TRV Risk Analysis
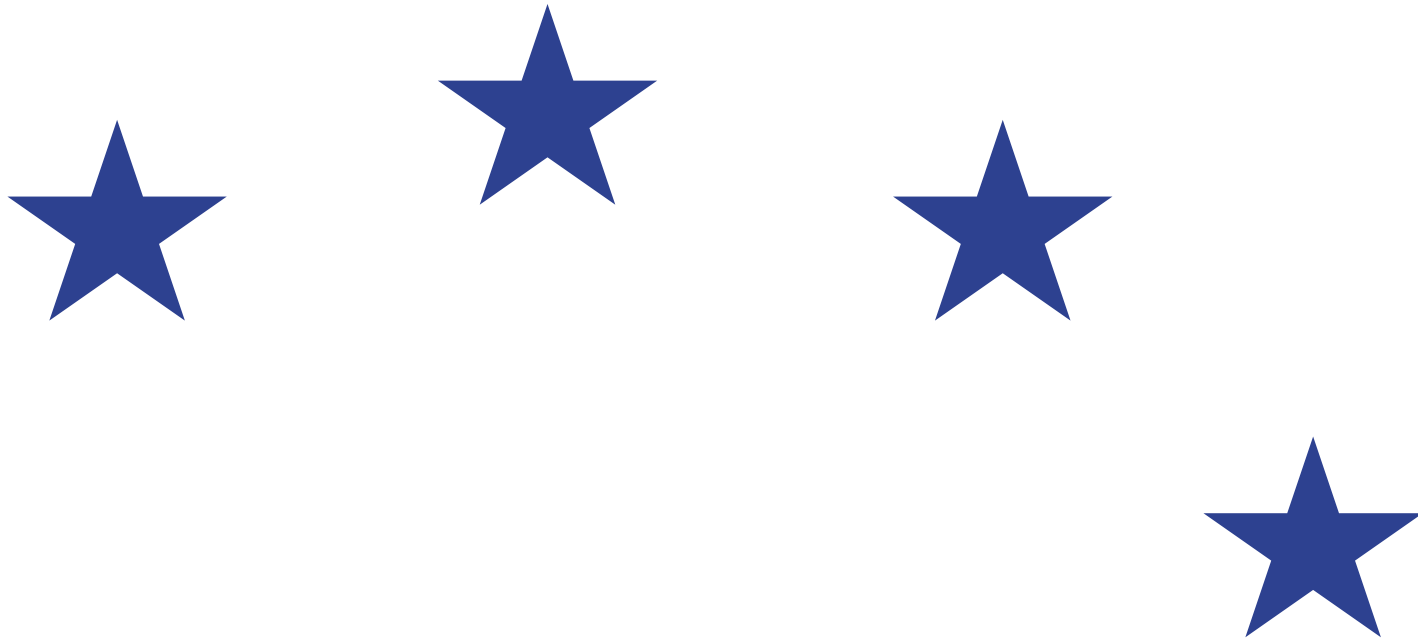
Fund performance during market stress – The Corona experience

ESMA Report on Trends, Risks and Vulnerabilities Risk Analysis

esma European Securities and Markets Authority

Investor protection

Fund performance during market stress – The Corona experience

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Summary

In this article we analyse the performance of actively managed equity UCITS relative to their market benchmark indices, between 19 February 2020 and the end of June 2020. This is a period characterised by a strong market downturn between February and March 2020 (first wave of COVID-19), followed by a fast recovery of equity prices in April and a stabilisation at elevated levels in May and June. The COVID-19 crisis offers the opportunity to test the hypothesis that active equity UCITS outperform their benchmarks during stressed market conditions. We also investigate the performance of passive equity UCITS versus their own benchmarks. The main findings show that for the sample of funds considered active funds, net of ongoing costs, did not on average outperform their related benchmarks in the period considered. More than half of the active UCITS analysed underperformed their benchmarks during the stressed period (between 19 February and 31 March) and more than 40% during the post-stress period (between 1 April and 30 June). Moreover, results show a partial ability of active funds to generate abnormal positive net returns, especially during the period analysed and in the case of larger funds.

