗	✗	✗	✓	✓	✓	✓
Quirion	✓	✓	✗	✗	✗	✗	✓	✓	✓	✓
Scalable Capital	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓
Sigfig	✓	✓	✗	✗	✗	✗	✓	✓	✓	✓
Wealthfront	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓
Wealthsimple	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Whitebox	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓
Yomnoni	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Source: BETTER FINANCE own composition

As is evident from the figure 8, only 4 platforms cover all the bases, set by BETTER FINANCE, throughout their online questionnaire: **Growney, Investify, Wealthsimple** and **Yomoni**. To see to what extent these platforms provide more suitable investment advice as opposed to the remaining platforms, it is necessary to first evaluate the suitability of the investment advice provided by the platforms to each investor profile.

Risk Profile Alignment

One of the main objectives of the report is to determine whether the investment advice is personalised and suitable for our investor profiles.

Note: Investment counselling, by nature, is subjective, and depends both on the advisor's proposed, knowledge and experience on the one hand, and the investment horizon, goal and risk appetite of the client, on the other. However, following the sub-prime and sovereign debt crises, and considering households' long-standing low levels of confidence in the financial industry, EU policy makers introduced stringent regulation with regards to the investment advice process, in order to ensure a harmonised, minimum level of quality. Therefore, MiFID II and subsequent legislation (level 2[38] and level 3[39]) provide further details on when and how investment advice is deemed *personal* and *suitable* for a certain potential client.

In order to take a deeper look at these regulatory criteria and their impact, we developed a new indicator - the RPA (Risk Profile Alignment) [40] - by means of which we assess the proposed portfolio against the applicable EU law in terms of **equity allocation**,[41] **portfolio diversification** (number and types of asset classes or securities), investment focus (issuer type, geographic scope, strategy scope, sectorial scope), investment horizon (where applicable, such as for bonds). In addition, we had a look at the **levels of the forecasted returns**.

The **equity allocation** of the portfolio for the 2 profiles is assessed as follows:

- For the **Millennia**l, with an above-average risk appetite but a short-term investment horizon, an allocation around or close to **20%-40%** invested in equity ETFs can be seen as suitable, with the rest being invested in bonds, and a small portion in cash/money market instruments.

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[38] EU Commission Delegated Regulation (EU) 2017/565 of 25 April 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council as regards organisational requirements and operating conditions for investment firms and defined terms for the purposes of that Directive.

[39] European Securities and Markets Authority *Guidelines on certain aspects of the MiFID II suitability requirements* (28 May 2018 – ESMA35-43-869).

[40] During the algorithm testing, the team has set a risk tolerance level between 5 and 7 for the Millennial (high risk tolerance) and between 3 and 4 for the baby boomer (moderate risk tolerance), where 1 is the lowest and 8 the highest.

[41] According to Tertilt and Scholz, given that "the bond exposures typically have similar risk levels, the equity exposure is the significant indicator for the riskiness of an investment recommendation"; therefore, observing the same trend in portfolio composition (main equity, bonds), we used the same risk measure as in other tested Robo-platforms researches – see Michael Tertilt, Peter Scholz, 'To Advise, or Not to Advise — How Robo-Advisors Evaluate the Risk Preferences of Private Investors' (2018) 21(2) Journal of Wealth Management Fall 2018, 21 (2), 70-84, page 72, available at: https://doi.org/10.3905/jwm.2018.21.2.070.

- For the **Baby Boomer**, more focused on a long-term investment but with a lower risk appetite, an allocation around or close to **40%-60%** in equity or equity-ETFs can be seen as suitable – higher than the Millennial, with a longer investment horizon allowing for more holdings in stocks at a reduced risk.

When looking at the **diversification of the portfolio** the research team has established criteria to assess the level of diversification of the portfolio for each investment advice provided by the platforms. In order to verify this, we assessed:

- Whether the platform provides enough detailed information regarding the asset allocation, such as reference to the assets class, geographic and sectorial allocation.
- Whether the advice provides for a portfolio with more than 1 asset class, and whether it is diversified in terms of sectors, focus (small, large caps etc) and geographic areas.

