

## IR RATIONAL CAPITAL

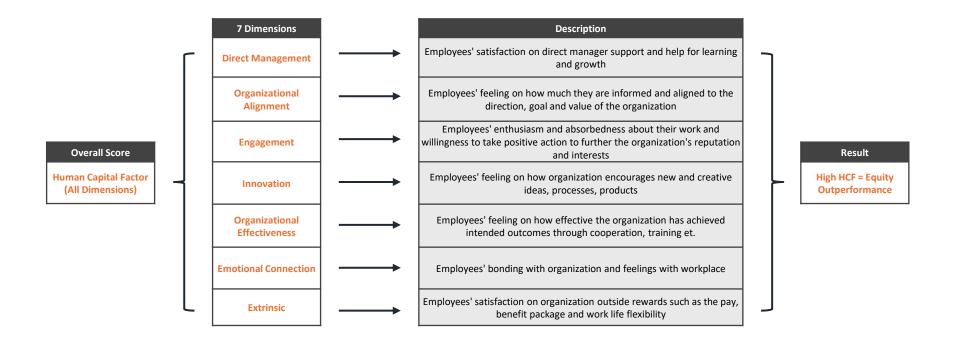
# JPM Morgan DeepFin Portfolio Results & Analysis

October 2022

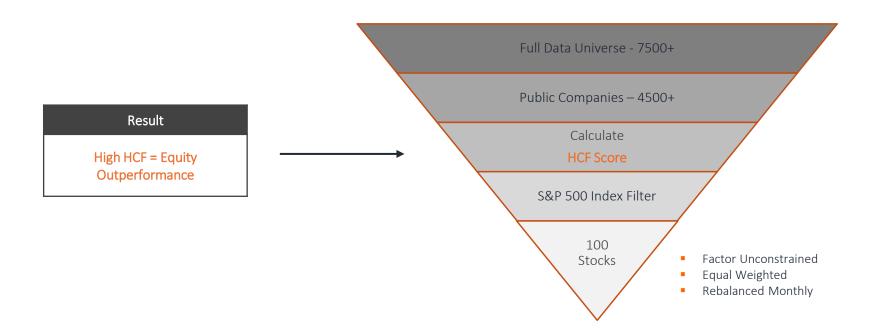
Quantifying the Human Capital Factor

## Human Capital Factor Score is a Composite of Seven Dimensions

#### Headline Score Filterable by Cultural Sub-Factors



## Combined Dimensional Strategy: Implementation for JP Morgan 'Irrational Capital's Human Capital Factor Index'

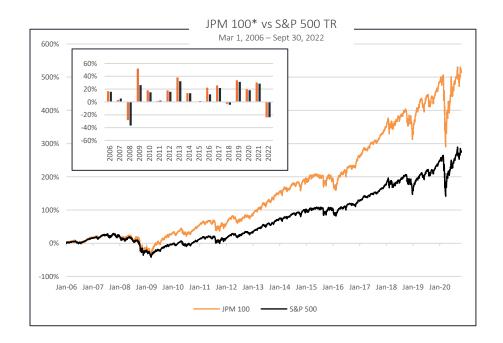


#### JP Morgan 'Irrational Capital's Human Capital Factor Index' – (Historical Prices)

Selection Universe	S&P 500
Number of Stocks	100
Weighting	Equal Weight
Rebalance Schedule	Monthly

Key Characteristics

- Psychological Safety
- Inclusive Innovation
- Overall Company Perspective
- Culture & Values
- Senior Leadership
- Org. Alignment
- Motivation & Purpose



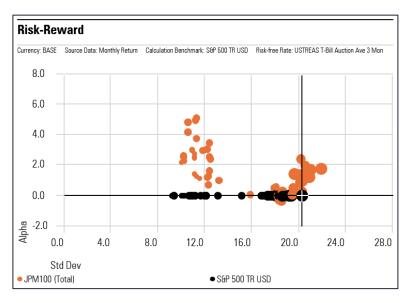
Index	Alpha	Beta	IR	Correlation	Standard Deviation	Sharpe	Capture Ratio
JPM 100	3.71%	1.05	0.77	0.98	22.03%	0.65	1.10
S&P 500	-	1.00	-	1.00	20.55%	0.49	-

