J.P. MORGAN CENTER
FOR COMMODITIES
UNIVERSITY OF COLORADO
DENVER BUSINESS SCHOOL

Supported by
funding from

INTEGRATED PORTFOLIO INTELLIGENCE LLC

FOURPOINT
ENERGY

CME Group

GLOBAL
COMMODITIES
APPLIED RESEARCH DIGEST

APRIL 2022

GCARD NEWSLETTER

"CARBON MARKETS: A NEW ASSET CLASS"

BY NICK VASSERMAN, FOUNDER AND
CHIEF INVESTMENT OFFICER,
INTEGRATED PORTFOLIO INTELLIGENCE, LLC

Business School
UNIVERSITY OF COLORADO DENVER

Carbon Markets: A New Asset Class

Nick Vasserman
Founder and Chief Investment Officer, Integrated Portfolio Intelligence, LLC

Introduction

In order to address one of the most important issues of our time, global governments and organizations have put forth, and will continue to develop, different carbon markets in attempt to combat climate change.

We believe that carbon markets will continue to experience asynchronous growth from different industries and geographies. Carbon-market policies covering specific market access and transactions will arguably become material risk management decisions for every firm, comparable to what is done for credit and operational risks. This gives rise to a bullish long-term investment thesis. We expect that disparities in carbon footprint metrics, policies, and accounting will also create short-term opportunities in carbon markets that can be captured by a systematic investment process.

Carbon Markets: A New and Rapidly Growing Asset Class

Efficient carbon markets can play a critical role in achieving net-zero objectives, with carbon emerging as a new asset class. We advocate that returns from this new asset class should be captured by both structural and dynamic opportunities and that such strategies should be incorporated into institutional alternative investment allocations.

We believe carbon markets meet the institutional criteria of a new asset class for the following reasons:

1) Functioning carbon markets are essential to reach the globally agreed target of limiting global warming to 1.5 C.

2) Carbon markets are rapidly approaching critical mass from an investment perspective.

3) Carbon markets offer an important opportunity for institutional investors to manage risk-adjusted returns and improve the resilience of their portfolios against climate transition risks. Longer term, carbon prices will rise as governments continue to implement policies to reflect their zero-carbon commitments.

Carbon Markets and Net-Zero Targets

There are two key carbon markets segments: (1) compliance markets, which are created and regulated by mandatory national, regional, or international policies/regulation, and by which entities surrender

---

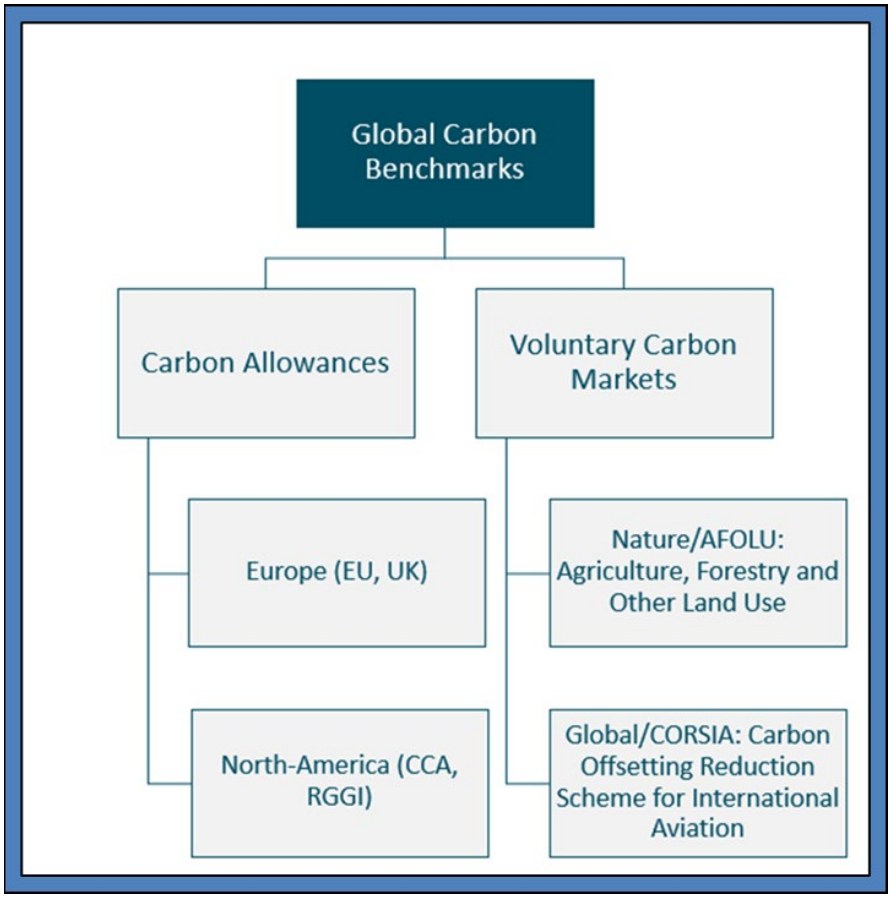
The views expressed in the *GCARD* are those of the individual authors.

emissions allowances; and (2) voluntary offset markets, which enable companies and individuals to purchase offsets on a voluntary basis. See the taxonomy on Figure 1 below.

