

TALLINN UNIVERSITY OF TECHNOLOGY

School of Business and Governance

Department of Economics and Finance

Anna Ådahl

**SYSTEMATIC INVESTMENT PLANNING FOR RETIREMENT  
PURPOSES WITH MUTUAL FUNDS**

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Supervisor: Heili Hein, MA, Early Stage Research

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I declare that I have compiled the paper independently  
and all works, important standpoints, and data by other authors  
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Anna Ådahl .....

(signature, date)

Student code: 156069TVTB

Student e-mail address: anna.adahl2@gmail.com

Supervisor: Heili Hein, MA, Early Stage Research;

The paper conforms to requirements in force

.....

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## **ABSTRACT**

This thesis concerns the importance of private systematic investment planning for retirement purposes, with the help of mutual funds in Finland. The systematic investment plans presented in this thesis are concentrated in analyzing the importance of personal savings and the saving period as the future spending resources for a better life-standard. The investment instruments presented in this topic are addressed for beginners and average income class in Finland.

The purpose of this thesis in question is to study suitable investment plans with mutual funds divided into two separate groups: entrepreneurs and employees in Finland. The analysis, that focuses on employees strives to present the importance of private savings and the time value of money. The analysis for entrepreneurs is aimed to compare the difference between external pension schemes provided by pension companies, with private savings. The entrepreneur analysis answers questions as: “Is it more profitable to save directly into mutual funds than use the external pension schemes?”, “What are the pros and cons?”. Second analysis for employees is aiming to ensure a better retirement by boosting the earnings-related pension scheme with own savings, and answers questions as “How much to save monthly for a certain period, with different expected returns?”, “How much will the individual save during the period?”. The questions are set to realize how systematic investment planning works.

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## LIST OF ABBREVIATIONS

|      |   |
|------|---|
| SIP  | Systematic Investment Planning                      |
| P.a. | per annum   |
| FV   | Future Value  |
| PV   | Present Value                                       |
| FIM  | Finnish Mark  |
| EEA  | Euro Economic Area                                  |
| YEL  | Yrittäjän Eläke, (Entrepreneurs Pension in Finland) |

### Formulas

Households net asset = assets – liabilities

Pension share calculations: Gross annual income x I x 12 months

## **INTRODUCTION**

Systematic investment planning with mutual funds is getting more and more common, the Finnish households have potential growth in their net assets. The retail-banking is changing rapidly and becomes more digital by years, the “digitalism” creates new solutions in daily banking, and its modern solutions allow convenience for more consumers, and this also affects the ways of saving methods. The deposit accounts haven’t offered as attractive interest rates, as they did 15 years ago, even since the decrease of Euribor-rate in late 2015, the consumers started to look for other ways to gain higher returns to restrict the inflation of eating up the value of their money, which deposit interest rate couldn't offer. In Finland, the interest rate for deposit accounts in retail banks provide an interest for 0,05-0,6%, where 0,46 % is the average for Finnish deposit banks, for fixed interest rates for over two years (Suomen Pankki, Tase, Lainat, Talletukset ja Korot, 2018). Therefore, our financial service providers have already come up with their modern solutions to satisfy their client’s needs and wants.

The word “investing” or “investment” is known to be connected strongly with the word “risk” and might be an unsure option for the average natural person without any experience in capital markets through their workplace or education. Hedging is known as a maintainer for the partial risk, systematic risk, but hedging can be tricky, hard to manage and requires a lot of energy and time when doing it by own with direct investments. Hiring a professional to handle the hedging can also be expensive and outstanding. Private banking is not an option for everybody. It is very doubtful that a natural person with no experience would choose a fund her or himself through online-banking. The bank can also restrict the customer of making straight investments by themselves. Usually, it requires contact and an analysis of the customer’s knowledge in the investment target.

### **The knowledge and investor’s security**

It is also significant that directives such as MiFID II are applied lately to secure the investor’s position. Banks are also forced to present their personnel’s knowledge and proficiency in the field of capital markets and financial literacy. This type of proxies has been executed by

applying several examinations based diplomas that financial supervisors can approve to have enough contents to act as a proof of knowledge.

Mutual funds held and created by a fund are often beneficial for both parties, the investor and, the financial service provider. The bank collects a percentage based administration fee and probably some running fees and entry and subscription fees, meanwhile the investor gains on their invested capital.

## **Formulating the relatives for saving**

In this research, we want to find out if there is any sense for an average Finn to save for long-term with the help of balanced funds. By using four variously allocated fixed-income and equity-based mutual funds and creating a sip to the several average profiles based on their income and spending analysis, we want to find out if it is relevant to use this type of solution as a boost for the retirement besides the earnings-related pension scheme earned through labor life-span.

Pensions are claimed to be too small and irrelevant, as the future value for money is not corresponding to the actual situation. Self-employers are entirely responsible for their pension contribution, by using external providers in Finland. Because of the private companies offering the external pension scheme services for the entrepreneurs, the pension is not always corresponding the paid fees during their work-life, and the retired entrepreneur may be unsatisfied with the outcome in the future.

## **The Average Pension**

The pension paid currently is approximately 1 574€ monthly in the year 2017, according to ETK (Finnish Pension Security Center). Politicians in Finland have been pointing out the scarcity in the current pension payments, and described them with taking pensionaries as examples who needs to decide on a daily basis if they can afford to take the whole daily medicine dosage, or should they save money and intake only the half of the dosage? We are interested to find out if low-risk investment funds could increase the pension allowance, and if yes, how much? And how will the possible inflation affect the saved amount if we convert it to present value and compare with the earnings-related pension resources? (ETK 2017m Pensions in Finland).