\*Back-tested simulated results Source: Bloomberg LP

#### JP Morgan 'Irrational Capital's Human Capital Factor Index' – Risk Profile vs. Benchmarks

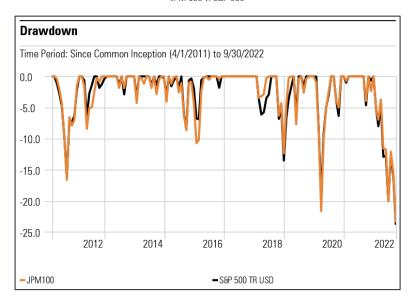
Risk-Reward Matrix – Stronger Alpha Profile

JPM 100 v. S&P 500



Drawdowns – Aligned to Selection Universe

JPM 100 v. S&P 500



<sup>\*</sup> Based on simulation / back-testing

#### JP Morgan 'Irrational Capital's Human Capital Factor Index' - Robustness Test

JPM 100 vs. S&P 500

Feb 15, 2014 - Sep 30, 2022

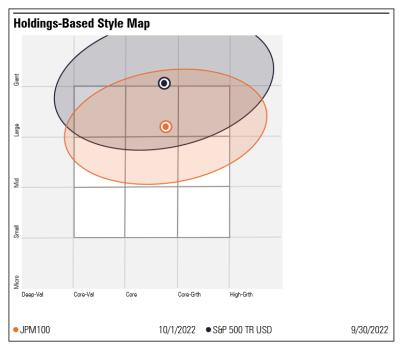
Sector	JPM 100 %	S&P 500 %	Allocation Effect	Selection Effect	Total Attribution
Total Portfolio	100.00	100.00	163.68	256.53	420.21
> Communication Services	3.08	7.59	(4.13)	17.90	13.77
Consumer Discretionary	12.84	8.45	40.63	13.07	53.69
Consumer Staples	6.88	8.63	(3.96)	21.15	17.19
> Energy	8.35	7.57	(13.74)	26.34	12.60
› Financials	12.91	17.56	85.60	89.32	174.91
› Health Care	9.22	12.69	(2.43)	32.97	30.54
› Industrials	9.15	9.30	5.56	27.56	33.12
› Information Technology	23.32	18.26	48.06	3.00	51.06
› Materials	4.55	2.95	6.01	11.43	17.44
› Real Estate	3.24	1.99	(6.87)	12.17	5.30
› Utilities	5.27	2.93	(8.18)	5.72	13.90

Index	Alpha	Mean Excess	Total Return	Correlation	Standard Deviation	Sharpe
JPM 100	3.62%	4.26%	341.46%	0.95	18.16%	0.89
S&P 500 Bottom Quintile	-	-	244.09%	-	17.54%	0.72

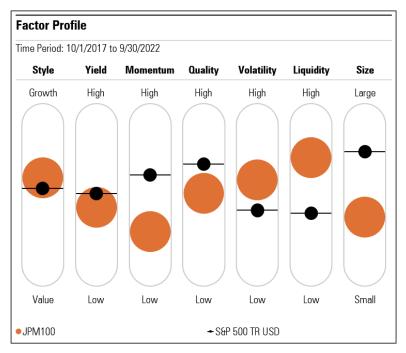
<sup>\*</sup> Based on simulation / back-testing