Introduction

Passive portfolio management is an investment strategy that tracks the returns of a market index, implying limited discretion and intervention by the fund manager. **Active management**, instead, requires stock selection and trading in order to generate higher returns. On the one hand, this implies that costs for active funds are higher than passive funds. On the other hand, it may also imply higher flexibility of active management and an ability to react more swiftly in a situation of sudden increase in market stress,

such as during the first wave of the COVID-19 pandemic.

EU equity fund investments are mostly concentrated in actively managed funds.[2] One popular driver of these investors' choices is the hypothesis that active funds outperform their benchmarks during downturns (Moskowitz, 2000).[3] Active investment seems to provide better returns when investors need them the most. Investors may accept a lower degree of net performance of actively managed funds compared to passively managed funds in buoyant times, to obtain outperformance and hedge their position in turbulent periods.

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[1]   This article was written by Tania De Renzis, Massimo Ferrari and Roberto Proietti.

[2]   Malkiel, B., G., 2003; Sushko, V., and Turner, G., 2018; Anadu et al, 2018; FCA, 2017 and ESMA, 2021.

[3]   Moskovitz, Tobias, J., 2000, Mutual Fund Performance: An Empirical Decomposition into Stock-Picking Talent, Style, Transactions Costs, and Expenses: Discussion, Journal of Finance, Vol. 55.

The **outbreak of the COVID-19** pandemic in 1Q20 led to large market corrections, high volatility and increased market stress in the financial system. The investment fund sector suffered from valuation uncertainty with significant outflows and, in some instances, heightened liquidity stress. This event offers the opportunity to test the hypothesis that active funds outperform their benchmarks during stressed market conditions.

This article contributes to this debate focusing on a sample of EU equity UCITS. It aims to contribute to ESMA's investor protection objective by shedding some light on the performance developments of funds by type of management, especially in a period of broad financial and macroeconomic uncertainty related to the COVID-19 pandemic. It does so by investigating UCITS performance against their prospectus benchmarks, distinguishing between active and passive funds, for a sample of EU27 equity UCITS.[4] Initially, we present the developments of the relative performance of actively managed funds versus their own benchmarks. In addition, we look at the risk-factor performance analysis, using Fama-French factors. This allows us to identify the outperformance of an investment related to additional risk components (e.g., choice of investing in specific stocks such as large, growth or value stocks).

Active equity UCITS net daily performance analysis

EU equity UCITS and sample description

In 1H20, the **net asset value (NAV)** of the EU27 equity UCITS funds reached around EUR 3tn,[5]

increasing from EUR 2.6tn in 1Q20. This is the result of both inflows and positive valuation effects following the reduction characterising 1Q20. From 2H20, and especially in 4Q20, valuations fully recovered to then spike in 1Q21 – equity valuation being the main driver of this rally.[6]

The analysis covers the period from 19 February 2020 to 30 June 2020.[7] During this period, as discussed in ESMA TRV reports covering 1H20[8], 2H20[9] and 1H21[10], EU equity markets went through a period of extreme market decline and surge in volatility from mid-February until the end of March. They then recovered in April 2020, registering a historically high monthly performance, followed by further growth in May. Finally, they stabilised at these higher levels in the second half of May and June, when liquidity conditions improved, and volatility declined.[11]

Against this background, starting from 19 February 2020, we distinguish **three sub-periods** of approximately 6 weeks each: *Stress* (19 February until 31 March); *Recovery* (1 April to 19 May) and *Stabilisation* (19 May to 30 June). Our sample comprises 3,155 EU27 equity UCITS of which 2,849 (90%) are actively managed funds and the rest are passive. Total asset value was of around EUR 1tn in June 2020, up from around EUR 800 bn at the end of February.[12] Also, in terms of assets, active funds make up 90% of our sample. However, they are smaller in size compared to passive funds. The average size of the active funds included in our sample is half of that of their passive counterparts.

Benchmark-adjusted fund performance

We analyse the **fund's daily performance, net of ongoing costs**[13], relative to that of the

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[4] For more details on the sample description please see the following section. Given that the analysis focuses on prospectus benchmarks as reference values, the availability of data on prospectus benchmarks will affect the sample composition.

[5] EFAMA, 2020, Trends in the European Investment Fund Industry in the Second Quarter of 2020.

[6] Please see the Asset management chapter in ESMA TRV No.2 2021.

