

The Financial Mathematics and Computation Cluster (FMC) was established in 2009. FMC is funded by Science Foundation Ireland and Industry. Further details about FMC are in the appendix and <http://www.fmc-cluster.org/>

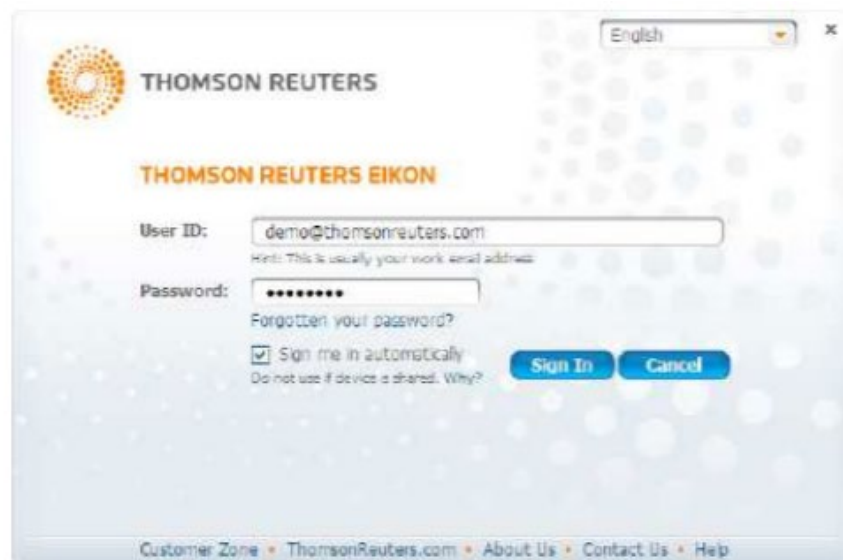
Note: Databases are located in standalone computers in the Financial Data room.

Thomson Reuters Eikon (formerly Datastream)

Thomson Reuters Eikon is a financial data platform to monitor and analyse financial information. It includes data on financial markets, financial news, macro data etc. with analytics and trading tools. The data covers over 280,000 firms listed in stock exchanges around the world, from the 1970's onwards. Data is updated on a daily basis, allowing for an up-to-date offering for the purposes of academic research, as well as for real-time analysis of financial data.

Getting started with Eikon

1. Click on the **Thomson Reuters Eikon** on your desktop.
2. Enter the **User ID and Password** in the corresponding fields in the login dialog. The usernames/passwords can be found at the following login page: https://intranet.ucd.ie/onlinelib/special_logins/index.html
3. Click **Sign in**.



Content Explorer

Content Explorer is the one stop shop for all Eikon content

1. The Home Page provides you with information tailored to your job role.
2. Guides provide you with an intuitive way to discover Thomson Reuters content.

- Entity Views give you all the in-depth content on financial instruments and countries.
- Search allows you to find content, people, commentaries.

Menu bar

Document toolbar

Content Explorer command line

Content Explorer menu bar

Click here to start a new search in particular when a Flex document is displayed

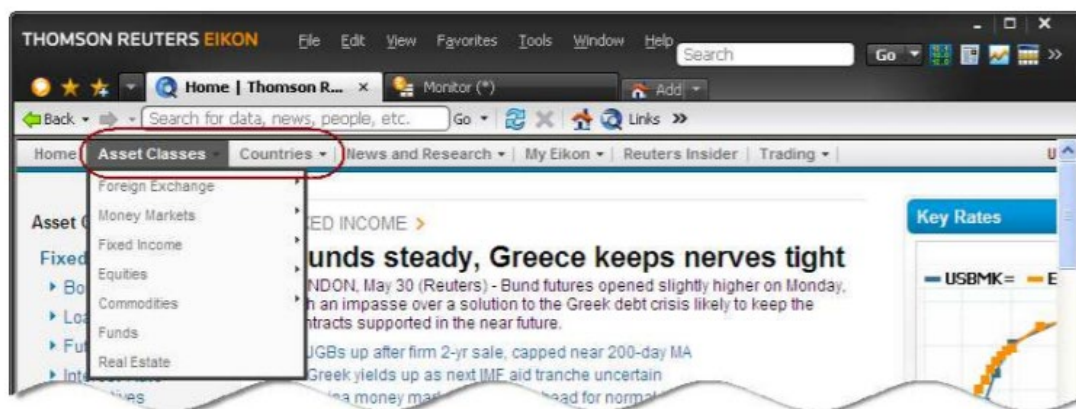
Treasury debt prices up as Fed buys, auctions end
 NEW YORK, Jan 13 (Reuters) - Treasury prices rose on Thursday, boosted by purchases of U.S. government debt by the Federal Reserve and the end of this week's Treasury auctions.