#### JP Morgan 'Irrational Capital's Human Capital Factor Index'—Factor Analysis





Factor Profile



<sup>\*</sup> Based on simulation / back-testing

## HCF Delivers Statistically Significant Outperformance vs "Copy and Paste" Policy Metrics

HCF vs Other Stakeholder Measurements\*

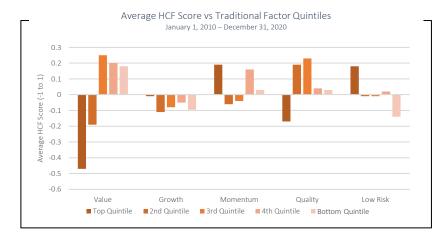
January 1, 2010 – December 31, 2020

Strategy	t-Stat	Annual Return	Annual Volatility	Sharpe Ratio	Hit Rate	Max Drawdown
Compensation	0.3	0.4%	5.7%	0.1	54%	-21%
Diversity**	0.0	-0.2%	5.4%	0.0	53%	-20%
Employment Quality	0.9	-1.3%	4.7%	-0.3	50%	-24%
Human Rights	-0.5	-1.2%	6.4%	-0.2	47%	-29%
Occupational Health & Safety	0.4	0.5%	6.3%	0.1	47%	-20%
Labor Rights	0.2	0.2%	5.7%	0.0	49%	-14%
Training & Development	0.1	0.0%	4.8%	0.0	53%	-16%
Product Quaility & Safety	-0.5	-1.0%	5.3%	-0.2	47%	-20%
Community Relations	1.1	1.6%	5.4%	0.3	59%	-13%
Product Access	0.8	1.3%	5.9%	0.2	52%	-24%
HCF	3.5	5.4%	5.2%	1.0	62%	-8%

<sup>\*\*</sup> Counting measurements

<sup>\*</sup> Source - JPM Research - Introducing the Human Capital Factor

## Human Capital Factor vs. Traditional Factors



#### Factor Excess Return Correlation January 1, 2010 – December 31, 2020

USA Factor	HCF	Value	Growth	Momentum	Quality	Risk
HCF	1.00	0.21	0.39	0.33	0.28	0.41
Value	0.21	1.00	0.53	0.19	0.46	0.64
Growth	0.39	0.53	1.00	0.3	0.29	0.56
Momentum	0.33	0.19	0.3	1.00	0.21	0.26
Quality	0.28	0.46	0.29	0.21	1.00	0.34
Risk	0.41	0.64	0.56	0.26	0.34	1.00

Source: JP Morgan, MSCI

Factor Regression
January 1, 2010 – December 31, 2020

Strategy	t-Stat	Ann. Ret	Ann. Vol	Sharpe	Hit-Rate	Max DD
HCF	3.5	5.4%	5.2%	1.0	62.4%	-8%
Value	0.4	0.8%	10.9%	0.1	50%	-39%
Growth	-0.5	-1.5%	7.3%	-0.2	55%	-26%
Momentum	1.5	3.5%	8.1%	0.4	59%	-19%
Quality	0.5	0.7%	6.0%	0.1	47%	-11%
Risk	0.5	1.2%	14.0%	0.1	53%	-27%



## Human Capital 'Factoring' - Other Portfolios

Strategy	t-Stat	Ret Ann	Vol Ann	Sharpe Ratio	Hit Rate	Max DD
Value	0.4	0.8%	10.9%	0.1	50%	-39%
Value + HCF	1.2	2.7%	8.7%	0.3	58%	-20%
Growth	-0.5	-1.5%	7.3%	-0.2	55%	-26%
Growth + HCF	2.5	4.5%	6.1%	0.7	60%	-11%
Momentum	1.5	3.5%	8.1%	0.4	59%	-19%
Momentum + HCF	3.8	6.3%	5.4%	1.2	59%	-5%
Quality	0.5	0.7%	6.0%	0.1	47%	-11%
Quality + HCF	2.1	3.2%	5.0%	0.6	62%	-9%
Risk	0.5	1.2%	14.0%	0.1	53%	-27%
Risk+ HCF	2.6	7.4%	9.7%	0.8	56%	-12%

Strategy	t-Stat	Ret Ann	Vol Ann	Sharpe Ratio	Hit Rate	Max DD
ESGQ	1.6	2.1%	4.7%	0.5	56%	-8%
ESGQ + HCF	3.2	4.3%	4.5%	1.0	65%	-8%
EQ	1.1	1.4%	4.6%	0.3	56%	-10%
EQ + HCF	2.5	3.2%	4.3%	0.7	62%	-9%
SQ	2	3.1%	5.2%	0.6	59%	-12%
SQ + HCF	1.9	2.6%	4.6%	0.6	60%	-9%
GQ	1.6	2.1%	4.7%	0.5	56%	-8%
GQ + HCF	3.3	4.4%	4.5%	1.0	66%	-8%

