

Quant Compose Quantitative Research Report

FTSE 100 ML Direction Research - prepared for Investment Committee

Universe FTSE 100 - Benchmark ^FTSE - Source demo - 2021-06-01 to 2021-05-29

1. Universe & Data

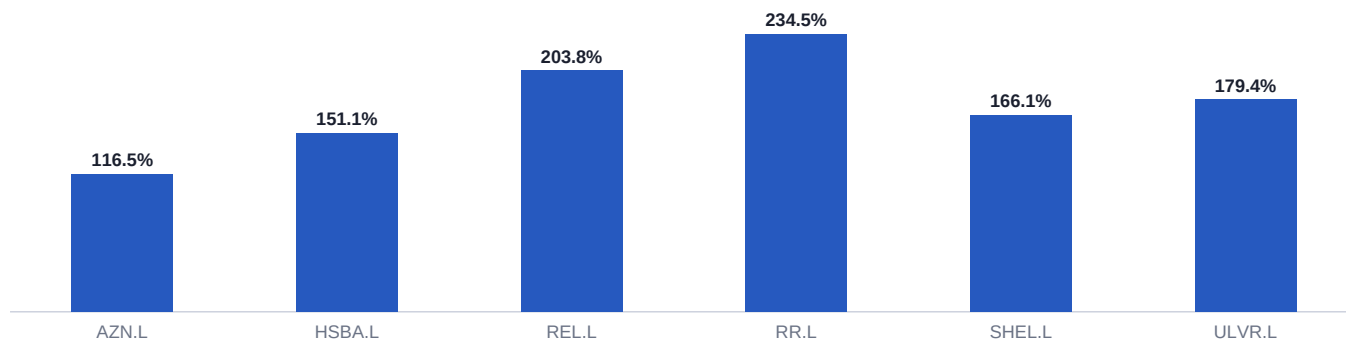
ASSETS	OHLCV ROWS	BENCHMARK	FREQUENCY	CURRENCY
6	9,128	^FTSE	1d	GBP

The benchmark index is carried for relative measurement only and is excluded from every portfolio, clustering and ranking routine.

2. Absolute Risk & Return

TICKER	ANN. RETURN	ANN. VOL	SHARPE	SORTINO	CALMAR	VAR 95%	CVAR 95%	MAX DD
AZN.L	24.95%	21.42%	1.16	1.77	1.04	-2.12%	-2.68%	-24.55%
HSBA.L	36.82%	24.36%	1.51	2.33	1.50	-2.35%	-3.09%	-26.89%
REL.L	64.77%	31.79%	2.04	3.20	2.49	-2.97%	-4.18%	-32.81%
RR.L	94.86%	40.44%	2.35	3.82	4.52	-3.62%	-4.81%	-30.44%
SHEL.L	37.12%	22.34%	1.66	2.58	2.06	-2.12%	-2.80%	-20.05%
ULVR.L	57.05%	31.80%	1.79	2.77	2.17	-3.00%	-4.20%	-31.36%
^FTSE	25.84%	15.98%	1.62	2.47	1.31	-1.54%	-2.11%	-21.22%

Sharpe Ratio by Asset



3. Benchmark-Relative Risk

TICKER	BETA	ALPHA	TRACKING ERROR	INFO RATIO	CORRELATION	R2	UP CAP.	DO
AZN.L	0.78	4.80%	17.78%	-0.05	0.58	0.34	0.78	
HSBA.L	1.12	7.87%	16.64%	0.66	0.73	0.54	1.12	
REL.L	1.91	15.44%	17.06%	2.28	0.96	0.92	1.95	
RR.L	1.79	48.63%	31.27%	2.21	0.71	0.50	2.02	
SHEL.L	1.17	6.92%	12.57%	0.90	0.84	0.70	1.20	
ULVR.L	1.92	7.57%	16.99%	1.84	0.96	0.93	1.91	

