Aalto University

Aalto University Foundation Endowment Strategy 2022

Effective Date of Policy: January 1st, 2022

Contents

1. Definition, purpose and goals of the Aalto University Foundation Endowment 3
2. Evaluating Strategic Success 3
3. Long-term Strategic Allocation 5
Appendix 1: Roles and responsibilities 8
Appendix 2: Investment Beliefs 10
Appendix 3: Asset Classes 12
Appendix 4: Risk Management Policy 16
Appendix 5: Derivative Policy 19
Appendix 6: Policy for Sustainable Investing 20
Appendix 7: Manager Selection Policy 23
Appendix 8: Reporting 25
Appendix 9: Track Record 26
Appendix 10: Real Estate Investment Policy 28

1. Definition, purpose and goals of the Aalto University Foundation Endowment

Aalto University endowment is a long-term investment portfolio that generates funding to the university's academic work. The endowment is formed mainly from funds received as private donations and government capitalization.

The endowment refers to capital that the university can invest freely into financial assets with the purpose of generating investment returns to fund university operations. The endowment excludes ownership of subsidiary companies and spin-offs as well as real estate, apartments and other assets used in the university operations. Finally, donations where management of the donated assets is restricted by deed of donation are excluded.

Separate investment policies guide AUF real estate investments and spin-offs. The real estate investment policy is presented as Appendix 10 of the endowment strategy.

The **purpose** of the university endowment is to generate funding to the university operations to enable the university to fulfill its strategic goals. The endowment provides the university with greater financial independence and enhances funding stability, both of which are deemed fundamental requirements for a top class university. In managing and using the endowment, special attention needs to be given to equality between current and future beneficiaries.

The **goal of endowment management** is divided into two parts. The first goal is the **preservation and accumulation of the real value of the endowment** in the long term. The second goal of the endowment is to **provide a stable and predictable income stream** to fund the university operations in the medium term.

The potential conflict between these two goals is resolved by a clearly defined long-term **endowment spending policy** which defines the principles for the maximum annual level of endowment spending.

Through its purpose and by fulfilling its goals, the endowment enables meaningful societal impact by funding Aalto University teaching, research and innovation, including on variety of sustainable development topics. Aalto University Endowment is committed to responsible investing and is managed in a sustainable way in line with our values. Aalto University is a signatory to Principles of Responsible Investing (PRI) and member of FINSIF.

The endowment strategy is reviewed and needed changes are made by the Aalto University Board on an annual basis or more regularly if needed.

2. Evaluating Strategic Success

The goal of the endowment is to generate **absolute return** in order to provide spending. Success of the endowment strategy and investment management should be evaluated in the long term at the total portfolio level. In addition, **the quality of return, i.e. risk-adjusted return** is of great importance.

In order to evaluate the success of the endowment strategy and investment management, three types of indicators are set for the endowment portfolio:

1. The **strategic return objective** for the long term is the real return target decided by the Aalto University Board. It is a key for evaluating the **fulfillment of the endowment goals**. For the long term the strategic return objective is to provide real return at or above the long term real return target. The inflation measure is an estimate of the university inflation rate. (see Endowment Spending Policy).

   Key indicator:
   cumulative real return p.a. since inception vs. real return target 3.0 percent.

   The strategic return objective is an absolute return objective but it is not an investable alternative.

2. The **market reference index** is a composite of the broad money market, bond and equity indices that reflects the long-term investable, passive, liquid allocation, suitable for an endowment with a perpetual horizon and spending liability. It is used to evaluate the **success of the endowment strategy** over the cycle. The market reference index is rebalanced quarterly and reported annually. Measured 2020 onwards.

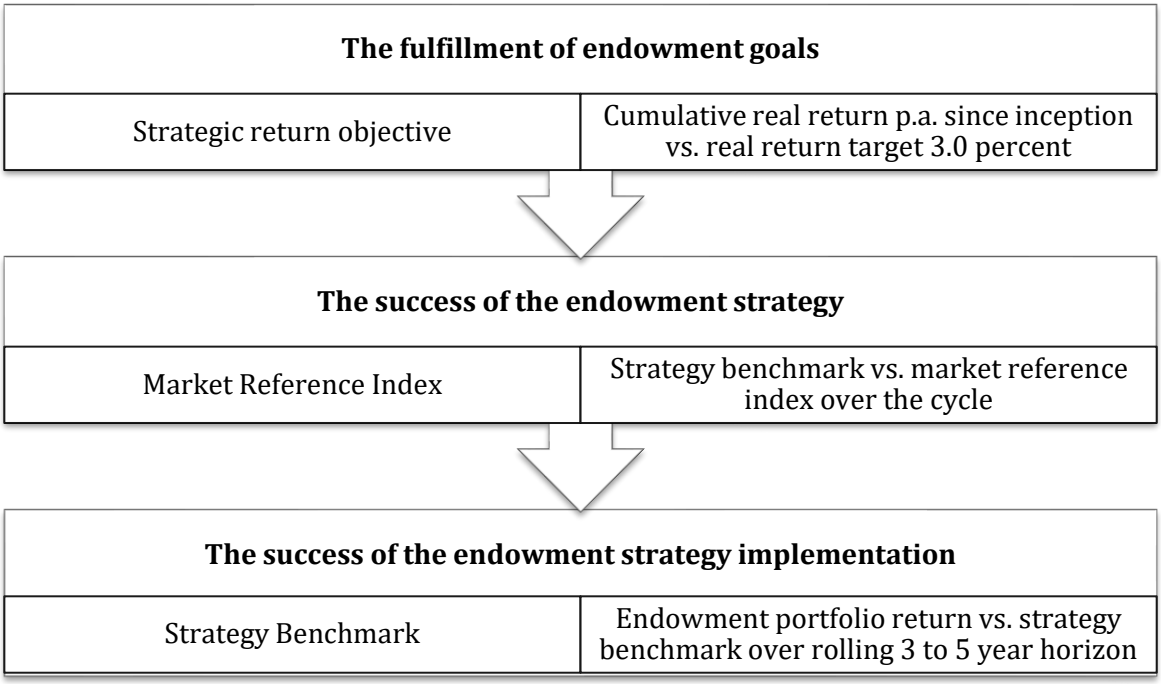
	Market Reference Index
Barclays Benchmark 3m EUR Cash Index	5%
Barclays GlobalAgg TR Index	25%
MSCI AC World TR Index	70%

   Key indicator:
   strategy benchmark vs. market reference index over the cycle.

   The indices chosen describe a broad investment universe in order to define an implementable opportunity set available. The aim of the market reference index is not to steer endowment investment management but rather to help analyze the endowment strategy versus the broad market return over the cycle.

3. The **strategy benchmark** is a composition of several market indices that best reflect the endowment strategy and strategic deviations from the market reference index. It is key when evaluating both the **success of the endowment strategy and its implementation** over a rolling 3 to 5 year horizon. The strategy benchmark is rebalanced quarterly and reported monthly. Reported 2020 onwards and reviewed annually as part of the Endowment Investment Plan.

