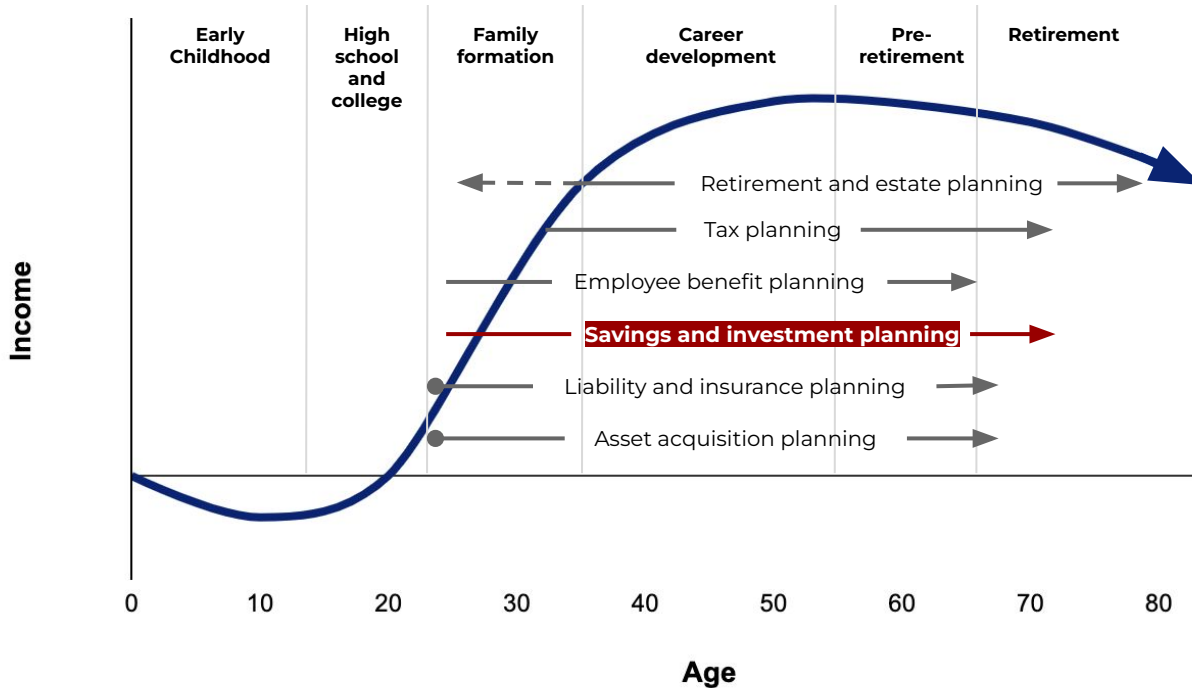# FinAll

Financial Education for All

By Aisyah Amatul Ghina

Why personal financial planning is important?

As income begins to increase, so does the importance of **savings and investment planning.**

Better savings and investment planning, **we can get through tough times** and **prosper in good times**.

Source: Gitman, 2019

2

FinAll - Bridging the Gap

Despite the historical evidence that **stock markets** generate **superior long-term returns** compared to other financial instruments, individual and household **stock market participation by individual and households remains low** in many European countries.

> Research shows that **financial literacy** plays a crucial role in determining **individual's stock market participation.**

Vision	Financial Education for All
Objective	Increase financial literacy in the stock market.
Country	Germany, France, Spain

Value of $100 invested at start of 2000

— Stocks — Government Bonds — Real Estate

Stock Market Participation

🇺🇸		**58%**
🇩🇪		**23%**
🇫🇷		**13%**
🇪🇸		**13%**
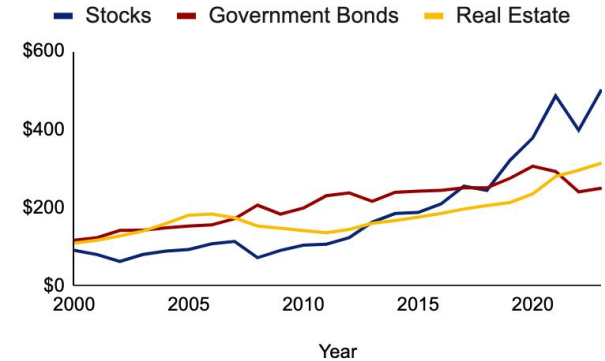
FinAll Platform Contents