A carbon offset compensates for emissions in one geography or activity by funding an equivalent carbon dioxide savings elsewhere. Offsets can steer capital into sustainable infrastructure, better forestry management, renewable energy sources, and other projects that might not have occurred without such mechanisms. They can also have additional social benefits, such as improving health or economic development, and promoting the transition to renewable sources.

The voluntary market functions outside of the compliance markets and enables companies and individuals to purchase offsets on a voluntary basis. Figure 1 provides an overview of the landscape for carbon-market benchmarks as of January 2022.

Figure 1
Global Carbon Benchmark Markets



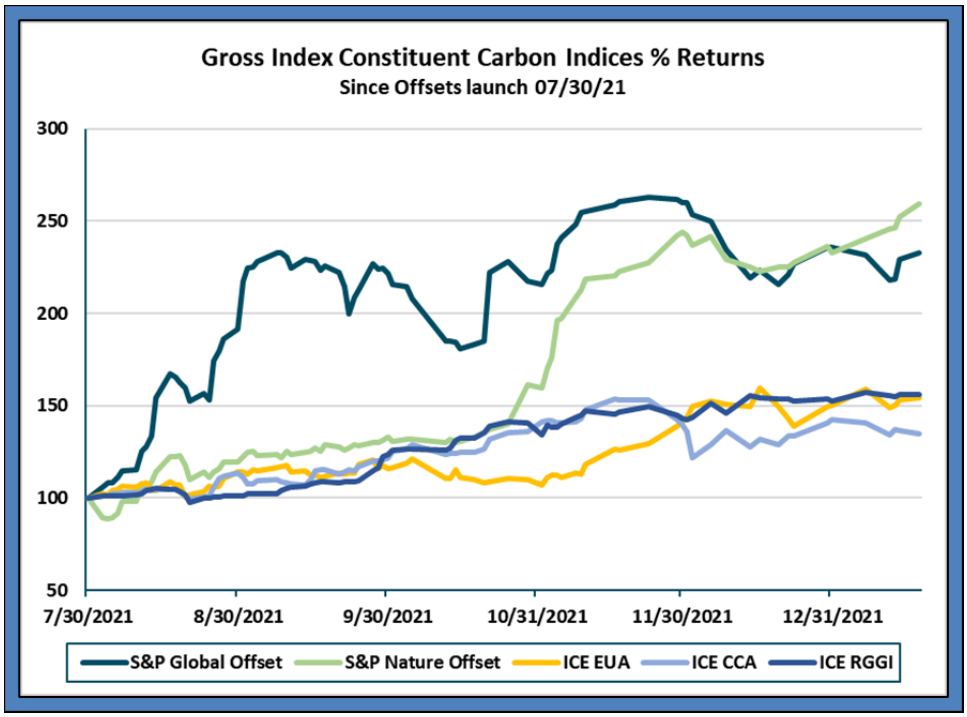
Abbreviations: CCA - California Carbon Allowance markets; RGGI - Regional Greenhouse Gas Initiative.

The Construction of a Global Emissions Index

We believe that global emissions markets captured by carbon allowances and offsets represent unique growth opportunities with asymmetric returns skewed to the upside. Accordingly, our firm has created the first structural index benchmark (that we are aware of) that tracks both compliance and voluntary segments of the carbon markets. This is accomplished by constructing a global emissions index composed of compliance-based allowances, represented by the ICE Global Carbon Index, and voluntary carbon markets, represented in the newly launched benchmark S&P Goldman Sachs Commodity Index (GSCI) Offset Indices. This index captures globally diversified emission benchmarks (computed by ICE and S&P) of liquid and transparent exchange traded allowances and offsets futures. We note that different markets have unique attributes, design, and fundamentals thereby offering a full asset class exposure.

Figure 2 and Table 1 below show the single market sub-index components of our global emissions index. While many of these markets are new and lack a long history, the components exhibit regional variability within the allowance markets and even greater variability between allowances and offsets markets, which contributes to the robustness of a relevant global emissions benchmark.

