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Characterising Investment Styles in Fixed Income Markets

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Research team

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Overview

- Top-down investment styles in Fixed Income markets
- Long sample unconditional performance of investment styles
- Macro properties of returns of investment styles
- Comparison of Fixed Income Styles with those in Equity markets

Top-down investment styles in Fixed Income Markets

Classification of Top-down Investment Styles in Fixed Income Markets

Top-down Investment Styles

Price Momentum
Return continuation

Macro Momentum
Persistence of macro regimes

Carry
Random walk in asset prices

Value
Mean reversion from extremes in asset prices

Fixed income asset classes

Interest rates

Corporate Credit

Currencies

Commodities

Source: Nomura Research

Top-down Investment Styles in Fixed Income (contd.)

- **Price Momentum:**
  - Buy assets with strong returns against those with weak returns
- **Macro Momentum:**
  - Buy risky assets in periods of economic strength and less risky ones in periods of economic weakness
- **Carry:**
  - **Rates:** Buy bonds when yield curves are steep
  - **Credit:** Buy corporate credit when credit curves are steep
  - **Currencies:** Buy currencies with high interest rates against those with low interest rates
  - **Commodities:** Buy backwardated commodities and sell those in contango
- **Value:**
  - Buy when prices are significantly below fair value and sell when they are above

The Performance of Momentum and Carry-based Strategies is Stronger than that of Value

Performance of investment styles: 1976 – 2010

	Momentum	Carry	Value
1976-2010			
Average annual excess returns (%)	3.3	1.4	0.5
Annualised information ratio	1.47	0.77	0.26
Skew	1.4	-0.4	-1.5
Hit Ratio(1)	72%	63%	57%
1990-2010			
Average annual excess returns (%)	3.2	1.4	0.4
Annualised information ratio	1.40	0.73	0.18
Skew	1.5	-1.0	-2.0
Hit Ratio(1)	72%	63%	57%

Source: Nomura Research

All performance numbers are for volatility-adjusted investment strategies and are before transactions costs

1. *Hit ratio is defined as the proportion of months with strictly positive excess returns*

Correlation between Style-based Strategies is not Markedly High...

Correlations between style-based strategies

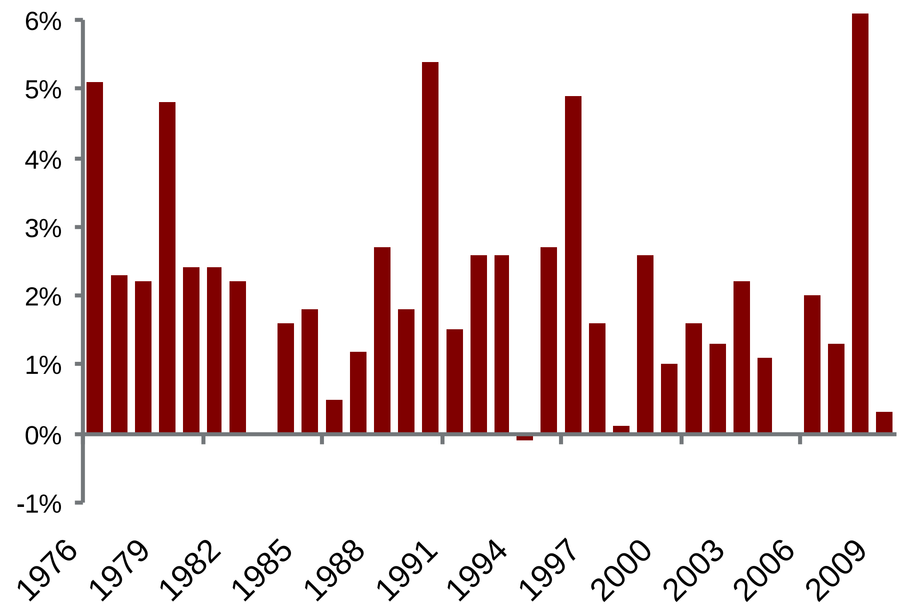
	Momentum and Carry	Momentum and Value	Carry and Value
Full Sample Correlation (1976-2010)	7%	-18%	41%
Median of rolling 5-year correlations			
1981-2010	3%	-25%	45%
1990-2010	3%	-31%	53%
1999-2010	-4%	-43%	46%
2007-2010	0%	-26%	3%

