



# The Technologized Investor: The Road to AIDA

---

# THE TECHNOLOGIZED INVESTOR



*Innovation through  
Reorientation*

Ashby H.B. Monk and Dane Rook

**"BY FAR THE BEST BOOK ABOUT INVESTING EVER WRITTEN."**

**—WARREN E. BUFFETT, FROM THE PREFACE**

# THE INTELLIGENT INVESTOR

THE DEFINITIVE BOOK ON VALUE INVESTING

**THIRD EDITION**

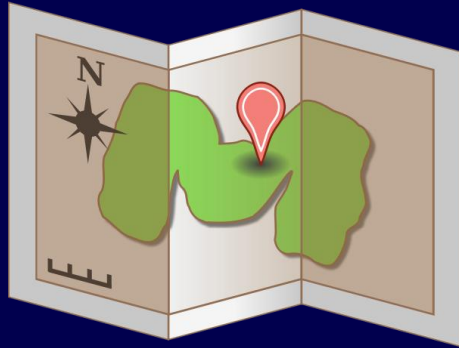
**BENJAMIN GRAHAM**

**UPDATED WITH NEW COMMENTARY  
BY JASON ZWEIG**

# Innovation - AAA Strategy

- **Automation (RPA) :**
  - Processes, Reports, Dashboards
  - Dashboards, BI Applications
  - Cloud Computing
  - Remote and Contingency Work Analytics
- **Analytics:**
  - Repository Financial Information and Research. Quantamental Approach (Systematic Strategies, Factors, ESG)
  - Advanced Analytics - Big Data
  - Data Lakes
  - Model Management
- **AI (Artificial Intelligence)**
  - AI Forecasting
  - Alternative Data
  - Deep Learning
  - Sentiment Analysis
  - Auto ML
  - Cloud AI Services





MAP

## GPS



- More **information**
- Better **decision** making
- Greater sense of **location**
- Takes **preferences** into account
- Can be constantly **updated**





**The entire global  
financial system**

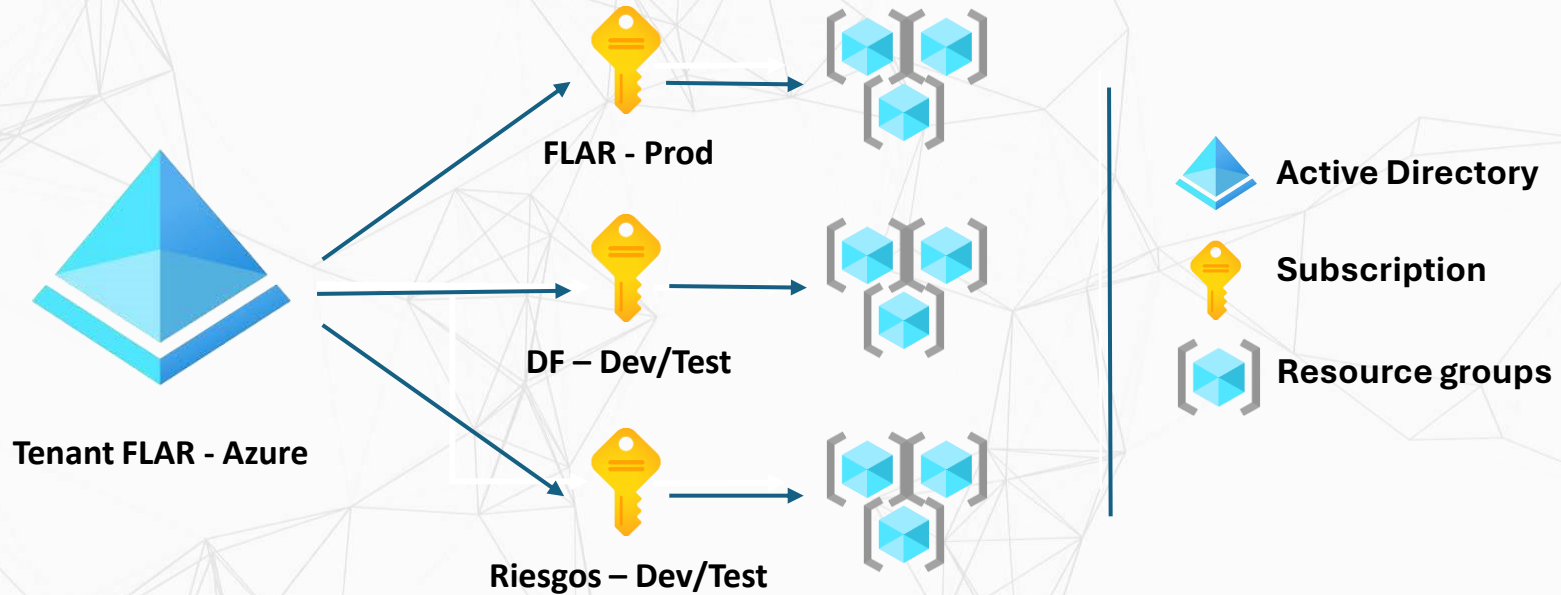
**Excel**



**Excel 97-2003  
files still working**

# **AIDA (Advanced Analytics, Intelligence and Data) 🧠**

# FLAR subscription structure in Azure



# Sandbox

- It is a controlled and safe environment where you can accomplish:
- **1) Capacity Building:**
  - Receive consulting and assistance to integrate and implement your own solutions.
- **2) Proofs of Concept (PoC).**
  - Access our tools and technology to experiment.
- **3) Building new applications:**
  - Collaborate with us to innovate and create solutions together.
  - All this without affecting the main system or environment.