In order to better asses the alignment with the risk profile, the team had a closer look at the future expected returns and identified platforms forecasting **highly unlikely excessive future performance** as part of their investment advice:

- **Baby Boomer**: Considering the average percentage increase on the expected return of 250% among the 12 platforms[42],the platforms that exceed the average by at least 50% are considered as “excessive”.[43]

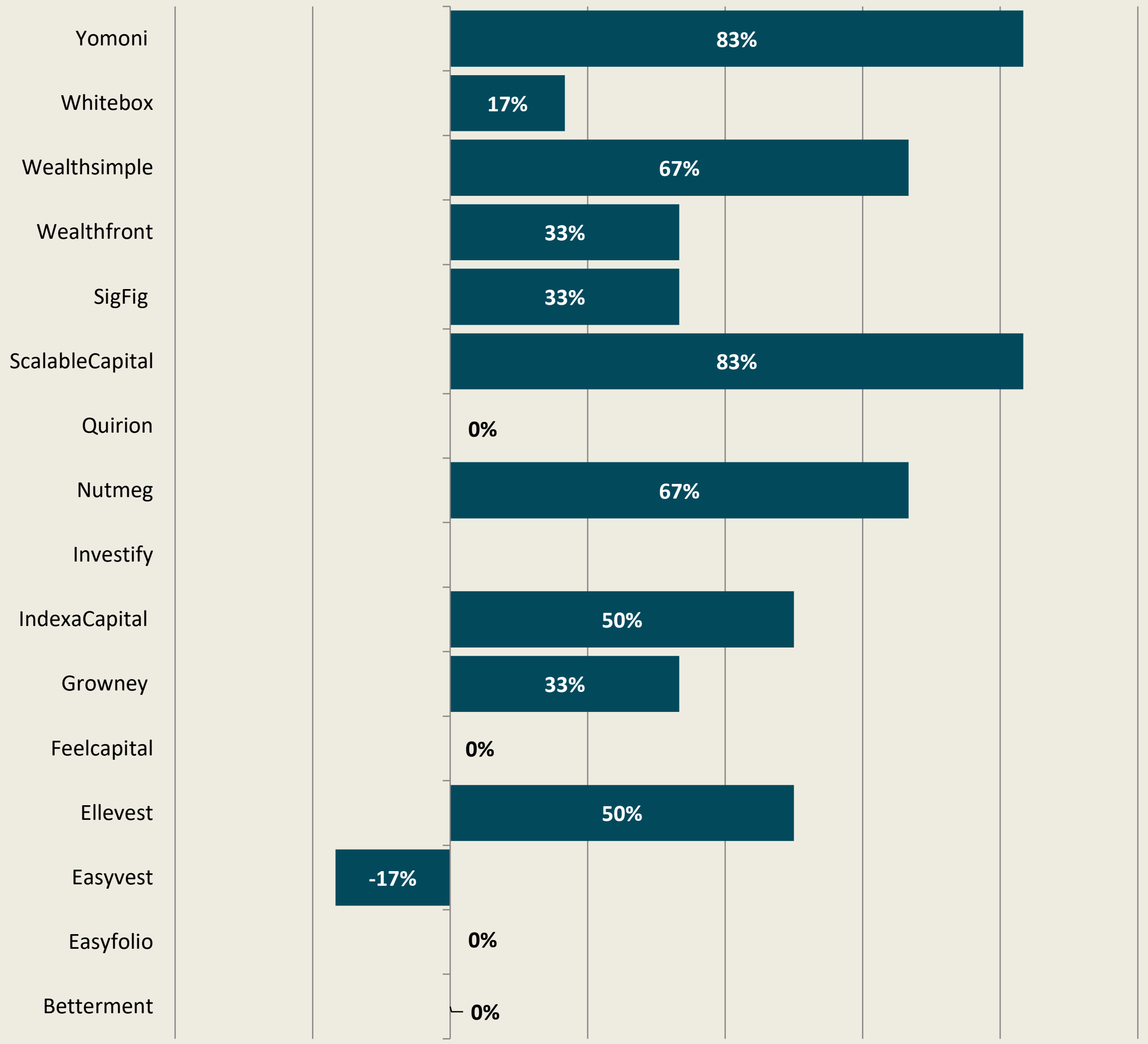
- **Millennial**: Considering the average percentage increase on the expected return of 134% among the 12 platforms, the platforms that exceed the average by at least 50% are considered as “excessive”.[44]

Looking at the table below (Figure 9), it is possible to observe that only few platforms achieve a high degree of suitability in terms of alignment with the risk profiles. 6 platforms out of 16 received 0% score. However, most of them do not provide sufficiently detailed information on the specifics of the portfolio.

The platforms with the highest scores are Yomoni and Scalable capital, both reaching 83% followed by Nutmeg and Wealthsimple with 67%.