[7] This is an ad-hoc analysis that focuses on a specific period: the unfolding of the first wave of the COVID-19 pandemic. As such, it does not allow broader long-term conclusions to be drawn, nor does it aim to do so. To do this, a more granular analysis would be needed, which would allow variation across markets and fund characteristics to be identified and distinct time periods to be looked at.

[8] Please see ESMA TRV No.1 2020.

[9] Please see ESMA TRV No.2 2020, page 29. The sudden and severe drop in valuations across asset classes was reflected in large net outflows from mutual funds. In 1Q20, net outflows for EU mutual equity funds represented around -2% of NAV.

[10] Please see ESMA TRV No.1 2021.

[11] For the rest of the year 2020, financial market valuations remained sustained, not reflecting underlying macro-economic and COVID-related uncertainty. Please see ESMA TRV No.1 2021

[12] Data comes from Morningstar Direct and corresponds to around a third of what reported by EFAMA. According to EFAMA data, the value of NAV for EU27 equity UCITS was around EUR 3tn at the end of 2Q20, from EUR 2.6tn at the end of 1Q20. See footnote 5.

[13] Expressed in percentage terms, Morningstar's calculation of total return is determined by taking the change in NAV, reinvesting all income and capital-gains distributions, and

fund's prospectus benchmark as well as market benchmarks. Prospectus benchmarks refer to the benchmark included in the prospectus. This should be in line with the benchmark to which the *'Objectives and investment policy'* section of the KIID refers to.[14] Market benchmarks are indices created across all types of asset classes and represent the total market. For example, in the equity market, Eurostoxx50 and Eurostoxx600 are two of the most popular indices representing respectively large-cap stock benchmarks and large-, mid- and small-cap benchmarks.

The reasons for choosing these types of benchmarks can be found within ESMA's investor protection objective. Prospectus benchmarks are related to the information that an average individual investor is able to access from fund documentation. In addition, in the context of ESMA's financial stability objective, we compare the net fund performance to the performance of market indices, namely Eurostoxx50 and Eurostoxx600, to identify potential financial stability risks related to changes in the broader market associated with the fund management type.

Chart 1

Total net return index – active UCITS and benchmarks
Steep drop in performance from mid-February

Note: EU27 equity active UCITS, average prospectus benchmark, Eurostoxx600 and Eurostoxx50, average daily total return index. 19 February 2020 = 100.
Sources: Morningstar Direct, ESMA.

In line with previous analyses,[15] we observe a steep fall in **net returns**, measured by the compounded total return index, during the period from the last week of February until the end of March 2020, followed by a strong recovery starting in April until mid-May 2020 and a stabilisation for the rest of 2Q20 (Chart 1).

This development is common across actively managed UCITS, their related prospectus benchmarks[16] and the chosen market benchmarks: Eurostoxx50 and Eurostoxx600. They all witnessed a sharp drop in daily returns during the *Stress* period by more than 30% on 23 March. The largest decline, by -35%, was observed for the Eurostoxx600.[17] During *Recovery*, returns increased respectively by 11% for active equity UCITS on average and their related prospectus benchmarks, whereas they increased by 7% and 8% respectively for Eurostoxx50 and Eurostoxx600. Returns stabilised in the following 6 weeks until 30 June (*Stabilisation*), during which returns remained positive averaging around 5% for active funds, prospectus and market benchmark indices. Therefore, we were unable to identify a **clear net outperformance** of active funds compared to the prospectus benchmarks throughout the period between 19 February and 30 June 2020.

If we restrict our analysis to the *Stress* period only, between 19 February and 31 March 2021, active funds did not outperform their benchmarks. The compounded total return index of active UCITS, and that of the Eurostoxx600 dropped from 100 to 74 on 19 February. Similarly, the total return index declined to 75 for the average prospectus benchmark. For the Eurostoxx50, in contrast, the total return index exceeded that of active UCITS, on average, being at 78 at the end of March (Chart 1).

In the post-stress period, the compounded total return index for active funds, prospectus benchmark and the Eurostoxx50 index reached 82 at the end of the *Recovery* and 87 at the end of *Stabilisation*. Things were different when focusing on the broader market, including medium- and small-caps. The total return index for the Eurostoxx600 was in fact 79 and 84 respectively in mid-May and at the end of June (Chart 1).

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dividing by the starting NAV. Reinvestments are made using the actual reinvestment NAV, and daily payoffs are reinvested monthly. Unless otherwise noted, Morningstar does not adjust total returns for sales charges (such as front-end loads, deferred loads and redemption fees). The total returns do account for management, administrative fees and other costs taken out of fund assets.