# LEGO®



## Microsoft Azure



Azure Blob Storage



Azure Repos



Azure Search AI



Azure Container App



Visual Studio Code



Azure Open AI



Python



Microsoft Entra ID



Docker



Streamlit



Azure Keyvault



Azure Cosmos DB

# Before

- 14 Excel files that depended on each other.
- Formulas with references to external files and/or without the necessary traceability.
- Static visualizations, graphs did not complement or facilitate the subsequent data analysis process.

Column-by-column search to be able to track the origin of the information.

=VLOOKUP(\$A12;'https://flarmy.sharepoint.com/personalflar\_net/Documents/Archivos de chat de Microsoft Teams/[Retornos\_Query.xlsm]Acum'!\$A:\$M;COLUMNA()-1;1)/1000000

|   |              |                   |                   |                    |               |                    |
|---|--------------|-------------------|-------------------|--------------------|---------------|--------------------|
| =S:\InfoCore\Aplicaciones\Modelos Información\Retornos\[Diario - Retorno Portafolios.xlsm]Retorno His |              |                   |                   |                    |               |                    |
| N   | O            | P                 | Q                 | R                  | S             | V                  |
| 14  | 15           | 16                | 17                | 18                 | 19            | 22                 |
| Retorno del PAI   |              |                   |                   |                    |               |                    |
| ROA PAI   |              |                   |                   |                    |               |                    |
| Sin Cobertura Con Cobertura Año corrido   |              |                   |                   |                    |               |                    |
| Trienal   | (anualizado) |                   |                   |                    |               |                    |
| 2,99%   | 4,59%        | 1,51%             |                   | 0,37%              | 0,37%         | 3,40%              |
| 3,01%   | 4,72%        | 1,55%             |                   | 0,18%              | 0,18%         | 3,59%              |
| 3,16%   | 5,17%        | 1,69%             |                   | 0,41%              | 0,41%         | 4,01%              |
| 3,19%   | 5,16%        | 1,69%             |                   | 0,07%              | 0,07%         | 4,08%              |
| 3,35%   | 5,43%        | 1,78%             |                   | 0,27%              | 0,27%         | 4,36%              |
| 3,22%   | 5,75%        | 1,88%             |                   | 0,11%              | 0,11%         | 4,48%              |
| A   | B            | C                 | D                 | E                  | F             | G                  |
| Retorno Anualizado  |              |                   |                   |                    |               |                    |
| Factor  | Dot com      | Crisis Financiera | Crisis Eurozona I | Crisis Eurozona II | Taper tantrum | Crisis commodities |
| Yield   | 0.14%        | 0.13%             | 0.14%             | 0.11%              | 0.32%         | 0.36%              |
| D1  | 0.10%        | 0.16%             | 0.19%             | 0.15%              | -0.19%        | -0.11%             |
| Cuna [7-10] - [1-3]   | 0.32%        | 0.25%             | 0.28%             | 0.52%              | -0.82%        | 0.47%              |
| Spread SSA  | 0.16%        | -0.11%            | 0.19%             | 0.22%              | 0.23%         | -0.01%             |
| Spread Corp.  | 0.31%        | -0.63%            | 0.47%             | 0.56%              | 0.55%         | 0.30%              |
| Spread MBS  | 0.20%        | 0.28%             | -1.02%            | 0.22%              | 0.29%         | 0.13%              |
| BEI 5 años  | -0.28%       | -0.78%            | 1.33%             | 0.23%              | 0.00%         | -0.52%             |
| BM  | Dot com      | Crisis Financiera | Crisis Eurozona I | Crisis Eurozona II | Taper tantrum | Crisis commodities |
| Yield   | 0.13%        | 0.12%             | 0.13%             | 0.10%              | 0.30%         | 0.34%              |
| D1  | 0.05%        | 0.08%             | 0.10%             | 0.08%              | -0.10%        | -0.06%             |
| Cuna [7-10] - [1-3]   | 0.05%        | 0.04%             | 0.04%             | 0.07%              | -0.12%        | 0.07%              |
| Spread SSA  | -0.03%       | 0.01%             | -0.01%            | -0.03%             | -0.01%        | 0.00%              |
| Spread Corp.  | 0.07%        | -0.08%            | 0.05%             | 0.07%              | 0.07%         | 0.04%              |
| Spread MBS  | 0.02%        | 0.03%             | -0.11%            | 0.02%              | 0.03%         | 0.01%              |
| BEI 5 años  | 0.00%        | 0.00%             | 0.00%             | 0.00%              | 0.00%         | 0.00%              |
| Ret.  | 0.31%        | 0.20%             | 0.21%             | 0.34%              | 0.17%         | 0.40%              |
| Prop. TAA (Abs)   | Dot com      | Crisis Financiera | Crisis Eurozona I | Crisis Eurozona II | Taper tantrum | Crisis commodities |
| Yield   | 0.13%        | 0.12%             | 0.13%             | 0.10%              | 0.29%         | 0.32%              |
| D1  | 0.04%        | 0.07%             | 0.09%             | 0.07%              | -0.09%        | -0.05%             |
| Cuna [7-10] - [1-3]   | 0.03%        | 0.03%             | 0.03%             | 0.06%              | -0.09%        | 0.05%              |
| Spread SSA  | -0.03%       | 0.01%             | -0.02%            | -0.02%             | -0.02%        | 0.00%              |
| Spread Corp.  | 0.06%        | -0.08%            | 0.06%             | 0.07%              | 0.07%         | 0.04%              |
| Spread MBS  | 0.02%        | 0.03%             | -0.10%            | 0.02%              | 0.03%         | 0.01%              |
| BEI 5 años  | -0.01%       | -0.01%            | 0.03%             | 0.00%              | 0.00%         | -0.01%             |
| Ret.  | 0.27%        | 0.16%             | 0.21%             | 0.30%              | 0.19%         | 0.36%              |
| Prop. TAA (Rel)   | Dot com      | Crisis Financiera | Crisis Eurozona I | Crisis Eurozona II | Taper tantrum | Crisis commodities |
| Yield   | -0.01%       | 0.00%             | -0.01%            | 0.00%              | -0.01%        | -0.01%             |
| D1  | -0.01%       | -0.01%            | -0.02%            | -0.01%             | 0.02%         | 0.01%              |
| Cuna [7-10] - [1-3]   | -0.01%       | -0.01%            | -0.02%            | -0.01%             | 0.03%         | -0.02%             |
| Spread SSA  | 0.00%        | 0.00%             | -0.01%            | -0.01%             | -0.01%        | 0.00%              |
| Spread Corp.  | 0.00%        | 0.00%             | -0.01%            | -0.01%             | -0.01%        | 0.00%              |
| Spread MBS  | 0.00%        | 0.00%             | -0.01%            | -0.01%             | -0.01%        | 0.00%              |
| BEI 5 años  | 0.00%        | 0.00%             | -0.01%            | -0.01%             | -0.01%        | 0.00%              |
| Ret.  | 0.00%        | 0.00%             | -0.01%            | -0.01%             | -0.01%        | 0.00%              |

