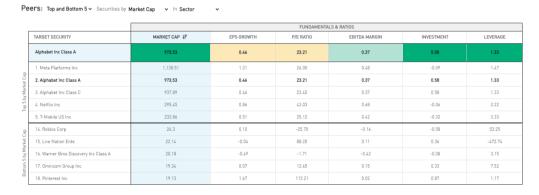




Stock Explorer provides SSGM's stock level Indicators along with market metrics, and aggregated insights via an interactive tool kit and data-driven proprietary machine-learning models for the US large cap universe.

Goal: Stock Explorer covers US large-cap equities and aims to predict sector-relative performance for each stock in a sector as well as provide clear explanation of the drivers of the expected returns.



For illustrative purposes only. Source: State Street Global Markets

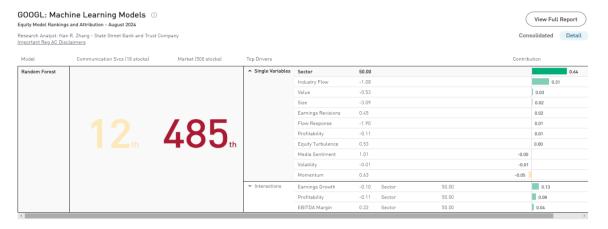
Differentiator: Stock Explorer leverages a data-driven approach and machine learning technique to analyze and predict sector-specific relationships between drivers and returns. It also leverages State Street's proprietary indicators of investor behavior and media sentiment.



For illustrative purposes only. Source: State Street Global Markets

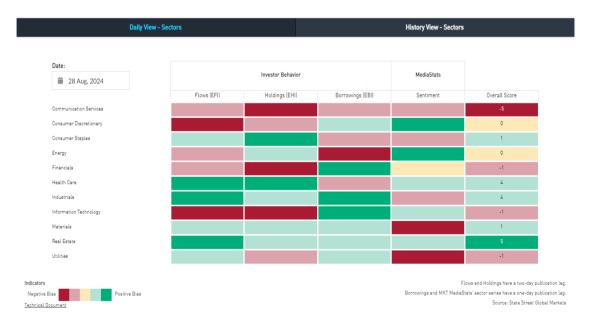


Data: We consider a concise list of predictive variables combining fundamental data and State Street's proprietary indicators. This includes: Institutional Behavior Indicators (measuring a stock's response to institutional equity flows¹), our in-house media indicators measuring excess sentiment and intensity, and proprietary risk Indicators measuring market structure fragility.



For illustrative purposes only. Source: State Street Global Markets

Model: Our framework utilizes a distinct predictive model for each sector capturing sector-specific dynamics between stock attributes and returns. It aggregates the predictions made by individual regression trees, each exploring a subset of predictors and data to capture relationships relative to performance. The model is powerful enough to detect unique interaction effects between various inputs, effectively implementing distinct predictive logic for each stock.



For illustrative purposes only. Source: State Street Global Markets

¹ State Street aggregates individual equity flow from thousands of institutional accounts into industry level flows for use in this model.

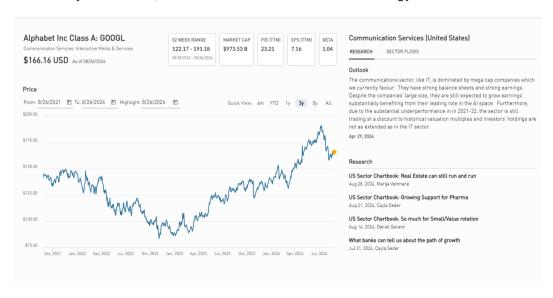


Technique: The power of the tool comes from our research² into model "fingerprints" as a framework for machine learning interpretation by isolating both linear and non-linear effects for each variable and the interaction effects for each pair of variables to help us understand the relative importance of each component of the model at a given point in time. In addition to finding powerful explanatory variables for each stock, the model can rank all inputs by the strength of their explanatory power allowing users to focus on what is truly important for each stock.



For illustrative purposes only. Source: State Street Global Markets

Platform: The Stock Explorer is an interactive, web-based stock screening tool that combines decades of research and data in the equity space to provide our clients with insights into relative drivers of returns as well as alternative perspectives on the likely performance of individual stocks. Stock Explorer neatly integrates with our current Equity Strategy research offering (that focuses on sector / style selection) as well as broader Multi-Asset Strategy work.



For illustrative purposes only. Source: State Street Global Markets

² "Investable and Interpretable Machine Learning for Equities", FDS, Winter 2022 by Li, Simon, and Turkington. "Beyond the Black Box: An Intuitive Approach to Investment Prediction with Machine Learning" FDS, Winter 2020, Li, Turkington, Yazdani



Disclaimers and Important Risk Information [2024.01]

This communication is provided only to professional clients or eligible counterparties or their equivalent by State Street Bank and Trust Company or, where applicable and permissible, its bank and non-bank affiliates ("State Street"). State Street Bank and Trust Company is authorized and regulated by the Federal Reserve Board, registered with the Commodity Futures Trading Commission as a Swap Dealer, and is a member of the National Futures Association. State Street Bank International GmbH ("SSBI") is regulated by the European Central Bank ("ECB"), the German Federal Financial Supervisory Authority ("BaFin") and the Deutsche Bundesbank. Details about the extent of SSBI's regulation by the ECB, the BaFin and Deutsche Bundesbank are available from us on request. Products and services described herein may not be available in all jurisdictions or through all State Street entities. Activities described herein may be conducted from offshore. Information provided is of a general nature only and has not been reviewed by any regulatory authority.