[42] 4 platforms did not provide information on the expected future returns
[43] For detailed data look at Figure 12
[44] For detail data look at Figure 10

Figure 9: Suitability 2019



Source: BETTER FINANCE own composition

Policy Recommendations

Article 24(3) of MiFID II[45] enshrines the overarching principle of 'fair, clear, and not misleading information that is to be provided to investors by investment firms, regardless of whether the communication has a marketing or mandatory disclosure nature'. The Directive[46] requires the information presented to retail investors to be comprehensible, so that investors can reasonably be expected to understand the nature and risks of the investment service and financial instrument. Robo-advisors must follow the same MiFID II rules as traditional advisors, especially since all providers in this research are duly registered as financial advisors in their respective jurisdictions or have contractual relationship with a registered investment company.

Following four consecutive years of research on Robo-advice by BETTER FINANCE, four main areas of concern stand out: **(i) standardised relative past performance, (ii) future performance scenarios (iii) charges and (iv) sustainable investing.**

Investment Advice

Robo-advisors must follow the same rules under the MiFID II legislative framework[47] as traditional advisors. Indeed, all providers researched were duly registered (or in the process of registering) as financial advisors in their respective jurisdictions like traditional, non-automated financial advisors are. In addition, many are logically also registered as asset managers or have a contractual relationship with a registered investment company. The findings of this report show that several platforms fail to provide personal and suitable investment advice, thus not complying with the EU law in terms of equity allocation, portfolio allocation and portfolio diversification. In addition, strong discrepancy in terms of investment gains and high dispersion of asset allocation for the same investor profile is concerning.

In addition, , since there is lack of consistency as regards terminology BETTER FINANCE would like again to invite regulators and other interested stakeholders to agree on a standardised terminology, in particular on how to define concepts such as "investment advice", "personal recommendations", "product selling", "guidance", "planning", "fee-only","fee-based" and "commission-based".

[45] Directive 2014/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast), OJ L 173/ 349.
[46] Article 24 (5) MIFID II
[47] This counts MiFID II, MiFIR, and the delegated or implementing regulations (Level 2 instruments).

BETTER FINANCE welcomed[48] the European Securities and Markets Authority's (ESMA) final guidelines on suitability[49] (applying to all firms offering the service of investment advice and portfolio management, irrespective of the format used for the provision of these services) as the assessment of suitability is one of the most important requirements for investor protection in the MiFID framework and a cornerstone of this study. The Guidelines take into consideration technological developments of the advisory market and the increasing use of automated or semi-automated systems for the provision of investment advice or portfolio management (Robo-advice). BETTER FINANCE supports the Guidelines' definition of Robo-advice as "the provision of investment advice or portfolio management services, in whole or in part, through automated or semi-automated system". In particular, BETTER FINANCE welcomes ESMA recommendation for Robo-advice firms to provide clients, in addition to other required information, with a clear explanation that the answers provided by the clients will have a direct impact in determining the suitability of the investment decisions recommended or undertaken on their behalf. We agree that this would help address potential gaps in clients' understanding of the services provided through Robo-advice.

However, considering the low quality and suitability of some algorithms assessed in this report and the increasing use of Artificial Intelligence in our the society, in particular in the financial sector, we believe that legislators should propose a legislative framework that ensure that Automated-Decision Making (ADM) systems as Robo-advisors are accountable, transparent and fair for EU citizens. The algorithms of Robo-advisors need to be developed on criteria that comply with the legislation (MiFID II) with regards to the investment advice process, in order to ensure a harmonised, minimum level of quality.

BETTER FINANCE regrets that contrary to what was planned in the 2015 CMU Action Plan, the 2018 EC study on Distribution system of retail investment products across the European Union [50] has not examined "*how the policy framework should evolve to benefit from the new possibilities offered by online based services and fintech*". However, since the study suggested that the fact that on average, distributors in the Netherlands and the UK seem to display the lowest ongoing fees for all types of funds (except for money market funds) may be related to the ban on inducements in those countries, BETTER

[48] Please see BETTER FINANCE's response to the consultation on the ESMA's *Guidelines on certain aspects of the MiFID II Suitability Requirements* http://betterfinance.eu/fileadmin/user_upload/documents/Position_Papers/Securities_Market/en/BETTER_FINANCE_s_answer-_Consultation_Paper_on_MiFID_II_Suitability_requirements_FINAL.pdf.

[49] ESMA's *Guidelines on certain aspects of the MiFID II Suitability Requirements* https://www.esma.europa.eu/press-news/esma-news/esma-publishes-final-guidelines-mifid-ii-suitability-requirements.