[14] Please see, Article 18 of Regulation (EU) No 583/2010, Article 3(1)(3) Regulation (EU) 2016/1011 and ESMA Q&As clarify benchmark disclosure obligations for UCITS.

[15] Please see ESMA, 2021, TRV No.2 2020.

[16] Chart 1 shows the average returns of UCITS funds and their prospectus benchmarks over the analysed period.

[17] This analysis follows prior literature and is related to the way data is structured as retrieved from our data provider. It should be noted that net returns of active funds are compared to a non-investable benchmark that incurs no costs. This is the reason why such an analysis is complemented by the analysis following in Chart 3.

This result is confirmed when we consider fund **daily benchmark-adjusted net returns** with respect to the prospectus benchmarks and market indices (Chart 2).

Chart 2
Active UCITS: Benchmark-adjusted net returns
No active outperformance vs prospectus benchmarks
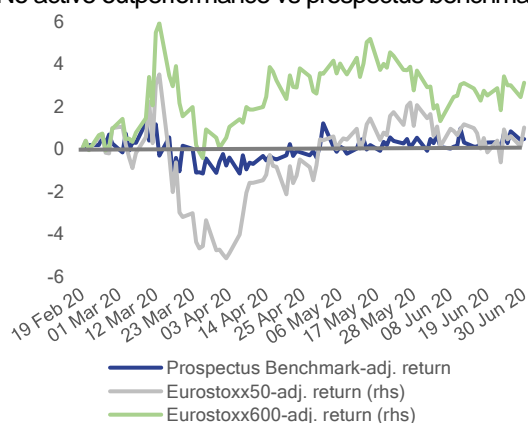
Note: EU27 equity active UCITS, average compounded daily returns, net of ongoing costs, relative to the prospectus benchmark, Eurostoxx50 and Eurostoxx600 indices, %,
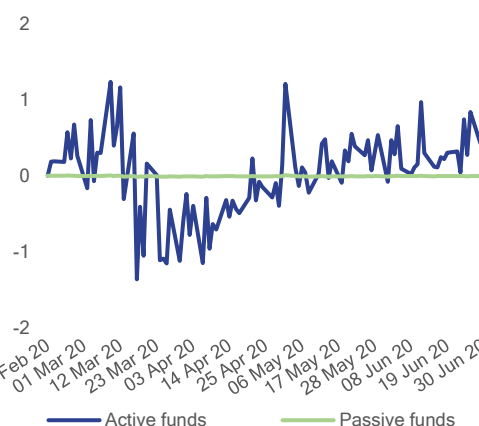Sources: Morningstar Direct, ESMA.

Over the *Stress* period, relating to the first wave of COVID-19 between 19 February and the end of March, EU active funds tended to underperform their prospectus benchmarks, on average, and the Eurostoxx50. In particular, during the last week of March, in which the stress was the highest, benchmark-adjusted returns for active equity UCITS were -0.9% versus prospectus benchmarks and -4.4% versus Eurostoxx50. With 0.2%, active equity UCITS slightly outperformed the Eurostoxx600 at the end of March (Chart 2).

During the *Recovery* and *Stabilisation*, this underperformance reduced reaching levels of between 0% and 1% when returns are adjusted against the prospectus benchmark and the Eurostoxx50. When focusing on the broader market, active equity UCITS outperformed on average the Eurostoxx600, with adjusted returns being higher than 3% (Chart 2).

In the last week of March, where the drop in returns was the largest, the **prospectus benchmark-adjusted net returns** were -0.8% and -0.01% respectively for active and passive equity UCITS, showing underperformance of both active and passive funds versus their

prospectus benchmarks. On average, over the entire *Stress* period, the underperformance of passive funds versus their benchmarks was not significantly different from zero (-0.004%) and lower than that of active funds (at -0.04%) (Chart 3).

Chart 3
Benchmark-adjusted net returns by management type
UCITS underperform benchmarks during stress

Note: EU27 equity active and passive UCITS, average compounded daily returns, net of ongoing costs, relative to their respective prospectus benchmarks, %,
Sources: Morningstar Direct, ESMA.