4. Portfolio Construction

OPTIMAL SHARPE	EXPECTED RETURN	VOLATILITY	MIN-VAR VOL
2.407	84.34%	35.04%	18.61%

ASSET	MAX SHARPE WEIGHT	MIN VARIANCE WEIGHT
RR.L	65.05%	0.00%
REL.L	34.95%	0.00%
AZN.L	0.00%	48.03%
HSBA.L	0.00%	21.25%
ULVR.L	0.00%	0.00%
SHEL.L	0.00%	30.72%

Max Sharpe Allocation



Weights solved by sequential least-squares optimisation subject to the configured bounds; the Monte Carlo cloud is a comparison only.

5. Model

ESTIMATOR	TASK	ROC AUC	FEATURES
Xgboost Classifier	classification	0.491	6
FEATURE		IMPORTANCE	
overnight_return		0.18108	
log_return		0.16880	
daily_return		0.16843	
high_low_range		0.16143	
sma_5		0.16046	
intraday_return		0.15980	

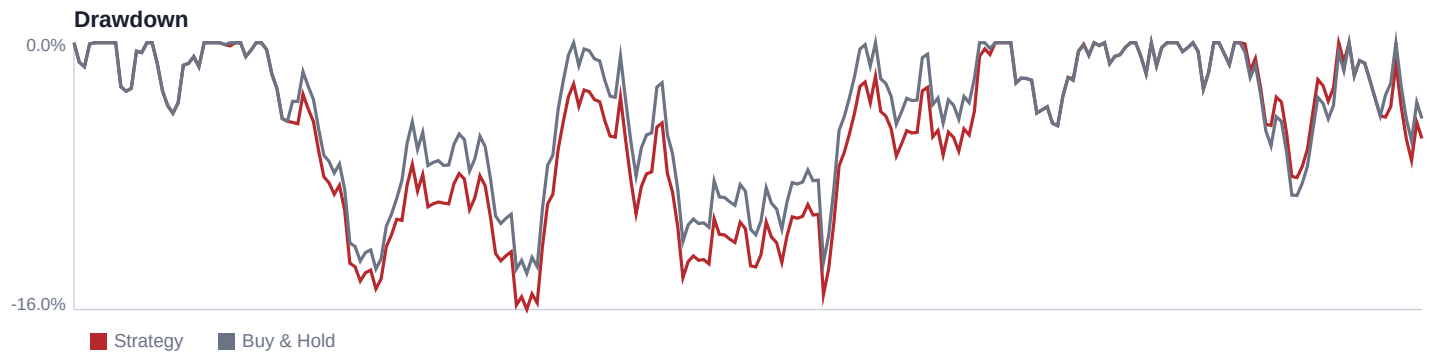
6. Out-of-Sample Validation



Rolling-origin re-training with a purge gap between each training window and its test window, so forward-looking targets cannot leak backwards.

7. Strategy Backtest





METRIC	STRATEGY	BUY & HOLD
Total Return	50.72%	58.10%
Annualised Return	42.87%	47.56%
Annualised Volatility	24.87%	25.06%
Max Drawdown	-15.95%	-13.80%
VaR 95%	-2.41%	-2.41%
CVaR 95%	-3.10%	-3.10%
Sharpe	1.72	1.90
Sortino	2.67	2.95

8. Method & Limitations

- Evaluation is chronological throughout; scalars are fitted on training data only and no shuffling is applied.
- Transaction cost is charged on every change in exposure, covering both sides of a round trip.
- The benchmark index is excluded from the investable set in portfolio construction and clustering.
- Permutation importance measures predictive contribution on unseen data, not causal effect.
- Stress scenarios propagate a market move through each asset's beta and rescale the covariance matrix; they are not a forecast.
- Results reflect the configured data source. Demo mode uses deterministic synthetic prices for reproducibility, not real market history.
- Research and paper mode only: this workspace performs no live order routing.