[50] Distribution system of retail investment products across the European Union (Final Report): https://ec.europa.eu/info/sites/info/files/180425-retail-investment-products-distribution-systems_en.pdf

FINANCE recommends that research is undertaken by the EC on the quality of investment advice in countries with and without ban on inducements. BETTER FINANCE is participating as expert to a working group of the EC on web comparing tools for investment products. This is part of the CMU initiative, and a follow-up action from the retail investment market assessment mentioned above. BETER FINANCE advocates for independent investment product data bases that will allow web comparing tools to feed into them using reliable and comparable data, like the FinansPortalen in Norway. We hope that its conclusions will lead the EU Authorities to action in this area.

RELATIVE PAST PERFORMANCE AND FUTURE PERFORMANCE SCENARIOS

The divergences that have come to light during the mystery shopping exercise, highlight the importance of the disclosure of standardised relative past performance for the investor. Our findings show that two investors profiles (Millennial and Baby-boomer) received very divergent investment advice from the same advisor the second year around, despite having the same investment amount and time horizon, education as well financial literacy. Wildly diverging advice has been encountered in terms of future investment gain, equity allocation and correlation between portfolio composition and expected return. Consequently, it is difficult for a potential retail investor to compare offers from different platforms and take an informed decision.

Moreover, what is common to almost all investment advice platforms, is a prominent graphic presentation of the initial investment's evolution over time (the investment horizon). These represent the performance forecasts of the proposed portfolio, which are usually based on past performance data. However, even if historical figures do have their (limited) added value, **simulated future performance is misleading**[51] and EU legislation is stringent vis-à-vis the criteria to be met in order to present such a forecast[52]. Unfortunately, this year's differences among platforms in terms of future

[51] For instance, see BETTER FINANCE's view on the replacement of past performance with future performance scenarios in the PRIIPs KID – BETTER FINANCE, *A Major Enforcement Issue: The Mis-selling of Financial Products* (2017) Briefing Paper, 8-9, available here. Also consult 1. BETTER FINANCE's response to the European Supervisory Authorities' (ESAs) Joint Consultation on amendments to the PRIIPs KID 2. BETTER FINANCE feedback to the FCA's call for input: "PRIIPs Regulation- initial experiences with the new requirements"

[52] First, it must not use simulated past performance figures. In other words, it shall not be based or refer to the actual returns of other financial instruments or indices than the ones in subject. While this prerequisite may seem complicated, it translates that future performance scenarios of a security or of an entire portfolio of securities may use only the historical returns of the security or of the portfolio itself, if they had one. | Second, the presentation of an expected performance of the recommended portfolio (which must be 'based on reasonable assumptions supported by objective data'), must be accompanied by a 'prominent warning that such forecasts are not a reliable indicator of future performance'. This requirement must be coupled with the general prohibition to investment professionals of promising or guaranteeing any result whatsoever of an investment in financial instruments and/or products. | Last, the simulated future performance must reflect 'the nature and risks' of the

performance are even more remarkable compared to the previous year. The team found out concerning differences on investment gains up to 15 times between Robo-advisors.

Therefore, this year again BETTER FINANCE recommends that EU regulators:

- impose at least the obligation to always present relative past performance of the proposed portfolio or fund alongside the performance forecasts;
- comply with MifID II rules and eliminate future performance scenarios entirely;
- make requirements for a presentation of the risk/reward profile, ongoing charges and performance graphs similar to that of the current UCITS KIID.

SIMPLICITY AND COMPARABILITY

Robo-advice platforms still deal with products and services that require clients to be relatively financially literate to really understand the value of their offers. Unfortunately, as proven by the European Authorities' reports on cost and past performance, long-term retail savings are the only EU consumer products for which consumers and Public Supervisors not only don't have a clue as to their future performance, but they don't even know what their past performance has been[53]. Therefore, BETTER FINANCE again calls on EU Authorities to fulfil their legal duty to promote **simplicity** and transparency of investment products.

Moreover, in light of our findings on very diverging results for one and the same investor profile on different providers, it is clear that EU citizens are in dire need of **comparable information** on investment products, including past performances relative to the objectives of the providers (their "benchmarks"), and on costs. In our view this information should be accessible via **independent web-based comparison tools for retail investments**. Therefore, BETTER FINANCE is pleased to see that the Commission, as pleaded by us, followed up on their "Consumer Financial Services Action Plan"[54] released in 2017 and went beyond the non-binding "Key Principles for Comparison Tools". In 2018 the EC not only released a tender to scrutinise options for development of online tools and services supporting retail investors in investment decisions[55], but also involved user side organisations in the process. BETTER FINANCE is also contributing as an expert to this important work stream, since the current difficulties in comparing

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instruments used or of the portfolio composition in particular by showing both positive and negative scenarios in the corresponding markets.