Personal Finance

- Introductory content
- User profile screening
- Investment Allocation Recommendation

Stock Market Index

Country-specific index:
- Industries
- Market Capitalization
- Current Price
- Annual Return

Company Analysis

- Company Information
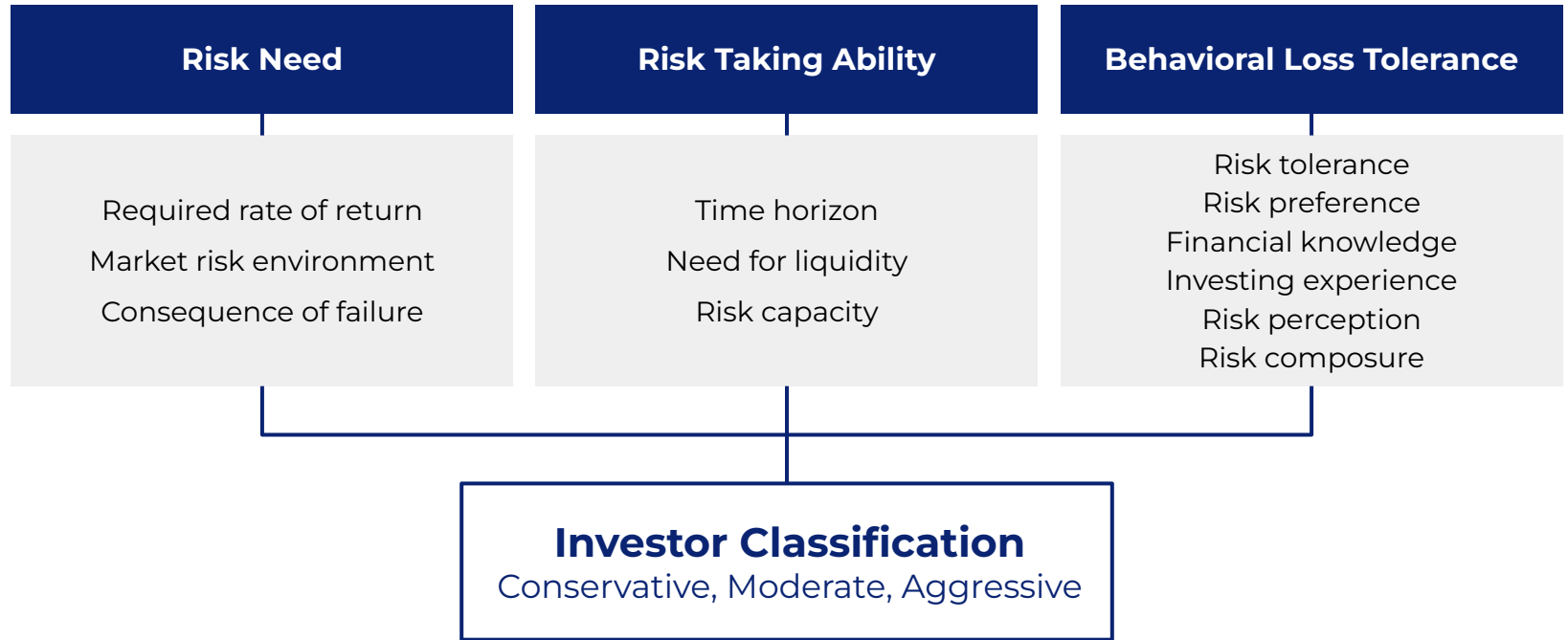- Fundamental Analysis
- Technical Analysis