# Now: Jupyter Notebooks

- There is a project in the cloud where all the material necessary for the process is located.
- Formulas with support.
- Visualization of information in dynamic graphs, customizable and easier to share.

Microsoft Azure databricks Q S. CTRL + P AssetAllocation-workspace mpicon@flar.net

2 TAA\_V2 Python File Edit View Run Help Run all AIDA AA Schedule Share

Day: 30 Month: 9 Year: 2022

Cmd 27

### Sensibilities estimation

Here we assume that the asset returns can be defined as a linear combination of factor returns:

$$R_{act_j} = \sum_{i=1}^n \beta_i \cdot R_{fact_i}$$

Where

$$\beta_i$$

are calculated via OLS or GLS

Cmd 28

### Correlation matrix

Escenarios de retorno de factores

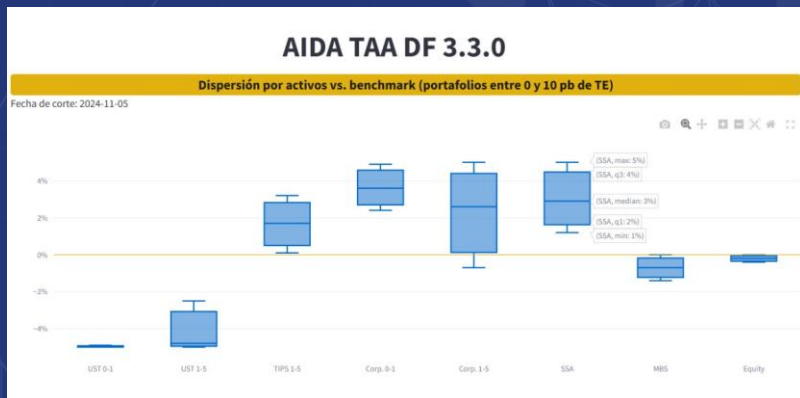
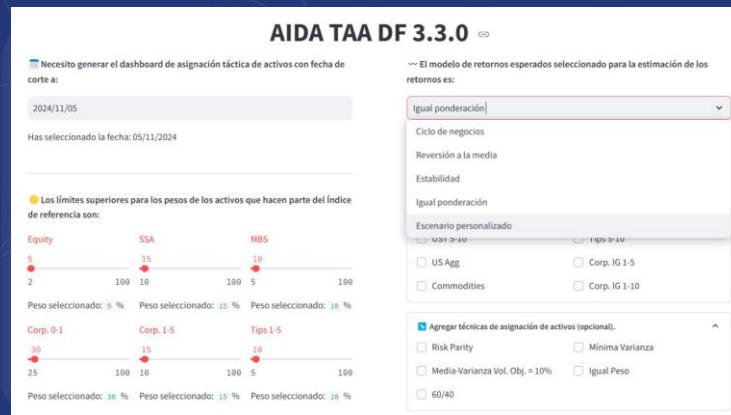
● Estabilidad ● Retornos Combinados ● Inversión

