UNIVERSITY OF HELSINKI INVESTMENTS REPORT

2021

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The University of Helsinki is the largest, highest-ranked and oldest university in Finland. The University of Helsinki Group (hereafter "we") manages assets worth circa two billion Euros, of which some trace back to at least the mid-18th century. The focus of this report is our securities portfolio, which currently is valued at over six hundred million Euros. Our aim is to financially support our academic mission, and simultaneously support our efforts to advance society and sustainable development.

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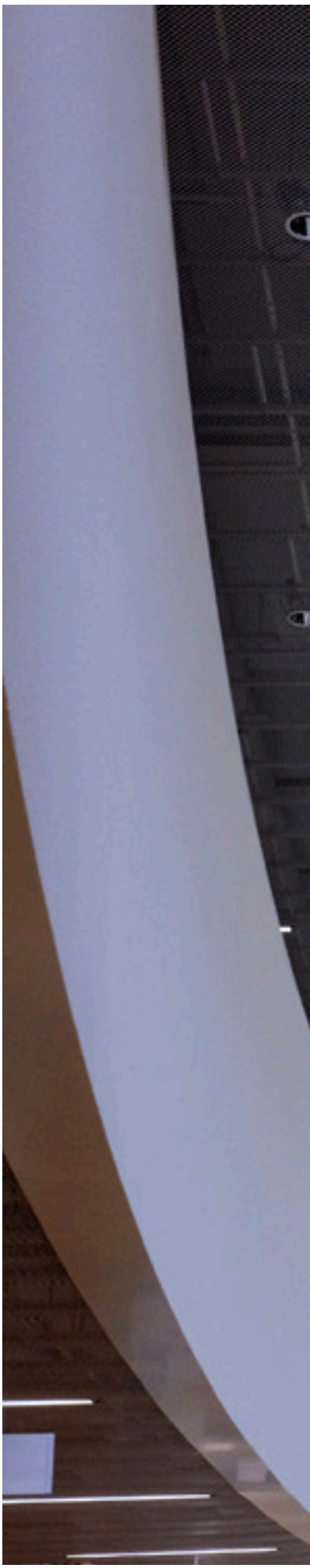
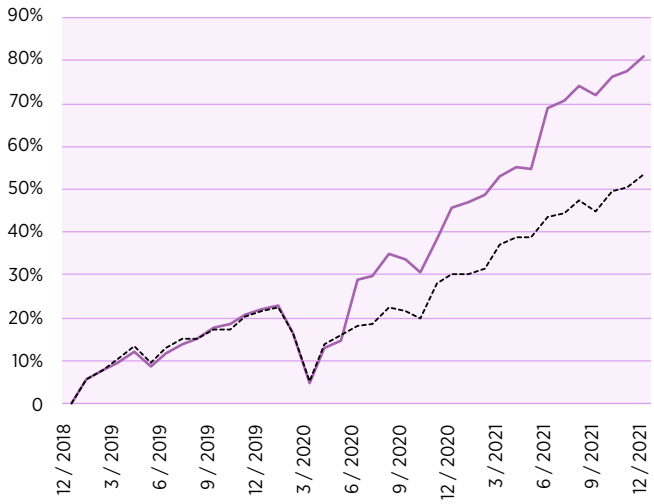


PERFORMANCE

2021 turned out to be an exceptionally good year for the University of Helsinki Group's investment portfolio. Positive developments in public capital markets and private venture investments in particular drove our performance. Our net return was 24.17%, while that of our 70% MSCI ACWI and 30% BBGA Float Adjusted Bond (EUR Hedged) benchmark index was 17.90%[1]. Hence, we outperformed our benchmark by 6.27 percentage points. Our assets under management totaled 675 million euros by the end of the year, which marks a new all-time high by more than one hundred million[2].

Our listed investments posted a 17.41% return, which is somewhat less than the 17.90% return of our benchmark. The difference was primarily driven by a -10.78% drawdown from our direct listed shareholdings, which are predominantly companies that have been listed after our investment. Listed equities held through investment funds reported a 28.76% return, which is higher than the 27.54% of their MSCI ACWI Index benchmark. Finally, listed bonds owned through investment funds lost -3.12%, lagging behind their BBGA Float Adjusted Bond Index (EUR Hedged) benchmark, which returned -2.29%. Overall, listed equities were slightly overweight throughout the year (1.7 percentage points yearend), and listed bonds significantly underweight (8.3 percentage points yearend). Consequently, the performance contribution of listed bonds was essentially neutral with respect to our benchmark index. Unlisted investments accounted for only 5.1% of our portfolio, but nonetheless contributed most of the aggregate outperformance.

CUMULATIVE PORTFOLIO AND BENCHMARK INDEX RETURNS 2019–2021



After the almost complete restructuring of our portfolio in 2019–2020, our listed investments consisted predominantly of globally diversified cost-efficient ESG investment funds and our non-listed investments of research-based ventures related to the university[3]. This is in accordance with our current investment philosophy, which we introduced in 2019[4]. 2021 hence marked the third full calendar year that we have implemented our current investment philosophy.

While three years is still a relatively short time period over which to evaluate financial performance with scientifically accepted methods, we believe it is now worth the effort to try – at least for the sake of discussion. Also, we seek to bring greater depth to our analysis by looking into our most significantly impactful investment cases. Finally, we are now able to quantify and evaluate our ESG performance with *much* improved data.

1 Please see the attached portfolio report: Helsingin yliopisto - Sijoitusomaisuus 31.12.2021, JAY Solutions.
2 The University of Helsinki Group's investment portfolio consisted of the University of Helsinki's portfolio (55.9%) and the University of Helsinki Funds' portfolio (44.1%).
3 https://en.wikipedia.org/wiki/Environmental,_social_and_corporate_governance
4 Principles for Investment Activities (2018, 2020) and Principles for Responsible Investment Activities (2019).

24.17%

PORTFOLIO RETURN IN 2021 NET OF EXTERNAL INVESTMENT MANAGEMENT FEES AND EXPENSES.

WHAT IS LUCK?