The finding of no sustained outperformance for active funds, throughout 1H20, is in line with the outcome of recent analyses and financial news focusing on the unfolding of the COVID-19 crisis.[18] The Morningstar Active/Passive Barometer shows that only around half of active equity funds outperformed compared to their average passive peer during 1H20.[19] The SPIVA Europe Scorecard shows that, at the peak of the first wave of COVID-19, Europe equity active funds, suffered their largest single-month loss in more than 10 years. The share of active funds underperforming the benchmark, however, changes across domiciles. According to the SPIVA Europe Scorecard, in France 34% of active equity funds underperformed their relevant benchmark against 55% and 61% respectively in Italy and Spain.[20] Some recent studies analyse the performance and flows of US active equity mutual funds during the COVID-19 crisis, showing that, on average, active funds underperform their related benchmarks during the crisis.[21]

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[18] SPIVA Europe Scorecard, Year-End 2020. Financial Times, November 2020, "Active managers struggle to prove their worth in a turbulent year".

[19] Morningstar, 2021, Morningstar's European Active/Passive Barometer, year-end 2020.

[20] SPIVA Europe Scorecard, Mid-Year 2021 and Mid-Year 2020.

[21] Please see Pastor and Vorsatz (2020), and the Nasdaq insight on Active and Passive Management in 2020 (December 2020).

Risk-adjusted performance

The analysis focused on the Morningstar Star Rating gives a more detailed picture of how performance changes according to the risk attached to the different funds within our sample.[22] This rating is different from the fund credit ratings assigned by a credit rating agency and referring to the credit risk associated with a fund.[23] The Star Rating methodology assigns each fund a risk penalty based on the variation in its month-to-month return during the rating period, with an emphasis on downward variation. The greater the variation, the larger the penalty: an average investor gives a larger weight to a negative rather than a positive outcome.

In addition, we perform a **factor analysis** following the Fama-French asset pricing models based on three factors (market, size and value) and five factors (the three factors above plus profitability and investment).[24] The underlying idea is that returns generated by the portfolio are partially dependent on factors that are outside the control of a portfolio manager.

By including these factors, the model adjusts for outperforming trends, and in doing so improves the analysis of the determinants of a fund performance. In other words, a positive (negative) alpha indicates abnormally positive (negative) returns that a portfolio manager achieves above the expected return due to the risk factors considered. If the hypothesis according to which active funds outperform during stressed periods holds, we should observe positive values of alpha during the period under analysis.

Fund risk rating

Based on the Morningstar Star Rating, consistently across the entire period funds whose **rating was higher always performed better** relative to their prospectus benchmark compared to funds that had a lower level of rating (Chart 4).[25]

Chart 4
Risk-adjusted net returns relative to prospectus benchmark
Higher performance as the risk rating improves
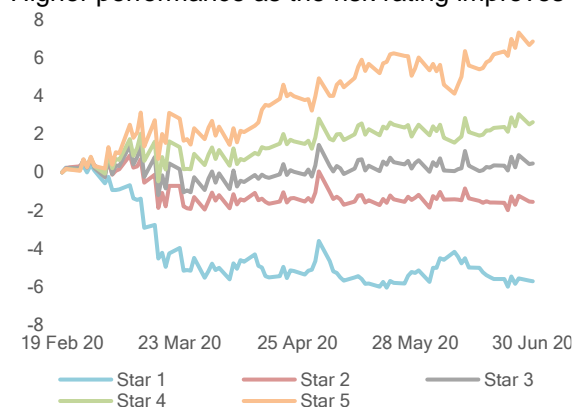
Note: EU27 equity active UCITS, average benchmark-adjusted compounded daily net returns by risk rating proxied by Morningstar Star Rating with "Star 5" meaning the highest ranking, in %.
Sources: Morningstar Direct, ESMA.