## IR RATIONAL CAPITAL

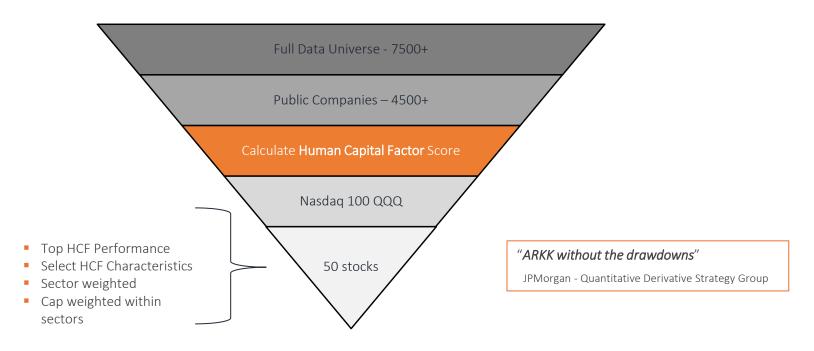
## Breakout Session #3: Innovation

October 2022

■ Quantifying the *Human Capital Factor* ■

#### HCFQX: NASDAQ-100 Filter Portfolio Construction

#### Highly Customizable Strategy Development

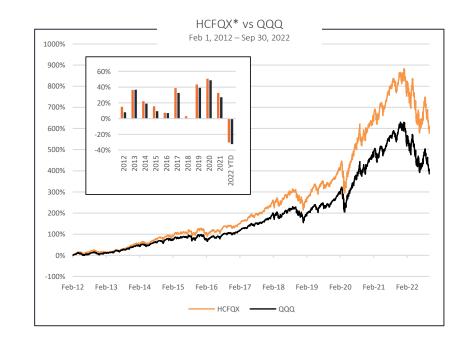


## HCFQX – Pro Forma\* (Historical Prices)

Selection Universe	QQQ
Number of Stocks	~50
Minimum Market Cap	\$20 Billion
Median Market Cap	\$61.2 Billion
Rebalance Schedule	Quarterly

Key Portfolio Characteristics

- Sector-weighted to the NASDAQ100
- Capitalization-weighted within each sector
- Name limits to prevent extreme weight differentials

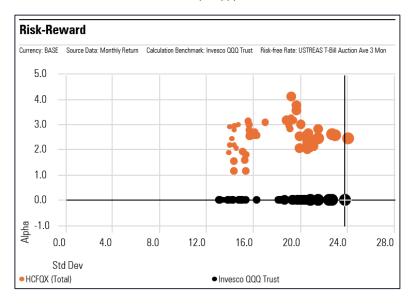


Index	Alpha	Beta	IR	Correlation	Standard Deviation	Sharpe	Tracking Error
HCFQX	2.86%	1.03	1.49	0.99	25.69%	1.10	3.90
QQQ	-	1.00	÷	1.00	24.76%	0.96	-

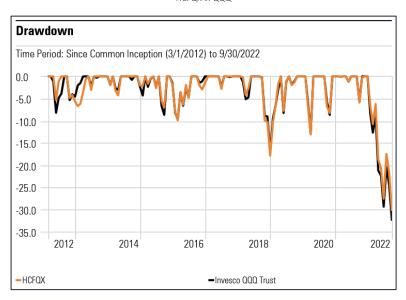
\*Back-tested simulated results Source: Bloomberg LP

#### HCFQX – Risk Profile vs. Benchmarks

Risk-Reward Matrix – Stronger Alpha Profile



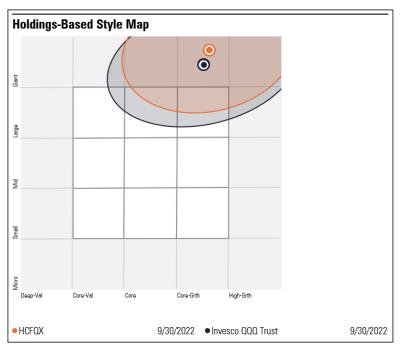
Drawdowns – Aligned to Selection Universe