   Key indicator:
   endowment portfolio return vs. strategy benchmark over rolling 3-5 Y horizon.

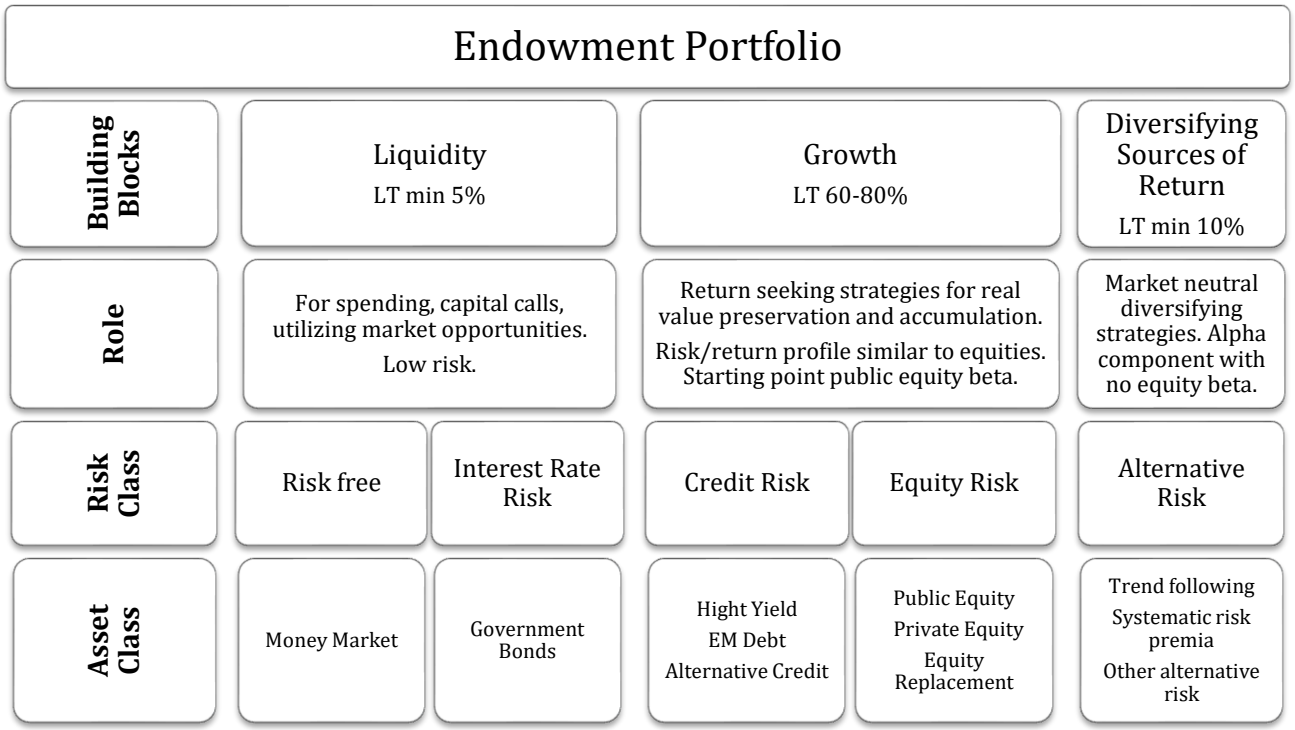


In addition, success of the endowment strategy and strategy implementation is evaluated by benchmarking the endowment vs. relevant peer group of institutional investors, including university endowments. The benchmarking shall focus on medium and long term returns and take into account differences in investment goals and restrictions.

Finally, external managers are monitored and evaluated against preset benchmarks (risk-adjusted); suitable market and style indices, as well as against their peer group (see Appendix 7 Manager Selection Policy). Monitoring and evaluation of sustainable investing policy and the implementation roadmap will be both quantitative and qualitative and will be part of regular internal and external communication.

3. Long-term Strategic Allocation

The endowment portfolio structure combines both a risk based and an asset class based structure. The three main building blocks of the portfolio (liquidity, growth and diversifying sources of return) represent the principal risk factors in asset markets (interest rate risk, equity risk, alternative risk factors). These building blocks are further divided into risk classes and asset classes.



Long-term strategic allocation

The **long-term strategic allocation** is based on three building blocks with the following roles:

- **Liquidity** includes risk free and interest rate risk. It provides liquidity for spending, capital calls and transactions. It can also provide some diversification. Within liquidity, duration can be adjusted by changing the allocation between risk free and interest rate risk over time. Liquidity will not significantly contribute to real return generation and its diversification benefit varies over time. Strategic allocation to liquidity should be kept low in the long term, but adequate to cover 2 years spending at minimum. This enables a more efficient usage of the risk budget in the growth and alternative risk building blocks
- **Growth** includes credit and equity risk. Growth will dominate the endowment portfolio, providing majority of the expected real return. The growth component will have risk/return characteristics similar to equities. Growth will mainly consist of public and private equity risk. Credit risk will have a limited role, targeting equity-like returns with moderate diversification benefits. Higher exposure to liquid credit is possible opportunistically. As a long term investor, the endowment should carry as much growth risk as possible without placing the spending at excessive risk during market drawdowns.
- **Diversifying sources of return** includes alternative risk strategies. It is the main diversifying component to growth. This building block includes low correlation and absolute return strategies. Sufficiently high allocation to alternative risk provides most efficient diversification to growth and therefore enables a high growth allocation.

In the long run the target allocation to liquidity is 5% at the minimum, growth 60 – 80% and diversifying sources of return 10% at the minimum.

The long term allocation defines the expected risk profile that enables the fulfillment of the long term **endowment goals**. It is an allocation that simultaneously has high probability of real value preservation and accumulation and low probability for spending cuts.

Strategic asset allocation

Implementation of the long term strategy is gradual and dynamic. **The strategic asset allocation (SAA)** is based on risk classes and approved by the Aalto University Board annually as part of Endowment Investment Plan. By approving the SAA, the Board guides the long term allocation of capital and risk.

The strategic asset allocation is based on long-term risk and return expectations of different asset classes, their expected correlations and liquidity. Changes in long-term capital market expectations will be updated annually to the SAA as part of the endowment strategy process. In addition, the portfolio will be systematically rebalanced when market returns push allocation too far from the target level.

At any given time, the current asset allocation may deviate from the SAA based on short and medium term risk and return expectations as decided by the Head of Investments in line with the Endowment Authorizations and Risk Limits. The Head of Investments may adjust the asset allocation by i) changing the total allocation to risky assets when risk-adjusted expected returns change or ii) changing the composition of risky assets based on the changes in relative risk-adjusted expected returns.

Risk management is not separate from the asset allocation decisions, rather it is a continuous process. Compensation is expected for the risks taken. If the expected returns change, the asset allocation will be revisited. Changes in the asset allocation lead to changes in portfolio risk profile. The key risk for the endowment in a crisis environment is forced selling of assets. In a crisis environment, the endowment can utilize its long investment horizon by employing a counter cyclical strategy and avoids backward looking behavior i.e. de-risking the portfolio at a time when other investors may be forced to sell. Stable long-term risk tolerance allows the endowment to benefit from these market dislocations by avoiding herd behavior. The endowment strategy prepares for a crisis environment by taking short and medium term spending needs and the overall liquidity profile of the portfolio into account. In the case of a crisis environment, more frequent reporting to the Board and Investment Commite (IC) will be provided to ensure transparency and good communication.

