

# A Retirement Plan Based on a Roth IRA

**Investment Retirement Account**

Bogleheads 3-Fund Portfolio

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# 1 Introduction

A simple 3-fund retirement plan by investing in a Roth IRA using after tax money received from employment or other sources. The plan uses a buy and hold investing strategy with periodic yearly contributions of \$6000.

## 2 Roth IRA

### 2.1 Requirements

The following apply to Roth IRAs:

- \$6000 maximum yearly investment amount for 2022
- The money invested can be deducted from the adjusted gross income for income tax purposes.
- To take advantage of the tax benefit for 2022, the \$6000 must be placed in the Roth IRA by the ITS filing deadline which is April 15, 2023
- The money cannot be withdrawn until age 59 ½
- If money is withdrawn before age 59 ½ there will be 10% federal penalty tax
- Withdrawals after age 59 ½ are not considered taxable income and no capital gain taxes apply

### 2.2 Where to Open a Roth IRA

Below is a list of institutions for opening the Roth IRA

1. M1 Finance - [www.m1finance.com](http://www.m1finance.com)
2. Vanguard - [www.vanguard.com](http://www.vanguard.com)
3. Fidelity - [www.fidelity.com](http://www.fidelity.com)
4. Acorn - [www.acorn.com](http://www.acorn.com)
5. Betterment - [www.betterment.com](http://www.betterment.com)

M1 finance is a good choice for young people planning for retirement because of the following:

- Simple
- No brokerage fees
- Large pool of investment options such as stocks, bonds, mutual funds and bond funds

## 2.3 What to Invest in – Portfolio and Diversification

For a 25 year old with 40 year investment horizon, the initial portfolio and diversification could be as follows:

- US Stocks - 75 percent
- International Stocks - 10 percent
- US Bonds - 15 percent

The above are the initial allocation which should be adjusted with age by increasing the bonds allocation and reducing the stock allocation.

For reallocation use the 110 rule which is as follows:

- Stock allocation - (110 – your age) percent
- Bond allocation - (100 - stock allocation) percent

## 3 Investment Choices – Bogleheads 3-Fund Portfolio

For investment choices, the Jack Bogle (founder of Vanguard) 3-Fund portfolio is an excellent and simple start. The portfolio would consist of the funds listed below along with management fees, number of stocks or bonds held by the fund and the average annual returns as of October 31, 2022.

1. Vanguard Total Stock Market ETF (VTI) - 75 percent
  - a. Management fees: 0.03%
  - b. Number of stocks: 4156

Figure 3-1. Average Returns of Vanguard Total Stock Market ETF (VTI)

	Month-end	3-Month total	YTD	1-yr	3-yr	5-yr	10-yr	Since inception 05/24/2001
VTI (Market price)	8.08%	-5.53%	-18.72%	-16.86%	9.66%	9.81%	12.40%	7.63%
VTI (NAV)	8.17%	-5.52%	-18.74%	-16.89%	9.67%	9.80%	12.41%	7.63%
Benchmark <sup>1</sup>	8.17%	-5.52%	-18.73%	-16.88%	9.69%	9.81%	12.42%	7.64%

Source: <https://investor.vanguard.com/investment-products/etfs/profile/vxus#performance-fees>

2. Vanguard Total International Stock ETF (VXUS) - 10 percent
  - a. Management fees: 0.08%
  - b. Number of stocks: 7776

**Figure 3-2. Average Returns of Vanguard Total International Stock ETF (VXUS)**

	Month-end	3-Month total	YTD	1-yr	3-yr	5-yr	10-yr	Since inception 01/26/2011
<b>VXUS (Market price)</b>	3.42%	-10.95%	-24.15%	-24.77%	-1.18%	-0.41%	3.60%	2.48%
<b>VXUS (NAV)</b>	3.41%	-10.73%	-24.26%	-24.64%	-1.14%	-0.39%	3.62%	2.48%
<b>Benchmark<sup>1</sup></b>	2.93%	-10.27%	-24.34%	-24.65%	-1.14%	-0.30%	3.67%	2.52%

Source: <https://investor.vanguard.com/investment-products/etfs/profile/vxus#performance-fees>

3. Vanguard Total Bond Market ETF (BND) - 15 percent
  - a. Management fees: 0.035%
  - b. Number of bonds: 10160

**Figure 3-3. Average Returns of Vanguard Total Bond Market ETF (BND)**

	Month-end	3-Month total	YTD	1-yr	3-yr	5-yr	10-yr	Since inception 04/03/2007
<b>BND (Market price)</b>	-1.22%	-8.03%	-15.54%	-15.60%	-3.74%	-0.51%	0.72%	2.67%
<b>BND (NAV)</b>	-1.29%	-8.04%	-15.69%	-15.73%	-3.77%	-0.53%	0.71%	2.67%
<b>Benchmark<sup>1</sup></b>	-1.27%	-8.05%	-15.74%	-15.69%	-3.73%	-0.50%	0.76%	2.73%