|                     | RT     | D1      | D2      | SSA    | Corp   | MBS    |
|---------------------|--------|---------|---------|--------|--------|--------|
| Inversión           | 4.29 % | -0.35 % | -1.56 % | 0.37 % | 1.02 % | 0.69 % |
| Retornos Combinados | 4.48 % | 0.19 %  | 1.57 %  | 0.38 % | 0.93 % | 0.37 % |
| Estabilidad         | 4.33 % | 0.00 %  | 1.59 %  | 0.22 % | 0.84 % | 0.64 % |

Correlation matrix visualization showing the relationship between different factors.

# Now: Web Application

- Centralized and efficient access: Everything available in one place to facilitate interaction.
- Optimized flow: Reduced steps and high customization to suit user needs.
- Dynamic visualization: Interactive tables that improve data analysis and understanding.
- Advanced simulations: Tools that allow simulations with a high degree of complexity.



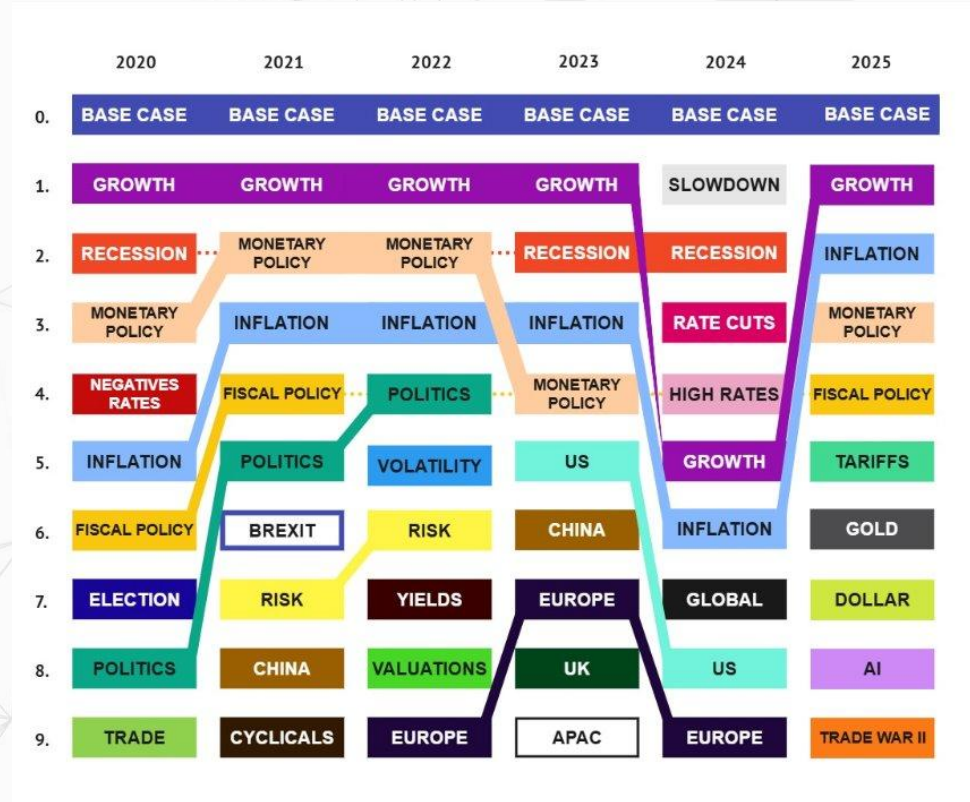


# Reporte Bloomberg

**Here's (Almost)  
Everything Wall  
Street Expects  
in 2025**



# Reporte Bloomberg



# Methodology

Forget all your previous instructions. Pretend you are a financial expert. You are a financial expert with stock recommendation experience. Answer “YES” if good news, “NO” if bad news, or “UNKNOWN” if uncertain in the first line. Then elaborate with one short and concise sentence on the next line. Is this headline good or bad for the stock price of `_company_name_` in the `_term_` term?

Headline: `_headline_`

**Fuente:** Lopez-Lira, A., & Tang, Y. (2023). Can chatgpt forecast stock price movements? return predictability and large language models. arXiv preprint arXiv:2304.07619.