Source: Nomura Research

...which Prompts their Application as a Portfolio of Style-based Investments

1976-2010	
Avg. ex. returns (% pa)	2.1
Ann. information ratio	1.60
Skew	1.4
Hit Ratio	71%
1990-2010	
Avg. ex. returns (% pa)	2.1
Ann. information ratio	1.59
Skew	1.2
Hit Ratio	70%

Annual performance profile[1]



Source: Nomura Research

All performance numbers are before transactions costs. The portfolio is constructed with the following risk weights: Momentum 50%, Carry 25%, Value 25%

1. The actual excess returns for 2008 are 7.1%. The chart has been truncated at 6% for improved readability.

Returns of Style-based Strategies Also Help Attribute Risk Exposures of Portfolios

$$r_t^{Portfolio} = \alpha + \beta_M r_t^{Mmtm} + \beta_C r_t^{Carry} + \beta_V r_t^{Value} + \varepsilon_t$$

Regression of Hedge Fund Index excess returns on those of style-based portfolios (1990-2010)

	Momentum (β_M)	Carry (β_C)	Value (β_V)	R^2
HFRI Fund of Funds Wtd. Composite	-1.0***	0.7***	0.0	16%
CS Tremont Managed Futures	1.8***	1.7***	-1.3***	25%
HFRI Macro Systematic Diversified	0.2	0.7***	-0.5**	4%
HFRI Relative Value	-0.9***	0.3**	0.2	29%
HFRI Event Driven	-1.2***	0.6***	0.0	19%

Source: Nomura Research, HFRI, CS Tremont, Bloomberg
****, **, * represent significance at the 97.5%, 95% and 90% levels*

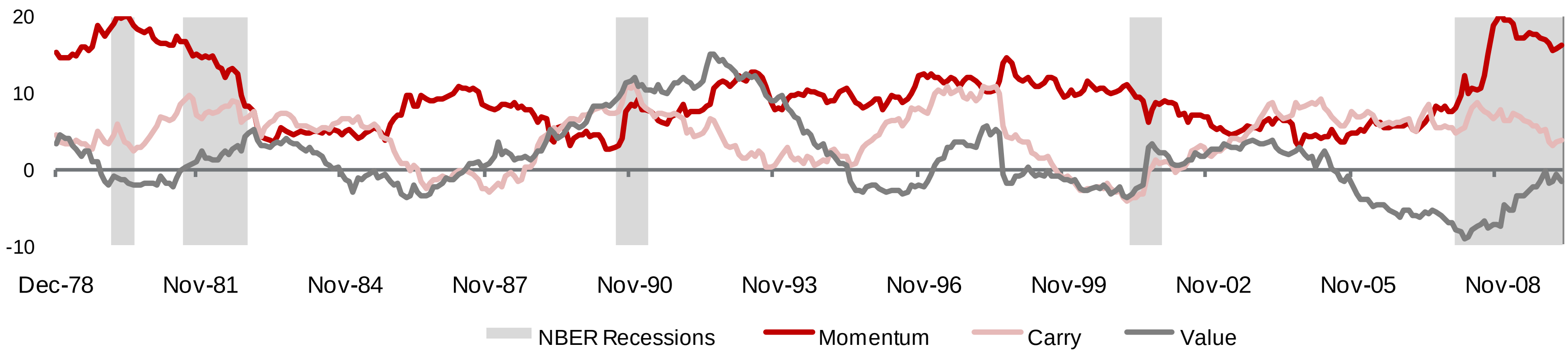
Macro properties of style-based investment strategies

Momentum and Carry Trades Perform well in Economic Expansions...