Figure 2
Global Emissions Index Components



Abbreviations (that are not defined above): ICE – Intercontinental Exchange; EUA – European Union Allowance.

Table 1

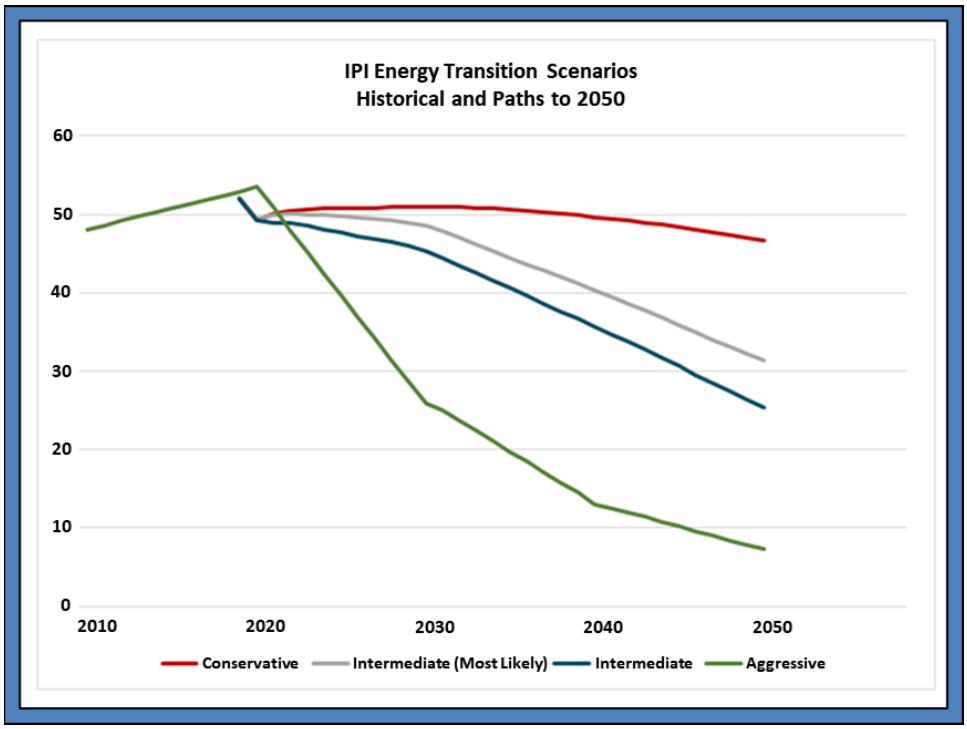
Component Sub-Indices by Underlying Futures Exchange and the Fundamental Carbon Coverage of Each Market by Geography and Sector

	EU ETS	UK ETS	CCA	RGGI	N-GEO	GEO
Type	Allowance	Allowance	Allowance	Allowance	VCM	VCM
Geography	EU	U.K.	US-California	US North-East	Global	Global
Exchange Liquidity	ICE Endex	ICE Europe	ICE US	ICE US	CME	CME
Index Provider	ICE	ICE	ICE	ICE	S&P GSCI	S&P GSCI
CO_2 Coverage	Power Generation, Industry	Power Generation, Aviation	Power Generation, Industry	Power Generation	**AFOLU** Agriculture, Forestry, and Other Land Use projects	**CORSIA** Carbon Offsetting and Reduction Scheme for Int'l Aviation eligible projects

Abbreviations (that are not defined above): ETS – Electronic Trading System; N-GEO – Nature-based Global Emissions Offset futures contracts; GEO – Global Emissions Offset futures contracts; VCM – Voluntary Carbon Markets.

Our firm has consolidated potential energy transition scenarios, as shown in Figure 3 on the next page. They are constructed from multiple sources and are classified in terms of likelihood and aggressiveness of achieving net-zero carbon targets by 2050. The more aggressive scenarios we believe will require a higher global carbon price to achieve the more ambitious net-zero targets. It is evident that all scenarios represent a strong bullish case for the global demand for carbon offsets. As the markets continue to evolve, we believe most carbon markets will be priced and traded as spreads to benchmarks that represent a compelling bullish investment case for a structural access to global carbon benchmarks.

Figure 3
Integrated Portfolio Intelligence (IPI) Energy Transition Scenarios, in Gt CO2e/yr



Abbreviation: Gt CO2e – A Gigatonne of Carbon Dioxide Equivalent.

Dynamic Emissions Returns

One would expect the global energy transition to be volatile, which should present dynamic investment opportunities in different carbon markets based on specific geographies and other carbon-market attributes. And during heightened macro periods the intra-carbon markets correlations and the cross-correlations between carbon and traditional risk markets may increase on the downside. Hence, we advocate adding a disciplined and systematic dynamic overlay that is designed to improve the risk-adjusted returns of a structural carbon index within an alternative investment allocation.