## Word Cloud (2022)





## Word Cloud (2023)



[illegible]

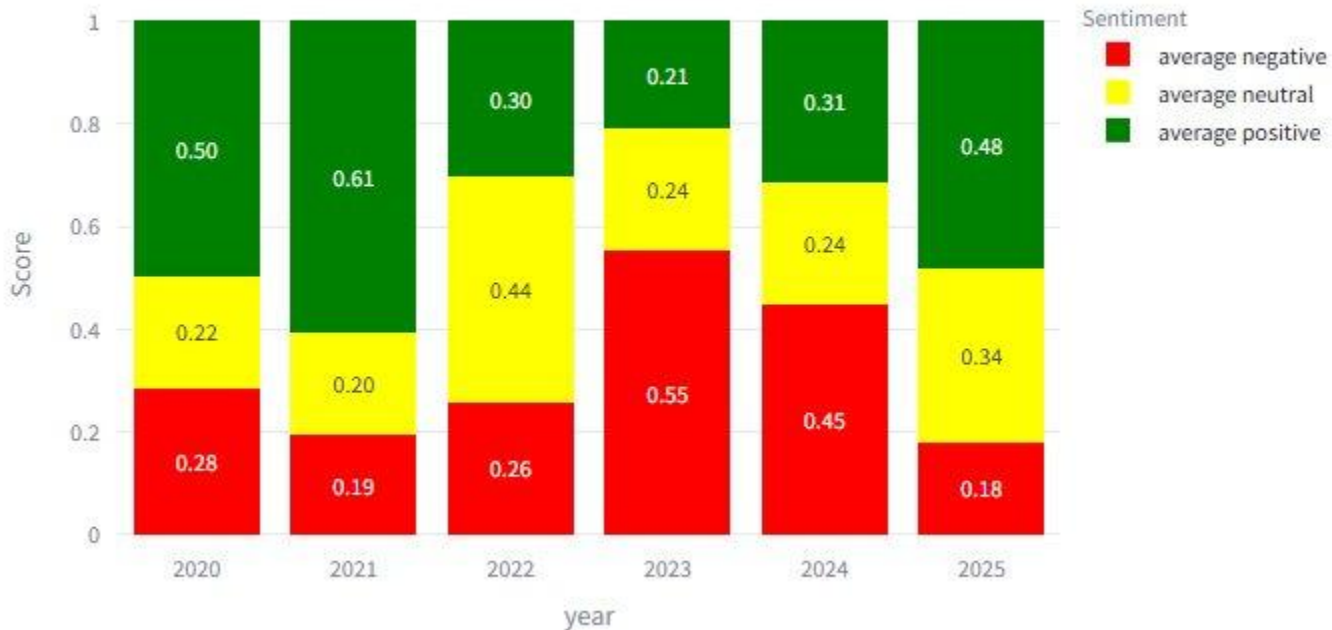


## Word Cloud (2025)



# Análisis de Sentimiento Caso Base

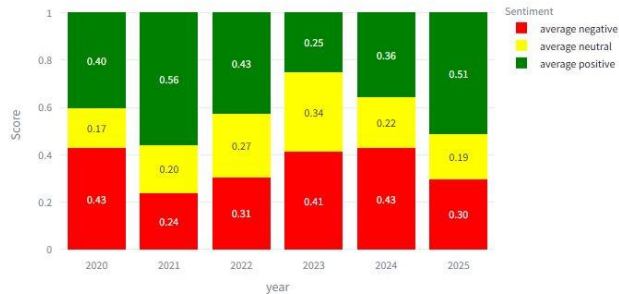
BASE CASE by Sentiment and Year



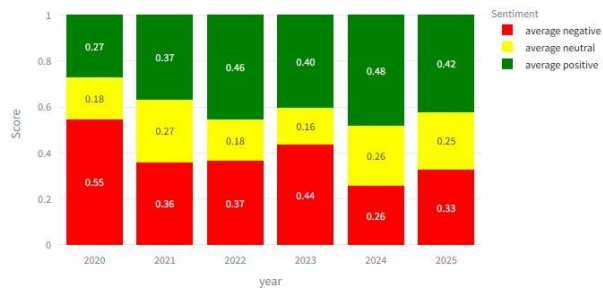


# Análisis de Sentimiento Temas

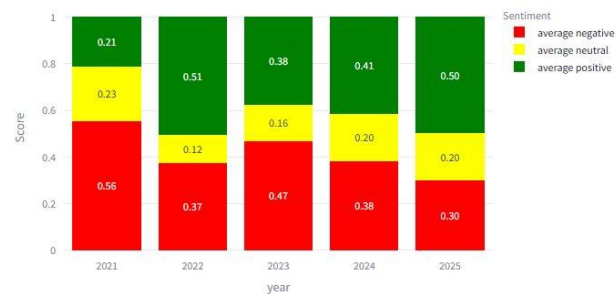
GROWTH by Sentiment and Year



INFLATION by Sentiment and Year

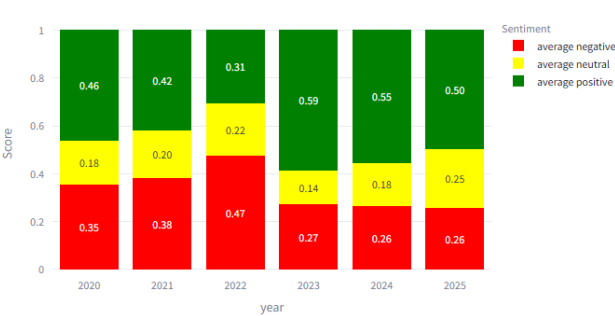


DOLLAR by Sentiment and Year



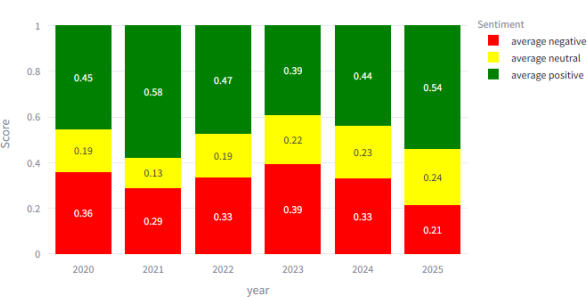
# Análisis de Sentimiento Activos

BONDS by Sentiment and Year



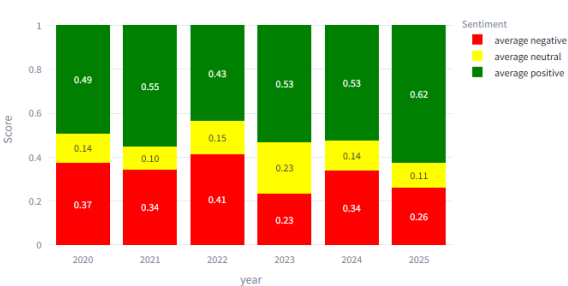
| id   | Bonds | Ranking |
|------|-------|---------|
| 2020 | 8%    | 1       |
| 2021 | -2%   | 4       |
| 2022 | -13%  | 5       |
| 2023 | 6%    | 2       |
| 2024 | 1%    | 3       |

STOCKS by Sentiment and Year



| Año  | Stocks | Ranking |
|------|--------|---------|
| 2020 | 16%    | 5       |
| 2021 | 27%    | 1       |
| 2022 | -19%   | 4       |
| 2023 | 24%    | 2       |
| 2024 | 23%    | 3       |

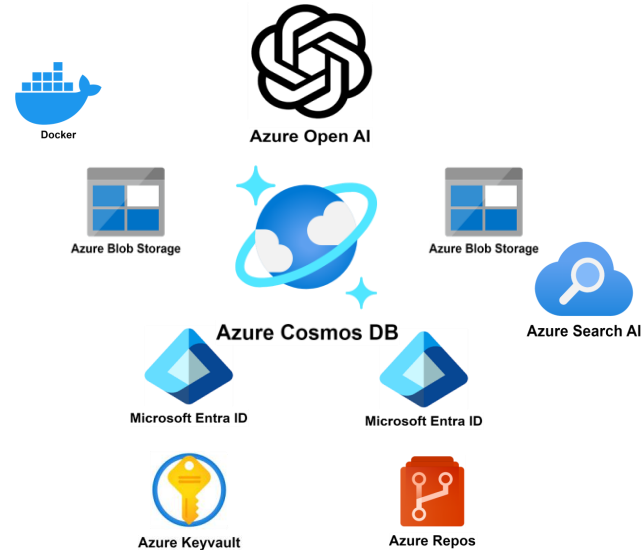
CREDIT by Sentiment and Year



| Año  | Spread | Ranking |
|------|--------|---------|
| 2020 | 2      | 4       |
| 2021 | -5     | 3       |
| 2022 | 34     | 5       |
| 2023 | -28    | 1       |