Appendix 1: Roles and responsibilities

The key roles and responsibilities in the endowment management process are:

The Board

- to approve the endowment spending policy, endowment strategy, endowment investment plan (hereinafter together referred as the "endowment strategy") and the endowment authorizations and risk limits
- to supervise the implementation of the endowment strategy including proper risk management and internal control practices, with the support of the university audit committee
- to approve all decisions that deviate from the endowment authorizations and risk limits
- to approve the content of investment reporting in line with the endowment strategy, and the endowment authorizations and risk limits

President

- to ensure that the endowment strategy is formed in alignment with the strategic goals of the university
- to ensure that endowment management is organized in a reliable way

The Investment Committee

- to advise the Board, the President and the CFO on decisions regarding the endowment, including the endowment strategy, the endowment authorizations and risk limits as well as the appropriateness of the content of investment reporting
- to advise the Head of Investment forming and implementing the endowment strategy

CFO

- to ensure the proper implementation of the endowment strategy including risk management and internal control practices
- to evaluate the appropriateness of the investment reporting and risk limit reporting
- to approve the counterparty, manager, fund and ETF selection
- to approve transactions to be executed by Head of Investments

Head of Investments

- to form endowment strategy and authorizations and risk limits for the Board decision
- to implement the endowment strategy within authorizations and risk limits
- to decide on possible dynamic allocation within defined risk limits
- to select counterparties and managers
- to select and approve suitable instruments, excluding funds and ETFs
- to execute transactions approved by CFO
- to approve transactions to be executed by Portfolio Managers
- to organize investment processes in a way that both investment and operational risks are properly managed
- to prepare draft resolutions to the Board and materials for the Investment Committee concerning endowment management

- to prepare proposal on investment reporting and risk limit reporting for the Board approval and to organize monthly reporting to the Board, President, Investment Committee and CFO

Portfolio Managers

- to provide analysis, evaluations and proposals to Head of Investments in carrying out his/her duties
- to support Head of Investments in implementing the endowment strategy
- to execute transactions approved by Head of Investments

Middle Office Controller

- to monitor that risk limits and other rules set forth in endowment strategy are followed
- to monitor the investment reporting and risk limit reporting
- to monitor the risk limits daily
- to report the limit breaches as described in the limit control process
- to monitor both pre and post trade processes and validate the transactions and the data

Appendix 2: Investment Beliefs

The endowment strategy is founded on investment beliefs. These are core beliefs about the endowments role within Aalto University as well as financial markets as a source of return. The investment beliefs support consistent strategy formulation and execution over time.

1. Strategic asset allocation determines long-term success

The strategic asset allocation is the principal determinant of the endowment success in the long term. It is the link between our purpose and goals (spending) and expected long-term return sources available in the financial markets. The strategic asset allocation is investor specific and aims to maximise probability of fulfilling strategic objectives set in the spending policy. For that purpose, expected level of return, together with associated risks and expected stability of annual spending are critical. If the goals of the endowment or long-term capital market expectations change, the strategic asset allocation will be revisited.

2. Risk needs to be compensated

Return is a compensation for the risk taken. All endowment investment decisions are based on idea that we expect compensation i.e. risk premia for the risk we take in the portfolio. Equity risk is the primary source of real return in the portfolio as stocks outperform bonds in the long run. Risk premia is not constant but it rather varies over time. Identifying and understanding the risk, as well as analyzing the pricing of it is a key part of the investment decision process.

3. By deploying multiple risk premia we aim for a balanced risk profile

The endowment portfolio structure is based on diversified risk factors. By harvesting multiple risk premia we structure a portfolio that has a high probability of reaching our goals in different future scenarios. We follow academic research and are in constant dialogue with research-oriented asset managers to ensure that any new evidence on risk and return characteristics of a global portfolio are taken into account in the portfolio construction. The building blocks of the endowment portfolio are interest rate risk, equity risk and alternative risk. As part of alternative risk, the endowment aims to improve the risk-adjusted return by harvesting alternative risk premia.

4. Diversified, sustainable portfolio leads to best outcome

The investment universe is global and includes public and private markets. The optimal portfolio is achieved by integrating a diversified and proven set of risk factors into the portfolio. Sustainability considerations are integrated into the investment decision making. This is the best way to build a truly sustainable portfolio as we are not able to forecast precisely how the society will solve and adapt to the challenges posed by major structural changes, for example climate change. Active strategies will by nature increase our exposure to the opportunity side of structural changes.

5. Our investor profile brings advantages

The endowment's long investment horizon is an advantage and results in the ability to bear risk over economic and market cycles and enables us to take advantage of the opportunities emerging from dislocations in the market e.g. in a crisis environment. Willingness to take risk should be stable over time to avoid inconsistency in the execution of the strategy; not to de-risk during the bad times. As a small private institution with a flexible investment strategy, we may

find opportunities that are too small for larger investors or fall outside typical investment mandates.

6. Market efficiency is not homogeneous

We believe that the markets are efficient in many areas, but there are inefficiencies that we try to exploit with active management, styles and themes. The most efficient markets are the ones with best accessibility, most liquidity, investors and market information. Opportunities can be found e.g. where market access is restricted, information flow is inefficient or regulation and typical investment mandates result in segmented markets.

The starting point of the investment process is passive investments. Where inefficiencies are perceived and their source can be understood, active strategies can be used. Active strategies are evaluated based on the expected return net of all fees and costs.

7. Diversification doesn't protect in market stress

We acknowledge that in a crisis situation the diversification does not protect the portfolio against volatility and negative returns. True tail risk protection is the only possible way to achieve this and has to be implemented through an explicit hedge which is costly. Diversification provides a balanced portfolio that better functions through different investment environments and major structural shifts in the economic environment.

8. Costs matter

Implementation decisions between internal vs. external, passive vs. active investments impact the cost level of managing the endowment. Return net of fees defines endowment success. Costs are added as a third dimension to the analysis of risk and return when adding instruments to the portfolio. Passive strategies should be truly low cost. Active and illiquid strategies are more expensive but as long as value added exceeds costs they are beneficial to our goals.

Appendix 3: Asset Classes

The following asset classes are identified as relevant in the **strategy implementation** within the defined risk classes. These asset classes are utilized by the Head of Investments and the Endowment Management to construct a portfolio in order to provide a balanced risk profile in the current investment environment.

Liquidity

Risk Free

Money Market and Cash

Money market and cash **provide safety and liquidity** to annual spending, capital calls and when implementing allocation changes. It will not contribute to real return generation and cannot provide much diversification to the portfolio in the long run. However, the money market and cash allocation can be used within the liquidity bucket to manage the interest rate sensitivity of the endowment portfolio. The allocation to money market and cash can increase if risk-return characteristics of interest rate risk are poor or if there is a need to lower the total risk level of the portfolio.