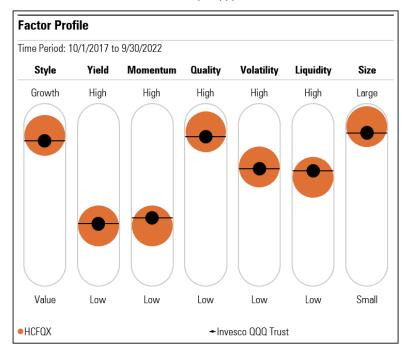
<sup>\*</sup> Based on simulation / back-testing

## HCFQX – Factor Analysis

Holdings Map



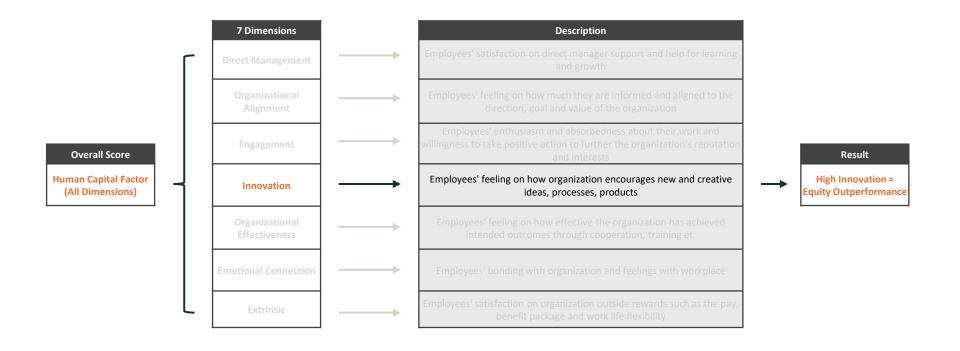
Factor Profile HCFQX v. QQQ



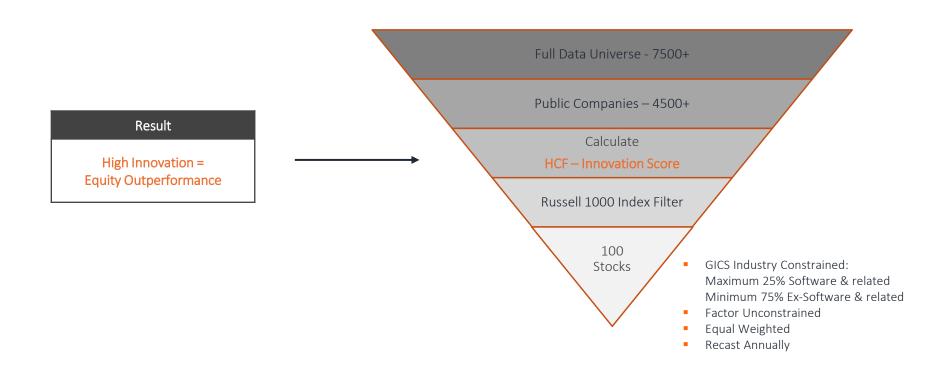
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## HCF Granularity Allows for Dimensional Strategies

#### Headline Score Filterable by Cultural Sub-Factors



## Innovation Dimension Strategy: IC Innovation Portfolio

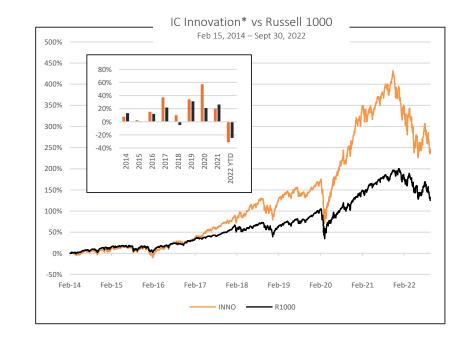


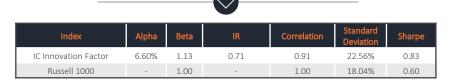
## IC Innovation Portfolio – Pro Forma\* (Historical Prices)