| 2024 | -16    | 2       |

# ¿What is RALF Gen AI App?

It is a personal productivity tool powered by artificial intelligence, designed to assist in searching for and consulting information of interest.





Crea una ilustración de dibujos animados de mí...



Qué es la nostalgia para un niño



Mensaje para invitar vecinos a casa



Comandos Python para automatizar



Envía un mensaje a ChatGPT



RalFR3 1.1.0

Juan Jesus Ramirez

Asistentes

Bases de datos

Administrar conversaciones

Ingrese un nuevo nombre

Crear nueva

Borrar actual

Logout

Base de datos: Documentos FLAR

Asistente: Analista de Investigación FLAR

Conversación: Historia del FLAR

Datos mas relevantes del FLAR desde 2020 hasta 2023, citando cada memoria

Aquí tienes un resumen de los datos más relevantes del Fondo Latinoamericano de Reservas (FLAR) entre 2020 y 2023, con las respectivas citas de sus memorias anuales:

2020

- Fortalecimiento Institucional:** El FLAR impulsó la relevancia regional mediante la implementación de un plan estratégico que subrayó su objetivo de contribuir a la estabilidad macroeconómica de la región[0].
- Adaptación a la Pandemia:** La institución adaptó su operativa a un entorno virtual, ampliando la difusión de eventos y promoviendo diálogos en línea, como la Conferencia de Estudios Económicos[0].