Annualised information ratios of style-based portfolios in Expansions

1976-2010	Momentum	Carry	Value
Full Sample unconditional	1.47	0.77	0.26
Expansion periods	1.60	0.79	0.18
Early expansions	1.64	0.90	0.31
Late expansions	1.58	0.70	0.07

Rolling three-year excess returns (%)



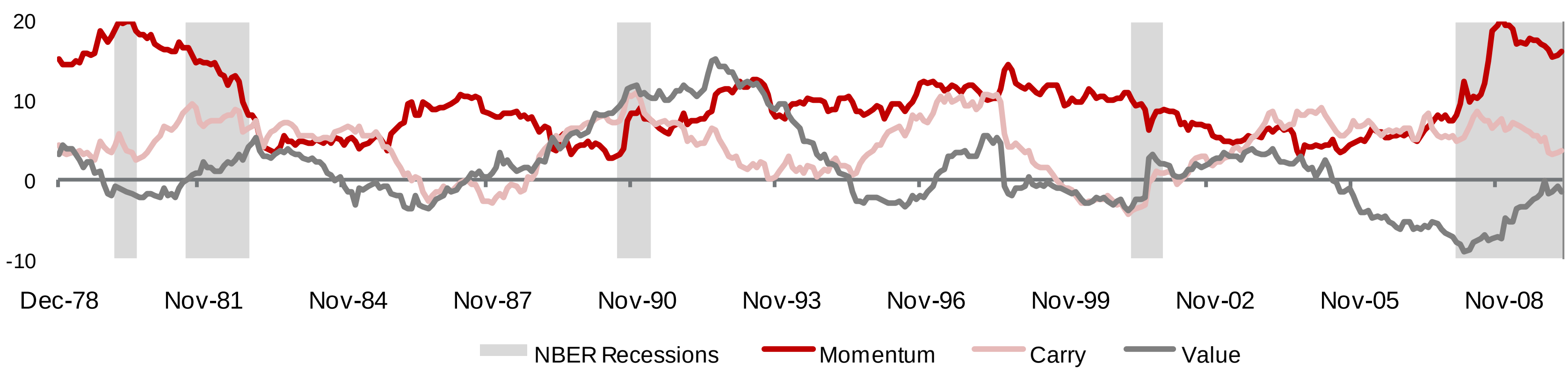
Source: Nomura Research, NBER. We define early and late periods of expansions as their first and second calendar halves.

...while the Performance of Value Trades is Largely Restricted to Periods of Economic Weakness

Annualised information ratios of style-based portfolios in Recessions

1976-2010	Momentum	Carry	Value
Full Sample unconditional	1.47	0.77	0.26
Recession periods	1.36	0.65	0.68
Early recessions	2.13	1.61	0.81
Late recessions	0.40	-0.49	0.53

Rolling three-year excess returns (%)



Source: Nomura Research, NBER We define early and late periods of recessions as their first and second calendar halves.

The Underperformance of Momentum in Late Recessions is Broad-based...

Annualised information ratios of Momentum portfolios by sub-style and by asset class

	Momentum by Sub-style		Momentum by Asset Class			
1976-2010	Price	Macro	Interest Rates	Credit	Currencies	Commodities
Full Sample	1.15	0.98	1.14	0.42	1.02	0.73
Expansion periods	1.25	1.05	1.22	0.36	1.12	0.67
Recession periods	1.04	1.30	1.28	0.70	0.75	1.06
Early recessions	1.68	2.28	1.82	1.52	1.26	1.80
Late recessions	0.17	0.14	0.72	-0.59	0.0	0.15

Source: Nomura Research, NBER We define early and late periods of recessions and expansions as their first and second calendar halves.

...while that of Carry in Late Recessions is Attributable to Asset Classes Other than Currencies

Annualised information ratios of Carry portfolios by asset class

	Carry by Asset Class			
1976-2010	Interest Rates	Credit	Currencies	Commodities
Full Sample	0.43	0.38	0.36	0.50
Expansion periods	0.59	0.36	0.43	0.40
Recession periods	-0.08	0.46	0.06	1.01
Early recessions	0.10	1.92	-0.80	1.93
Late recessions	-0.35	-1.31	1.63	-0.14

Source: Nomura Research, NBER We define early and late periods of recessions and expansions as their first and second calendar halves.

Regimes of Monetary Easing are Favourable for Value Investments

1976-2010		Momentum	Carry	Value
Monetary Tightening regime	Average quarterly excess return (bp)	92	54	-2
	Annualised information ratio	1.84	1.02	-0.05
Monetary Easing regime	Average quarterly excess return (bp)	71	35	49
	Annualised information ratio	1.00	0.67	1.07

Source: Nomura Research, Bloomberg
Note: We divide the history into three equally sized buckets based on the average of normalised quarterly changes in policy rates across the G-7 economies. We then present the average same-quarter excess returns and information ratios of the investment strategies based on Momentum, Carry and Value styles in the top and bottom buckets.