Selection Universe	Russell 1000
Number of Stocks	100
Minimum Market Cap	\$1 Billion
Weighting	Equal Weight
Rebalance Schedule	Annually

Key Characteristics

- Psychological Safety
- Inclusive Innovation
- Overall Company Perspective
- Culture & Values
- Senior Leadership
- Org. Alignment
- Motivation & Purpose





\*Back-tested simulated results Source: Bloomberg LP

### IC Innovation Portfolio - Robustness Test

IC Innovation vs. Russell 1000

Feb 15, 2014 – Sep 30, 2022

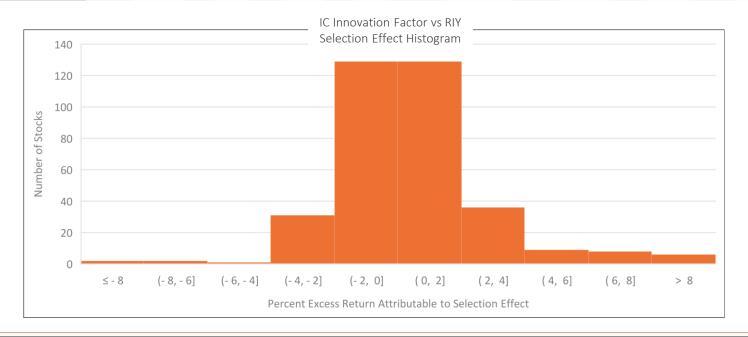
Sector	IC Innovation %	Russell 1000 %	Allocation Effect	Selection Effect	Total Attribution
Total Portfolio	100.00	100.00	45.17	110.35	155.52
› Communication Services	6.50	9.58	3.36	(4.95)	(1.60)
Consumer Discretionary	10.25	10.34	0.05	28.97	29.01
› Consumer Staples	6.14	7.30	1.21	(2.09)	(0.87)
› Energy	3.52	5.46	1.94	5.87	7.81
› Financials	11.03	13.05	0.56	6.75	7.31
› Health Care	9.09	14.09	0.90	11.94	12.84
› Industrials	7.92	9.85	2.56	1.06	3.62
› Information Technology	35.89	20.62	34.09	60.15	94.24
› Materials	1.93	3.04	0.16	(1.04)	(0.88)
› Real Estate	5.46	3.51	(1.41)	2.14	0.73
› Utilities	2.27	2.98	1.65	1.54	3.20

Index	Alpha	Mean Excess	Total Return	Correlation	Standard Deviation	Sharpe
IC Innovation	10.69%	11.13%	280.17%	0.80	22.56%	0.83
Innovation Bottom Quintile	-	-	96.71%	-	22.69%	0.44

<sup>\*</sup> Based on simulation / back-testing

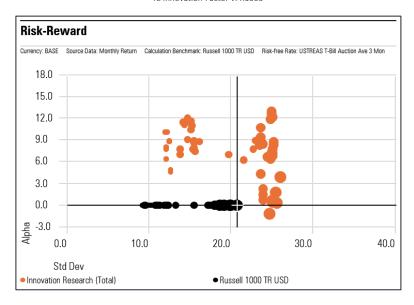
## IC Innovation Portfolio vs Russell 1000 – Characteristics (2021)

Name	Div Yld (P)	Div Yld (B)	P/E (P)	P/E (B)	P/CF (P)	P/CF (B)	P/B (P)	P/B (B)	Debt/Eq (P)	Debt/Eq (B)	Current Ratio (P)	Current Ratio (B)	Best Div Yld (P)	Best Div Yld (B)	ROE (P)	ROE (B)
Innovation Factor vs RIY	1.66	1.68	64.80	26.97	25.84	19.83	4.85	4.73	125.10	120.13	1.57	1.37	1.10	1.37	10.69	17.58