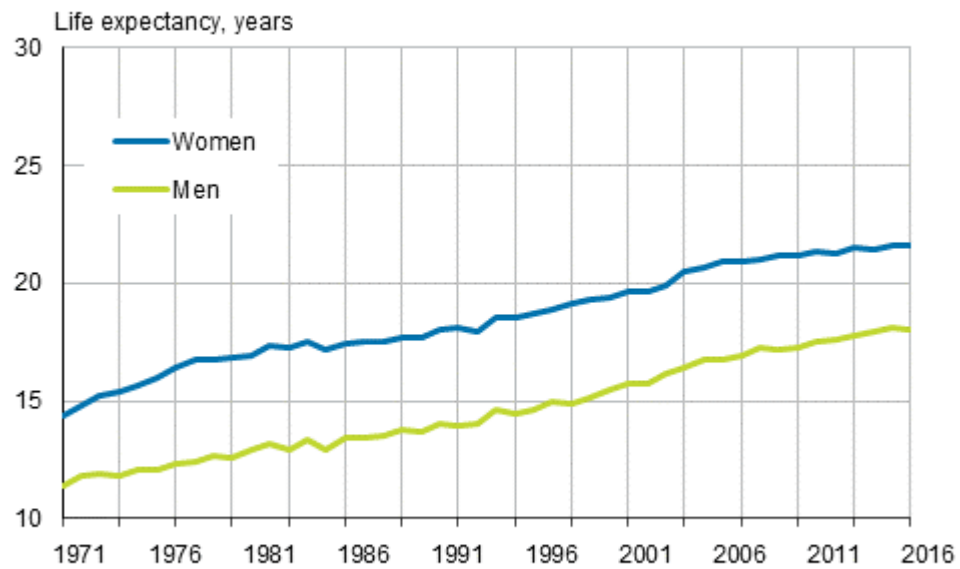
The pension scheme in Finland is contributed from earnings from an individual's work during their life, for those who are employed in a company. Self-employees in Finland are responsible for their own pension savings and distribution in it. The study compares a variety of systematic investment plans, by their length, risk allocation, entries, and also with alternative pension schemes.



# 1. THEORY AND BACKGROUND

The population aging that is observed not only in certain countries but also supported globally is caused by declining fertility and with increasing life expectancy. As the Finnish Statistic Centre has also presented that the life expectancy even notably growing in contrast to the previous century (Official Statistics of Finland (OSF): Deaths [e-publication]. ISSN=1798-2545. 01 2016. Helsinki: Statistics Finland [referred: 9.5.2018]).

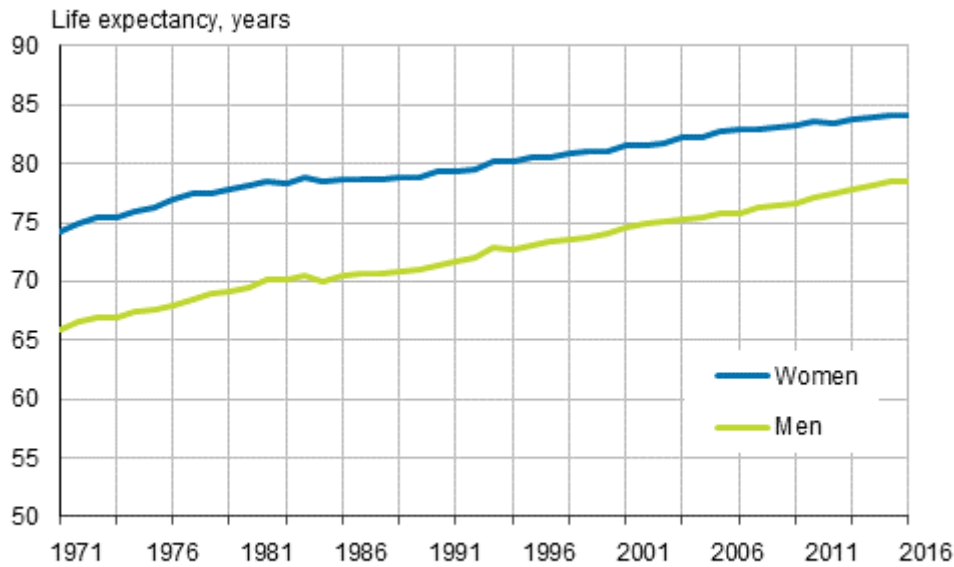
Figure 1. Life expectancy in Finland of persons aged 65 by sex in 1971 to 2016



Source: Official Statistics of Finland (OSF): Deaths [e-publication]. ISSN=1798-2545. 01 2016. Helsinki: Statistics Finland [referred: 9.5.2018].)

Note: The figure above presents the increase of persons aged 65 years by sex, the figure 1. Shows that the increase is almost 5 year for males within the period, and is even a higher trend for females.

Figure 2. Life expectancy, years



Source: Official Statistics of Finland (OSF): Deaths [e-publication]. ISSN=1798-2545. 01 2016. Helsinki: Statistics Finland [referred: 9.5.2018]. )

Note: The figure 2. Shows the change in life expectancy at birth by gender from year 1971 to 2016. The difference between sexes in life expectancy was 5,7 years. In the past 30 years, the life expectancy of newborn males extended with 7,9 years and 5,4 years for females. Notable is also that males are catching up females in life expectancy. (James Banks and Richard Blundell (2005) Private pension arrangements and retirement in Britain, Fiscal studies vol 26, no. 0143-5671)

## 1.1. Formulating the Pensions Policy in Finland

Even though the government supports the pension in Finland, consisting of earnings-related pension scheme contributions and besides, there is an exclusive option provided for people who don't have any pension from their earnings or enough of it. The retirement planning is a decent topic as the pension scheme is linked to the government's budget and the system has gone through changes for times. The adjusted modifications are not only for good, but they might have a negative impact on pensionaries. Finnish Social ministry has been pointing out the decreasing budget and its possible influence on the Finnish social institutions spending, where

KELA (Finnish National Pension Institution) is one of the targets that should cut their expenses, one recent budget program was enforced in 2015.

The total pensions spending by the government was 30 610 billion Euros in Finland in 2017, and the statistics show an increasing trend in the expenditure for the pensions (Finnish Centre for Pensions, 2018). The Finnish population grew with 9 833 in the year 2017 and decreased with 9 499, and this is the lowest growth since the year 2000. The low fertility rate trends are also linked to the increased life expectancy. (Official Finnish Statistics Centre Population Structure, 2018).

## **1.2. Issues about the Pensions Policy in Finland**

The approach of the Finnish pension scheme includes potential weaknesses. First of all the policy may react too slowly to the increased contributions, as expenses and price indices, and /or the pension-eligible age in the future. The slowness of the government's response wouldn't arise because of its flaw, but mainly because of its structures which could lead to scattered onus, attenuating leadership and strategic thinking. Another reason for the approach slowness is depending on the attitudes that share consensual ideology and are eligible to take the long-run view. Both cases have existed in Finland until now, and it is not a guarantee that it will necessarily extend, even though both issues require upkeep work. (Nicholas Barr, 2013. The pension system in Finland: Adequacy, sustainability, and system design. Part. 1).