These Macro Properties are Reflected in their Correlation with Bond Markets...

Correlations between style-based portfolios and US Treasury 1-10yr Index Excess Returns

	Momentum	Carry	Value
Full Sample Correlation (1976-2010)	28%	-26%	-6%
Median of rolling 5-year correlations			
1981-2010	43%	-26%	-6%
1990-2010	15%	46%	-11%
1999-2010	51%	-15%	-36%
2007-2010	53%	-19%	-32%

Source: Nomura Research, Bloomberg
Correlations have been computed using quarterly excess returns. Excess returns of the US Treasury index are over cash.

... And with Equity Markets

Correlations between style-based portfolios and S&P 500 Excess Returns

	Momentum	Carry	Value
Full Sample Correlation (1976-2010)	-28%	-2%	11%
Median of rolling 5-year correlations			
1981-2010	-20%	6%	-1%
1990-2010	15%	-23%	11%
1999-2010	-43%	14%	27%
2007-2010	-43%	14%	16%

Source: Nomura Research, Bloomberg
Correlations have been computed using quarterly excess returns. Excess returns of the S&P 500 index are over cash.

In Periods of Heightened Investor Risk Aversion Momentum Outperforms while Value Underperforms

1986-2010		Momentum	Carry	Value
Low risk aversion	Average quarterly excess return (bp)	29	17	33
	Annualised information ratio	0.61	0.37	0.78
High risk aversion	Average quarterly excess return (bp)	117	29	-7
	Annualised information ratio	1.57	0.42	-0.08

Source: Nomura Research, Bloomberg
Note: We divide the history into three equally sized buckets based on the quarterly changes in the VXO Index. We then present the average same-quarter excess returns and information ratios of the investment strategies based on Momentum, Carry and Value styles in the top and bottom buckets.

This Pattern in Observed in Regimes of Tightening Credit Conditions as Well

1976-2010		Momentum	Carry	Value
Credit Easing	Average quarterly excess return (bp)	66	29	24
	Annualised information ratio	0.93	0.56	0.54
Credit Tightening	Average quarterly excess return (bp)	129	34	3
	Annualised information ratio	2.00	0.54	0.04

Source: Nomura Research, Bloomberg
Note: We divide the history into three equally sized buckets based on the quarterly changes in the spread between 3 month Commercial Paper and 3 month treasury bills. We then present the average same-quarter excess returns and information ratios of the investment strategies based on Momentum, Carry and Value styles in the top and bottom buckets.

How do Styles in Fixed Income Compare with those in Equity Markets?

The Evidence for Persistence is Stronger than Reversion to ‘Fair’ Value in Equity Styles as well

Performance of Equity investment styles: 1976 – 2010

	Equity Momentum	Equity ‘Carry’	Equity ‘Value’
1976-2010			
Average annual excess returns (%)	15.5	0.0	3.1
Annualised information ratio	0.74	0.00	0.16
Skew	-0.75	-0.01	0.20
Hit Ratio(1)	64%	50%	53%
1990-2010			
Average annual excess returns (%)	14.0	-0.6	7.9
Annualised information ratio	0.62	-0.03	0.39
Skew	-0.77	0.23	0.58
Hit Ratio(1)	62%	49%	56%

Source: Nomura Research, Kenneth French Data Library
Data for US Equities alone. Performance shown is that of volatility-adjusted strategies before transactions costs.
Equity ‘Carry’ : Buy top 30% stocks by Dividend/Price and sell bottom 30%.
Equity ‘Value’ : Buy bottom 30% stocks by prior long term return and sell the top 30%.

Performance of Equity Styles is not Highly Correlated with that of Fixed Income Styles...