When asked to take anyone into his service, the 17th century Cardinal **Jules Mazarin** asked, "Is he lucky?"[5] While this question might now seem trivial, or even amusing, it really reflects some key scientific questions and concepts.

The Cambridge Dictionary defines luck as "the force that causes things, especially good things, to happen to you by chance and not as a result of your own efforts or abilities". [6] Detecting luck hence requires, at least, that we define both "things" and "chance". Whereas these questions certainly belonged to the domain of (perhaps divine) uncertainty during Cardinal Mazarin's days, a new and revolutionary way of looking at the problem was already evolving – probability.[7]

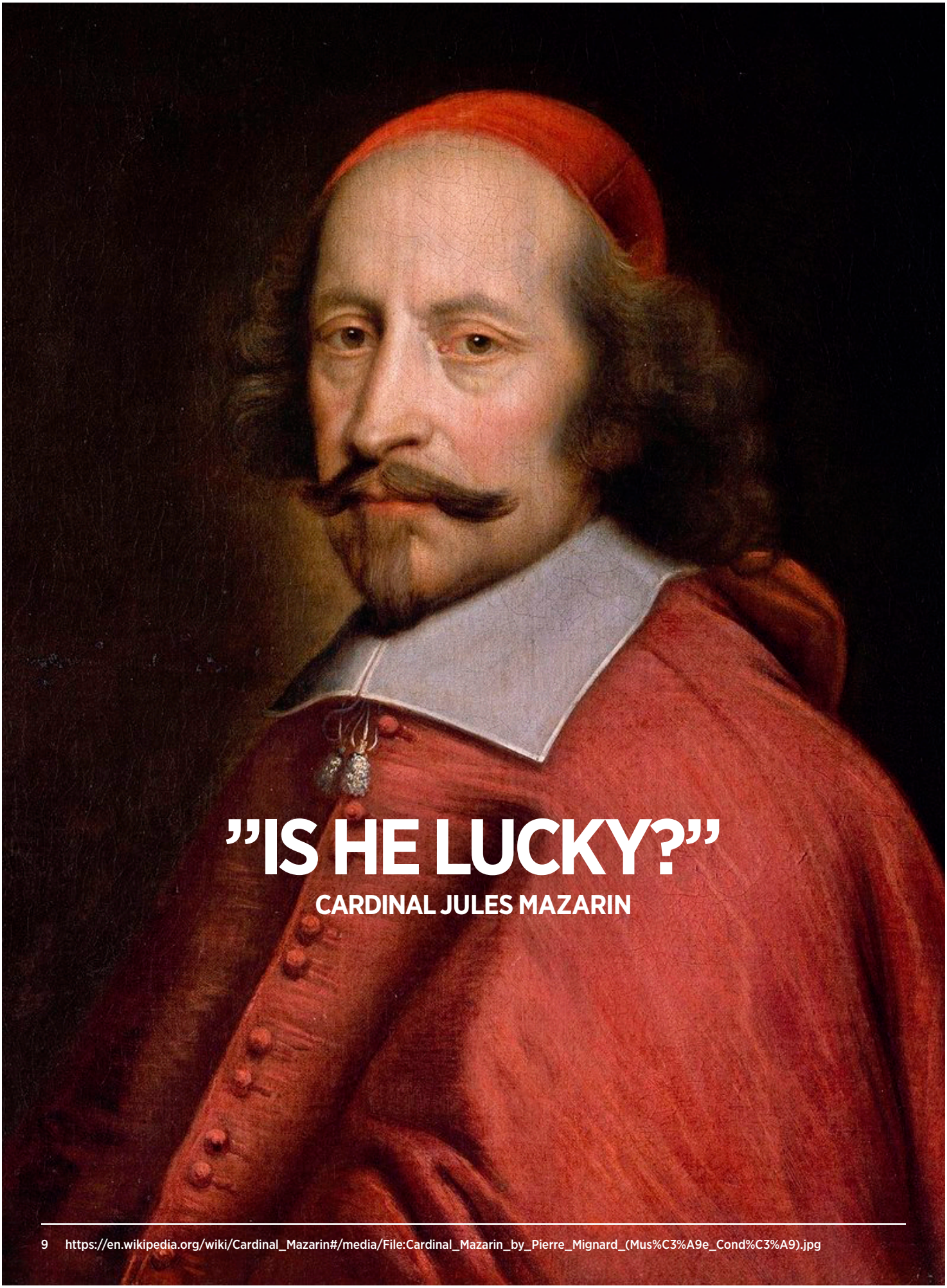
Probability allows us to define "chance" and "things": possible and unlikely outcomes. Hence, we define luck as *random unlikely desirable outcomes*. However, with this definition, we have also destroyed Cardinal Mazarin's golden recruitment rule. Luck, as defined above through probability, has no memory, and thereby no loyalty or persistence. A person who has been lucky (or unlucky) in the past is just as likely to be unlucky (or lucky) in the future as anyone else. Hence, past luck is no guarantee of future luck. Indeed, for instance, the US Securities and Exchange Commission requires investment managers to warn investors: "past performance does not necessarily predict future results".[8]

The other possible reason for "things" is more interesting. If "efforts or abilities" cause "things", non-random unlikely desirable outcomes, they could also guide us towards better (hiring) decisions. The hope of causality gives us a reason to define – and look for – unlikely "things". Hence, we need a way to determine whether outcomes are random or not.

For natural phenomena, where observations are often normally distributed, we able to define an exact threshold for observations that differ from the expectation to an unlikely degree. Although the threshold might seem somewhat arbitrary, and probably reflects the average number of fingers on the hand of a human being, the scientific community generally accepts that an observation that occurs randomly with a probability of at most 5% is *significant*. Furthermore, it should come as no surprise that the dichotomous step from plural to singular percentage points of probability gives us a stricter definition for unlikeliness, as observations that represent only a 1% probability are very significant.

PROBABILITY ALLOWS US TO DEFINE "CHANCE" AND "THINGS": POSSIBLE AND UNLIKELY OUTCOMES.