## 4 Future Value of Investment Portfolio

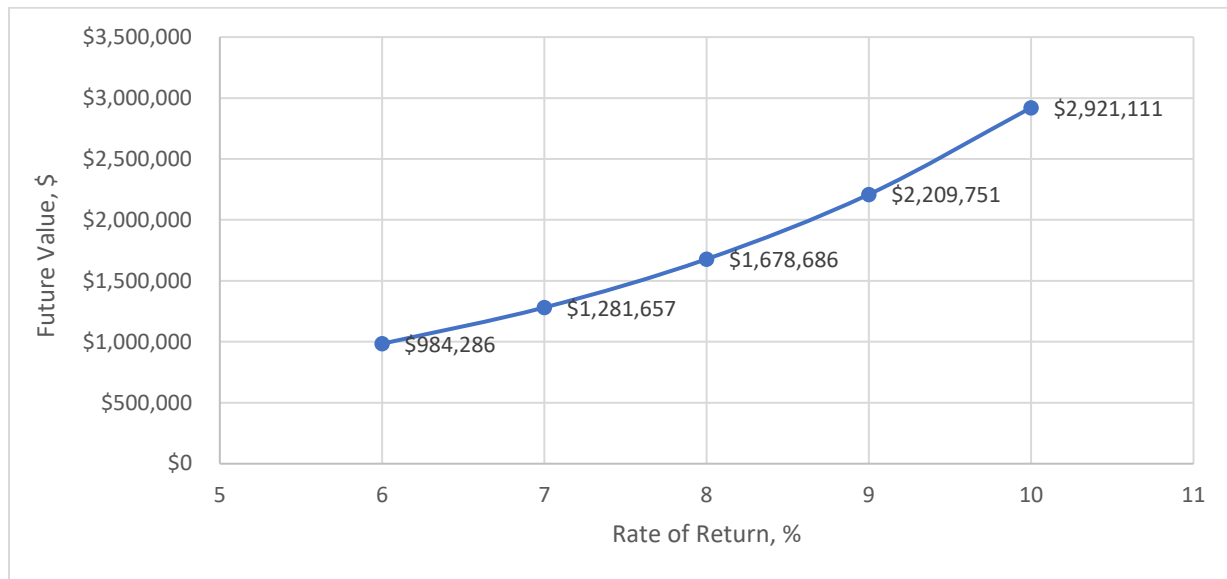
Table 4-1 shows the future value of the 3-fund portfolio over 40 years of investments with different rates of return with a yearly periodic investment of \$6,000 invested at the beginning of the year. Also shown are the interest earned and the present value of the investment. Returns are not guaranteed.

**Table 4-1. Future Value of 3-Fund Portfolio**

Description	6%	7%	8%	9%	10%
PV (Present Value)	\$95,694	\$85,590	\$70,353	\$76,353	\$64,541
N (Number of Years)	40	40	40	40	40
I/Y (Rate of Return)	6	7	8	9	10
PMT (Periodic Deposit)	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000
Starting Amount	\$0	\$0	\$0	\$0	\$0
Total Periodic Deposits	\$240,000	\$240,000	\$240,000	\$240,000	\$240,000
Total Interest	\$744,286	\$1,041,657	\$1,438,686	\$1,969,751	\$2,681,111
Future Value	\$984,286	\$1,281,657	\$1,678,686	\$2,209,751	\$2,921,111

Figure 4-1 shows the future value versus the rate of return. With a rate of return of 7%, the future value will be \$1.282 million with an annual investment of \$6000.

**Figure 4-1. Future Value After 40 Years Investing \$6000 per Year**



## 5 Conclusions

1. Start planning and investing as soon as possible.
2. The longer you wait the more you will have to contribute yearly.
3. Invest a minimum of 7% of your biweekly salary.
4. If you have a 401K plan, invest the minimum needed to get your full employer's match which is usually 4 to 6%. This is 100% return and cannot be made anywhere else.
5. In retirement, the withdrawal rate should be 4 percent of the total per year or else you will run the risk of running out of money. For example, if the portfolio is \$2 million, you should only withdraw \$80,000 yearly.
6. It is not guaranteed that social security benefits will be available in 40 years.
7. Social security benefits are and will not be enough to live on.
8. Interesting compounding is the 8<sup>th</sup> wonder of the world.
9. Happy investing.

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