Stock Price Prediction

Company-specific:
- ARIMA Model
- Best parameter tuning

Risk Profile

Three-factor model of investor risk profiling implementation

Risk Need	Risk Taking Ability	Behavioral Loss Tolerance
Required rate of return Market risk environment Consequence of failure	Time horizon Need for liquidity Risk capacity	Risk tolerance Risk preference Financial knowledge Investing experience Risk perception Risk composure

Investor Classification
Conservative, Moderate, Aggressive

Investment Allocation Recommendation

Based on the information provided, you are categorized as a **Moderate** investor.

Given your **moderate risk tolerance** and willingness to take on some risk for potential returns, we recommend **a balanced mix of stocks and bonds** in your investment portfolio.

The table below provides a general classification of investment instruments based on their risk levels:

Risk Level	Example of Investing Instruments	Description
Low	Government Bonds	Lower returns but are stable and less prone to volatility.
Moderate	Balanced mutual funds (bonds & stocks)	A balance of safety and growth.
High	Stocks	Potential for high returns but also high volatility and risk.

The **"100 - age rule"** is a popular guideline used in financial planning to roughly guide individuals determine an appropriate **asset allocation** between stocks (or equities) and bonds (or fixed-income investments) based on age. The rule suggests that you should subtract your age from 100 to determine the percentage of your investment portfolio that should be allocated to stocks, with the remaining portion allocated to bonds or other lower-risk assets.

Based on this rule, your investment portfolio may consists of **70% in stocks and 30% in bonds**.

Keep in mind, **before building your investment portfolio**, you should have **established an emergency fund** (typically in forms of basic savings) at least between **3-6 months of living expenses**.

Risk Profile Scoring (9-27):

- Conservative <= 13

- Moderate 14-22

- Aggressive > 22

User's Age

- Stocks : (100 - Age) %

- Bonds : (Age) %

Stock Market Index

The primary stock market index in France is **CAC 40 (Cotation Assistée en Continu)**. The CAC 40 is a benchmark index that represents the **40 largest publicly traded companies** listed on the **Euronext Paris stock exchange**.

The index is composed of 40 companies that are chosen based on their market capitalization, liquidity, and other factors. The companies span **various sectors**, including finance, technology, healthcare, consumer goods, and energy.

The CAC 40 is widely regarded as one of the **key indicator** of the **French economy**. A rising CAC 40 typically suggests investor confidence and economic growth, while a declining index may indicate economic challenges.

CAC 40 Performance Index
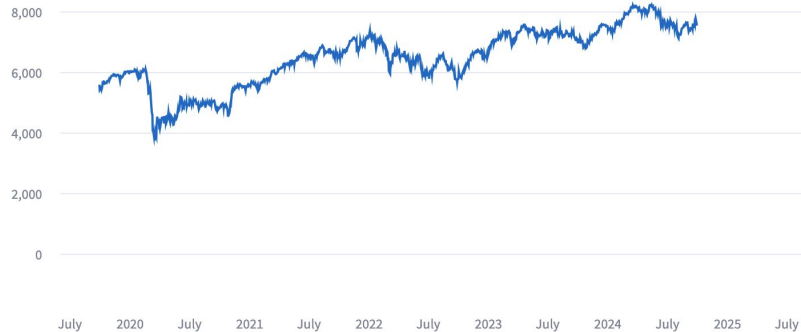
Country Specific Content

Here is the list of companies that make up the CAC 40 index along with the current value of **Market Capitalization**, **Price** and **Average Annual Return**.