THE LEFT HAND NAVIGATION PANE CONTAINS ASSET CLASSES, NEWS SECTIONS. CREATE A NEW FLEX, AND

Status bar

Name	Yield	Yld Net Chng
US 3M T-BILL	0.150	+0.002
EU 3M T-BILL	0.398	-0.004
GB 3M T-BILL	0.806	+0.002
JP 3M T-BILL	0.116	0.000
AU 3M T-BILL	4.790	0.000
CA 3M T-BILL	0.976	0.000

Name	Yield	Yld Net Chng
US 10Y GOVT BOND	3.705	+0.002
EU 10Y GOVT BOND	4.512	-0.015
GB 10Y GOVT BOND	3.512	-0.001
JP 10Y GOVT BOND	1.186	+0.003



- Explore data by Asset Class
- Explore data by Country

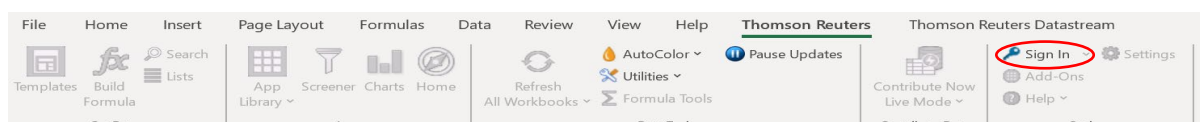
Advantage: Good for real-time economic and financial analysis.

Disadvantage: Not good for extracting large amounts of historical data for academic research.

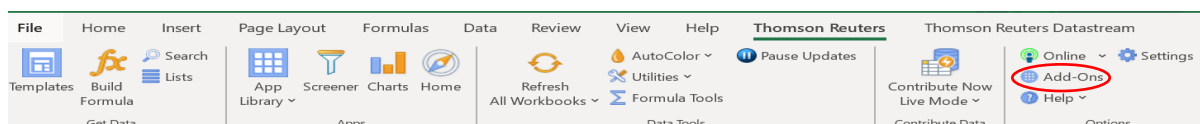
To extract larger amounts of data, Eikon provides an Excel API.

Using Eikon via Excel API

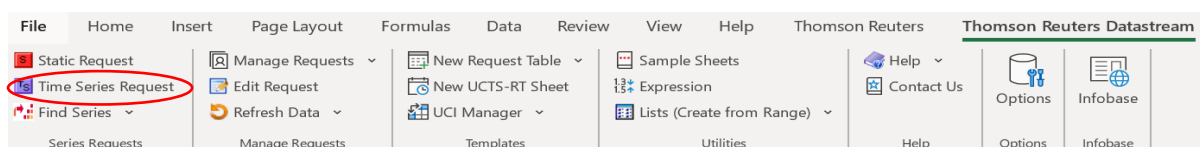
1. Once you have signed-in to Eikon, open Microsoft Excel. A tab for **Thomson Reuters** should show up
2. Click on the **Sign In** button.



3. Historical data can then be downloaded using the **Thomson Reuters Datastream** tab. To enable it, click on the **Add-Ons** button and install Thomson Reuters Datastream from there.



4. You then need to restart Excel, and you will be set-up on Eikon and Datastream to import historical data into Excel.
5. Historical data can be selected and downloaded from the "Time Series Request" button.



- Series/List tab allows you to select the firms that you wish to obtain data for.
- Datatypes/Expressions allows you to select the data that you wish to download for you selected firms.