Interest Rate Risk

Government Bonds

Interest rate risk covers traditional fixed income instruments, both nominal and inflation-linked, issued by governments and other public entities. Interest rate risk **provides liquidity and stability** to portfolio. It can also **diversify** in times of financial stress and therefore act as a diversifying component, especially versus equity risk. However, the ability to diversify is not constant over time and depends on the starting yield levels and inflation environment.

Government bonds are not risk free and suffer when bond yields rise, especially in inflationary environment. Government bonds, especially those issued by sub-AAA countries also contain a credit risk component. Portfolio duration can be managed by changing the allocation between risk free and interest rate risk.

Growth

Credit Risk

Investment Grade, High Yield

Investment grade (IG) and high-yield (HY) cover bonds in the listed part of corporate credit markets. Besides interest rate risk, their performance is driven by credit risk that varies from relatively low risk AAA-rated IG bonds to high risk, lower rated, HY bonds. Although corporate bond returns do not perfectly correlate with equities, their underlying credit risk is fundamentally driven by the same risk in corporate assets.

Due to the fundamental link with equities, high yield corporate credit does not have a significant strategic role in the portfolio but is more opportunistic in nature. The risk-return profile is compared to listed equities and at times when corporate credit is attractive from both a relative and total return point of view, an opportunistic allocation is possible. Due to its lower expected return investment grade credit does not have a meaningful role in the portfolio either strategically or opportunistically.

Emerging Market Debt Hard Currency and Local Currency (EMD HC & EMD LC)
EMD is investments in bonds issued by EM countries and quasi-sovereign issuers in both hard currency (typically USD) and local currency. Due to higher default and inflation risk, these bonds are riskier than developed market government bonds used in the liquidity building block. The performance of local currency EMD is also driven by **FX risk** of EM currencies vs. the Euro. Fundamentally, EMD is less dependent on equity risk. However, in typical risk-off situations these assets tend to suffer at the same time as equity risk.

Alternative Credit
Alternative credit markets cover a variety of different strategies that are typically less liquid, more complex, have higher risk or are tied to other types of liabilities than traditional IG and HY bonds. Alternative credit markets are also typically less efficient and sourcing of the investments pays a bigger role in the investment process. Alternative credit can contribute significantly to the real return generation of the portfolio and provide some diversification within the growth component.

The credit risk in alternative credit is often fundamentally linked with equity risk. Their inherent illiquidity and typically complexity results in both higher risk and expected return than on listed corporate bonds. The endowment may strategically invest in alternative credit when the expected return and risk compares favorably with listed equities. Typically, the returns needs to exceed that of equities to compensate for the illiquidity and complexity. Suitable alternative credit strategies could be investments in distressed debt and opportunistic special situation lending. The investments in alternative credit can be made via hedge fund structures that offer e.g. some liquidity, or via closed ended, private equity structures where the invested capital cannot be redeemed during the investment period.

Equity Risk
Public equity
Public equity refers to common equity of companies domiciled in developed and emerging countries and listed on a public exchange. Public equity **provides real return potential** by benefiting from the expected equity risk premium. Equity returns are driven by dividends, growth in corporate earnings and changes in valuation levels. Equity risk, especially public equity, is the dominant source of real return in the portfolio. Investments in public equities are diversified between geographical areas, several industries and style factors.

Private Equity
Private equity (PE) includes investments into private companies stocks not traded on public exchanges. The risk and return profile is driven by the same equity risk factors than in public equities but these assets are expected to provide excess return due to less efficient market. The main purpose of investing in private equity is to **earn excess return** net of fees over public equities. Due to their different valuation and reporting principles, PE can also appear to provide diversification in the short to medium term.

The dispersion in performance between managers is typically very large and the asset class tends to add enough value only when an investor is able to choose managers whose performance is considerably above that of the average manager. Furthermore, the higher management costs associated with private equity should be evaluated against expected excess returns.

Due to the long lag between PE commitment and investment of the capital, timing of the primary PE market is not possible. In addition, the commitments made to PE funds are binding and the capital cannot be redeemed during the investment period. The secondary market may provide opportunities at a time of market stress.

The Endowments private equity investments focus on developed markets, and particularly on small and medium sized buy-out primary funds. Secondaries, co-investments and growth funds are smaller opportunistic elements in the portfolio.

An external manager, Hamilton Lane, has been appointed to manage the endowments PE programme in line with an investment strategy tailored by AUF. The external manager is responsible for fund screening, due diligence and investment decisions as well as legal, administrative and reporting tasks. The platform for private equity fund investments is a dedicated fund structure, Hamilton Lane Aalto Fund, where AUF is the only investor and Hamilton Lane acts as the manager.

Equity replacement
Equity replacement strategies do not have the typical risk-return profile of equity investments, but their risk is fundamentally dependent on equity risk. As such, these strategies can provide diversification within the equity allocation, but do not diversify the portfolio away from equity risk.

Equity replacement strategies cover some common hedge fund strategies, such as equity long-short and merger arbitrage. In addition, these strategies may invest in derivatives markets, aiming to capture e.g. the risk premia between options implied volatility and realized volatility. The endowment may use equity replacement strategies to improve the risk return characteristics of the portfolio. These strategies may be very suitable for the endowment since it has a high risk tolerance, very long investment horizon and specific goals that differ from goals of many other investors.

Some equity replacement strategies may have very skewed return profiles with elevated tail risks. The purpose of these strategies is to replace part of equity risk and the sizing of the allocation will consider such tail-risk characteristics.

Diversifying sources of return

Alternative risk

The main purpose of alternative risk is to **provide diversified source of return** to the portfolio. Alternative risk investments are not equity hedges but they are designed to be **independent of equity risk**. They are evaluated based on both correlations and drawdown characteristics. Because they are not equity hedges, these strategies are not guaranteed to provide positive returns when equities suffer. Risk adjusted returns and ability to provide diversification to the portfolio are evaluated net of fees.

Alternative risk strategies target equity independency typically by being both long and short a given asset class, so that the net exposure is close to zero. Such strategies target mispricing or risk premia in relative terms within an asset class. Some strategies, such as trend following can have net exposure to traditional asset classes at any given moment, but over long-term they are as likely to be long and short. Alternative risk strategies typically rely on using leverage, short selling and also use derivatives to gain the desired exposure. In addition, some strategies, such as insurance-linked securities (ILS), are fundamentally independent from equity risk.

Since most alternative risk strategies earn returns from carrying a specific risk and also use leverage to gain the desired exposure, in an extreme market stress environment these strategies will likely suffer and may become correlated with equities as may happen to all risk factors.

Trend following
Trend following is based on time series momentum, i.e. tendency of historical performance of an asset to continue in the future. Trend following is implemented as a rules based strategy across liquid asset classes. As a general principle, the strategy tends to buy assets with positive past returns and sell short asset with negative past returns. In addition to a positive expected return in the long run, trend following strategies can add diversification to the portfolio, especially during long periods when equity risk underperforms. Trend following has a directional exposure (long or short) to the underlying markets, although the direction of these exposures vary over time.

