



Overweight California Carbon Allowances vs Global Equities

Recommended Since October 31, 2021

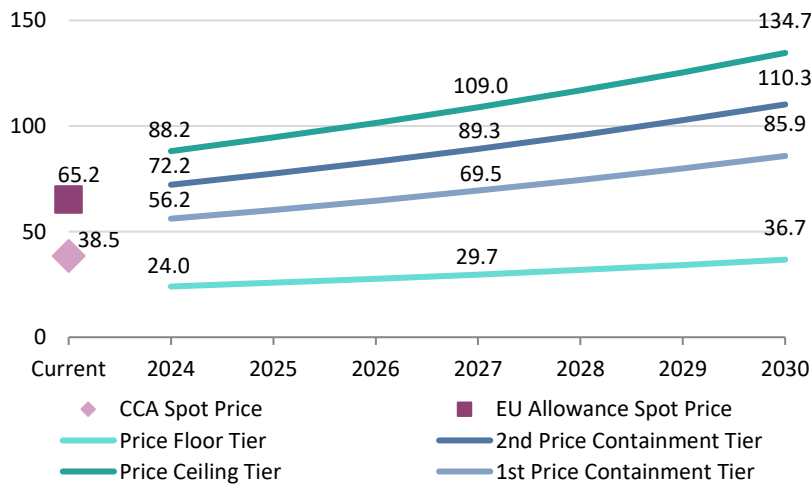
INVESTMENT THESIS: We expect California Carbon Allowances (CCAs) will outperform global equities, given our expectation that supply/demand fundamentals are likely to help narrow the gap in prices between CCAs and the EU carbon allowance program and our view that the economic environment may challenge global equity returns. We prefer owning physical allowances over futures implementation. Regulated entities are allotted free allowances for a portion of their emissions and must purchase additional credits to satisfy remaining obligations.

- **KEY SUPPORT #1:** California projects that its cap-and-trade program will be needed to meet its 2030 mandatory emissions target. Accordingly, the state must reduce CCA supply relative to demand. On April 9, the California Air Resources Board (CARB) issued a Standardized Regulatory Impact Assessment as a step toward pursuing an increase in emissions reduction targets to the cap-and-trade program and is exploring allowance budgets beyond 2030 through 2045. These changes will increase expected CCA deficits, which in more mature carbon markets have typically led to price increases.

- **KEY SUPPORT #2:** CCAs trade at a discount to EU carbon prices. We expect CCAs will increase toward current EU price levels. We anticipate that relative to equities, CCAs downside is lesser, while the upside is much greater. The CCA price will receive an additional boost as the CARB targets a 48% reduction in emissions by 2030, requiring a 264 million reduction in CCAs between 2025 and 2030.
- **KEY RISKS:** Regulatory changes present the biggest risk to CCAs, although the program is well established and provides significant revenue to the state of California. Further, demand for carbon credits will decrease in a recession putting downward pressure on carbon prices, potentially more than equities. Finally, global equity performance may exceed our expectations. From an implementation perspective, rolling futures cost an estimated 3%-5% annually, while options for owning physical allowances are limited.

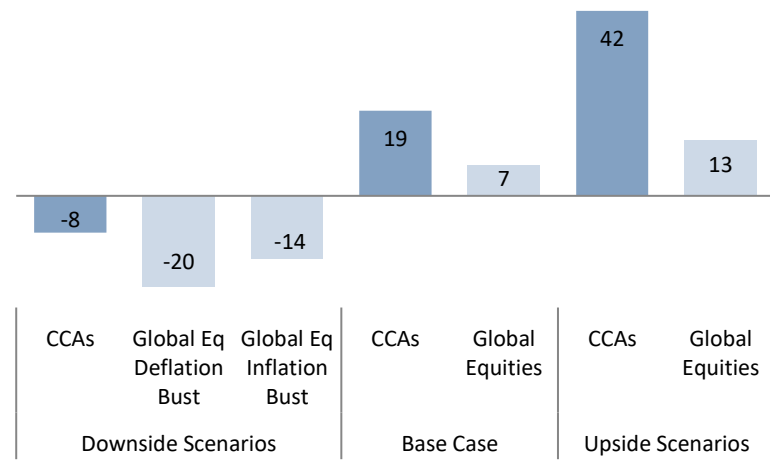
CCA PRICE COMPARED TO EU AND PRICE CONTAINMENT TIERS

As of March 31, 2024 • US Dollars



RETURN PROJECTION SCENARIOS: CCAs VS GLOBAL EQUITIES

As of March 31, 2024 • 3-Yr Annualized Average Compound Return (%)



Sources: Bloomberg L.P., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: For the left-hand side chart, spot prices are based on near month futures contract prices. Price tiers increase by 5% plus inflation per year, which is assumed to equal US TIPS 10-year breakeven inflation. Price containment tiers are thresholds at which additional allowances are made available as a hedge against higher costs. For the right-hand side chart, for CCAs, the downside scenario assumes prices decline to the 2026 price floor; the base case assumes prices increase to \$65, converging toward current EU ETS carbon prices; and the upside scenario assumes prices increase to the 2026 price ceiling. For global equities, the deflation bust downside scenario assumes that normalized P/E ratios decline by 50% and the nominal normalized earnings growth rate averages -2% year-over-year. The inflation bust downside scenario assumes the same P/E contraction with an average growth rate of 2.5%. The base case for global equities assumes today's normalized P/E is unchanged during the period and the growth rate reflects recent averages. The upside scenario assumes that normalized P/E increases by a decile (or to the all-time max if current P/E ratios are already above the 90th percentile) and an average growth rate of 6%.