Ticker	Company Name	Industry	Market Cap	Price	Avg. Annual Return (
MC.PA	LVMH Moët Hennessy - L	Luxury Goods	333,645,905,920	668.4	12.53
RMS.PA	Hermès International Sc	Luxury Goods	225,859,829,760	2154.0	29.53
OR.PA	L'Oréal S.A.	Household & Personal Products	210,440,667,136	394.3	11.94
TTE.PA	TotalEnergies SE	Oil & Gas Integrated	138,291,937,280	60.64	6.61
SU.PA	Schneider Electric S.E.	Specialty Industrial Machinery	133,137,965,056	236.8	25.46
SAN.PA	Sanofi	Drug Manufacturers—General	128,075,481,088	102.18	4.73
AIR.PA	Airbus SE	Aerospace & Defense	100,653,359,104	127.34	2.4
AI.PA	L'Air Liquide S.A.	Specialty Chemicals	98,557,042,688	171.0	12.22
SAF.PA	Safran SA	Aerospace & Defense	87,848,722,432	209.8	10.79
CS.PA	AXA SA	Insurance—Diversified	75,162,198,016	34.44	12.14

Company Analysis

Company Analysis

Country

France ▾

Select one of the companies in the list to be analyzed:

Danone S.A. ▾

Submit

Company Information

Company's Name: Danone S.A.

Company's Ticker: BN.PA

Industry: Packaged Foods

Address: 17, Boulevard Haussmann, Paris

Number of Employees: 88843

Fundamental Analysis

Fundamental analysis involves evaluating a company's **financial statements** (ie., Income Statement, Balance Sheet, Cash Flow), economic factors, and overall business health to determine its **intrinsic value**. The goal is to **identify whether a stock is overvalued or undervalued** based on its fundamentals, and then make a **long-term investment** decision accordingly.

Income Statement	2023	2022	2021	2020
Total Revenue	27,619,000,000	27,661,000,000	24,281,000,000	23,620,000,000
Gross Profit	13,084,000,000	12,739,000,000	11,521,000,000	11,353,000,000
Operating Income	3,489,000,000	3,251,000,000	3,301,000,000	3,343,000,000
Net Income	881,000,000	959,000,000	1,924,000,000	1,956,000,000
Diluted EPS	1.36	1.48	2.94	2.99

Technical Analysis

Technical analysis, on the other hand, involves analyzing **historical price** data and trading **volume** to predict future stock movements. It focuses on price patterns and market trends rather than the underlying value of the company. Typically used by traders for **short-term** trades but can also be applied to medium-term and long-term investments.