Systematic risk premia strategies
Systematic risk premia strategies cover rules based, market neutral strategies such as carry, value and momentum. Systematic risk premia strategies can be implemented across liquid asset classes, including equities, interest rates, currencies, commodities and credit.

Exposure to systematic risk premia is typically gained as a long/short strategy which aims to minimize net exposure to the underlying market. Since performance of individual premia may vary significantly over time, it is crucial to implement these premia in a combined strategy covering multiple risk premia. Some strategies carry significant tail risk, i.e. possibility of infrequent large losses, highlighting the importance of diversification, portfolio construction and robust risk management.

Other alternative risk strategies
Other alternative risk strategies typically include actively managed, market neutral strategies. These strategies have low correlation with traditional risk premia. Other alternative risk strategies typically rely on manager skill and thus cannot be replicated in a rule based strategy. The following three strategy types are most common, but other, more niche strategies also exist.

Equity market neutral (EMN) strategies are typically systematically managed. They invest in a large number of single equities both long and short so that the net equity exposure is close to zero. These strategies can use a combination of fundamentals, sentiment and flow data to benefit from differences in relative return on stocks. Their performance is usually based on ability to utilize data that is hard to get and process and being able to do so faster than other investors. Some strategies focus on statistical arbitrage, providing short term liquidity to

markets and can therefore trade intra-day. Although EMN strategies can be very fast, they are very different from high frequency trading.

Global Macro strategies are based primarily on macro-economic fundamentals and market data. Global macro strategies can be both systematic or discretionary. Their strategy is based on ability to process macroeconomic data more efficiently than other market participants are. Global macro managers can employ both relative value and directional strategies. These strategies tend to trade the most liquid instruments only, such as futures contracts. For discretionary global macro managers, the ability to construct trades with a lot of optionality at low cost is typically a key skill.

Relative value and arbitrage strategies focus on mispricing of closely related or closely correlated assets. One traditional example is the pricing between government bonds and government bond futures. These strategies are based on managers ability to detect securities that are fundamentally or statistically related and monitor their relative mispricing. Relative value and arbitrage strategies tend to be highly levered and therefore portfolio construction and risk management are key evaluation criteria.

FX risk

FX risk is embedded in some of the risk classes and a global portfolio will carry FX risk. The endowment portfolio is globally diversified and at the time of writing ca. 53% of portfolio assets are exposed to FX risk. The key FX exposure is in USD.

In general, FX risk is not expected to generate a buy-and-hold return in the long run, with the exception of alternative risk where directional FX positions are a part of the strategies and are expected to generate a positive return.

FX risk hedging is governed by Endowment Authorizations and Risk Limits. The Endowment Management continuously monitor FX exposures and evaluates hedging needs based on expected impact of FX risk and correlation with underlying assets local currency returns. When FX hedging is evaluated, the first consideration is the endowment tolerance of FX volatility versus the cost of hedging. The analysis is based on currency valuation, trend and cost of hedging (carry). In some cases, such as EM currencies, the cost of hedging is typically so high that it is not economically feasible or desirable. In some cases, FX risk can provide good diversification properties to the underlying assets as is typical to DM equities.

FX risk management can be implemented with FX hedged investment vehicles or in-house, in an FX overlay. Total FX risk is monitored at the portfolio level and included in risk limit and monthly portfolio reporting.

Appendix 4: Risk Management Policy

Risk management plays a key role in the endowment investment management. The goal of risk management is the fullfillment of the endowment goals – the preservation and accumulation of real value of endowment in the long run and maximize stability of the endowment spending in the medium-term. Additionally, the legal status of the university as a foundation defined in the Finnish Foundations Act (487/2015) requires that the investment operations are systematic and diligent.

The endowment recognizes that achieving the purpose and goals of the endowment requires prudent risk taking. Therefore the target is not to eliminate risk but to manage it by targeting a balance between expected risk and return and by employing prudent risk management practices in all investment decision making. Risk management is not a separate process, but key part of all investment decisions. The focus of risk management of the endowment is at the portfolio level. Hence individual investments are evaluated primarily based on their contribution to the overall risk level of the portfolio.

Return is a compensation for the risk taken. Without **investment risk** one cannot expect return above risk free rate but at the same time the risks taken should be controlled, diversified and in line with the investment beliefs and the strategy. Investment risks are categorized as risks wanted i.e. risks that are expected to return adequately to compensate the risk, and risks not wanted i.e. risks are controlled and mitigated by prudent processes. It is also noteworthy that risks and their expected returns vary over time.

The key investment risks for the endowment are interest rate risk and equity risk. Alternative risk investments bring exposure to other, market neutral risk premia. Several other risk types, incl. FX risk and liquidity risk are also inherent in the investment portfolio.

Operational risks are defined as the risk of loss from failures in internal or external investment processes, legal and compliance failures or from negative external events. Operational risks are managed with clear, explicit and well documented processes, segregation of duties, risk limits and governance. Evaluating operational risks are part of prudent selection of counterparties. External expertise is utilized in operational risk management when necessary.

Risk governance structure

Risk management is delegated to several parties. The Board approves the endowment strategy and the authorizations and risk limits with the support of the Audit Committee. The President ensures that the endowment management is organized in a reliable way. CFO monitors the implementation of the strategy and that the risk limits are followed. Head of Investments executes investments in line with the strategy, the authorizations and risk limits. In addition, the Head of Investments organizes investment processes in a way that both investment and operational risks are properly managed. The Investment Committee advises the Board and the Head of Investments.

Also annual internal audit and auditing process validates the risk management of the endowment.

Risk Measures

There are several measures for investment risks. The most common one is volatility i.e. the measure of variation of return. For long term investor drawdown risk plays more important role as prolonged drawdowns can impact endowment spending and real value preservation. It is crucial that the endowment focuses on longer term risk measures and has consistent tolerance to risk. This helps in avoiding over-stretching risk capacity in good time and de-risking during bad times.

Strategy risk measures are linked to the strategic success and spending policy; probabilities for real capital preservation and spending cut. Stress testing and scenario analysis are used for portfolio risk analysis.

Operational risks involves more qualitative measures, one being risk mapping.

Risk Reporting

Monthly performance and risk reporting, together with stress testing and daily risk limit reporting, is outsourced to an independent service provider. Internal risk analysis is part of normal portfolio management processes and is constantly developed.

Operational risks are evaluated annually as part of internal and external auditing. Audit findings will be reported to the Board.

Appendix 5: Derivative Policy

The derivative policy governs direct use of derivative instruments by the Endowment. Funds or ETF's in the endowment portfolio may use derivatives in line with their investment policies.

Endowment may employ derivatives for three purposes:

- to hedge unwanted investment risks
- to allocation adjustment and rebalancing
- to gain exposure to risk premia that cannot be reached via other instruments or that are more efficiently reached via derivatives

Derivatives are further divided into two main categories:

- **Forward commitments:** these derivatives are binding agreements to engage in a transaction of the underlying at a future date. Forward commitments track the performance of the underlying asset, bucket of assets or an index very closely. This group of derivatives include e.g. futures, forwards, swaps and total return swaps.
- **Options:** options give the buyer a right but not the obligation to buy or sell an underlying given fulfillment of predefined conditions. Depending on the set of conditions for option, their pay-out profiles track the performance of the underlying in a asymmetric, non-linear fashion.