2021

- Revisión Estratégica:** Se actualizó el plan estratégico 2021-2023 debido a la pandemia y cambios en tendencias globales; se enfatizó el objetivo de ser un fondo de reservas relevante para la región[2].
- Ampliación de Membresía:** Se logró la vinculación del Banco Central de Chile como nuevo miembro del FLAR, reforzando el compromiso institucional con la estabilidad económica regional[3][2].

2022

Describe tu pregunta aquí...

RalFR3 1.1.0

Juan Jesus Ramirez

Asistentes

Bases de datos

Administrar conversaciones

Ingrese un nuevo nombre

Crear nueva

Borrar actual

Logout

Base de datos: Documentos FLAR

Asistente: Analista de Investigación FLAR

Conversación: Historia del FLAR

Datos mas relevantes del FLAR desde 2020 hasta 2023, citando cada memoria

Aquí tienes un resumen de los datos más relevantes del Fondo Latinoamericano de Reservas (FLAR) entre 2020 y 2023, con las respectivas citas de sus memorias anuales:

2020

- Fortalecimiento Institucional:** El FLAR impulsó la relevancia regional mediante la implementación de un plan estratégico que subrayó su objetivo de contribuir a la estabilidad macroeconómica de la región[0].
- Adaptación a la Pandemia:** La institución adaptó su operativa a un entorno virtual, ampliando la difusión de eventos y promoviendo diálogos en línea, como la Conferencia de Estudios Económicos[0].

2021

- Revisión Estratégica:** Se actualizó el plan estratégico 2021-2023 debido a la pandemia y cambios en tendencias globales; se enfatizó el objetivo de ser un fondo de reservas relevante para la región[2].
- Ampliación de Membresía:** Se logró la vinculación del Banco Central de Chile como nuevo miembro del FLAR, reforzando el compromiso institucional con la estabilidad económica regional[3][2].

2022

Describe tu pregunta aquí...

RalFR3 1.1.0

Juan Jesus Ramirez

Asistentes

Bases de datos

Administrar conversaciones

Ingrese un nuevo nombre

Crear nueva

Borrar actual

Logout

Base de datos: Documentos FLAR

Asistente: Analista de Investigación FLAR

Conversación: Historia del FLAR

Datos mas relevantes del FLAR desde 2020 hasta 2023, citando cada memoria

Aquí tienes un resumen de los datos más relevantes del Fondo Latinoamericano de Reservas (FLAR) entre 2020 y 2023, con las respectivas citas de sus memorias anuales:

2020

- Fortalecimiento Institucional:** El FLAR impulsó la relevancia regional mediante la implementación de un plan estratégico que subrayó su objetivo de contribuir a la estabilidad macroeconómica de la región[0].
- Adaptación a la Pandemia:** La institución adaptó su operativa a un entorno virtual, ampliando la difusión de eventos y promoviendo diálogos en línea, como la Conferencia de Estudios Económicos[0].

2021

- Revisión Estratégica:** Se actualizó el plan estratégico 2021-2023 debido a la pandemia y cambios en tendencias globales; se enfatizó el objetivo de ser un fondo de reservas relevante para la región[2].
- Ampliación de Membresía:** Se logró la vinculación del Banco Central de Chile como nuevo miembro del FLAR, reforzando el compromiso institucional con la estabilidad económica regional[3][2].

2022

Describe tu pregunta aquí...



# RALF – Foro Secular



Los **agentes de inteligencia artificial** están diseñados para realizar tareas específicas, responder preguntas y automatizar procesos para los usuarios. Estos agentes varían ampliamente en complejidad. Van desde bots de chat simples, hasta asistentes avanzados de inteligencia artificial en forma de sistemas digitales o robóticos que pueden ejecutar flujos de trabajo complejos de forma autónoma. (Microsoft)

RALF - Secular Forum

# RALF – Foro Secular (AI Agent)

agent\_a ▾

Assistants ▾

Memory

Interrupts

\_\_start\_\_

assistant

tools

\_\_end\_\_

Input

Configurable

Submit

Thread c3d75317-081d-4d3a-b... hace 19 segundos ▾

Pretty JSON

Add To Dataset

+

assistant

search\_information\_on\_single\_file ID

user\_inputinflation outlook

file\_nameBNP Paribas - The Investment Outlook for 2025.pdf

search\_information\_on\_single\_file ID

user\_inputinflation outlook

file\_nameGoldman Sachs - Asset Management Outlook 2025.pdf

hace 1 minuto • View state • Re-run from here

tools

Tool ▾

search\_information\_on\_single\_file

The inflation outlook for the coming years is shaped by various factors and expectations, as highlighted in the document titled "The Investment Outlook for 2025" from BNP Paribas. Here are