## **1.3. Finnish Households and Finnish Banking**

Systematic Investment Planning, SIP, is getting all more popular and even more banks and financial institutions has started to provide an automatic saving solution for their clients. SIP is designed to make saving and investment easy and more useful for consumers. SIP is an entirely modern system, as it has encouraged the banks to form their mutual funds with several risk profiles for their customers, which Nordea did at the beginning of the year 2000. Most of Nordea's saving funds are formed in 2003-2005. To market, these funds banks provide several calculators for clients to calculate their SIP for their own goals. This calculators are beneficial to visualize the saving period and estimate the saving sum on monthly basis, the calculator shows the plan for the client on monthly scale, the period in years, as the saving amount the customer

should agree on to accomplish his or her saving aims during this period, the return is typed in the calculator by the clients themselves. The saving funds of Nordea are with several allocations in derivatives, and they offer investment funds for risk profiles from 2-7. At the end of the year 2000, the Finnish household's financial assets were at 1,074 billion Finnish Marks, FIM. Approximately half of the assets were still tied to the housing shares, the share of deposit remained unchanged compared with the year of 1999, around one quarter. The households were particularly encouraged to invest in funds, as households fund investments increased by 12 billion Finnish Marks during the year 2000. Fund investment alternatives remained still relatively small, as the value were only 30 billion FIM or in measurable ratio, less than 3% of total household assets, were in mutual funds.

In the year 2013, the median for net assets of Finnish households were over 110,000 Euros, according to the Statistics Finland's wealth survey in 2013. Median wealth was in real terms 4.7% higher than in the previous study done in the year 2009. The wealthiest were between 65-74 years old ((SVT): Household Assets ISSN=2242-3214. Helsinki: Statistics Centre [referred: 26.4.2018]).

The deposit rate has been low already for a longer time, which has influenced the investors to retreat from the traditional interest investments and seek for higher returns from capital markets. The deposit rates that retail banks provide nowadays for the consumers is close to zero and have been decreasing notably for last years.

Balanced funds provide alternative solutions for consumers who don't have any experience in capital markets and risks. Therefore, there exist regulations that protect the consumers from the unconsciousness about the risk, fees, strategies, rules and much more. The rules that act in EEA are made to be followed by banks operating in EEA, to be more responsible for the products they sell to the consumer. In addition to the regulations some policies and rules apply this business, with them the financial service providers can be controlled and that their clients are ensured about the products they own and invest in.

Thinking about banks in general, they are operating private businesses, some of them are listed and some not, and the meaning of a company is to grow and make a profit. And it makes sense that banks want their provision for administrating a fund that is making gains or managing someone's wealth.

## **1.4. NORDEA DATA**

Nordea is the greatest financial service concern in the Nordic countries. Nordea Group consists of subsidiaries and the parent company, Nordea Bank Ab. Publ. Is a listed bank belonging to the Nordea Group, and was founded in 1997. The Nordea Group operates in 17 different countries, and its service consists of Personal Banking, Commercial and Business banking, Wholesale banking, Wealth Management, Asset Management, Life and Pensions, Sustainable Finance and Private Banking. The operations of the organizations are huge and international; therefore the bank has also possibilities to provide their customers a diverse selection of investment instruments. Because Nordea is the biggest bank of the Nordic countries, with representative net assets and balance sheet, we are using Nordea's mutual funds in this thesis.

Nordea bank has a diverse selection of different investment instruments, but the balanced fund is categorized as saving products and simple to understand as to argue them to a client. Both ways the funds are flexible and have a flexible SIP schedule that can be applied, as these funds do not pay dividends, as they achieve their gains by growing their unit value. The growth funds are also simply taxed, and the taxation of the funds can be explained simply to the customer, even he or she wouldn't have any earlier experience with investment products. The capital tax applies to the gains only when they are sold, and the unit seller pays capital tax on winners which exceed 1000€ limit per year. (Nordea Suomi Organisaatio 2018).

### **1.4.1. Nordea Savings 10 growth**

Nordea Saving's fund 10 is a mutual fund that invests mainly in other interest and equity funds. The fund may also make direct interest and equity investments. In the basic situation the allocation of the fund's assets with 90% in fixed income investments and 10% in equity investments. The fixed income share of the fund may vary from 75% to 100% and from 0% to 25% in equity investments allocated by the fund management, according to the market view. The fund is managed by Nordea Funds Ltd, which is a part of the Nordea Group, the depositary of the fund is J.P. Morgan Europe Limited, Helsinki. The portfolio manager, Tuomo Mattila manage the Nordea Saving 10 mutual fund. The balanced fund mainly invests in fixed-income and equity funds. The risk profile of the fund's behavior is described as three on the scale, which can be classified as a low-risk investment fund. The aims investment philosophy is aiming for achieving growth in capital for the investor's assets, by diversifying the assets following the rules of the fund and by managing its assets actively. Changes in the general interest-rate level

have an opposite effect on the prices of the fund's fixed-income investments. If the general interest-rate falls by 1 percent point, the prices of the investments rise by 2-6 percent, and vice versa.

The weight of Finnish equities in the fund's equity investments is generally bigger than Finland's share of the global equity markets. The fund regularly uses derivatives to split against the risk to promote efficient portfolio management. The fund's benchmark index consists of a combination of several indices. The achievement of the net asset value (NAV) per unit can differ somewhat from the performance of the benchmark index due to the active portfolio management. The fund's base currency is Euro, €. As in the corresponding saving funds, all of the gained income received from the fund's investments, such as dividends and interest, are reinvested. The recommendation of the fund says that the fund Nordea Saving 10, may not be suitable for investors who seek to withdraw their money within or less than a three years period. The fund's risk indicator illustrates the fluctuations in the performance of the fund unit over the last five years. Actually, the risk division of the fund is presented as three on the scale of 1 to 7, and even the risk profile would be one it doesn't mean that the investment is risk-free. (Nordea Suomi Rahastot Nyt 2018).

The funds benchmark indices: MSCI World NTR (7.5%); OMX Helsinki CAP GTR (2.5%); 3-month Euribor (18.0%); JP Morgan EMU Gov. Bond (36.0%); Merrill Lynch EMU Corporate (36.0%)

#### **1.4.2. Nordea Savings 25 growth**

The Nordea Savings Fund 25 aims to achieve capital through its growth for the investor's assets by diversifying the assets by the rules of the fund by managing the assets actively. The Nordea Savings 25 is a balanced mutual fund with an orientation in fixed-income that mainly invests in fixed-income and equity funds. The fund can also make direct investments into fixed-incomes or equities. The basic scenario of the fund's allocation belongs to 75% of the fund's assets are invested in fixed-income investments and the 25% in equity investments. The proportion of fixed-income investments of the fund's assets may vary from 60% to 90%, and the proportion of equity-based investments may vary from 10% to 40%.

The fund's equity investments are diversified globally, mainly within the developed markets- The weight of Finnish equities in the fund's equity investments are generally bigger than Finland's share of the global equity markets.