Typical uses of derivatives include:

- Hedging of FX risk in key currencies (e.g. USD, GBP) using either FX forward contracts or FX options. FX forward contract hedge the FX risk completely. FX options allows the endowment to only hedge against larger FX moves e.g. by using risk-reversal option strategies (buying call option and selling put option). Such option strategies allows the endowment to limit cost of hedging while protecting against large currency moves.
- Adjusting allocation via equity index futures or government bond futures. These instruments can at times be faster and more cost efficient to use than buying and selling of underlying assets, while giving the same allocation impact.
- Hedging equity risk and changing the risk/return characteristics of the equity portfolio by buying listed call or put options
- Implementing investments within alternative risk via total return swaps (TRS). Such strategies are typically rules-based investment strategies run by investment banks as an investable index. Investors can invest into the strategy by agreeing on a TRS with the investment bank. The TRS then tracks the performance of the underlying investment strategy index.

When derivatives are used to hedge unwanted investment risk, their performance is evaluated together with the performance of the underlying exposure that is being hedged.

Before investing in new derivative instrument types, the Head of Investments must ensure that all functions (incl. back & middle office) are capable of managing these instrument types. Collateral management of derivatives is outsourced. Separate stress testing will be conducted to determine the potential level of collateral calls in adverse market moves.

Use of derivatives is further governed by the Endowment Authorizations and Risk Limits.

Appendix 6: Policy for Sustainable Investing

The purpose of Aalto University is to shape sustainable future via research, education and positive societal impact. The endowment contributes to this purpose by enabling these academic activities via its annual funding and building financial resilience. Aalto University Endowment is committed to responsible investing and is managed in a sustainable way in line with our values. Aalto University is a signatory to Principles of Responsible Investing (PRI) and hence reports on climate related risks according to Task Force on Climate-related Financial Disclosures (TCFD). The university is also part of FINSIF.

Aalto University long term goal: "Solutions for sustainability"

Aalto University actions:	Endowment actions:
Connecting our strengths to create solutions for grand challenges	Stable and predictable funding for university Building financial resilience Real value preservation and accumulation
Pioneering sustainable solutions in our operations	Integrating ESG and sustainability into all investment decision making Targeting carbon neutral portfolio

Focus
We focus on forward looking aspects of sustainability and the expected impact of our decisions over the long term and on the overall sustainability profile of our portfolio. We believe that our goals are best achieved by integrating all financially material considerations to endowment management, including financially material sustainability considerations.

The three factors recognized as the most important for the sustainable endowment are:

- **Governance** – well run companies act proactively and are best equipped to handle future challenges and opportunities
- **Transparency and disclosure** – more information allows better decision making and accountability, including endowment operations
- **Environment and climate change** – sustainable transition to carbon neutrality is a key global challenge and focus area in university strategy

Special attention is given to real economy transition towards sustainable, carbon neutral world. This major transition will shape all sectors within economy and brings both risks and opportunities. Managing these risks and opportunities by aligning the portfolio with the real world transition path is seen as one of the key factors for successful endowment strategy.

Implementation
The endowment invests mainly via funds, which means that the endowment has outsourced the security selection to the external portfolio managers. We want our managers to continue to move towards full ESG-integration and act as active owners. We require transparency, good corporate governance and interest alignment from all our managers.

We implement our sustainable investing policy mainly via manager selection on three levels:

1. Investments with no credible transition path to carbon neutral world or investments that are incompatible with our values are excluded from passive investments[1]. Active managers can include such investments when in line with credible sustainability policy e.g. as part of active engagement. These are subject to regular screening and will be critically assessed both in terms of investment risk and the credibility of the sustainability profiles of our external managers. These are:
    - UN Global Compact violators
    - Controversial weapons manufacturers
    - Thermal Coal and Oil Sands (25% revenue threshold)
2. Investments in areas with high transition risks are subject to regular monitoring, risk analysis and evaluation of external manager's investment processes. Risks can be mitigated both by changing overall allocation to such areas and targeting companies with more sustainable profiles within these areas. These are e.g.:
    - Energy
    - Materials
    - Utilities
    - Weakest ESG profiles within industry and peer group
3. Aim to utilize opportunities based on the transition towards a more sustainable society. This includes investments with positive sustainability profiles and improving trends and positive contribution to real economy transition. Such opportunities require active management and must align with our investment beliefs regarding market efficiency and active management.

Our long-term target is to have a carbon neutral portfolio. This requires significant developments throughout society and is currently not a feasible target to be implemented as carbon neutral investments are not available. As a medium-term target, we will significantly reduce the carbon intensity of our portfolio, to be implemented gradually from 2021 to 2030. Beyond 2030, reaching carbon neutrality requires significant decarbonization of the real economy and thus availability of carbon neutral investment options.

Roadmap to 2030

- Carbon intensity reduction: portfolio carbon intensity significantly reduced in line with global Climate Transition and Paris-aligned benchmarks set in EU Sustainable Finance Action Plan. Target reduction in carbon intensity of at least 30-50% by end of 2022 compared to global market index. Thereafter targeting a declining trend of carbon intensity in line with these global climate benchmarks.
- All of our external managers have integrated sustainability considerations into their investment process and act as active owners (as applicable to the investment strategy). As a result, we expect our portfolio to have a better overall ESG scores vs. global market benchmark
- Continuously develop ways to add active investment strategies with positive contribution to both sustainability targets and return profile

We will regularly evaluate our progress towards the long-term goals and update the implementation plan as new information and tools become available.

[1] Subject to such passive instruments being available

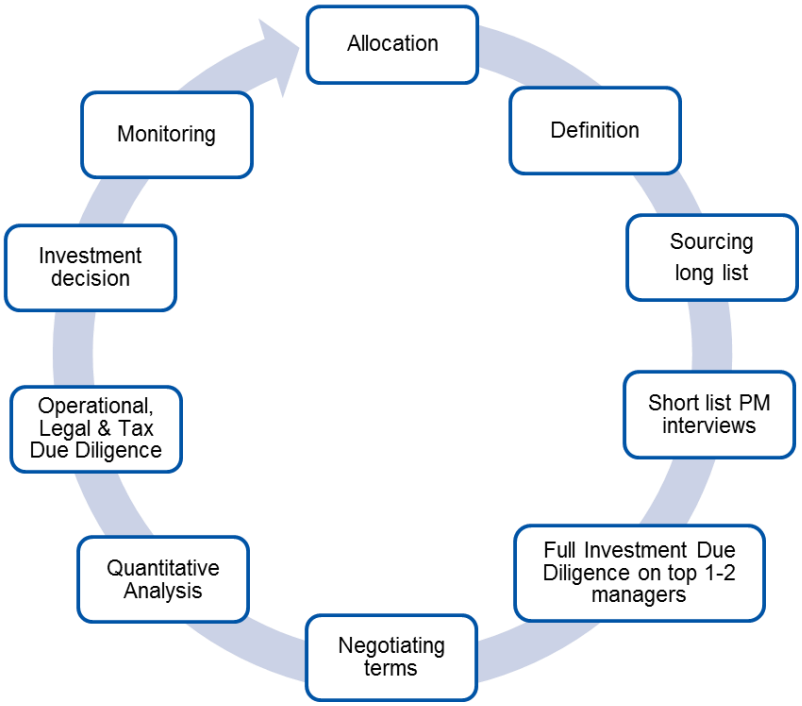
To evaluate the processes of the asset managers, we engage with the managers regularly and screen our fund holdings using external datasets. Annual monitoring and reporting will be both quantitative and qualitative and will be part of external communication.