[53] See BETTER FINANCE's press release and assessment of ESAs reports on cost and past performance

[54] The EC's Financial Services Action Plan https://ec.europa.eu/info/publications/consumer-financial-services-action-plan_en

[55] Tender FISMA/2017/117(05)/C https://etendering.ted.europa.eu/cft/cft-display.html?cftId=3823

investment products constitutes a major challenge for EU citizens as long-term savers, for the Capital Markets Union initiative, for the EU economy and for the adequacy of our pensions.

Public Enforcement

Even though a prominent warning of future performance forecasts' unreliability is required by EU Legislation to accompany such estimates, it was unfortunately missing from a majority of the Robo-advice platforms included in this study. Moreover, many of the providers who did post such a wrning, were found to present future performance estimates more prominently than the accompanying warning of such forecasts` unreliability. Therefore, BETTER FINANCE calls on national supervisors in charge of protection of retail financial users to use their powers and investigate potential breaches of the EU law.

Sustainable investing

In the last decade, the increased importance given to environmental considerations and social responsibility by retail investors, has generated strong incentives for producers to market products as sustainable, establishing specific standards, compliance rules and criteria. As in other industries, the financial sector has seen a significant increase of sustainable financial products, consequently requiring different methodologies on which to build the composition of these products. The main problem with this approach is the fragmentation and the complexity of this market, which does not allow for consumers to fully understand to what extent the product there are buying is actually sustainable or has an environmental and/or societal impact. Due to lack of information, the average investor struggles to understand the difference between a **Socially Responsible investment (SRI)**, **ESG investment** or an **impact investment**. Therefore, the lack of information and awareness could mislead the investors to invest in sustainable products that are not in line with their needs. Robo-advisors can be an important tool to address this, by facilitating access to this market for investors with social and environmental preferences and by addressing the lack of awareness. 4 out of the 16 platforms tested this year claim to provide sustainable investments. However, in order to have truly safe sustainable finance products offered by Robo-advice platforms, BETTER FINANCE recommends that EU regulators:

- Develop a clear, precise and common **taxonomy** focussing on all the three criteria (Environmental, Social and Governance);
- Develop **a well-designed EU-wide Ecolabel** for retail investment products, that avoids the pitfalls of existing national labels (being granted to products not complying with existing investor protection and disclosure rules) – BETTER FINANCE is involved in the process and forms part of the Joint Research Centre's Ecolabel Working Group as well as the EU Ecolabelling Board;

- Ensure the link and consistency between **sustainability** and **long-term value creation** by putting exemplarity with regard to investor protection rules first and ensuring decent returns for individual investors at the very least that the very least do not destroy the value of their savings.

Annex 1:

Legal Requirements – Future Performance Scenarios

Investor tick boxes: a list of basic requirements financial advisors must comply with when presenting future performance scenarios.

Tick box 1

Calculation of performance forecasts must not use simulated past performance figures. In other words, it shall not be based or refer to the actual returns of other financial instruments or indices than the ones in subject.[56] While this prerequisite may seem complicated, it translates that future performance scenarios of a fund or of an entire portfolio of funds may use only the historical returns of the fund or of the portfolio itself, if they had one. In absence of such – e.g. where the funds are newly issued – the scenarios must be based only on '*reasonable assumptions supported by objective data*'.[57]

Tick box 2

The presentation of the performance forecast of the recommended portfolio must be accompanied by a **'prominent warning that such forecasts are not a reliable indicator of future performance'**.[58]

Tick box 3

Future performance scenarios must reflect 'the nature and risks'[59] of the instruments used or of the portfolio composition, in particular by **showing both positive and negative scenarios** in the corresponding markets.

Tick box 4

Performance forecasts, as well as past performance scenarios, must be net of charges. In other words, these graphs must show the effects fees and charges will have on the investment.[60]

Tick box 5

[56] Paragraph 6(a) read in conjunction with paragraph 5(a) of Article 44 MiFID II DR.
[57] Article 44.6(b) MiFID II DR.
[58] Article 44.6(e) MiFID II DR, emphasis added.
[59] Article 44.6(d) MiFID II DR.
[60] Article 50.10(a) MiFID II DR.