The fund uses derivatives regularly to hedge against risks or to promote efficient portfolio management. A fund manager, Tuomo Mattila manage the Fund, and the fund's currency is Euro, €.

Income received from the fund's investments, such as interest and dividends are reinvested. The recommendation says that this fund may not be appropriate for investors who plan to withdraw their money within three years.

The benchmark of the fund is a combination of indices. MSCI World NTR (18.75%); OMX Helsinki CAP GTR (6.25%); 3-month Euribor (15.00%); JP Morgan EMU Gov. Bond (30.00%); Merrill Lynch EMU Corporate (30.00%), 4.1.10. ([Nordea Suomi Rahastot Nyt 2018](#))

### **1.4.3. Nordea Savings 50 growth**

Nordea Savings 50 is a balanced fund. The fund is managed by Nordea Funds Ltd, which is a part of the Nordea Group, the depositary of the fund is J.P. Morgan Europe Limited, Helsinki. The balanced fund mainly invests in fixed-income and equity funds. The fund can also make direct fixed-income and equity investments itself. The proportion of fixed-income and equity of the fund's asset may vary between 35%-65% depending on the market view of the portfolio manager, Tuomo Mattila.

The weight of Finnish equities of the fund's equity is generally bigger than Finland's share of the global equity markets. The fund's benchmark index is a combination of 5 indexes, at the moment.

The fund's currency is Euro, €. Any income received from the fund's investments, such as dividends and interest, are reinvested. The recommendation says this fund may not be appropriate for investors who plan to withdraw their money within a period of 3 years. The fund was launched 15th September 2003, and it is managed by Nordea Funds Ltd. The Table below presents the basic information of the fund.

The fund KIID (key investment information document) is written by the author: Jakob Schnaider, Lund University, FundConnect Product manager, Israel. The fund fulfils the market

entry requirements in the EEA, Economic Euro Area, which consists of the Euro passport regulations as MiFID II, PRIIPS, and UCITS etc. The fund also fulfils the National regulations and laws of Finland and is freely marketed in the Euro area, also abroad.

Current (updated: 01.10.2016) benchmarks of the fund:

MSCI World NTR (42, 5 %); OMX Helsinki CAP GTR (7, 5 %); 3-month Euribor (10 %); and JP Morgan EMU Gov. Bond (20 %); and Merrill Lynch EMU Corporate (20 %). ([Nordea Suomi Rahastot Nyt 2018](#))

#### **1.4.4. Nordea Savings 75 growth**

Nordea Savings 75 is a fund that aims to achieve capital growth for its investor's assets by diversifying the assets following the rules of the fund and managing the assets actively. The fund Nordea Savings 75 is an equity-oriented balanced fund that mainly invests in equity and fixed-income funds. The fund can also make direct fixed-income or equity investments.

In the basic scenario, 75% of the fund's assets are allocated into equities and 25% into fixed-income investments. The proportion of the equity investments may vary from 60% to 90% and the fixed-income investments from 10% to 40% based on the market view of the portfolio manager.

The equity investments of the fund are diversified globally, mainly within the developed markets. The weight of the Finnish equities in the fund's equity investments are generally bigger than Finland's share of the global equity markets.

The current fund's risk profile is ranked as 5, which can be described as a medium risk tolerance profile. The fund uses derivatives regularly to hedge against risks or to promote efficient portfolio management. (Nordea Suomi, Rahastot nyt 2018).

#### **1.4.5. Expected Return and Standard Deviation**

Nordea Saving 10 fixed-income fund's expected return is 2,1%, and its standard deviation is 3,35%, the mild volatility and a reasonable expected return are attractive mainly for investors whose aim is to retain their capital.

Nordea Saving 25 Mutual Fund's expected return is 2,9% and standard deviation 5,05%, still the fund's allocation is in overweight in fixed-income, low volatility remained. Small changes may



occur in the gain. This fund is likely for investors, who are aiming for maintenance of their capital.

Nordea 50 Saving Fund have an equal allocation in fixed-income and equity securities, which sets its expected return to 4,1% and standard deviation 8,65%.

Nordea 75 Saving fund is characterized as an equity fund, with a higher allocation in equity and lower in fixed-income. This combination of 25% and 75%, gives its expected return of 5,3% and standard deviation 12,5%.

The expected returns are calculated based on the Portfolio Theory by H.Makrowitz. (Source: The data is collected from Nordea Asset Management Finnish Branch.)

The Saving funds are all likely less risky, well hedged and are designed for saving for more than three years' horizons.

The Saving Funds that are presented in this research are not aimed at wealth management consumers or for professional investors. This research investigates the average standards of residents in Finland, and the funds are chosen based on the best selection for long-term systematic investment planning suiting the profiles presented in this thesis.

## 2. SYSTEMATIC INVESTMENT PLANNING

The World Economic Forum defines *long-term investing* as “investing with the expectation of holding an asset through an entire business cycle by an investor with the capability to do so” (WEF, 2011, p. 11).

From a consumers point of view, Systematic Investment Planning, SIP, is a contract made with their financial institution or a bank where, the consumer receives investment advice and an automatic investment plan contract, which usually is an open-end contract, that can be modified afterwards, the system doesn't require any special knowledge or procedures from the customer, as the investment allocation permission is given to the bank or the financial institution, where the client pays only an agreed amount in percentage for the administration and the management of the SIP, cumulative prices and total prices should always be ensured to be clarified to every consumer when the agreement is made on hand, the transparency, and the commissions are supervised and regulated by MiFID II.

*MiFID requirements (conduct of business and interest rules) are extended to the sale of structured deposits.*

*The Safe-keeping of financial instruments on behalf of clients is classified as an investment service (instead of ancillary service).*

*Senior management is explicitly given the responsibility to approve the policy governing the services and products offered by the firm, with reference to the characteristics and needs of the clients. (Reference; “Rethinking Asset Management - From Financial Stability to Investors Protection and Economic Growth” Chairman: Jean-Baptiste de Franssu, Rapporteurs: Mirzha de Manuel Aramendia Karel Lannoo)*

## 2.1. Profiles

To build the illustrative profiles for this thesis, we used the statistics center of Finland to estimate an average middle class. Values that are taken in the count are, the average income for both genders separately, average spending per person p.a. average life-span, average household assets, average pension, and national pensions.

Therefore, we have two female profiles, of which one is self-employed and the other an employee. The employee profile's income has a greater role than the entrepreneurs, as the entrepreneur's investment results will be compared with alternative pension schemes provided by organizations.