5 https://www.oxfordreference.com/view/10.1093/acref/9780191826719.001.0001/q-oro-ed4-00016838
6 https://dictionary.cambridge.org/dictionary/english/luck
7 The French mathematicians Pierre de Fermat and Blaise Pascal formally defined the concept of probability in 1654, only a few years before the death of Cardinal Mazarin.
8 https://www.investor.gov/introduction-investing/investing-basics/glossary/mutual-funds-past-performance



”IS HE LUCKY?”

CARDINAL JULES MAZARIN

9 https://en.wikipedia.org/wiki/Cardinal_Mazarin#/media/File:Cardinal_Mazarin_by_Pierre_Mignard_(Mus%C3%A9e_Cond%C3%A9).jpg

LOOKING FOR "THINGS"

The methods for detecting significance in the context of investment performance are by no means trivial. They were largely developed in the second half of the 20th century, based on financial theory developed shortly before or even simultaneously. The list of scholars and studies is too extensive to summarize here, but the pioneering study of Jensen (1968) must still be mentioned, as it offers a model that we can apply directly to the question of unlikeliness regarding our investment performance.[10]

Without going into too much detail, **Jensen** (1968) noted that the vector of portfolio returns R can be estimated as:

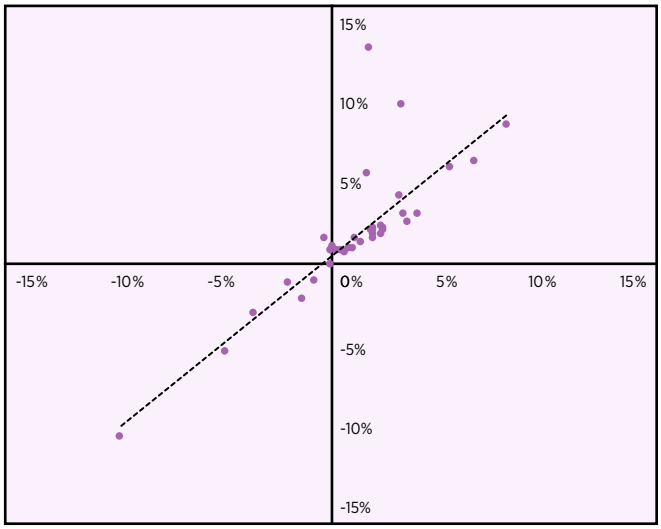
$$R - R_F = \alpha + \beta[R_M - R_F] + u,$$

where R_F is the risk-free rate of return, α is an estimated constant, β is an estimated coefficient, R_M is the market return, and u is the error term of the Ordinary Least Squares (OLS) estimate, with an expected value of 0. Despite being a simple equation, this provides us with a wealth of information about portfolio return characteristics. For example, β is the sensitivity of portfolio returns to market returns – or, simply put, its systematic risk component.[11]

As mentioned earlier, we introduced our current investment philosophy at the beginning of 2019, which means that, at the end of 2021, we have 36 monthly returns on hand. We plot these returns on the y axis, with their corresponding benchmark index returns on the x axis, and calculate the OLS estimates for the coefficients in the Jensen (1968) equation above.[12]

The scatter plot reveals that our portfolio returns largely correspond to those of our benchmark, but not entirely. Our estimation results confirm this visual insight, as the estimate for β equals 1.02, and is statistically extremely significant (p-value $1 * 10^{-9}$). This simply means that our

OUR MONTHLY PORTFOLIO AND BENCHMARK INDEX RETURNS 2019–2021



monthly portfolio returns have matched approximately 1:1 with those of the benchmark index, to a degree that almost certainly is not random.

The scatter plot further suggests that our portfolio returns are somewhat higher than the corresponding benchmark index, which is highlighted by the dotted regression line crossing the y axis somewhat above its x axis (and origin). The α estimate confirms this suggestion, as it is 5.74% per annum. This means that our portfolio has returned almost 6% more per year than the benchmark index over the period 2019–2021, adjusted for its (somewhat higher) systematic risk. Referring to the definition of luck, this *could* be a "thing".

An analysis of the distribution of estimation error u, however, shows that the probability of obtaining an α like this randomly is 25%, and hence the estimate is clearly not significant. This means that, while our portfolio outperformance is large in terms of percentage points (and euros), it is still quite likely to have occurred randomly. Hence, our analysis does not warrant us asking whether we have been lucky or skilled, because there is really "no-thing" to ponder – at least for now.