Moreover, the difference in benchmark-adjusted performance across rating groups was quite significant. Only funds belonging to risk-rating class 5 consistently outperformed the benchmark on average. For the rest of the funds analysed, benchmark-adjusted performance hovered around zero or was clearly negative.[26]

Chart 5
Total net return density function
Total returns higher for higher rated funds
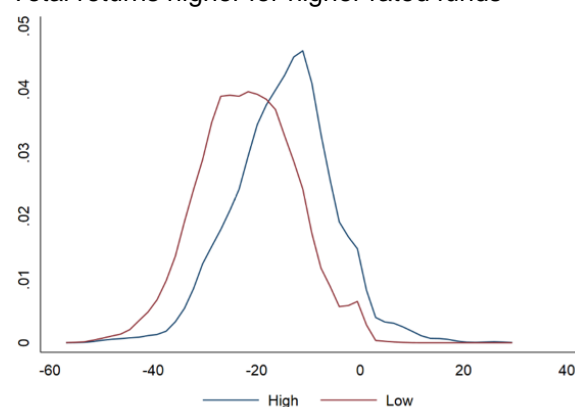
Note: EU27 equity active UCITS density function of compounded net daily total returns distinguishing between the highest (4 Star and 5 Star) and the lowest (1 Star and 2 Star) rating.
Sources: Morningstar Direct, ESMA.

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[22] Morningstar measures each fund's risk-adjusted performance relative to the fund's peer group, over the prior 3, 5, and 10 years, and then averages across the three periods. It consequently awards a rating from 1 to 5 stars, with 5 going to the best-performing funds.

[23] These ratings are based on detailed analysis published by credit rating agencies and are based on the history of borrowing or lending and credit worthiness of the fund, aiming at assessing its ability to meet its debt obligations.

[24] Please see description of Fama-French model. In the three factor Fama-French model, the factors are: market risk; the degree to which small companies outperform large ones, and the degree to which high-value

companies outperform low-value ones. In the five-factor Fama-French model, there are two additional factors, profitability (the degree to which companies reporting high earnings outperform those reporting lower earnings) and investment (the degree to which companies assuming a more conservative investment strategy versus growth projects outperform those assuming a more aggressive strategy).

[25] Pastor and Vorsatz (2020) have similar results focusing on US equity active mutual funds.

[26] Adjusted net returns of class Star 4 funds were around zero during *Stress* and improved for the rest of 1H20.

Chart 5 reports the density function of compounded net daily total returns across active equity UCITS, distinguishing between the highest (4 Star and 5 Star) and the lowest (1 Star and 2 Star) ratings. The group with the lowest risk-penalty, 4 and 5 stars, shows higher returns.

Performance by risk factor

Table 1 reports active **equity UCITS net performance** against the prospectus benchmark (2), and the Fama-French three-factor (3) and five-factor models (4). Results are reported in terms of equal-weighted averages (*Panel b*) and value-weighted averages (*Panel c*). Weights are based on fund net assets. *Panel a* reports the share of active UCITS underperforming in each specification (columns 2 to 4). Results are reported for the three time periods considered: *Stress*, between 19 February and 31 March; *Recovery*, from 1 April until 19 May and *Stabilisation* until 30 June.

During *Stress*, around 55% of the funds in the sample underperformed, in terms of benchmark-adjusted returns. The **share of underperforming funds** was even higher, respectively 60% and 71%, when considering the Fama-French models based on three and five risk factors, (*Panel a*).

During the *Stress*, (column 2), active funds underperformed their related benchmarks on average by -6.6% in annualised terms, in the case of an equal-weighted average (*Panel b*), and, if weighted by fund size (*Panel c*), by -1%. This implies that larger funds performed better than smaller funds. All funds underperformed benchmarks, however.

Similarly, during *Stress*, Fama-French alphas were negative for both the three- and five-factor models, respectively -15% and -20%, regardless of the fund size (*Panel b, columns 3 and 4*). This means that the expected rate of return of active funds, taking into account the factors considered in the Fama-French models, was negative. This negative performance is significantly lower when the **size** is accounted for. Large funds performed better during the *stress* period (*Panel c, columns 3 and 4*).

In terms of benchmark-adjusted performance, the share of underperforming funds was 54% during *Recovery* and 32% during *Stabilisation* (*column 2*). In terms of risk factors (*columns 3 and 4*) (*Panel a*), it was above 20% during *Recovery* and above 37% during *Stabilisation*.