To measure the time impact and risk vary, the systematic investment periods are presented with different entries and risk varies during the lifetime.

By adjusting the length of the saving periods and the amounts we can assimilate the plan for different parties.

The Finnish Statistic Center presented the median of the Finnish household net asset to be 110 000€ in the year 2013, which increased by 4, 7% from the previous research year in 2009. Net assets will be added only to the employed status profiles, as the self-employees income is more unstable and therefore the net asset will be presented as zero, because of the bound to the operating capital in their companies as liabilities and security deposits.

### 3.2. Income and Spending

The private labor sector of Finland paid up to €3 193 per monthly median earnings, where males earned up to €3 620 and females €2 821. The average earnings were presented as €3 596 on monthly basis. The values presented are gross. The earnings index is estimated to increase by 1% p.a. in the private sector.

(Official Statistics of Finland (OSF): Households' assets [e-publication].

ISSN=2242-3230. Helsinki: Statistics Finland [referred: 12.5.2018].)

### **2.1.1. The Finnish Pension Scheme**

This research investigates the investment planning for Finnish-based profiles, which will be modified according to the Finnish Pension Scheme to estimate the future old age pension that will be presented in this research as 50 years later when the saving period will end.

Finland's pension scheme provides two main systems; occupational pension and the national retirement pension. The earnings-related pension is earned by remuneration from work or entrepreneurship. The employer is obligated to take out pension insurance for all its employees in Finland, and pay the insurance premiums. A private entrepreneur is responsible for her or his own insurance premium.

The national pensions and the guarantee pension are meant for those pensioners who don't have a retirement pension or whose pension is very small.

According to the Finnish pension legislation, nowadays, a natural person can get national pension starting from age 65 years, in terms of earnings-related pension schemes, the age-related actual legislation applies for natural persons who were born in years 1962-1964. The minimum retirement age for persons born in the year 1965 and after will be adjusted to the change in life accordance with Articles 82 and 83, and the age will be adjusted by the Ministry of Social Affairs and Health for a year in which the employee reaches the age of 62 years.

The amount of earning-related pension depends on how long and how much the employee has worked during his or her life-span and received salary. Employers and employees finance together their earnings-related pension security. The employer is responsible for collecting the pension part from the employee's salary and accounts it together with the employers share insurance pension contributions to the pension institution.

The national pension in Finland is meant for persons whose pension is very small or doesn't exist at all. The national pension can be determined for persons that belong to the Finnish Social Security system and have lived in Finland for at least three years and are at least 16 years old. (Työntekijäneläkelaki 19.5.2006/395 Article 11§)

Pensions in Finland are covered by the tax. According to the Finnish earnings-related pension scheme, a person who is born in 1992 will retire when she or he will be 67 years and 8 months old. The age is an estimation and will be adjusted according to the actual living standards and the retirement-years are estimated to be 22 years and 10 months. (Työntekijäneläkelaki 19.5.2006/395 Article 11§)

The earning-related pension is relevant in this research as we investigate the middle average class of employees and self-employees. The earnings-related pension share is calculated:

Earnings-related pension =  $I \times 1,5\% / 12$  = Pension share collected per month.

Where it represents the gross annual income, 1,5% is a factor for the employee's pension share in Finland, and 12 is for months in a year. The pension share for an entrepreneur is 24,08%.

The earnings-related pension share collected from the salary on a monthly basis will be for our employed profiles:

Alpha:  $36\,696\text{€} \times 1,5\% / 12 = 45,87\text{€}$

Beta:  $44\,388\text{€} \times 1,5\% / 12 = 55,49\text{€}$

When being a self-employed, the schedule is different. Usually, the entrepreneur pays a higher share of his or her personal pension saving through the private insurance and pension institutions. The calculations based on the estimations provided by *Ilmarinen*, which is a Finnish insurance and pension institution providing the scheduling for entrepreneurs. An entrepreneur can work her or his whole life without any retirement; therefore this option is private and voluntary in Finland. In this research we are going to compare the pension differences and options, and that is why our profiles will likely retire at the same age, which is 67 years and 8 months, even though *Ilmarinen* predicted the desired retirement-age to be 70 years and 7 months for the entrepreneurs. Solutions of the calculations are presented as monthly-based payments.

Gamma & Delta:  $68\,000\text{€} \times 24,08\% / 12 = 1362,30\text{€}$

The monthly payment of 1362,30€ for 43 years consists of sickness benefit, basic allowance, parenthood allowance, earnings-related allowance, and work-day allowances. In total the estimated monthly pension would be 3161€/ month gross at age 67 years and 8 months and 3844€ / month at age 70 years and 7 months.

### **2.1.2. Estimation on required pension**

One person's household is presented to spend currently 23 400€ p.a., and to estimate the future value, FV for the present value, PV we will use the inflation rate predicted by The European Central Bank that presented the inflation rate to be an annual average 1, 9% in prognoses ahead five years (ECB Europe Forecasts 2018). To calculate the FV, the time of labor for our profiles will be varying, depending on their age when they do their first systematic investment entry. Since the saving period is long and the consumption tends to change, the cash resources are varying during a person's lifespan. ((SVT): Kotitalouksien kulutus [verkkojulkaisu]. ISSN=1798-3533. Helsinki: Statistics Center [referred: 9.5.2018]). To stabilize the spending, we will use the inflation added current spending average for future estimations. Spending can change during life and tends to increase by older and in proportion to possible changes in general price levels as personal income. As the earnings-related pension is smaller than the income of our profiles during the lifespan, the SIP plan will allow them to have stable spending also after the retirement.

### **2.1.3. Profiles**

To build the representative profiles for this thesis, we used the statistics center of Finland to estimate an average middle class. Values that are taken in the count are the average income for both genders separately, average spending per person p.a. Average life-span, average household assets, average pension, and national pensions.

Therefore, we have two female profiles, of which one is self-employed and the other an employee. The employee profile's income has a more significant role than the entrepreneurs, as the entrepreneur's investment results will be compared with alternative pension schemes provided by organizations.

To measure the time impact and risk vary, the regular investment periods are presented with different entries and risk varies during a lifetime.

By adjusting the length of the saving periods and the amounts, we can assimilate the plan for different parties.

The Finnish Statistic Center presented the median of the Finnish household net asset to be 110 000€ in the year 2013, which increased by 4,7% from the previous research year in 2009. Net assets will be added only to the employed status profiles, as the self-employed income is more unstable, and therefore the net asset will be presented as zero, because of the bound to the operating capital in their companies as liabilities and security deposits.