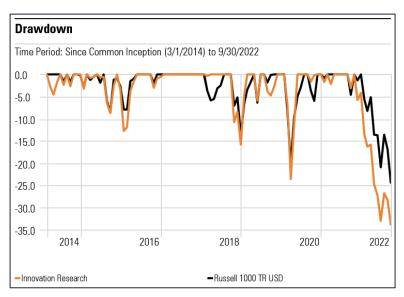


#### IC Innovation Portfolio – Risk Profile vs. Benchmarks

Risk-Reward Matrix
IC Innovation Factor v. R1000



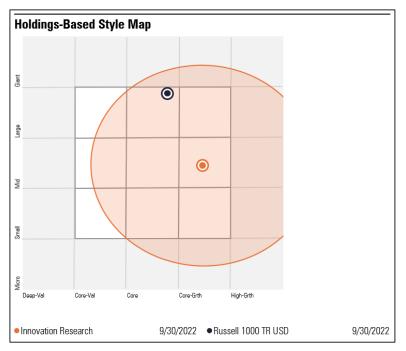
#### Drawdowns IC Innovation Factor v. R1000



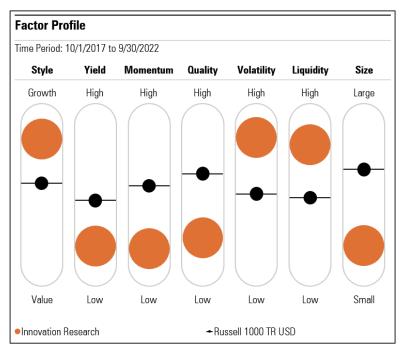
<sup>\*</sup> Based on simulation / back-testing

## IC Innovation Portfolio — Factor Analysis

Holdings Map
IC Innovation Factor v. R1000



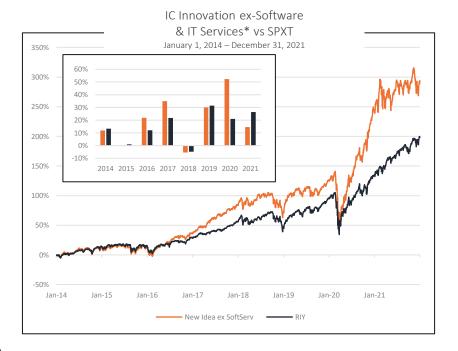
#### Factor Profile IC Innovation Factor v. R1000



<sup>\*</sup> Based on simulation / back-testing

#### IC Innovation Portfolio – EXCLUDING SOFTWARE & IT SERVICES vs S&P 500 Ex-Tech

Selection Universe	Russell 1000 ex. Software & IT Services GICS Level 2
Number of Stocks	75
Minimum Market Cap	\$1B
Weighting & Rebalance	Market Capitalization Weight Recast Annually
Key Characteristics	Psychological Safety Inclusive Innovation Overall Company Perspective Culture & Values Senior Leadership Organizational Alignment Motivation & Purpose





Index	Alpha	Beta	IR	Correlation	Standard Deviation	Sharpe	Drawdown
IC ex SoftServ	3.92%	1.08	0.65	0.94	19.89%	1.04	37.60%
SPXT	-	1.00	-	1.00	17.35%	0.90	34.57%

<sup>\*</sup>All numbers are based on simulation / back testing

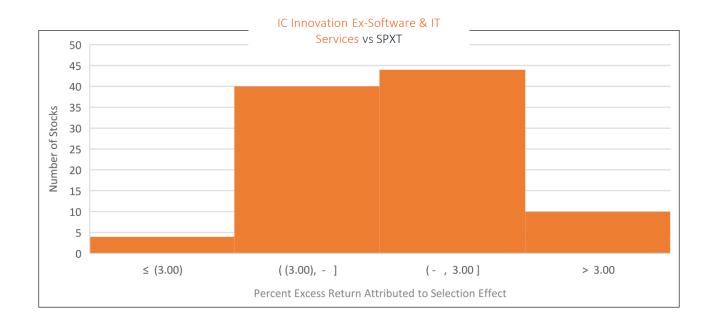
#### IC Innovation EX-SOFTWARE & IT SERVICES — Robustness Test

