ENHANCING RISK MANAGEMENT – HEDGING VOLATILITY WITH ALTERNATIVE DATA

Predicting stock market volatility is challenging due to its unpredictable nature. However, achieving proficiency in this area can significantly enhance investors' risk-adjusted returns. Central to this effort is timely and precise analysis of macroeconomic conditions, which is crucial for identifying potential spikes in volatility. A robust economy generally instills optimism and stability among investors, whereas economic downturns may indicate increasing uncertainty and the potential for heightened volatility. However, the infrequent release of official macroeconomic data poses a significant challenge, often making these indicators obsolete by the time they are published.

To address this issue, QuantCube employs its dynamic quadrant to swiftly identify sudden increases in endogenous volatility by continuously analysing macroeconomic data in real-time.

Based on Nowcasting trends for GDP growth and inflation outlook, the QuantCube Dynamic Quadrant identifies four macroeconomic regimes in real-time: Heating Up, Goldilocks, Stagflation and Slow Growth, as illustrated in Exhibit 1.

For example, when Leading GDP growth in China and the US are both showing negative trends, alongside a downward trend in US inflation, this signals a Slow Growth regime or Risk-off mode, indicating a global slowdown in economic growth.

The other three regimes are classified as Risk-on mode.

Effective detection of volatility spikes using real-time macroeconomic data

Exhibit 2 illustrates the trajectory of VIX futures returns since 2016, highlighting periods of slow growth or risk aversion identified by the QuantCube Dynamic Quadrant during the same timeframe.

VIX futures experienced significant spikes during major market downturns, particularly amid the China-US trade conflict in 2018, the Covid-19 outbreak in 2020, and the energy crisis resulting from Russia's invasion of Ukraine in 2022. Our macro indicators have effectively and promptly identified significant market drawdowns.

Exhibit 1. QuantCube Dynamic Quadrant

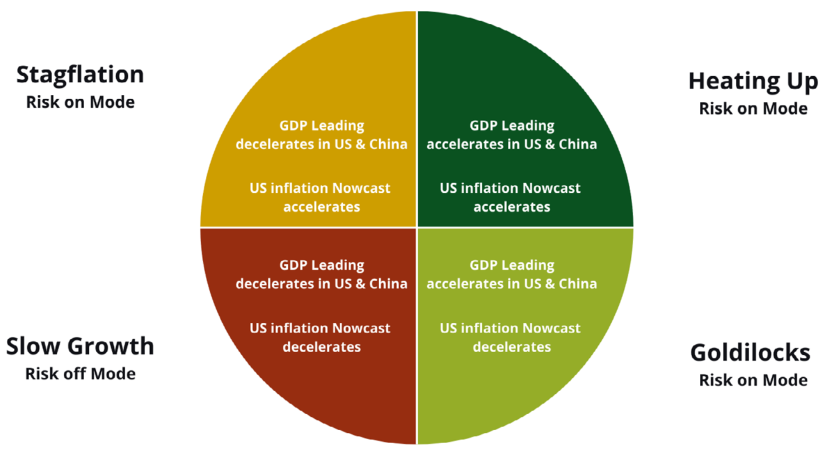
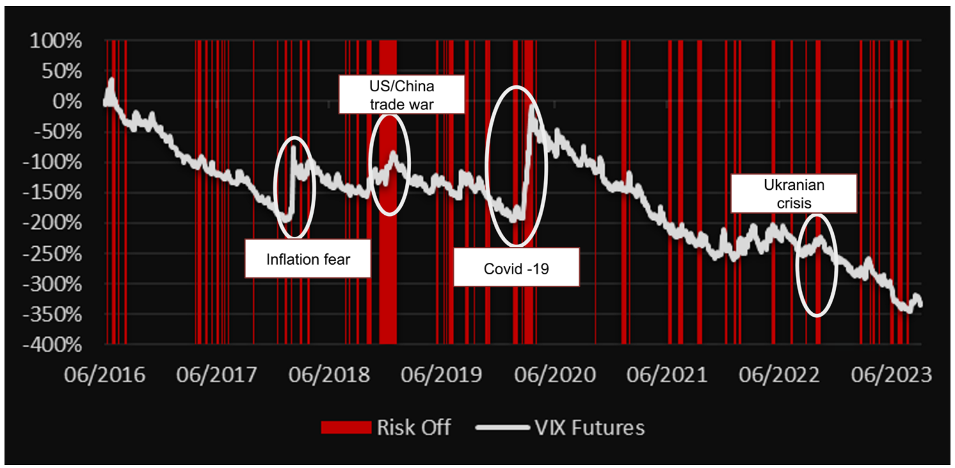


Exhibit 2. Risk-off modes and VIX futures evolution



ENHANCING RISK MANAGEMENT – HEDGING VOLATILITY WITH ALTERNATIVE DATA

Generating positive returns with long VIX futures strategy in Risk-off environments

Investors and traders can leverage QuantCube's dynamic quadrant to trade VIX futures effectively and mitigate the impact of volatility spikes within their risk management strategies. This could include:

• Portfolio Hedging: Investors can hedge against market downturns by using VIX futures, which typically appreciate in value as volatility rises. Buying VIX futures can aid in offsetting equity portfolio losses during turbulent market conditions, as these instruments appreciate in tandem with spikes in market volatility.
• Diversification: The VIX index demonstrates clear counter-cyclical behaviour.
VIX futures, which move inversely to the stock market, can offer diversification benefits to portfolios. Indeed, they can offset equity losses by appreciating in value during periods of heightened market volatility and declining equity markets.