Correlations between style-based portfolios in Equities and Fixed Income

	Momentum	Carry	Value
Full Sample Correlation (1976-2010)	14%	-4%	-5%
Median of 5-year rolling correlations			
1981-2010	13%	-2%	-4%
1990-2010	16%	-8%	-15%
1999-2010	13%	-21%	-9%
2007-2010	21%	-19%	-5%

Source: Nomura Research, Kenneth French Data Library

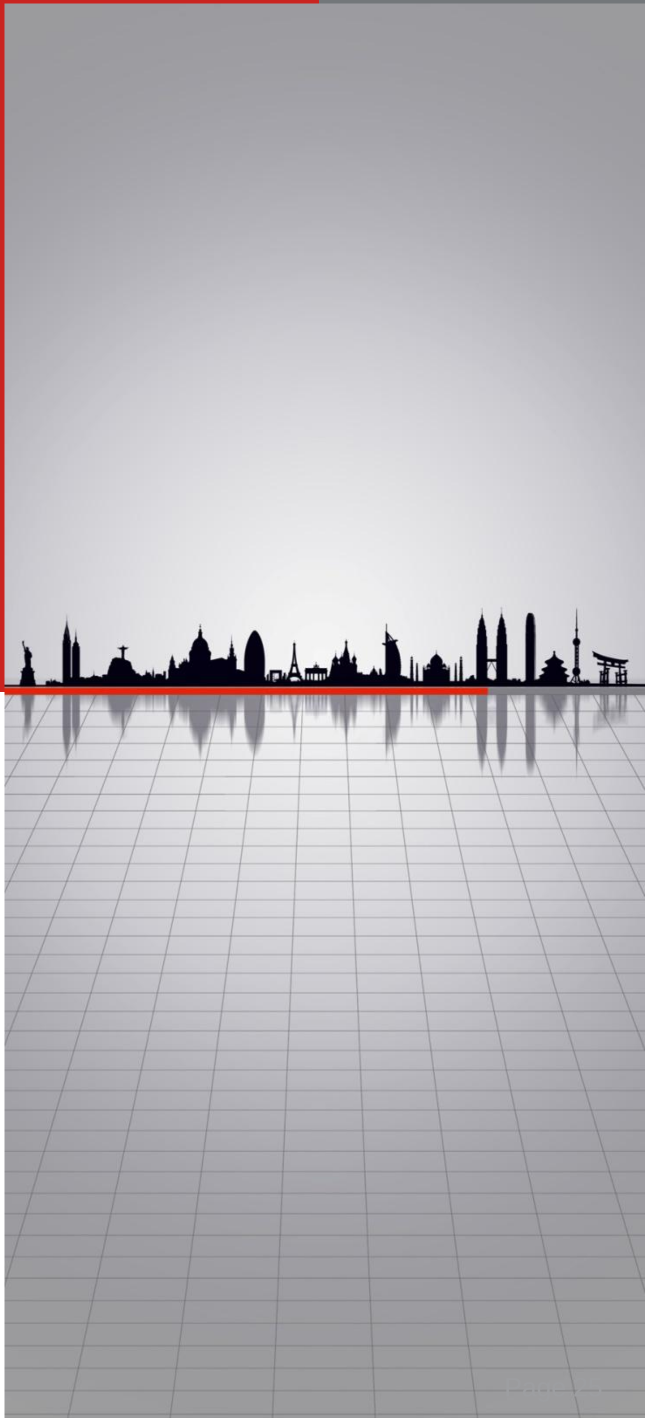
...but their Macro Properties are Somewhat Similar

Annualised information ratios of investment styles in Equities

1976-2010		Equity Momentum	Equity 'Carry'	Equity 'Value'
Recession period	Early recessions	0.77	0.93	0.70
	Late recessions	-0.70	-1.53	0.52
Expansion period	Early expansions	0.91	0.36	0.13
	Mature expansions	1.02	-0.30	-0.05
Full Sample		0.74	0.00	0.16

Source: Nomura Research, NBER, Kenneth French Data Library
Note: We define early and late periods of recessions and expansions as the first and second calendar halves respectively, of such periods

How have Style-based Investments Performed Recently?



It is Well-known that Equity Momentum Outperformed in 2007-08 while Value did so in 2009

Recent performance of style-based investment strategies: 2007-2009

(%, p.a.)	Equity Momentum	Equity ‘Carry’	Equity ‘Value’
2007	50.1	-19.8	-48.1
2008	30.5	26.2	7.4
2009	-62.3	-21.2	5.1

Average annual excess returns (%)	15.5	0.0	3.1
Annualised volatility (%)	21.1	18.8	19.8

Source: Nomura Research, Kenneth French Data Library
Equity ‘Carry’ : Buy top 30% stocks by Dividend/Price and sell bottom 30%.
Equity ‘Value’ : Buy bottom 30% stocks by prior long term return and sell the top 30%.