#### **2.1.4. Income and Spending**

The private labor sector of Finland paid up to €3 193 per median monthly earnings, where males earned up to €3 620 and females €2 821. The average earnings were presented as €3 596 on a monthly basis. The values given are gross. The earnings index is estimated to increase by 1% p.a. in the private sector. The mediocre spending for a one-person household is currently 23 400€ annual including all expenditures, as living costs, food, drink, clothing, culture, transportation, electricity, traveling, etc.

#### **2.1.5. Pension Expenditures are Rising**

Finnish total pension expenditures are rising by year, for instance in the year 1986 the total expenses were 6 547 million euros, and the last statistics were 30 610 million euros. The Finnish Pension Fund reserves were 190,2 billion euros in the year of 20163, and they are said to rise by 22 000€ in minutes. Even though Finland has a great pension fund, the pensions paid by the government in Finland are not the performing in the same relation with other EU countries, the Finnish pensions are corresponding the average of Europe (OECD Pension Country Profile, Finland 2018).

In 2015, a more significant change occurred that influenced the national pension institution's budget (KELA), Finnish Social Security System and KELA combined to a shared facility, and this has affected the pension reserves, as part of them was distributed for the refugee crisis in Europe and support. GDP of Finland for the year 2017 is presented as total 223,8 billion Euros in a compartment with the pension fund; it is a quite weak GDP. (OECD Country Profile Finland 2017). (ETK Earnings-related pension 2016).

### **2.1.6. Labor time**

Labor time is the time, which will influence the monthly entry sum invested in the fund, as also the total risk tolerance for the period of pension savings. The risk tolerance behavior is higher when the labor life is longer and decreases in proportion to the aging and the labor time.

The estimated length of pension period is presented as 274 months, almost 23 years, and the retirement age for our profiles generation at age 68 years and seven months, according to the Finnish Pension Institution.

### **2.1.7. Profile Alpha**

Alpha is a female profile born in 1992, her saving period is starting at her age of 26 years, after being few years in the work-life since her graduation. Alpha's annual income is 36 969€ gross and current total spending 23 400€ p.a (Official Statistics of Finland (OSF): Households' consumption [e-publication]. ISSN=2323-3028. Helsinki: Statistics Finland [referred: 11.5.2018]). Her net current assets are based on Finnish average for her life-span and are presented to be approximately 19 305€ (Official Statistics of Finland (OSF): Households' assets [e-publication]. ISSN=2242-3230. Helsinki: Statistics Finland [referred: 11.5.2018]).

### **2.1.8. Profile Alpha's potential savings**

Alpha is 26 years old, employed permanently and her estimated average annual earnings during her life-span will be 36 696€ gross. Her income tax is 17, 5%, and her employee pension contribution is 6, 35%, plus unemployment insurance payment 1, 9%, furthermore YLE-tax (Yleisradio) 0, 68%. Alpha belongs to the church and pays the church tax from her annual income, which is 1, 75%. Her yearly tax payments are 10 417, 86€.

Net Income p.a. = 36 969€ - 17, 5% - 6, 35% - 1, 9% - 0, 68% - 1, 75% = 26 997, 25€ Net p.a.

On a monthly basis, this would be 2249, 77€.

After her annual spending, she would have a potential saving amount remained of 299, 77€ per month.



The Alpha profile is selected to start her retirement planning at her age of 26 years, this is the most extended systematic investment plan in this thesis, to make it more realistic, and we split her monthly entries in different sums and made adjustments on the savings period.

## 2.2. Profile Alpha's Systematic Investment Planning

Table 1: Systematic Investment Planning for Alpha

| Option           | Entry (Monthly) | Saving Period   | E(r) | Ending Balance     |
|------------------|-----------------|-----------------|------|--------------------|
| Nordea Saving 75 | 250             | 22 years        | 5,3% | 120 060,79€        |
| Nordea Saving 50 | 300             | 10 years        | 4,1% | 43 401,23€         |
| Nordea Saving 25 | 350             | 11 years        | 2,9% | 53 428,85€         |
| <b>Σ</b>         | <b>148 200€</b> | <b>43 years</b> |      | <b>216 890,87€</b> |
| Nordea Saving 75 | 250             | 43 years        | 5,3% | 468 058,61€        |
| Nordea Saving 50 | 250             | 43 years        | 4,1% | 337 718,15 € €     |
| Nordea Saving 25 | 250             | 43 years        | 2,9% | 248 244,73 € €     |
| Nordea Saving 10 | 250             | 43 years        | 2,1% | 208 352,02 € €     |

Note: The options for 43 year-lasting saving-period for Alpha. The desired time-period would be the 43 years for the SIP, but not required. The table below presents varies opportunities for additional pension planning. The table also shows the calculations and results for the whole period of investing in the same fund.

Table 2. Alpha's Alternative Systematic Investment Planning

| Option           | Entry (Monthly) | Saving Period   | E(r)          | Ending Balance     |
|------------------|-----------------|-----------------|---------------|--------------------|
| Nordea Saving 75 | 250             | 22 years        | 5,3%          | 120 060,79€        |
| Nordea Saving 50 | 300             | 10 years        | 4,1%          | 43 401,23€         |
| Nordea Saving 25 | 350             | 11 years        | 2,9%          | 53 428,85€         |
| <b>Σ</b>         | <b>148 200€</b> | <b>43 years</b> | <b>31,67%</b> | <b>216 890,87€</b> |
| Nordea Saving 75 | 250             | 43 years        | 5,3%          | 468 058,61€        |
| Nordea Saving 50 | 250             | 43 years        | 4,1%          | 337 718,15 € €     |
| Nordea Saving 25 | 250             | 43 years        | 2,9%          | 248 244,73 € €     |
| Nordea Saving 10 | 250             | 43 years        | 2,1%          | 208 352,02 € €     |

Table 3. Alternative Systematic Planning for Alpha with 25 years period

| Option           | Entry (Monthly) | Saving Period   | E(r)          | Ending Balance    |
|------------------|-----------------|-----------------|---------------|-------------------|
| Nordea Saving 75 | 250             | 10 years        | 5,3%          | 38 311,12€        |
| Nordea Saving 50 | 250             | 15 years        | 4,1%          | 60 470,57€        |
| <b>Σ</b>         | <b>60 000</b>   | <b>25 years</b> | <b>39,26%</b> | <b>98 781,69€</b> |
| Nordea Saving 75 | 250             | 25 years        | 5,3%          | 149 767,90 €      |
| Nordea Saving 50 | 250             | 25 years        | 4,1%          | 126 449,79 €      |
| Nordea Saving 25 | 250             | 25 years        | 2,9%          | 107 500,29 €      |
| Nordea Saving 10 | 250             | 25 years        | 2,1%          | 97 852,69 €       |

The table shows that sip works more effective without fund exchanges, Alpha could directly start to save in the lowest risk fund, Nordea 10 and achieve almost the same sum she would have done with the risk-to-age plan.