Table 1
Equity active equity UCITS risk-factor performance

	Benchmark-adj. performance	FF multi-factor models (α)	
	(2)	(3)	(4)
	Prospectus	3 factors	5 factors
Panel a – Share of funds underperforming (%)			
Stress	54.6	60.1	70.9
Post-stress			
Recovery	53.6	21.4	23
Stabilisation	32.1	39.9	37.6
Panel b – Equal-weighted average (%)			
Stress	-6.6	-15.4	-20
	(-2.74)	(-4.39)	(-5.92)
Post-stress			
Recovery	-1	30.9	26.3
	(-0.4)	(7.69)	(8.17)
Stabilisation	9.8	7.4	11
	(4.81)	(2.11)	(2.52)
Panel c - Value-weighted average (%)			
Stress	-0.8	-2	-4
	(-0.89)	(-13.25)	(-17.98)
Post-stress			
Recovery	0.2	9.2	7.8
	(0.2)	(17.08)	(17.54)
Stabilisation	3.3	2.7	3.2
	(3.62)	(5.34)	(6.94)

Note: *Panel a* reports the share of funds that underperform over the period. *Stress* refers to the period between February 19 and March 31, 2020); *Post-stress* to the period between April 1 and June 30, 2020, distinguished in Recovery (1 April - 19 May) and Stabilisation (19 May - 30 June). *Panel b* reports equal-weighted averages across funds of the differences between the fund's net returns and its prospectus benchmark, and *alphas* in annualised percentage terms. The alphas are estimated intercepts from the regressions of excess net fund returns on Fama-French three- and five-factor returns. *Panel c* reports the value-weighted averages, weighted by each fund's total net assets. T-statistics in brackets.
Sources: Morningstar Direct, ESMA.

While the estimated prospectus benchmark-adjusted performances appear negative for the recovery period, they are not economically significant. On the contrary, active funds outperformed their prospectus benchmarks on average, in particular during *Stabilisation* with 9.8% in the case of equal-weighted average (*Panel b, column 2*). Based on the Fama-French three-risk factor model, active funds also outperformed (*Panel b, columns 3*), during both *Recovery* (31%), and *Stabilisation* (7.4%). A similar pattern can be observed with the Fama-French five-factor model (*Panel b, column 4*): active funds performed better during *Recovery* compared to *Stabilisation*.

The outperformance was larger for smaller active funds during the recovery and stabilisation periods (*Panel c*). During *Stabilisation* benchmark-adjusted performance was equal to 3.3% (*column 2*). The negative impact of size is confirmed by the Fama-French risk factors: the alphas for estimated risk-adjusted performances weighted by funds' net asset (*Panel c*) are lower than those equally weighted (*Panel b*) both during *Recovery* and *Stabilisation*. This indicates that large funds fail to produce sustained alpha or, in other words, to consistently achieve abnormal positive performance.

Conclusion

This analysis contributes to ESMA's investor protection objective, by investigating the hypothesis that during stressed periods, actively managed funds overperform their prospectus benchmark and other relevant market indices and produce abnormal returns – helping investors to hedge their losses.

The focus is on a subsample of EU active equity UCITS (disclosing benchmarks and covered by commercial databases) between 19 February 2020 (outbreak of the COVID-19 pandemic) and 30 June 2020. This is, therefore, a limited analysis that does not allow broader long-term conclusions to be drawn, nor does it aim to do so.

The main findings are as follows:

— The hypothesis that actively managed funds consistently outperform passive funds in stress period does not hold for the sample considered.

— On average, during the worst days of the crisis (last week of March) actively managed funds reported benchmark-adjusted net underperformance, larger than that of passively managed funds, respectively -0.8% and -0.01%.

— Higher net performance for funds was related to better fund risk rating.

— Only funds belonging to the highest-rated class consistently outperformed the benchmarks. For the rest of the funds analysed, benchmark-adjusted performance hovered around zero or was clearly negative.

— Active fund performance deteriorated under stress and improved when the market stabilised. More than half of the active UCITS analysed underperformed, net of ongoing costs, their benchmark during *Stress*. This share reduces to 32% during *Stabilisation*.

— In terms of risk factors, during the first wave of the pandemic, between 60% and 70% of active UCITS had negative abnormal returns.

— There is low ability to generate sustained positive alpha, especially for larger funds.

These outcomes of our analysis contribute with one piece to the large puzzle of past decades of investigating the relative performance of actively versus passively managed investment funds. No need to stress, such results can vary with the chosen parameters, including for example the fund cohorts or the length, starting and end points of the time horizons. In particular, our analysis is dedicated to a short time span in the immediate wake of financial market stress, while fund investors mostly take much longer-term perspectives on their investments.

Further research is needed to account for variations across markets and assets and to consider additional factors driving performance dynamics.

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