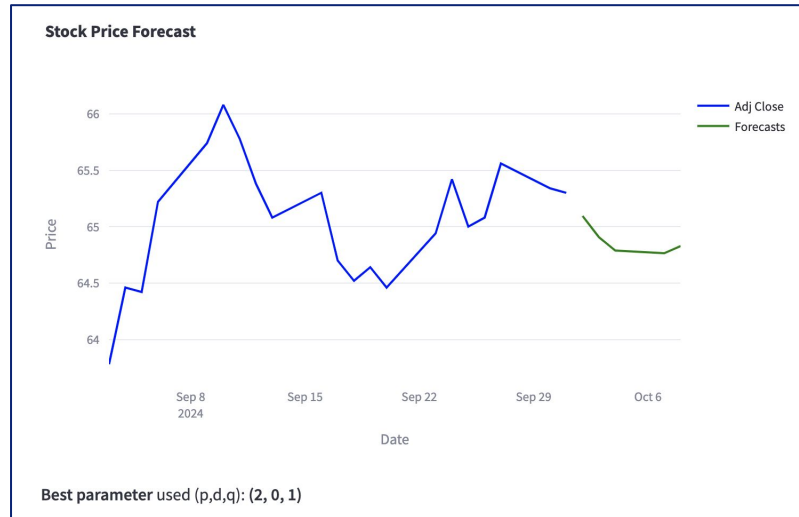The two graphs below show the **closing price** and **trading volume** of BN.PA
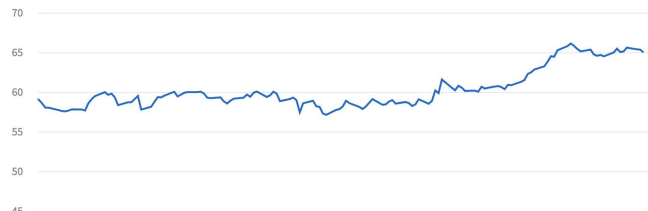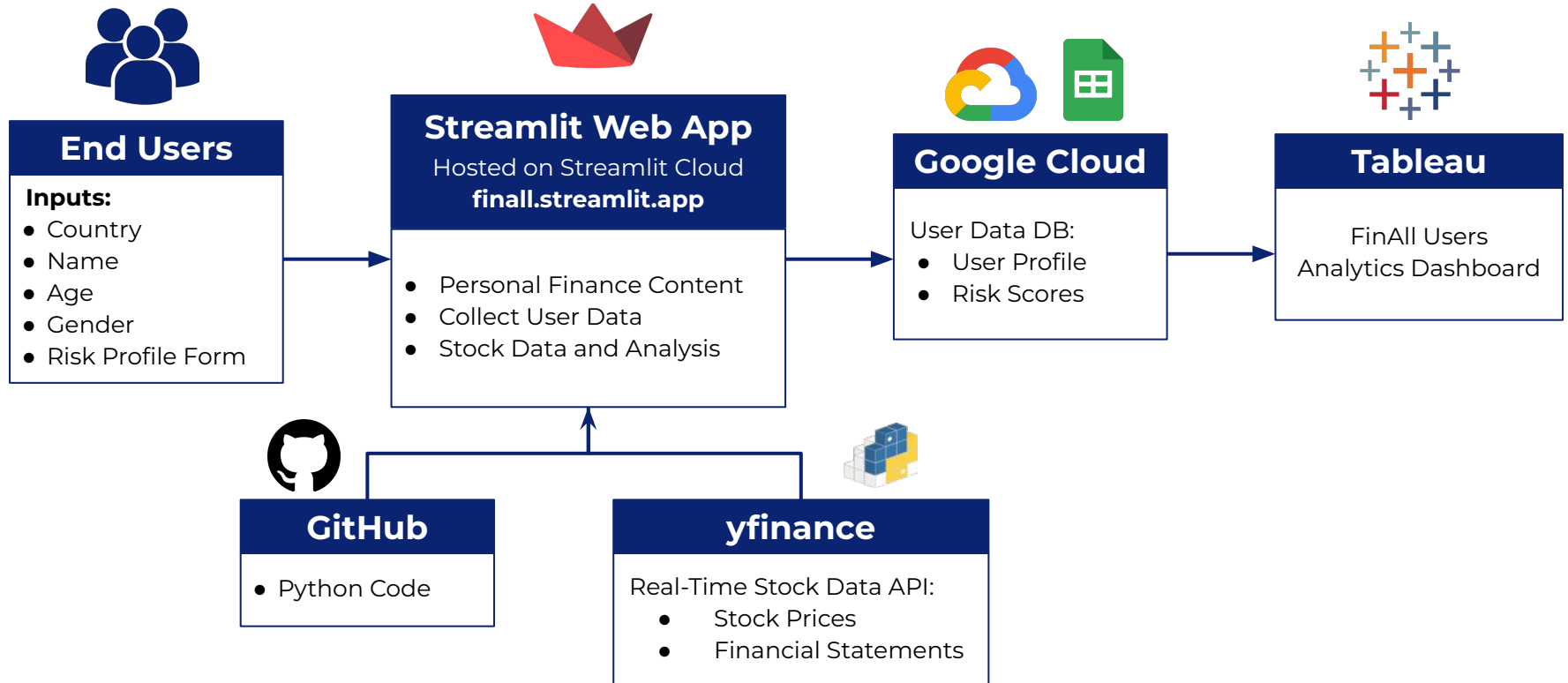
Stock Price Prediction

In order to forecast a particular individual stock price, **ARIMA** (Auto Regressive Integrated Moving Average) model was employed.