### **2.2.1. Profile Beta**

Beta is an employed male profile with an estimated life expectancy of 91 years for our pension requirements. His net annual salary is 30 214,92€, and net annual spending based on the Finnish average. Beta's income is stable, and he is employed. The potential saving amount on an annual basis is 6 814, 92€ after his annual spending. Betas pension contribution is 6, 35%, and unemployment insurance payment 1, 9% YLE-tax (*Yleisradio*) 0, 68%, Beta belongs to the church and pays the church tax from his annual income, which is 1, 75%. The earnings-related pension for Beta will be collected in total at his retirement to a sum of 573 756€.

Net Income p.a. = 44 388€ - 21, 25% - 6, 35% - 1, 9% - 0, 68% - 1, 75% = 30 214, 92€

On monthly basis this would be 2 517, 90€

Earnings-related pension = 44 388€ x 1, 5% / 12months = 2 094€/ month

Saving in the same fund for the whole period is more reasonable for Beta. And with the risk-allocated planning, he could gain extra 974, 65€ for his monthly pension allowance.

### 2.2.2. Profile Beta's Systematic Investment Planning

Table 4. Illustration for Beta-profile's Systematic Investment Planning

| Option           | Monthly Entry   | Saving Period   | E(r)         | Result             |
|------------------|-----------------|-----------------|--------------|--------------------|
| Nordea Saving 75 | 300             | 10 years        | 5,3%         | 45 973,35€         |
| Nordea Saving 50 | 400             | 15 years        | 4,1%         | 96 752,91€         |
| Nordea Saving 25 | 500             | 10 years        | 2,9%         | 68 366,26 € €      |
| Nordea Saving 10 | 600             | 4 years         | 2,1%         | 29 738,62€         |
| <b>Σ</b>         | <b>196 800€</b> | <b>39 years</b> | <b>18,2%</b> | <b>240 738,62€</b> |
| Nordea Saving 50 | 400             | 39 years        | 4,1%         | 442 924,08 €€      |
| Nordea Saving 25 | 400             | 39 years        | 2,9%         | 252 612,99 €€      |
| Nordea Saving 10 | 400             | 39years         | 2,1%         | 216 039,70 €€      |

Table 5. Profile Beta's Systematic Investment Planning for 24 years

| Option           | Monthly Entry   | Saving Period   | E(r)       | Result             |
|------------------|-----------------|-----------------|------------|--------------------|
| Nordea Saving 75 | 400             | 4 years         | 5,3%       | 20 788,78 €        |
| Nordea Saving 50 | 500             | 10 years        | 4,1%       | 72 335,39 €        |
| Nordea Saving 25 | 500             | 5 years         | 2,9%       | 31 770,80 €        |
| Nordea Saving 10 | 600             | 5 years         | 2,1%       | 37 575,62 €€       |
| <b>Σ</b>         | <b>121 200€</b> | <b>24 years</b> | <b>22%</b> | <b>240 738,62€</b> |
| Nordea Saving 50 | 400             | 39 years        | 4,1%       | 442 924,08 €€      |
| Nordea Saving 25 | 400             | 39 years        | 2,9%       | 252 612,99 €€      |
| Nordea Saving 10 | 400             | 39years         | 2,1%       | 216 039,70 €€      |

Even Beta would invest only for 15 years, into Nordea 75 with a monthly entry of 500 €, he could receive up to 537, 18€ additional monthly allowance for his pension.

Gamma is a male; he is born in 1992, same as the other profiles. His estimated life-span is 91 years and age of retirement 68 years and seven months. The entrepreneurs earn 68 000€ gross annual in Finnish averages. The average doesn't take the gender in the count, and the pension scheme neither pays any attention to the gender regarding the pension contributions of an entrepreneur in Finland. The pension is as said not a must but recommended. This profile is unisex, and its investment amount is based on the sum that an average entrepreneur would pay to a pension scheme institution in Finland. The voluntary pension scheme contribution would be 24, 1% from gross income. The sum is one 365€ per month to get 3 161€ gross when retiring at age 67 years and eight months. The pension would be paid to the entrepreneur for 22 years and ten months' maximum.

The entrepreneur's total contribution for YEL (entrepreneur's pension) for 43 years would be 702 947€.

Delta is 26 years old, self-employed full-time permanently and his estimated average annual earnings during his life-span will be 68 000€ gross, his income tax is 21, 25%. He contributes in his pension by 24, 1%, he pays the YLE-tax (Yleisradio) 0, 68%, Beta belongs to the church and pays the church tax from his annual income, which is 1, 75%. The full taxation is added to this profile, because, if the entrepreneur paid out dividends on the same scale as the salary is presented, the tax on dividend share would be 34%, which is higher for the average annual earnings of the profile. Secondly because when it comes to the systematic investment planning for the profile, we also strive to think-wise about the security, as private savers can get up to 40% tax deduction on investment securities including fund shares held over a ten year period.

To calculate Delta's net income p.a.: Annual net income = 68 000€ - 21, 25% - 24, 1% - 0, 68% - 1, 75% = 35 509, 60€ that makes 2 959, 13€ on monthly basis, including YEL-payments, which will be allocated to the direct SIP instead of YEL.

### 2.2.3. Gamma-Delta's Systematic Investment Planning

Table . The Systematic Investment Planning for Gamma-Delta in Alternative to YEL

| Option           | Monthly Entry   | Saving Period   | E(r)          | Result              |
|------------------|-----------------|-----------------|---------------|---------------------|
| Nordea Saving 75 | 1 362,30        | 13 years        | 5,3%          | 295 623,65 €        |
| Nordea Saving 50 | 1 362,30        | 10 years        | 4,1%          | 197 085,01 €        |
| Nordea Saving 25 | 1 362,30        | 10 years        | 2,9%          | 186 270,72 €        |
| Nordea Saving 10 | 1 362,30        | 10 years        | 2,1%          | 180 168,01 €        |
| <b>Σ</b>         | <b>702 947€</b> | <b>43 years</b> | <b>18,18%</b> | <b>859 147,38 €</b> |
| Nordea Saving 50 | 1 362,30        | 43 years        | 4,1%          | 1 840 293,72 €      |
| Nordea Saving 25 | 1 362,30        | 43 years        | 2,9%          | 1 352 735,16 €      |
| Nordea Saving 10 | 1 362,30        | 43 years        | 2,1%          | 1 135 351,82 €      |

Note: The table above shows that with private retirement planning the profile can achieve higher pension savings for the same period. With risk allocation, the profile saves 159 200, 38 € extra than with external pension schemes. This means that Gamma-Delta would get 632, 39 € gross more on monthly basis during the pension period of 247 months. The greatest savings total sum Gamma-Delta can reach is 2 550 544, 95€ by investing 43 years in Nordea Savings 75 Fund. This would add 7480, 15 € more monthly for the pension period.