Fixed Income Styles Exhibited a Similar Pattern During the Recent Crisis

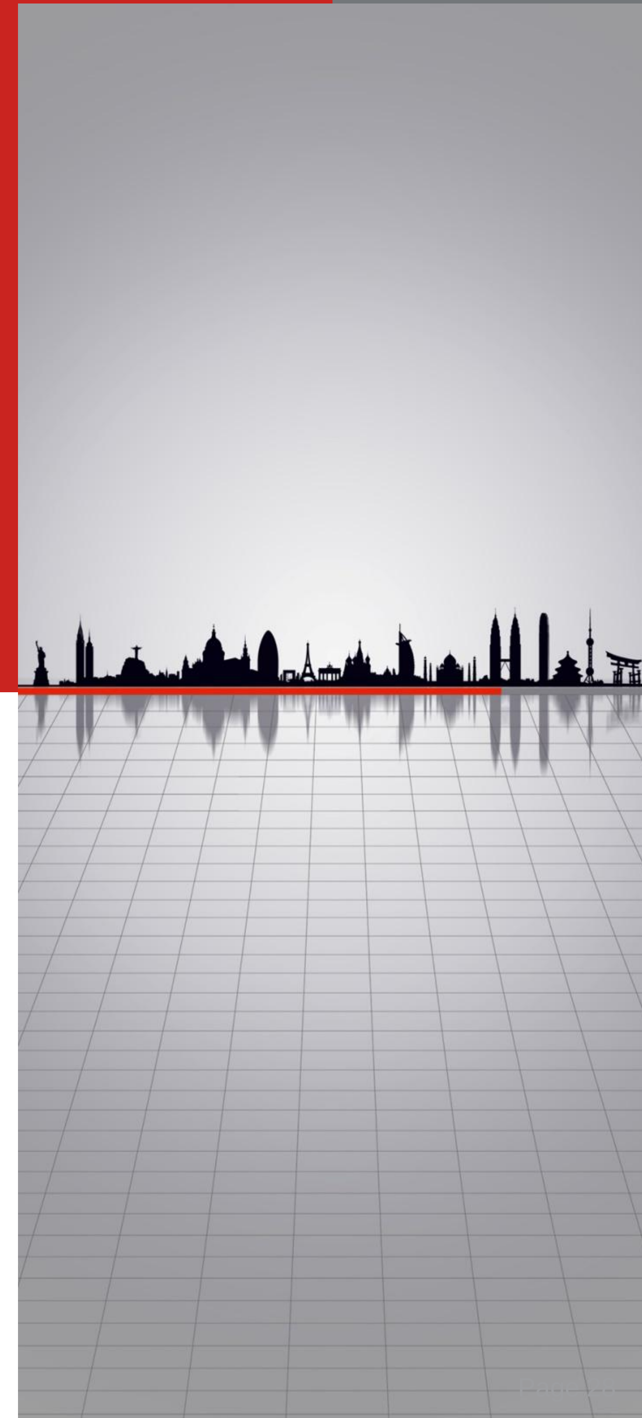
Recent performance of style-based investment strategies: 2007-2009

(%, p.a.)	Momentum	Carry	Value
2007	3.3	1.5	-2.8
2008	13.9	2.8	-2.2
2009	-0.7	-0.8	3.2

Average annual excess returns (%)	3.3	1.4	0.5
Annualised volatility	2.2	1.9	2.0

Source: Nomura Research

Conclusions



Conclusions

- We classify investment styles in Fixed Income markets into those based on (a) Momentum, (b) Carry and (c) Reversion to fair value
- In the long historical sample, we find that the performance of Momentum and Carry is robust while that of Value is relatively weaker
- Momentum and Carry trades perform well in Early recessions while Value does so in Late Recessions
- Similar unconditional and macro properties of investment styles are observed in the equity markets as well

Analyst certification

We, Vasant Naik and Mukundan Devarajan, hereby certify (1) that the views expressed in this report accurately reflect my personal views about any or all of the subject securities or issuers referred to in this research and (2) no part of my compensation was, is or will be directly or indirectly related to the specific recommendations or views contained in this research.

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