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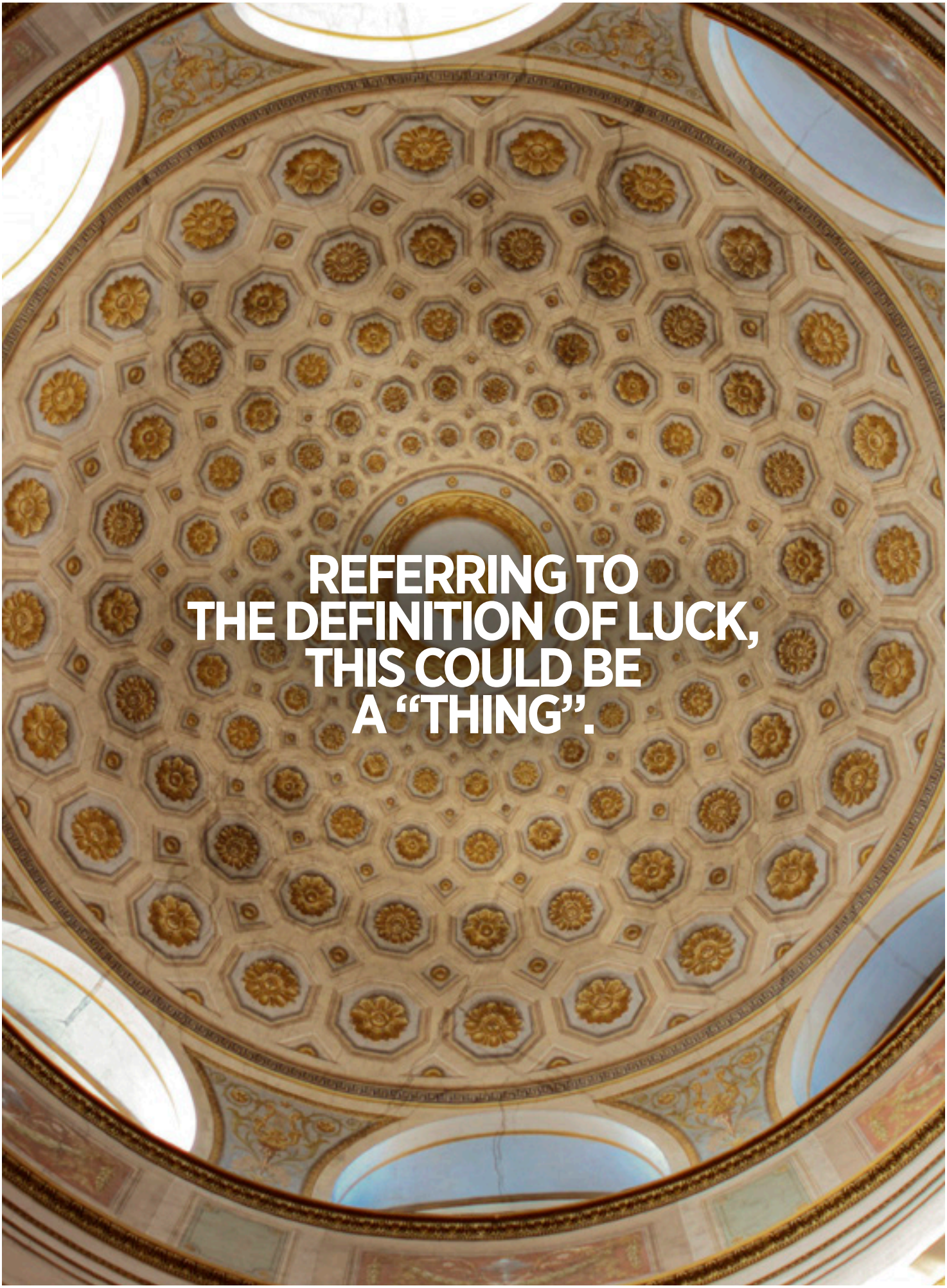
10 https://onlinelibrary.wiley.com/doi/full/10.1111/j.1540-6261.1968.tb00815.x

11 This is underlined by the fact that β can be defined equivalently as:
$\beta = COV[R, R_M] / VAR[R_M] = CORR[R, R_M] * STD[R] / STD[R_M]$,
which simply means that β is the fraction of portfolio volatility that is common with the market portfolio.

12 The benchmark index equals 70% MSCI ACWI Net Total Return EUR Index + 30% Bloomberg Barclays Global Aggregate Float Adjusted TR Index Hedged EUR. We assume that $R_F = 0$ for the sake of unambiguity, which has been approximately true during the time period in question.


REFERRING TO
THE DEFINITION OF LUCK,
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A “THING”.

NOT ALL RISK IS CREATED EQUAL

The equation estimation *error* term u may not seem very interesting at first glance – but appearances are deceptive. It encapsulates all variation in the portfolio returns that the benchmark index (variation) cannot explain. This is interesting from many points of view.

First, as the variance of u reflects the distribution for α, it relates to the significance of α. *Ceteris paribus*, the significance of α is positively related to the number of observations (N). Hence, even though our current α is not statistically significant, it could become significant as N grows with time, even if the estimate for α and variance of u do not change. On the other hand, α and u may well change as N grows. There is simply no way to *know* beforehand. The Law of Large Numbers, however, states that the estimate for α will converge towards its true value as N grows.[13] This is why longitudinal data, gathered over a period of ten years or more, should be used for reliable portfolio performance evaluation. A few years is often simply too short to separate "things" from "no-things".

Second, the standard deviation of u describes non-systematic portfolio risk, commonly referred to as Tracking Error. This brings us back to the question of "efforts or abilities", as a correctly specified nonzero Tracking Error *must* originate from over- or under-weighting the systematic risks (e.g., market or sector) and/or individual securities, versus the benchmark index. This is also known as active portfolio management.[14]

The Tracking Error of our portfolio was 7.43% per annum in years 2019–2021, calculated from monthly returns.[15] While it might hint at active management per se, we surely need more context in order to evaluate it properly. We can gain more understanding by acknowledging how the different components of variance (or sums of squares) are related in an OLS model:

Explained sum of squares (SSR) +
Unexplained sum of squares (SSE) =
Total sum of squares (SST),

which can be transformed to variances simply by dividing the equation by the number of observations (N):

$$\delta^2_{explained} + \delta^2_{unexplained} = \delta^2_{total}.$$[16]

The correlation between the first moment (return) of $[R_M - R_F]$ and u is zero in OLS, by definition, but the second moment (variance) can certainly be correlated. More concretely, a connection between market and idiosyncratic volatility can be present – and often has been in the past. To adjust for this, we can scale the variance components by the inverse of the total variance δ^2_{total}:

$$(\delta^2_{explained} / \delta^2_{total}) + (\delta^2_{unexplained} / \delta^2_{total}) = 1,$$

where $\sqrt{\delta^2_{unexplained}}$ equals the Tracking Error (TE) and the fraction $(\delta^2_{explained} / \delta^2_{total})$ is often called R^2. Hence, we can express the relative components of portfolio variance – explained versus not explained by the benchmark index – as:

$$R^2 + (TE^2 / \delta^2_{total}) = 1.$$

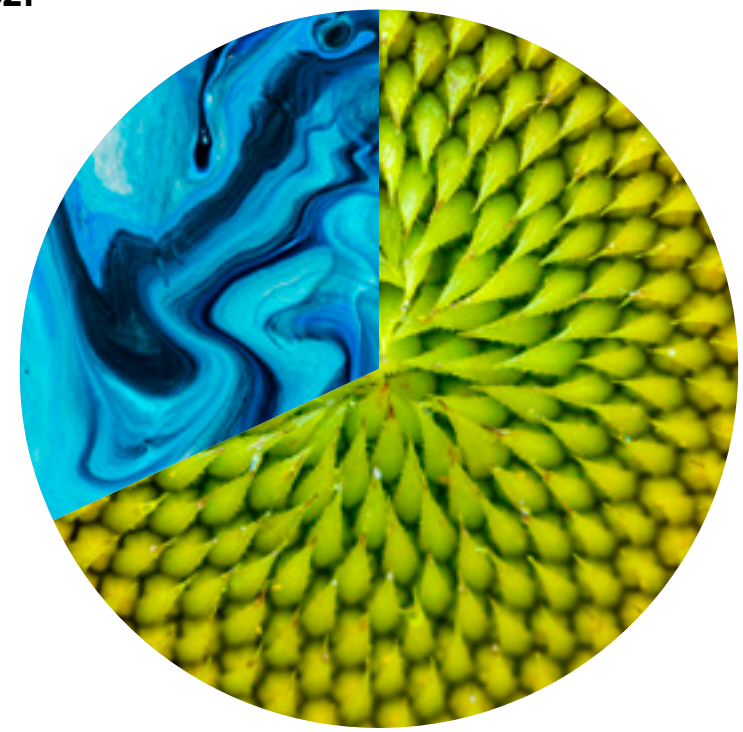
Perhaps for reasons of convenience, the unexplained variance component is sometimes expressed as:

$$(TE^2 / \delta^2_{total}) = (1 - R^2).$$

Reverting to our monthly portfolio returns, the total volatility was 13.06% per annum in 2019–2021, and the explained volatility was 10.75%. We can verify our figures by plugging them and our Tracking Error into the equation above – they match exactly. In summary, 68% of our portfolio variance can be explained by the Jensen (1968) model, and 32% remains unexplained. Market risk has hence accounted for approximately two-thirds of our portfolio risk, and active management or *something else* for the remaining one-third.

13 https://en.wikipedia.org/wiki/Law_of_large_numbers
14 See e.g., https://onlinelibrary.wiley.com/doi/10.1111/j.1540-6261.1972.tb00984.x
15 We use population variance measures in order to produce an exact sum. Sample variance measures yield essentially identical conclusions.
16 The mathematically interested reader will surely note the parallel to the famous Pythagorean Theorem. Hence, the portfolio return standard deviation equals the Euclidean distance between the systematic standard deviation and the (orthogonal) unsystematic standard deviation.

RELATIVE COMPONENTS OF PORTFOLIO VARIANCE 2019–2021



32%
Unexplained

68%
Explained

ERRORS OR EFFORTS?

Tracking Error quantifies the effect of active portfolio management given that: 1) we specify it correctly; and 2) investment decisions are conscious (i.e., not "a monkey throwing darts"). The first question is thus whether our specification is correct. Given that the specification is correct, we can then proceed to reviewing our decisions that have produced it.

We can (and perhaps should) evaluate the Tracking Error specification along at least two dimensions: method and data. The Jensen (1968) model, estimated against a broad benchmark index, is a standard way of evaluating the risk-adjusted performance of a portfolio. The index is furthermore liquid and clearly investable, and thereby represents not only a theoretical benchmark, but also the true passive alternative to our actual portfolio.[17] In summary, our method should be free from any major bias.

Independent parties compute our return data, and we further verify it in-house. Consequently, it should be fundamentally valid, but inefficiencies can still be present due to asynchronous valuation. Asynchronous valuation can in turn originate from at least two different sources: opening hours and stale pricing. The value of any portfolio is based on the latest prices of its constituents. The constituents of our global portfolio are not traded/priced simultaneously, but in different time zones. Concretely, at close on a trading day in Helsinki, we have the closing prices from Tokyo, but not from New York. Hence, as European investment funds are typically valued daily around close in Europe, their daily values contain some asynchronies, which our portfolio returns inherit.

17 The selection of benchmark index is axiomatic – like any unit of measurement – provided that it is investable. Hence, an investor first chooses the benchmark and then decides to follow it or deviate from it. Any deviation from the benchmark results in a marginal outcome (α) and risk (Tracking Error). Selecting the benchmark based on the actual portfolio would represent a clear logical fallacy, where the measurement unit is stretched to meet the object to be measured. Reductio ad absurdum, this reverse approach could lead us to measure the portfolio against itself, which by definition yields a zero α and Tracking Error for every portfolio.

Our unlisted investments are further subject to extremely stale pricing, as valuation events – which are mainly funding rounds, exits and bankruptcies – are much less frequent than daily. In summary, we note that both our listed and unlisted portfolio holdings suffer from asynchronous valuation. We try to mitigate this inefficiency by using monthly portfolio returns, where the proportional effect of valuation asynchronies is smaller by construct.

Returning to our initial question, our Tracking Error reading clearly reflects valuation asynchronies. While it is impossible to know exactly how large their impact is, we can make one inference about our analysis: as valuation asynchronies inflate Tracking Error, they also deflate the significance of α. Consequently, our α is de facto more significant than earlier reported – the problem is that we do not know *how* much more. Only time will tell.

Apart from valuation asynchronies, we feel confident that Tracking Error mainly reflects our efforts. One might wonder what these efforts could possibly be, as we have publicly committed to a diversified and cost-efficient portfolio, driven primarily by index funds with an average Total Expense Ratio (TER) below 0.1% per annum. Moreover, we do *not* engage in active trading.[18]

Index and green bond funds account for approximately 90% of our portfolio. Whereas these index funds are genuinely such, with thousands of holdings each, they still contribute active risk. All our equity index funds have ESG policies in place for their holdings – for instance, excluding fossil fuel-producing companies. Furthermore, our equity index funds track indices calculated by different index providers, which are somewhat different by construction (e.g., whether stocks listed on Chinese exchanges are included or not). Together, these policies mean that these funds deviate systematically from our benchmark – which equals active risk. This active risk translates into fund-specific Tracking Errors in the range of 1–4% per annum, which is not trivial, even on a portfolio level.

Our bond index funds resonate with their equity counterparties, displaying Tracking Errors in the range of 2–4 % per annum, which is mainly generated by lower interest rate risk (duration) than that of the index. On a portfolio level, our underweight in the asset class further generates a notable active risk contribution, as bonds account for 30 % of the benchmark index, but only 22 % of our portfolio by the end of the year.