$$y'_t = c + \phi_1 y'_{t-1} + \ldots + \phi_p y'_{t-\boxed{p}} + \epsilon_t + \theta_1 \epsilon_1 + \ldots + \theta_q \epsilon_{t-\boxed{q}}$$

- **Model parameter:** (p,d,q)
- **Best parameter tuning:** Iteration
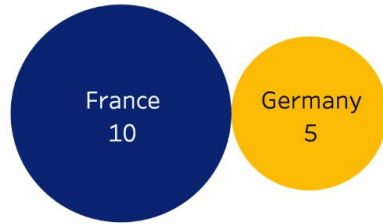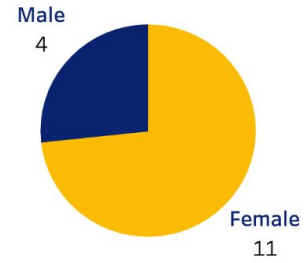- **Model Evaluation:** Akaike Information Criterion (AIC)

Stock Price Forecast

Best parameter used (p,d,q): **(2, 0, 1)**

FinAll Architecture Diagram

End Users

Inputs:
- Country
- Name
- Age
- Gender
- Risk Profile Form

Streamlit Web App
Hosted on Streamlit Cloud
finall.streamlit.app

- Personal Finance Content
- Collect User Data
- Stock Data and Analysis

Google Cloud

User Data DB:
- User Profile
- Risk Scores

Tableau

FinAll Users
Analytics Dashboard

GitHub

- Python Code

yfinance

Real-Time Stock Data API:
- Stock Prices
- Financial Statements

FinAll Analytics Dashboard

Country

France 10

Germany 5

Gender

Male 4

Female 11

Age Distribution

Risk Profile

Aggressive 2

Conservative 3

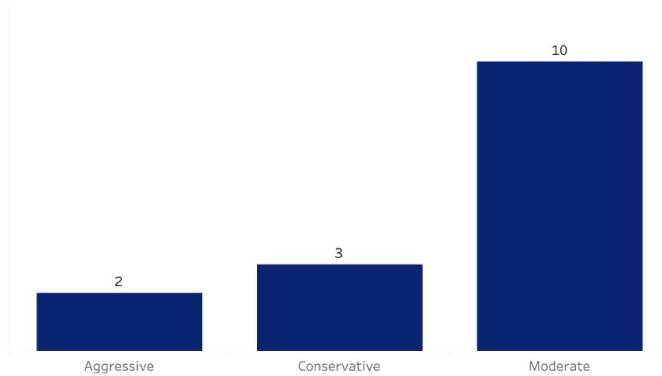Moderate 10
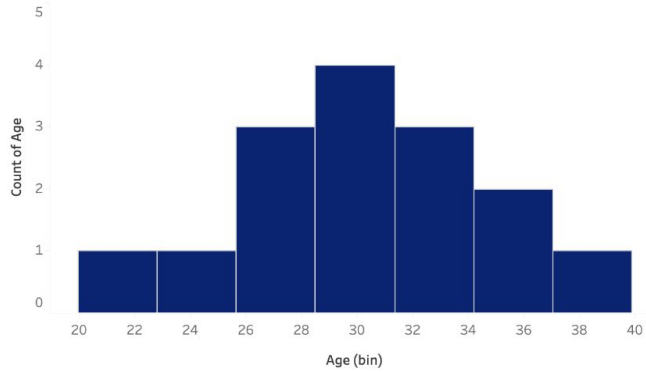
DEMO

Challenges

Understanding streamlit st.session_state

Forecasting Model

Lesson Learned

Connecting all the resources to work together (streamlit, google cloud API, github, tableau)

FinAll v.2.0

- Company analysis: compare two companies side by side
- Include more models option in stock price analysis
- Calculate investment allocation recommendation using more complex model
- Include bonds market data, and other financial instruments.
- And **many more …**

Thank You

Aisyah Amatul Ghina