### **3. DISCUSSION AND FOUNDING**

The main points that were found with the help of the systematic investment planning with mild expected returns, is that changing the fund during the period, according to the risk profile will sink the profits, even though the profile would do more prominent monthly entries. For an individual with the only income consisting of their salary, the point of view might be riskier when it comes to saving through investment funds, as their only source of income would be influenced with risks. Furthermore, for employees, the thinking could turn from a safe environment, which is secured by their employer's contributions to their future in addition to the government. Meanwhile, an entrepreneur can be more interested in the higher expected returns, and the fact of having a greater pension allowance. Likely, the entrepreneurs are already ensured with risk and higher responsibilities and can be more used to the risky environment and volatility in their income and capital resources.

The planning was executed separately for the self-employed profiles and employees. Therefore they are discussed separately.

#### **3.1. Alpha and Beta**

According to the results, investing in one same fund gives higher returns, even the money entry would be lower on a monthly basis. The fund investment with presented funds will not make the investor a millionaire but can be a rewarding boost for the earnings-related pension. Direct investments in stocks have always performed better than funds, but they involve much higher risks, and the risk is not comparable with the saving portfolio. The saving period, time is shown as the most essential factor when saving with small amounts. A risk hedged portfolio, where risk decreases in proportion with aging, reduces the return in a compartment with investing only in one fund for the whole period, is not guaranteed in both cases, as the risk is always involved in all types of investments. The guarantee from government pension funds is not relevant to compare with systematic risks of financial markets that investment portfolios content include. There is a different type of risk when relying purely on the national or earnings-related pension (*see paragraph "Issues about Pension Policy in Finland*). The legislation may change and, new policies can apply, or the slope from the government can point out when it is time for one generation to retire, and the changes can affect one's pension in a negative way. The private fund

investment includes also changes outside the financial markets and the global economy, as unsystematic risk concerning the bank or financial institution that holds the fund. In this case, the unsystematic risk is combined with Nordea and its performance, as also the contents of the fixed-income funds, as the significant part is a selection of Nordea's issued bonds, but it is also a way for Nordea to maintain the stability in the performance. The update of the fund after several years can be unnecessary, as each fund exchange includes fees, and possible capital tax can apply on the earned returns. Therefore, the alternative sip options were presented in the profile tables for remaining with one fund, but usually, the fund exchange happens when the individual is not satisfied with the performance into a lower risk or even a higher risk fund.

### **3.2. Gamma-Delta**

Gamma-Deltas systematic investment planning is an alternative retirement planning, as the profiles are entirely responsible for their pension. Therefore, the direct personal investments were compared with the same value as the entrepreneur pension scheme would cost them. The most significant savings total sum Gamma-Delta could achieve is 2 550 544, 95€ gross by investing 43 years in Nordea Savings 75 Fund, without changing the fund through the whole period. This sum is 3,6 times higher and could be even compared with the risk. The guarantee for the external pension schemes provided by organizations as YEL, do not guarantee the payout amount, they are more likely based on estimations. Using the pension provider can be compared to the fund investment presented in this thesis. Furthermore, the organizations that the entrepreneur would pay the monthly pension for are also companies, and investing all of your retirement savings under one roof can be almost as risky as the mutual fund investments, because of the presence of the systematic and unsystematic risk that is also affecting Nordea as much as the service providers. The funds are even more hedged than the pension system for entrepreneurs. It is a notable difference in retirement planning for entrepreneurs and their freedom to choose how to invest their future retirement assets, to an organization, that won't be able to guarantee that the money paid to them will be paid out for a specific time and amount. And the value will not even correspond to the future, or at least fight the inflation, of course – in the way that the service is collecting a high amount on a monthly average and, the cost includes the secure for the disability pension in case of accident.



## CONCLUSION

Planning one's pension, or preparing for retirement at a young age can be realized but also sound like making for the end of the life-span, but actually, it is about developing for own safety, as the life expectancy is showed to rise. No one can tell the exact dates or period how long an individual will exist, disability and sickness can occur, and the chronic cases are not adequately covered by health insurances, they require personal cash assets too. For maintaining own life, it is not only based on how much one's salary will rise by year, because people tend to spend more by year, as the price indices rise and a salary raise, usually brings higher spending in proportion. For an individual, as our profiles used in this thesis, the hardest things to understand is the time-value for money and the start of the savings, as financial literacy is not a common sense, planning forward doesn't have to be done in one day, it can be and likely should be assimilated to the moment of life. As the purpose of the sip is to make saving as easy as possible, automatic, and flexible.

For an average person with no experience and particular focus or knowledge in the financial markets or the fund investing, the presented systematic investment planning can be a good start for the investment's surface scratching. The SIP makes the investment easy, and the funds are mild and have a low-risk profile, which probably won't cause too much stress for the beginner. The importance with investment funds that are built with saving purposes is that they are progressive in the long-run, and for a beginner, the patients can be the trickiest thing to imagine or appreciate the unknown result, which is also unsure in addition. Allocating ones all resources for pension assets in one basket can sound too risky or pointless, but at least we can conclude that this type of investment can boost up the pension and increase it, which makes the personal savings enormously important.

### **Inflation impacts**

As inflation will occur, the presented results will not have the same purchase power as they have in our current situation. Therefore, the funds can be described more as value retainers, at least the funds with the allocation of 10% and 25% in equity. The balanced fund with equal allocation may be able to progress better, as its standard deviation shows. The highest gained amount with

the fixed expected returns can be achieved with the most senior risk fund, Nordea 75 – which is relevant, what it comes to return expectations and risk. The amount of the 2 550 544, 95€ sounds much better than the YEL provided pension payments. Converting that value into present value, it would correspond 1 003 846, 89€, and in case the pension would be paid from today that would be 4 064,16 € gross, which is almost 22 % more than the pay-outs that YEL would offer on the pension period. The calculation was performed based on the present value of the sum, but YEL does not inform if they include the inflation estimations in their pension schemes. Usually, there is a presence of allowance or a gap to increase the expected value.

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