OUTPUT

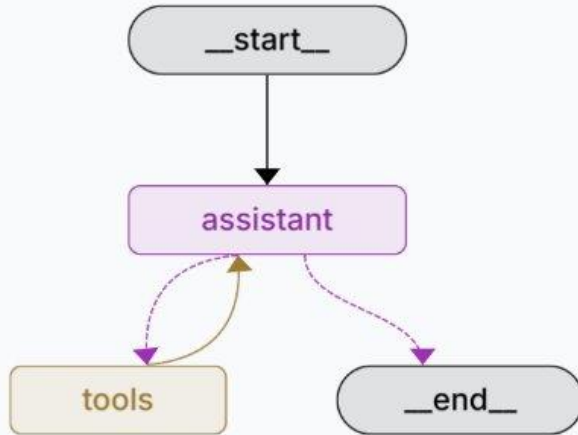
# RALF – Foro Secular (AI Agent)

agent\_a ▾

Assistants ▾


Memory


 Interrupts



Input



 Configurable

 Submit

Thread c3d75317-081d-4d3a-b5b9-bb8077292064 hace 5 minutos ▾

Pretty

JSON

 Add To Dataset



5. **Geopolitical Influences**: The geopolitical landscape and the specifics of domestic policies under new administrations, particularly in the US, will significantly impact economic stability and inflation dynamics[6][7].

In summary, while there is optimism about managing inflation and achieving economic growth, uncertainties around geopolitical events, consumer behavior, and the potential for policy changes loom large over the forecast. These factors will play crucial roles in shaping the inflation landscape in the coming years.

[0] BNP Paribas - The Investment Outlook for 2025.pdf

[1] BNP Paribas - The Investment Outlook for 2025.pdf

[2] BNP Paribas - The Investment Outlook for 2025.pdf

[3] BNP Paribas - The Investment Outlook for 2025.pdf


[4] BNP Paribas - The Investment Outlook for 2025.pdf

[5] BNP Paribas - The Investment Outlook for 2025.pdf

[6] BNP Paribas - The Investment Outlook for 2025.pdf

[7] BNP Paribas - The Investment Outlook for 2025.pdf

Tool ▾

 search\_information\_on\_single\_file

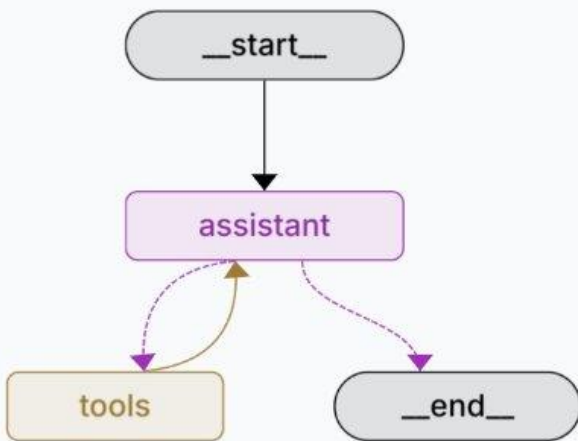
OUTPUT





# RALF – Foro Secular (AI Agent)

agent\_a ▾ Assistants ▾ Memory ❸ Interrupts



Input

⚙️ Configurable

▶ Submit

Thread c3d75317-081d-4d3a-b5b9-bb8077292064 hace 3 minutos ▾

Pretty

JSON

📄 Add To Dataset

+

[6] Goldman Sachs - Asset Management Outlook 2025.pdf

[7] Goldman Sachs - Asset Management Outlook 2025.pdf

[8] Goldman Sachs - Asset Management Outlook 2025.pdf

[9] Goldman Sachs - Asset Management Outlook 2025.pdf

◆ hace 3 minutos • View state • Re-run from here

Ⓐ assistant

Here is the inflation outlook for 2025 according to **Goldman Sachs** and **BNP Paribas**:

| Aspect                   | BNP Paribas  | Goldman Sachs |
|--------------------------|--|---------------|
| General Outlook          | Easing of inflationary pressures, with a transition towards stable inflation rates. Expectation of a "soft landing" for the US economy, with inflation nearing the Fed's target of 2%.                               |               |
| Economic Growth          | Anticipates positive economic growth supported by low unemployment rates. Resilience in the US economy, with continued rate cuts to support activity as labor market conditions ease.                                |               |
| Interest Rate Dynamics   | Caution about rapid recovery in spending that could necessitate raising interest rates again. Continued rate cuts expected across developed markets, with the ECB potentially reducing rates to around 1.5%.         |               |
| Risks                    | Potential for a "hard landing" and uncertainties from geopolitical events and domestic policies. Uncertainties from policy shifts, geopolitical tensions, and trade dynamics could introduce inflationary pressures. |               |
| Investment Opportunities | Focus on managing inflation and achieving economic growth, with a cautious approach to spending.   |               |

OUTPUT