Time Series Request

Request Details

Series/List RIC TS for each item in list

Datatypes/Expressions

Start Date: -2Y Frequency: Daily

End Date:

- To select the firms, click on the Find Series button besides Series/List
- If you already know your firms of choice, you can search for them individually, by name or ticker.
- Alternatively, you can filter firms by Exchange, Geographical Market, currency, etc.

DFO Navigator

BACK RECENT SEARCHES SEARCHING HINTS SYNCHRONISE USER DATA CHARTING HELP NAVIGATOR

Explore Search Advanced Search Share Search Reference My Selections (0)

Refine Search << Clear All

Category << Stop Filtering

- Equities OR Investment Trusts
- Equities 282,287
- Investment Trusts 3,132

Exchange Multiple

- Non NASDAQ OTC 34,143
- Deutsche Boerse AG 21,666
- Xetra 19,854

Market Multiple

- United States 80,934
- Canada 29,493
- United Kingdom 18,845

Currency Multiple

- United States Dollar 81,754
- Euro 75,421
- Canadian Dollar 17,655

Activity

- Dead 176,255
- Active 109,164

Results (filtered) 1-15 of 285,419 Next >

Name	Symbol	Category	Exchange	Market	Currency
APPLE	@AAPL	Equities	NASDAQ	United States	United States Dollar
MICROSOFT	@MSFT	Equities	NASDAQ	United States	United States Dollar
AMAZON.COM	@AMZN	Equities	NASDAQ	United States	United States Dollar
ALIBABA GROUP HOLDING ADR 1:8	U:BABA	Equities	NYSE	United States	United States Dollar
FACEBOOK CLASS A	@FB	Equities	NASDAQ	United States	United States Dollar
TENCENT HOLDINGS	K:TCNT	Equities	Hong Kong	Hong Kong	Hong Kong Dollar
JP MORGAN CHASE & CO.	U:JPM	Equities	NYSE	United States	United States Dollar
ALPHABET A	@GOOGL	Equities	NASDAQ	United States	United States Dollar
JOHNSON & JOHNSON	U:JNJ	Equities	NYSE	United States	United States Dollar
WALMART	U:WMT	Equities	NYSE	United States	United States Dollar
NESTLE 'R'	S:NESN	Equities	Six Swiss	Switzerland	Swiss Franc
VISA 'A'	U:V	Equities	NYSE	United States	United States Dollar
EXXON MOBIL	U:XOM	Equities	NYSE	United States	United States Dollar
PROCTER & GAMBLE	U:PG	Equities	NYSE	United States	United States Dollar
BANK OF AMERICA	U:BAC	Equities	NYSE	United States	United States Dollar

Explore more results like these: Equities > United States > Software & Computer Services
Equities > United States > General Retailers

Hover over rows above to preview details - click on rows to pin and chart

Procter and Gamble

Mnemonic	Code	RIC	TI Code	SEDOL	ISIN	Local Code
U:PG	91228	PG	PG-US	2704407	US7427181091	U742718109

Latest Value 117.2 (USD)
Timespan 02/01/1973 - 15/10/2019, Daily
Headline Coverage P RI (from Jan 1973) MV DY PE PI More...
Coverage IBES, MSCI, WorldScope
Exchange NYSE

- To obtain the data pertaining to the selected firms, click on the "Datatypes" button.

Time Series Request

Request Details

Series/List RIC TS for each item in list

Datatypes/Expressions

Equities price Search Share Search Reference My Selections (1)

Refine Search < Clear All

Datatype Hierarchy
 Explore Display Datatype Hierarchy

Type < Stop Filtering
 Time Series

Source Multiple
 Datastream 1,819

Equities (filtered) 1-1000 of 2,080 Next Sort by Ranking

Use	★	Name	Symbol	Source	Currency
>	★★★★	Price (Adjusted - Default)	P	Datastream	Y
>	★★★★	Price/Earnings Ratio (Adjusted)	PE	Datastream	N
>	★★★★	Price Index	PI	Datastream	Y
>	★★★★	12M Forward Price Earnings Related to Market	251E	Datastream	N
>	★★★★	12M Forward Price Earnings Related to Sector	250E	Datastream	N
>	★★★★	12M Forward Price/Book	553E	Datastream	N

12. Adjust the start date to reflect the time period. In this case, “-3Y” represents three years of data, ending the last trading day.
13. You can select the frequency of your data as daily, weekly, monthly, quarterly or annual.
14. Click on **Submit**, and the data should be exported into excel.