Unlisted investments, here including those that have been listed since our investment, account for around 10% of our portfolio but contribute most of our active risk. Due to stale (or even absent) pricing, Tracking Error cannot be reliably computed for individual unlisted investments, as discussed above. The few individual listed stocks, however, give us an indication of the level, as their Tracking Errors hover in the region of 30–60%... per annum! There is no real reason to believe that the other unlisted investments have a lower de facto level of Tracking Error just because it cannot be measured – quite the contrary.

IN CONCLUSION, OUR PORTFOLIO IS AN ACTIVE ONE, EVEN THOUGH INDEX FUNDS MAKE UP THE BULK OF IT.

In conclusion, our portfolio is an active one, even though index funds make up the bulk of it. Our equity index funds are marked by active ESG policies, and our interest rate risk is distinctly lower than that of the benchmark index.[19] Most importantly, our bet on off-benchmark unlisted companies contribute significant active risk. Together, these active risks add up to a medium single-digit Tracking Error.

18 Trading per se does not generate a deviation from the benchmark index, and thereby Tracking Error, but it is often associated with positions that deviate from the index.

19 The University of Helsinki's portfolio, which does not include spinouts or startups, had a 2.2% Tracking Error in 2021.


90%
THE SHARE OF INDEX AND GREEN BOND FUNDS OF OUR PORTFOLIO.

IMPACT

The year marked another leap forward for our unlisted investments. Financially, the most significant event was when our portfolio company Mobidiag Ltd was acquired by the US listed company Hologic Inc (Nasdaq: HOLX) for more than 600 million euros, of which our share was approximately 8%.[20] Mobidiag develops molecular diagnostics for infectious diseases and managed to use its technology to quickly offer molecular diagnostic tests for COVID-19 infections. It is a fantastic example of how research-based technology can be developed (and pivoted) to create significant utility for all stakeholders, including employees and owners, as well as society as a whole.

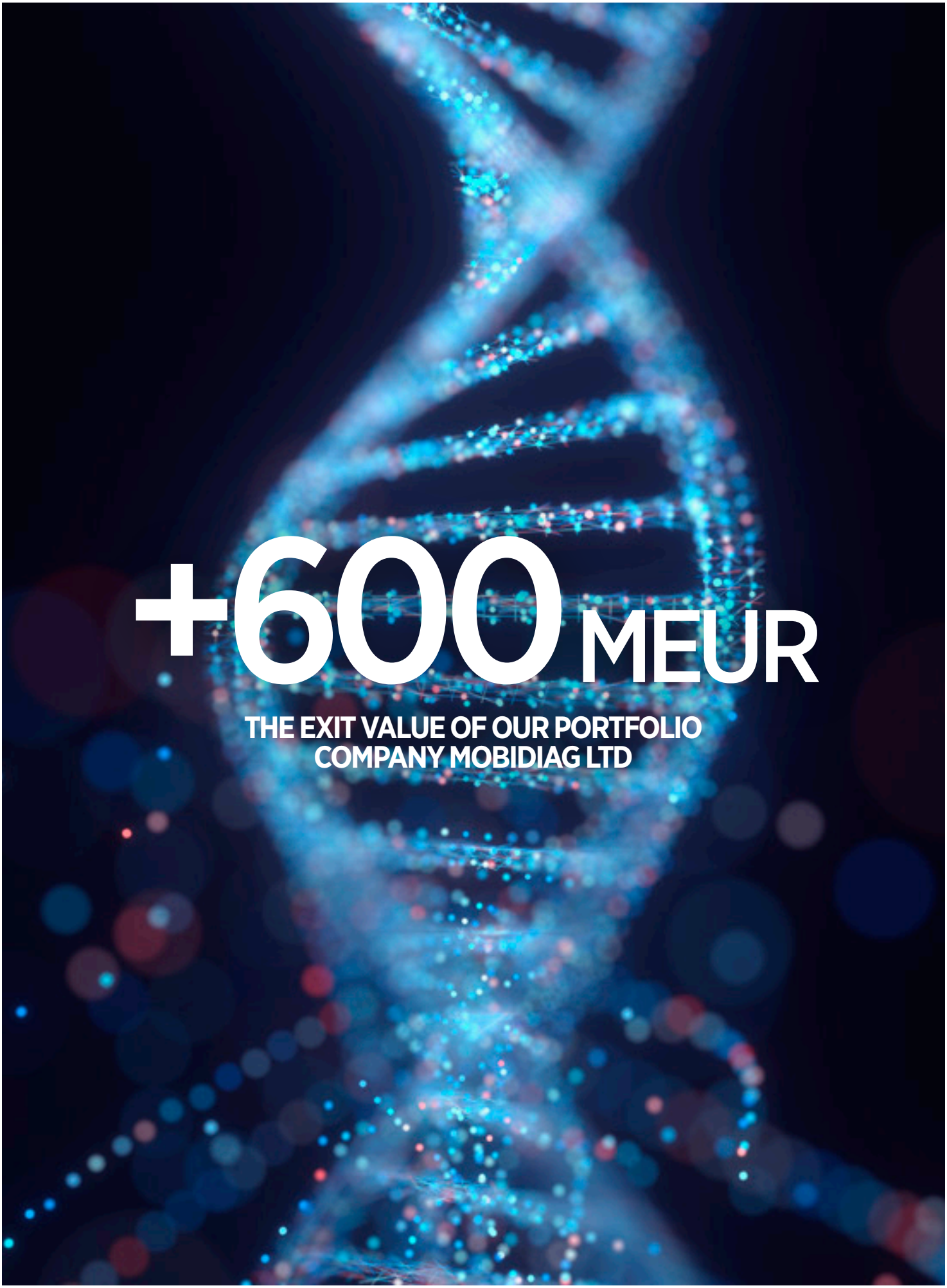
We also launched a significant impact investment together with the Finnish development financier Finnfund by committing to a joint 10-million-euro loan to micro finance institutions in African and Asian developing economies.[21] The aim of the loan is to support small businesses by providing funding on fair terms, which creates jobs and economic value. Furthermore, the loan should advance gender equality, as most of the borrowers have been women.