This communication is intended for general marketing purposes, and the information contained herein has not been prepared in accordance with legal requirements designed to promote the independence of investment research. It is for clients to determine whether they are permitted to receive research of any nature. Market commentary provided by trading desks is not investment research. This communication is not intended to suggest or recommend any transaction, investment, or investment strategy, does not constitute investment research, nor does it purport to be comprehensive or intended to replace the exercise of an investor's own careful independent review and judgment regarding any investment decision.

This communication is not intended for retail clients, nor for distribution to, and may not be relied upon by, any person or entity in any jurisdiction or country where such distribution or use would be contrary to applicable law or regulation. This communication or any portion hereof may not be reprinted, sold or redistributed without the prior written consent of State Street. This communication and the information herein does not constitute investment, legal, or tax advice and is not a solicitation to buy or sell securities or any financial instrument nor is it intended to constitute a binding contractual arrangement or commitment by State Street of any kind. The information provided does not take into account any particular investment objectives, strategies, investment horizon or tax status.

The views expressed herein are the views of State Street as of the date specified and are subject to change, without notice, based on market and other conditions. The information provided herein has been obtained from sources believed to be reliable at the time of publication, nonetheless, we make no representations or assurances that the information is complete or accurate, and you should not place any reliance on said information. State Street hereby disclaims any warranty and all liability, whether arising in contract, tort or otherwise, for any losses, liabilities, damages, expenses or costs, either direct, indirect, consequential, special, or punitive, arising from or in connection with any use of this document and/or the information herein.

State Street may from time to time, as principal or agent, for its own account or for those of its clients, have positions in and/or actively trade in financial instruments or other products identical to or economically related to those discussed in this communication. State Street may have a commercial relationship with issuers of financial instruments or other products discussed in this communication.

This communication may contain information deemed to be forward-looking statements. These statements are based on assumptions, analyses and expectations of State Street in light of its experience and perception of historical trends, current conditions, expected future developments and other factors it believes appropriate under the circumstances. All information is subject to change without notice.

Participating in trading any financial instrument, including but not limited to foreign exchange, equities, futures, fixed income or derivative instruments, or investments in non-liquid or emerging markets, or digital assets, or participating in securities lending, repurchase transactions or other collateral services present risks, which may include but are not limited to counterparty, collateral, investment loss, tax, and accounting risks. Where applicable, returns may increase or decrease as a result of currency fluctuations. Derivatives may be more volatile than the underlying instruments. Certain foreign exchange business, including spot and certain forward transactions, may not be regulated in all jurisdictions. Past performance is no guarantee of future results.

Please contact your State Street representative for further information. To learn how State Street looks after your personal data, visit: https://www.statestreet.com/utility/privacy-notice.html.

© 2024 State Street Corporation - All Rights Reserved



Global Markets Research Disclaimer Supplement [2024.01]

Australia: This communication is provided to wholesale clients by State Street Bank and Trust Company (Australian Business Number 70 062 819 630, Australian Financial Services License 239679).

Brazil: The products in this marketing material have not been and will not be registered with the Comissão de Valores Mobiliários - the Brazilian Securities and Exchange Commission ("CVM"), and any offer of such products is not directed to the general public within the Federative Republic of Brazil ("Brazil"). The information contained in this marketing material is not provided for the purpose of publicly soliciting investments from investors residing in Brazil and no information in this marketing material should be construed as a public offering or unauthorized distribution of the products within Brazil, pursuant to applicable Brazilian law and regulations.

Israel: State Street Bank and Trust Company is not licensed under Israel's Regulation of Investment Advice, Investment Marketing and Portfolio Management Law, 1995. This communication may only be distributed to or used by investors in Israel which are "eligible clients" as listed in the First Schedule to Israel's Regulation of Investment Advice, Investment Marketing and Portfolio Management Law 1995.

Japan: This communication is made available in Japan by State Street Bank and Trust Company, Tokyo Branch, which is regulated by the Financial Services Agency of Japan and is licensed under Article 47 of the Banking Act.

Oman: State Street Bank and Trust Company is not a bank or financial services provider registered to undertake business in Oman and is not regulated by the Central Bank of Oman or the Capital Market Authority.

Qatar: The information in this communication has not been reviewed or approved by the Qatar Central Bank, the Qatar Financial Markets Authority or the Qatar Financial Centre Regulatory Authority, or any other relevant Qatari regulatory body.

Singapore: This communication is made available in Singapore by State Street Bank and Trust Company, Singapore Branch ("SSBTS"), which holds a wholesale bank license by the Monetary Authority of Singapore. In Singapore, this communication is only distributed to accredited, institutional investors as defined in the Singapore Financial Advisers Act 2001 ("FAA") and its regulations. Note that SSBTS is exempt from Sections 27 and 36 of the FAA. When this communication is distributed to overseas investors as defined in the FAA, note that SSBTS is exempt from Sections 26, 27, 29 and 36 of the FAA. This advertisement has not been reviewed by the Monetary Authority of Singapore.

South Africa: State Street Bank and Trust Company is authorized in South Africa under the Financial Advisory and Intermediary Services Act, 2002 as a Category I Financial Services Provider; FSP No. 42671.

United Arab Emirates: The information contained within this communication is not intended to lead to the conclusion of any contract of whatsoever nature within the territory of the United Arab Emirates.

United Kingdom: State Street Bank and Trust Company is authorised and regulated by the Federal Reserve Board of the United States, authorised by the Prudential Regulation Authority ("PRA") and subject to regulation by the Financial Conduct Authority and limited regulation by the PRA. Details about the extent of our regulation by the PRA are available from us on request. State Street Bank International GmbH is authorised and regulated by the European Central Bank and the BaFin, deemed authorised by the Prudential Regulation Authority, and subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Details of the Temporary Permissions Regime, which allows EEA-based firms to operate in the UK for a limited period while seeking full authorisation, are available on the Financial Conduct Authority's website.