Appendix 7: Manager Selection Policy

The purpose of a consistent and disciplined manager selection process is to find efficient ways to execute the investment strategy and to generate excess return where deemed possible. The Endowment is generally agnostic to the style and approach of managers, which leads to the portfolio including the full scale from passive to very active managers and different styles and themes, depending heavily on the asset class and market sector.

The starting point for adding a new investment to the portfolio is an passive instrument like an ETF. They tend to be cost efficient and liquid for the largest markets. However for many markets such instruments are not available, or it can be argued that there is a well-understood opportunity to generate better returns with a more active approach. Reasons for the existence of these opportunities are usually related to inefficiencies in parts of the financial markets, for example market composition, regulation, low analyst coverage or investor interest, market size, illiquidity etc. For each active manager a thesis for net of fees expected overperformance is formed and the performance is then evaluated against this thesis. In the selection process the focus is on the repeatability of the returns rather than the merits of any particular style.

MANAGER SELECTION PROCESS



To include all relevant managers in each search various commercial tools and databases as well as contacts with asset managers and other institutional investors are used. Based on this search a long-list of potential manager ideas is formed. Typically after a round of quantitative analysis, interviews and document requests, a short-list of managers is selected for deeper due diligence. This investment due diligence focuses on quantitative and qualitative factors that are somewhat different depending on the asset class and manager process, but usually include at least analysis of the track record, sources of outperformance, people, resources, decision making, sustainability integration and if the quality of the operational setup matches

institutional standard. Transparency, corporate governance and interest alignment are key areas in line with our Policy for Sustainable Investing. Commercial terms of the investment are negotiated before an idea passes investment due diligence. Then depending on the type of investment a legal and/or tax due diligence and/or operational due diligence is conducted where parts of analysis are outsourced to specialists if needed. Investment decision is made based on all the information gathered during different phases of the due diligence.

Manager selection is continuous in the sense that active monitoring of the investment starts immediately after investment. Performance is monitored in terms of strategy consistency as well as absolute and relative performance on standalone and risk-adjusted basis. Should there be any irregularities or inconsistencies the manager is promptly asked for background. All the active managers are interviewed at least twice a year to get an update on the performance and other developments in addition to reviewing the reporting made available to investors. Inconsistent performance or a material change in some aspect of the strategy, including change of key persons, change of strategy or process always triggers a thorough analysis of the manager to assess whether the original decision to select the manager is still justified or if a full or partial redemption is necessary.

Appendix 8: Reporting

Back and middle office functions, including back office, accounting, portfolio performance and risk reporting, risk limit reporting and collateral management are outsourced. Monthly executive report includes comments from the investment team and is provided to the Board of Trustees, the President, Investment Committee and CFO on a monthly basis.

All return calculations are based on daily values and cash flows and employ time-weighted return calculation methodology. Volatilities are calculated as annualized standard deviation of daily returns during the reporting period. Sharpe ratio is used as the key indicator of risk adjusted return. The reporting also includes comparison of realized allocation versus strategic allocation and limits. Allocation is presented for both capital allocation and risk position. All risk and return reporting is calculated in line with the Global Investment Performance Standards (GIPS).

In the financial statements, Aalto University follows IFRS9. In the balance sheet, investments are reported at net realizable value. Both realized and unrealized gains and losses are reported in the profit and loss calculation.

External reporting

As an institution with a public mission, the university recognizes the importance of open communication to all external interest groups, including donors and parties funding university operations as well as general public. Communication of the endowment is focused on the Endowment Strategy, Annual Report and Financial Statements, semiannual press releases and external internet pages.

The Annual Report shall describe the investment strategy, performance, asset allocation, spending policy and actual spending to university operations. Portfolio holdings, their purchase and market values and commitments will be published in the financial statements.

In the semiannual press releases, the investment performance and the asset allocation is communicated.