Pursuant to the overarching principle of '*fair, clear, and not misleading*' information disclosure,[61] investment advisors (whether cyborgs or humans) must not lay down this positive side of the investment advice in a manner that would '*disguise, diminish or obscure important items, statements or warnings*',[62] such as the warnings reminded earlier:

- that the investment is uncertain and may also lose value;
- that past performance is not a reliable indicator of future performance;
- that a performance forecast is not a reliable indicator of the actual future performance.

[61] Article 24.3 MiFID II, further detailed by Articles 44.2(e) MiFID II DR.
[62] Article 44.2(b) MiFID II DR.

Annex 2:

Calculation of Divergences

With the aim of observing whether the expected outcomes of the investment are more or less in the same range for different platforms, this study takes into account the different results put forward by the robo-advisors for each investor profile.

In order to observe divergences, the cumulative return (CR) of the investment (in %) was calculated, based on the following formula:

$$CR = \frac{expected\ results}{initial\ investment} \text{ x } 100$$

Then, annualized rate of return (ARR) of the investment, i.e. the mean growth rate of the investment until the maturity date was calculated, based on the following formula:

$$ARR = \sqrt[n]{CR} - 1$$

- where n is the number of years (5 and 20);

For the robo-advisors that did not forecast the portfolio's performance for the entire investment horizon, the annualized rate of return computed for the forecasted investment horizon was used, which was then computed to obtain the compound return over the same investment horizon as other platforms, based on the following formula:

$$Estimated\ CR = CR_f \text{ x } (1 + ARR_f^{n-y})$$

- *n* is the number of years of the investment horizon; CR_f is the forecasted cumulative return; ARR_f is the annualized rate of return of the forecast; *y* is the number of years on which the forecast is made;

While this study has generally included questionnaires with a lump sum investment, where platforms had a default input of an investment plus additional monthly contributions, the the cumulative return net of periodical contributions has been computed, based on the following formula:

$$Estimated\ CR_f = \prod_{k=1}^{n} \{\{[I_{n-1} \text{x} \left(1 + ARR_f\right)] - (I_{n-1} + MC)]\}/[I_{n-1} \text{x} \left(1 + ARR_f\right)]\} + 1$$

- where n is the year number; I_{n-1} is the previous year accumulated sum; MC is the monthly contribution and where n=1, I_{n-1} is the initial investment sum;

Computations were carried out to compare the degree of divergence of future performance as compared to past performance scenarios. The robo-advisor was randomly selected among the platforms, and the calculations are based on the information obtained after conducting the questionnaire, i.e.:

- portfolio composition (name of the ETFs and weight);
- expected outcome (for the millennial profile);
- charges;
- historical data (past performance) of a comparable fund.

The computation sought to put side-by-side the graph with the expected outcome presented by the robo-advisor and the actual outcome (2012-2017) of the:

- proposed portfolio;
- comparable fund;
- proposed portfolio's indexes (composite);
- major indexes (based on major asset classes of the portfolio).

The computation of the comparative past performances:

- for the underlying ETFs of the portfolio, it takes into account the cumulative return on the period of 31.12.2011 – 31.12.2017, based on data obtained from the respective fund's website;
- based on the cumulative return of the fund, the annualized rate of return was calculated (using the same methodology as described above);
- the annualized rate of return then was weighted according to the weighting assigned by the robo platform:

$$WARR_{ETF} = PW_{ETF} \text{ x } ARR_{ETF}$$

- $WARR_{ETF}$ is the weighted annualized rate of return of an ETF; PW_{ETF} is the ETF's weighting in the portfolio composition; ARR_{ETF} is the annualized rate of retun of the ETF in subject;
- the annual growth rate of the portfolio was computed by adding the weighted annualized rates of returns of the ETFs that compose the portfolio and subtracting the disclosed management fees, as follows:

$$PAGR = \left(\sum WARR_{ETFn}\right) - annual\ fees$$

- n is the number of the ETF. Where the ETFs have an inception date later than 31.12.2011, the ARR_{ETF} was replaced by the annualized rate of return of the index it tracks;

- the performance of the comparable fund was calculated using the data (annualized rate of return) presented on the website;
- the performance of the *composite index* was calculated using the same methodology as for the past performance of the proposed portfolio, but replacing ETF data with the corresponding indexes' data;
- the performance of the major indexes is calculated using data available on the corresponding websites, but represent gross returns.

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