Request Details

Series/List LB:AUD,LB:BLM,LB:BOL Find Series History

RIC TS for each item in list

Datatypes/Expressions P Datatypes

Start Date -3Y Frequency Daily

End Date

Options

Display Custom Header Edit

Display Row Titles

Display Column Titles

Display Headings

Transpose Data

Display Code

Display Currency

Display Latest Value First

Hyperlink to Series Metadata

Hyperlink to Datatype Definition

Display Expression
 1st Series
 1st Series & Description

Display Datatype
 Description
 Mnemonic

Embed Formula

TS Format
 Yearly-Date
 Quarterly-Date

Auto Refresh

Help Default Option Submit Cancel

References

Eikon User Guide:

<https://cefr.uel.edu.vn/Resources/Docs/SubDomain/cefr/Eikon%20User%20Guide.pdf>



Industry

FMC² has developed successful research collaborations with international and domestic financial services companies and organisations. These help ensure the industry relevance of FMC²'s research.

FMC² works with multiple external partners including Bank of Ireland, Deloitte Ireland, Citibank Europe, The Institute of Banking, Avolon, AerCap, GECAS, SNECMA, SMBC Aviation Capital and KPMG Ireland.

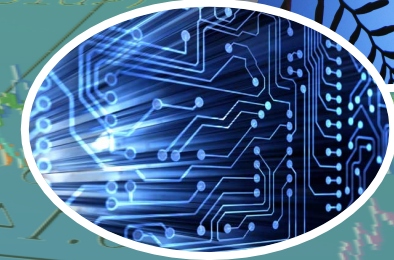
The formal collaboration between this research cluster and the private sector leads creates a benefit-in-kind situation where company sponsorship creates funding for research projects. In turn the companies benefit from research expertise from FMC² members and access to a pipeline of trained quality researchers.

Who are we?

The academic principal investigators and funded investigators involved are:

- John Cotter (Director, UCD)
- Don Bredin (UCD)
- Gregory Connor (Maynooth University)
- Paolo Guasoni (DCU)
- Julie Byrne (UCD)
- Thomas Conlon (UCD)
- Cal Muckley (UCD)
- Conall O'Sullivan (UCD)

The cluster supports a research cluster manager and a team of postdoc and PhD researchers based at UCD, DCU and Maynooth University.



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FMC²

Financial Mathematics and
Computation Research Cluster



www.fmc-cluster.org





Financial Mathematics and Computation Cluster (FMC²)

FMC² is a *research collaboration* between Industry, University College Dublin, Dublin City University and Maynooth University. This research group brings together complementary expertise in *financial mathematics, financial economics and computational finance* to create a holistic research programme in asset and risk management.

In addition to providing support for the innovation activities of Irish-based international financial companies, a pivotal outcome of the activities of FMC² is the creation of a supply of highly skilled personnel, trained postdoctoral researchers and PhD graduates, with world-class quantitative modelling skills who will support the future growth of financial service exports.

The Vision

The objective of FMC² is to create a globally recognised research centre that will provide a critical underpinning for the future development of the international financial services sector in Ireland.

FMC² is funded by Science Foundation Ireland's Strategic Partnership programme. The object of this programme is to create partnerships between academia and industry in order to address crucial research questions, and to support the growth of research and development capacity in companies located in Ireland.



VAR

- Factor Modelling
- Dynamic Factor Structure of European Security Market Return
- Risk Measures, Connectivity and Impact on the Real Economy

Valuation

- Pricing Real Assets – Finalization, Policy and Market Implications
- Aircraft Finance and Leasing
- Energy prices and the Impact on Investment Decisions
- Valuation of contracts with embedded inflation linked options

Risk

- Operational Risk – Measurement and Mitigation
- Measuring and mitigating operational risks in financial institutions
- Operational Risk in LIBOR and other Benchmark Markets
- Rogue Trading and Banking