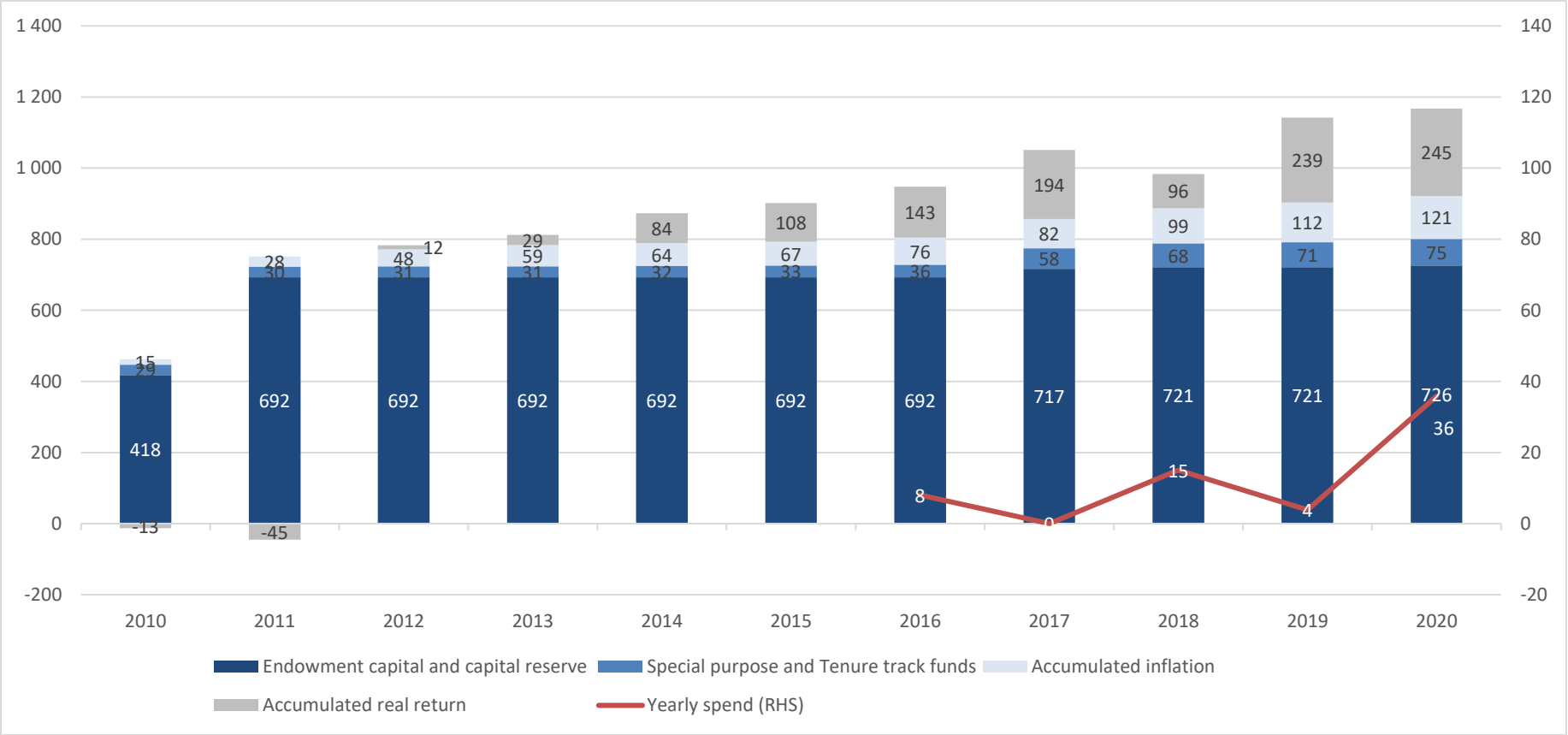
Appendix 9: Track Record

Return	2010*	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Since Inception (p.a.)*
Nominal return	3,0 %	-0,8 %	11,2 %	3,7 %	7,2 %	3,4 %	6,1 %	6,6 %	-5,9 %	15,6 %	3,8 %	5,0 %
University Inflation	2,2 %	3,1 %	2,7 %	1,6 %	0,6 %	0,4 %	1,2 %	0,8 %	2,1 %	1,6 %	1,2 %	1,6 %
Real return	0,8 %	-3,9 %	8,5 %	2,2 %	6,6 %	3,0 %	5,0 %	5,8 %	-8,0 %	14,0 %	2,6 %	3,4 %
Annual oversight cost, % of average AUM	0,02 %	0,02 %	0,02 %	0,02 %	0,04 %	0,05 %	0,06 %	0,10 %	0,09 %	0,09 %	0,09 %	0,06 %
Nominal return, net of oversight cost	3,0 %	-0,8 %	11,2 %	3,7 %	7,2 %	3,4 %	6,1 %	6,5 %	-6,0 %	15,5 %	3,7 %	4,9 %

Volatility and Sharpe ratio	2010*	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Since Inception (p.a.)*
Volatility	1,6 %	4,7 %	2,6 %	3,5 %	5,0 %	9,3 %	7,8 %	3,9 %	6,9 %	5,7 %	12,1 %	6,2 %
Sharpe ratio	3,2	-0,2	4,3	1,1	1,4	0,4	0,8	1,7	-0,8	2,7	0,3	0,7

* Inception May 2010
** The calculation method of university inflation was changed beginning of 2019 to comprise of 64% of Finland wage and salary earnings index, 21% of Finland consumer price index and 15% of Finland producer price index

AUM and Allocation	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Endowment AUM (MEUR)	449	704	779	807	897	901	948	1 051	983	1 142	1 167
Allocation											
Risk free	35,6 %	28,1 %	16,5 %	10,9 %	2,7 %	6,1 %	10,1 %	13,1 %	17,9 %	9,0 %	5,6 %
Interest rate risk	8,1 %	7,3 %	5,8 %	1,1 %	2,9 %	6,2 %	5,9 %	4,7 %	4,6 %	5,1 %	6,6 %
Credit risk	46,2 %	42,5 %	49,2 %	49,4 %	48,8 %	37,9 %	34,6 %	26,6 %	14,4 %	15,5 %	13,6 %
Equity risk	10,1 %	22,1 %	28,4 %	38,6 %	45,6 %	49,8 %	48,4 %	51,6 %	51,7 %	56,8 %	60,3 %
Alternative Risk	0,0 %	0,0 %	0,0 %	0,0 %	0,0 %	0,0 %	1,0 %	4,0 %	11,4 %	13,7 %	13,9 %
Spending (MEUR)	-	-	-	-	-	-	8,0	0,0	15,0	3,9	35,8



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Endowment capital and capital reserve	418	692	692	692	692	692	692	717	721	721	726
Special purpose and Tenure track funds	29	30	31	31	32	33	36	58	68	71	75
Accumulated inflation	15	28	48	59	64	67	76	82	99	112	121
Accumulated real return	-13	-45	12	29	84	108	143	194	96	239	245
Endowment portfolio total	**449**	**706**	**783**	**812**	**873**	**901**	**948**	**1 051**	**983**	**1 142**	**1 167**
Yearly spend (RHS)							8	0	15	4	36

Appendix 10: Real Estate Investment Policy

This Real Estate Investment Policy covers all real estate assets owned by AUF, both in university as well as in ecosystem partner use. The real estate portfolio contains mainly properties in Otaniemi campus in Espoo, but there are also some properties in Helsinki and Kirkkonummi.

Real estates are considered to be strategic assets, not part of endowment. Their purpose is not solely return generation, and their investment universe is restricted. Minority part of the total real estate portfolio is leased out for university's external ecosystem partners. The internal rents in University use are based on actual costs. The rents of external ecosystem partners are based on markets rents. The real estate portfolio is managed separately from the endowment portfolio by the real estate management company **Aalto University Properties Ltd** (ACRE), which is 100 % owned subsidiary of AUF.

Due to high real estate exposure in the university balance sheet, real estate has been excluded as an asset class in the endowment strategy. However, endowment and real estate assets have similar roles in safeguarding the long term financial sustainability of the university, thus holistic view of these assets, including their liabilities and possible inter-dependencies, is needed.

The purpose of the AUF real estate assets is

- To provide for the university operations **cost efficient real estate solutions** that **maximize academic performance**
- To **enhance campus environment** that supports competitive long-term **university ecosystem development**
- To **generate returns** for the university operations and **safeguard the financial sustainability** of the university (incl. intra-generation equity)
- To secure **long-term expansion potential** on core campus

The primary goal of this investment policy is to maintain and accumulate the value of the real estate portfolio. The financial goals for the real estate portfolio are set as follows:

- Rents in University use: transparent subsidy policy (market-based rents vs internal rents)
- Rents in Partner use: generate market priced rental return, accumulate value of Aalto ecosystem based on occupancy policy, maintain control over occupancy policy and land and property ownerships
- Average 1-2% real value appreciation over 5-10 year horizon
- Primary yield 5-6 % based on net operating income (NOI), total market value of the real estate portfolio and market rents (market rents before subsidy for university use)
- 40-60% loan-to-value ratio

For real estate in university use, mainly on-BS debt is used. For real estate in partner use, mainly off-BS debt is used.

The key interdependencies between the endowment and real estate portfolio are recession risk and interest rate risk. Both portfolios are expected to be negatively impacted by severe economic and financial stress, as well as significant increases in interest rates. Both portfolios

will manage these risks independently. These interconnected risks will be regularly monitored and communicated to the Board.