Using solely the high frequency Risk-off signals from the QuantCube Dynamic Quadrant analysis, we simulated a long-only strategy on VIX futures. Exhibit 3 illustrates the back-testing results for this strategy, which initiates a long position in VIX futures when the market is expected to underperform— specifically, during periods of slow growth. During other scenarios, i.e. Risk-on mode, no action is taken.

This long-only VIX futures strategy has delivered a significant total return of 142.9% from 2016 to 2024, with a Sharpe ratio of 0.56 throughout the entire period while being invested only 15.7% of the time. In addition, the trades achieved higher average positive days (+4.8%) than negative days (-2.3%).

Although macroeconomic data may occasionally fail to capture volatility spikes caused by external factors such as geopolitical events, our analysis suggests that the dynamic quadrant remains effective in identifying internal volatility.
It plays a vital role in protecting investments from market downturns.

To further enhance this tool, QuantCube has developed additional indicators on risk and sentiment. These indicators are specifically tailored to detect the external shocks that macroeconomic indicators often overlook, thereby providing a comprehensive and robust analytical framework.

Exhibit 3. QuantCube Long VIX futures strategy – Cumulative returns

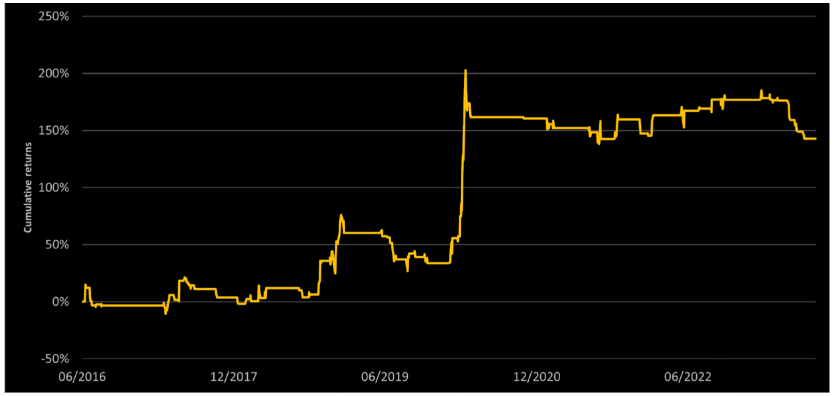


Table 1. QuantCube long VIX futures strategy – performance metrics

	Benchmark (VIX Futures)	QuantCube Long Vix futures strategy
Annual return	-46,1%	19,7%
Annual volatility	82,8%	35,4%
Sharpe ratio	-0,56	0,56
Beta	1	0.18
Alpha	0.0%	28,2%
Maximum Drawdown	-99,8%	-51,9%

DISCLAIMER

This document is provided solely for general informational purposes only and, while provided in good faith, does not purport to be comprehensive or include any representation, warranty, assurance or undertaking (express or implied). Nothing in this document is intended to be advisory or relied upon and no statement made shall have the effect to bind QuantCube, its affiliates or successors. Statements made herein are for illustrative purposes only and shall not be considered statements of fact, availability or reliability. Information provided herein has not been independently verified.

Furthermore, this document does not constitute an offer or invitation to partake in any transaction, or any other sale, purchase or recommendation of any securities or other product or service under any applicable laws. Any information contained in this document may only be used for your internal use, may not be reproduced or re-disseminated in any form and may not be used as a basis for or a component of any financial instruments, products or indices. Nothing in this document is intended to provide tax, legal, or investment advice. The recipient of this document understands and agrees that this document contains information of a confidential nature and is legally protected from disclosure to any third party apart from the intended recipient.

This document is provided on an “as is” basis and the recipient of this information assumes the entire risk of any use made of any information or statement contained herein. Historical data and analysis should not be taken as an indication or guarantee of any future availability, performance analysis, forecast or prediction. The views expressed regarding market and economic trends are subject to change at any time based on market and other conditions, and there can be no assurance that countries, markets or sectors will perform as expected. All statements made are subject to change and all products and information are subject to availability. No assurances are made in this document that all such products shall be available as stated and QuantCube reserves the right to change the availability and composition of any product referenced herein.

Investment involves risks, including market, political, liquidity and currency risks. In no event shall QuantCube or any person involved in the production of this document have any liability whatsoever for any direct, indirect, special, incidental, punitive, consequential (including, without limitation, lost profits) or any other damages in relation to, without limitation, the adequacy, accuracy, completeness or reasonableness of this document.

COMPANY BACKGROUND

QuantCube analyses billions of alternative data points in real time, using artificial intelligence and big data analytics to deliver insights ahead of the market – giving users an edge in their investment strategies. Today we are the global leader in macroeconomic intelligence nowcasting and in pinpointing macro regime change.

Our vision is to become the standard point of reference for macroeconomic, sector, corporate and environmental intelligence. By delivering timely, comprehensive and actionable economic insights we empower users within financial institutions, corporates and public bodies to reach their financial performance and sustainability goals. Headquartered in Paris, QuantCube employs a diverse international team of economists, quant analysts and data scientists with expertise in multilingual NLP, deep learning and machine learning techniques. The company’s shareholders include Moody’s and Caisse des Dépôts and its R&D in computer vision has been partially funded by the European Space Agency (ESA) and French government space agency CNES.

QuantCube Technology
15 Boulevard Poissonnière, 75002 Paris, France
Phone: +33 1 43 58 48 46

For general enquiry:
info@quant-cube.com
www.quant-cube.com