WE PARTICIPATED IN SEVERAL SPINOUT INITIATIVES DURING THE YEAR.

Our HELSEED student entrepreneurship program also took several steps forward during the year. With the financial support of the Tradeka Foundation, we set up the HELSEED donation fund to make pre-seed investments in startups established by our students.[22] The HELSEED fund made its first investments right away by backing startups developing environmentally-friendly plant cultivation equipment and a digital solution for cancer care.[23] Finally, the HELSEED program was upgraded to an academic course, where students can earn up to 3 ECTS credits while working on their startup idea.[24]

Last, but certainly not least, we participated in several spinout initiatives during the year. We helped found CarbonLink Ltd, which aims to develop an automated carbon footprint calculator.[25] We also participated in an investment round of GlucoModicum Ltd, which is developing a needle-free solution for monitoring blood sugar levels.[26] Furthermore, we supported Rokote Laboratories Finland Ltd to develop a nasal spray coronavirus vaccine. [27]

20 https://www.helsinki.fi/en/news/economics/hologic-acquire-mobidiag-company-backing-university-helsinki
21 https://www.finnfund.fi/en/news/finnfund-and-university-of-helsinki-to-invest-together-into-microfinancing-in-africa-and-asia/
22 https://www.helsinki.fi/en/news/economics/university-helsinki-established-helseed-endowment-fund-invests-startups-co-operative-tradeka-becomes-anchor-investor
23 https://www.helsinki.fi/en/news/economics/helseed-student-entrepreneurship-programme-makes-its-first-investments-environmentally-friendly-plant-cultivation-equipment-and-digital-solution-cancer-care
24 https://www.helsinki.fi/en/news/studying/million-euro-allocation-helseed-programme-entrepreneurship-course-be-added-universitys-course-selection
25 https://www.helsinki.fi/en/research/innovations-and-commercialisation-projects/carbonlink
26 https://www2.helsinki.fi/en/news/health-news/glucomodicum-needle-free-and-painless-health-monitoring
27 https://www.helsinki.fi/en/news/healthier-world/finnish-coronavirus-vaccine-developer-rokote-laboratories-finland-secures-significant-funding


+600 MEUR
THE EXIT VALUE OF OUR PORTFOLIO
COMPANY MOBIDIAG LTD

ESG

As mentioned earlier, we rebuilt our listed portfolio from scratch in 2019–2020. First and foremost, we allocated most of our investments into diversified cost-efficient ESG index funds. As part of this reallocation, we moved away from investments in fossil fuel production. 2021 hence represents the first year that our portfolio was entirely free from fossil fuel production and had a comprehensive ESG overlay. As a function of our new transparent portfolio structure, we were able to perform a much more comprehensive and reliable climate-related assessment.[28]

The absolute carbon footprint of our portfolio can be viewed through the different scopes defined by the World Resources Institute Greenhouse Gas Protocol.[29] Our Scope 1 (direct) emissions in tonnes of carbon dioxide equivalents (tCO2e) were 53% lower than those of our benchmark index. Similarly, our Scope 2 emissions were 43% lower, and our Scope 3 emissions were 29% lower. The relative carbon intensity of our portfolio was measured in tonnes of carbon dioxide equivalents per million euros (tCO_2e/mEUR). Our portfolio holdings' carbon-to-revenue ratio (C/R) was 32% lower than that of our benchmark index. Correspondingly, our carbon-to-value ratio (C/V) was 37% lower. Taken together, our portfolio holdings operated and created value with *a third to a half* lower carbon emissions. Finally, our financial exposure to fossil fuel activities was 95% lower than that of our benchmark index – and had *zero* fossil fuel-related capital expenditure.

WE WERE ABLE TO PERFORM A MUCH MORE COMPREHENSIVE AND RELIABLE CLIMATE-RELATED ASSESSMENT.

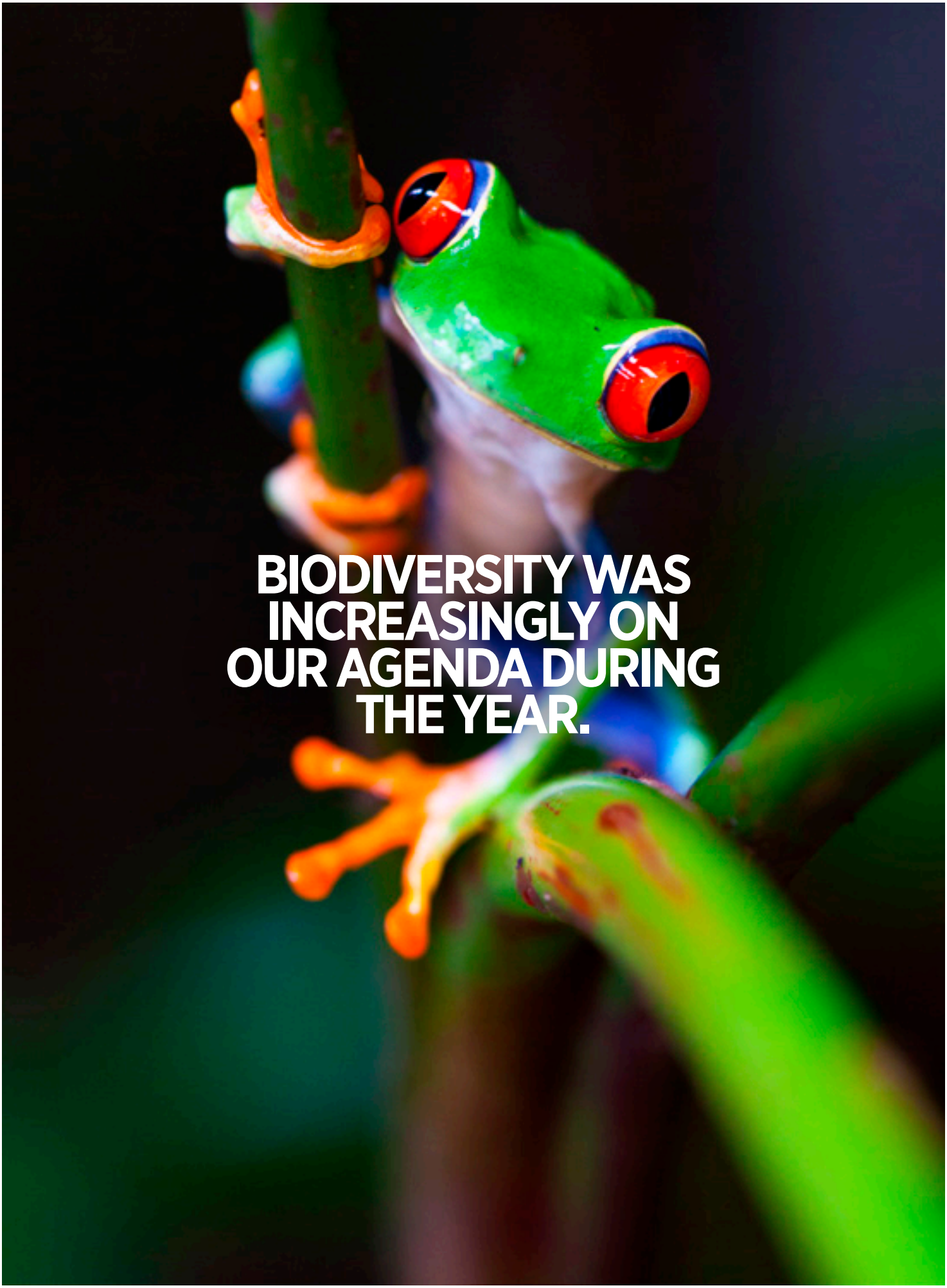
Going forward, we note that rapidly rising geopolitical tensions can (also) induce greater volatility in our climate-related performance. However, whereas disruptions due to unforeseen events can certainly generate temporary setbacks, we believe that the longer-term net effect will be reduced reliance on fossil fuels, which will give us some tailwind on our journey towards a carbon-neutral investment portfolio by 2030.