Such an overlay would be based on three principal factors: supply, demand, and price. Table 2 on the next page provides an example covering the California Carbon Allowance (CCA) markets, where demand is a function of power-generation (CAISO) and industrial demand. Supply is a function of regulations, policies, and allowance program design by the California Air Resources Board (CARB) and supply from nearby jurisdictions. Price includes market sentiment and positioning by compliance-based entities versus commercial entities.

Table 2
California Carbon Allowance (CCA) Example: Supply and Demand Factors

Supply	Demand	Price
Offsets: Available compliance offsets	Power Generation Demand Power Sector Emissions: Mix of fossil fuels versus renewables Electricity Demand: Overall load Renewables: projections of hydro, solar, wind generation New renewables facilities	Market Sentiment
Policy: administrative adjustments to address oversupply	Industrial Demand Refining Petrochemicals Cement-clicker production Residential/Commercial Natural Gas Transportation	Positioning by compliance and commercial entities

In our experience, one can gain transparent access to the carbon-market asset class via structural exposures to global carbon benchmarks along with visibility into key carbon-market drivers through a fundamentally based dynamic overlay.

This unique access and visibility are currently lacking in the marketplace, and we believe are the last remaining attributes to satisfy institutional requirements to invest in carbon as a new asset class.

Conclusion

The critical role that efficient emissions markets play in net-zero objectives gives rise to carbon markets as a new asset class. We advocate that returns from this new asset class should be captured by structural and dynamic opportunities and incorporated into institutional alternative investment allocations.

Endnote

This article is excerpted from Vasserman (2022).

Reference

Vasserman, N., 2022, "Global Carbon Macro Framework," Integrated Portfolio Intelligence (IPI) White Paper, January.

Author Biography

NICK VASSERMAN
Founder and Chief Investment Officer, Integrated Portfolio Intelligence, LLC

Nick Vasserman has over twenty years of experience in developing and deploying quantitative macro-oriented systematic programs globally. He has managed systematic macro trading portfolios in New York, London and Toronto since 1996 at major investment banks and is now offering 4th generation evolutions of the strategies and portfolio risk framework. Before launching Integrated Portfolio Intelligence (previously Momenta Capital), Vasserman spent several years at J.P. Morgan in a

variety of senior trading and risk management roles. He founded and was Head of J.P. Morgan's Americas Cross Asset Quantitative Strategies business. Vasserman was previously Global Head of Index Trading, Quantitative Index Strategies and Electronic Market Making within the renowned Global Commodities Group at J.P. Morgan. Prior to joining J.P. Morgan in 2009, he was Global Head of FICC (Fixed-Income Currencies & Commodities) Proprietary Systematic Trading at UBS Investment Bank. Vasserman has also held roles in Interest Rate Derivatives Trading as well as Exotic and Structured Derivatives Trading at UBS in New York and London. He holds a Bachelor of Administrative Studies (B.A.S.) degree from York University in Canada and a Finance M.B.A. from Canada's University of Toronto, Rotman School of Management, where he conducted research with Professor John C. Hull on pricing and hedging exotic options.

GLOBAL COMMODITIES
APPLIED RESEARCH DIGEST

The *Global Commodities Applied Research Digest (GCARD)* is produced by the J.P. Morgan Center for Commodities (JPMCC) at the University of Colorado Denver Business School in association with Premia Education, Inc.

The JPMCC is the first center of its kind focused on a broad range of commodities, including agriculture, energy, and mining. Established in 2012, this innovative center provides educational programs and supports research in commodities markets, regulation, trading, investing, and risk management. The JPMCC's Executive Director is Dr. Thomas Brady, Ph.D.

Subscriptions to the *Global Commodities Applied Research Digest*, which is edited by the JPMCC's Solich Scholar, Hilary Till, are complimentary at jpmcc-gcard.com/subscribe.

J.P. MORGAN CENTER FOR COMMODITIES
UNIVERSITY OF COLORADO DENVER BUSINESS SCHOOL

Physical Address

J.P. Morgan Center for Commodities
University of Colorado Denver Business School
1475 Lawrence Street
Denver, CO 80202

Mailing Address

J.P. Morgan Center for Commodities
University of Colorado Denver Business School
Campus Box 165
P.O. Box 173364
Denver, CO 80217

Web

business.ucdenver.edu/commodities

Contact

Erica Hyman
Program Manager
J.P. Morgan Center for Commodities
University of Colorado Denver Business School
erica.hyman@ucdenver.edu
1.303.315.8019

Business School
UNIVERSITY OF COLORADO DENVER