Biodiversity was increasingly on our agenda during the year. Whereas our actions and ambitions related to carbon dioxide certainly support biodiversity, we also looked for ways to better measure and more explicitly promote it. In this process, we liaised actively with our investment managers and other university endowment investors.[30]

28 Undisclosed report: Climate Related Portfolio Assessment In line with TCFD Recommendations, S&P Global Market Intelligence, 28 February 2022. Scope 1 data was fully available for almost 60% and partially for over 90% of the holdings. Data was modelled for the remaining holdings.

29 https://www.wri.org/initiatives/greenhouse-gas-protocol

30 https://www.jyu.fi/en/current/archive/2021/09/unifi-seminar-sustainability-and-responsibility-in-heis-2030


BIODIVERSITY WAS
INCREASINGLY ON
OUR AGENDA DURING
THE YEAR.

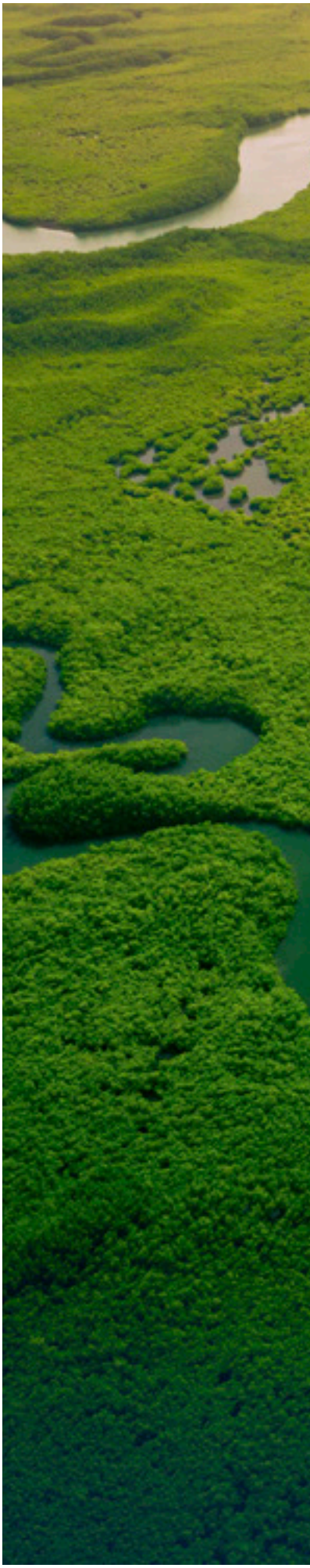
SUMMARY

In summary, we are convinced that our performance and actions during 2021 were entirely in line with our Investment Plan 2021–2022.[31] Given that we can capitalize the active risk of our research-based unlisted investments, manage our ESG risks and avoid performance drag with strict cost discipline, we believe that our currently insignificantly positive alpha could stay insignificant (i.e., not turn negative) – or even turn significantly positive – in the long run.

However, the market tailwind has been exceptional over the last few years. Headwinds from climate change, pandemics, geopolitics, etc. are gaining strength. Furthermore, the "gale of creative destruction", famously described by economist **Joseph Schumpeter**, is blowing with ever increasing strength.[32]

Hence, as we sail into the unknown waters of the future, we might worry about risks – but perhaps we should really fear uncertainty. The late US Secretary of Defense **Donald Rumsfeld** famously summarized the dilemma as follows:

"Reports that say that something hasn't happened are always interesting to me, because as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns – the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tends to be the difficult ones."



31 https://www.helsinki.fi/assets/drupal/2021-03/HY_INVESTMENTS_PLAN_2021-2022_ENG_010321.pdf
32 https://en.wikipedia.org/wiki/Creative_destruction


AS WE SAIL INTO THE UNKNOWN
WATERS OF THE FUTURE,
WE MIGHT WORRY ABOUT RISKS
– BUT PERHAPS WE SHOULD
REALLY FEAR UNCERTAINTY.


UNIVERSITY OF HELSINKI