#### IC Innovation Ex S&IT vs. SPXT

Feb 15, 2014 – Sep 30, 2022

Sector	IC Inno-S&IT %	SPXT %	Allocation Effect	Selection Effect	Total Attribution
Total Portfolio	100.00	100.00	23.15	59.98	83.13
Communication Services	6.98	9.82	4.18	(0.88)	3.30
› Consumer Discretionary	12.80	13.77	2.25	36.39	38.64
› Consumer Staples	7.79	10.04	0.80	(1.34)	(0.54)
> Energy	3.11	6.54	0.39	1.54	1.94
› Financials	17.41	16.86	0.37	8.14	8.51
› Health Care	11.68	19.16	(1.99)	13.98	11.99
) Industrials	10.57	12.08	(0.53)	(1.85)	(2.38)
› Information Technology	15.72	0.17	18.23	1.08	19.31
> Materials	2.72	3.62	(1.03)	(0.29)	(1.31)
› Real Estate	8.14	3.78	(0.68)	1.59	0.91
› Utilities	3.08	4.06	1.00	1.62	2.61

#### IC Innovation EX-SOFTWARE & IT SERVICES — Robustness Test

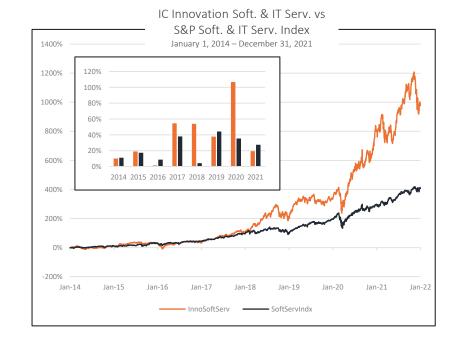


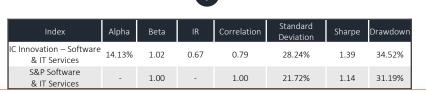
#### IC Innovation SOFTWARE & IT SERVICES vs S&P Software & IT Services Index

Selection Universe	GICS Software & IT Services
Number of Stocks	25
Minimum Market Cap	\$1 Billion
Weighting	Equal Weight

Key Characteristics

Psychological Safety
Inclusive Innovation
Overall Company Perspective
Culture & Values
Senior Leadership
Organizational Alignment
Motivation & Purpose



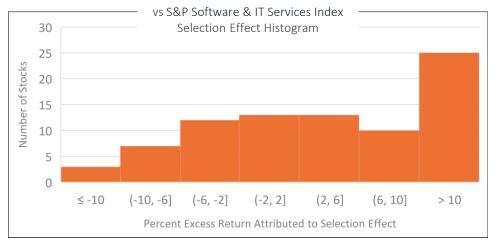


\*Back-tested simulated results Source: Bloomberg LP

#### IC Innovation SOFTWARE & IT SERVICES vs S&P Software & IT Services Index

Name	Tot Rtn (P)	Tot Rtn (B)	Tot Rtn (D)	CTR (P)	CTR (B)	CTR (D)	Allocation	Selection	Total Attribution
IC Innovation S&T	1,040.83	290.40	750.43	1,040.83	290.40	750.43	46.04	678.47	724.51
› IT Services	2,565.23	203.49	2,361.74	276.96	75.93	188.42	20.18	311.00	331.18
> Software	787.73	360.62	427.12	763.87	190.62	652.65	25.86	367.48	393.33

#### IC Innovation Software & IT Services



## IR RATIONAL CAPITAL

## Breakout Session #4: Gender

October 2022

■ Quantifying the *Human Capital Factor* ■

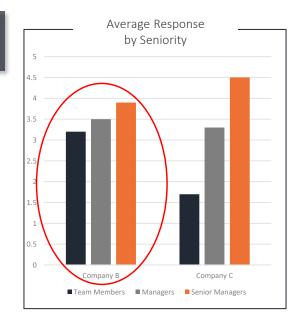
### Demographic Data Extends the Human Capital Factor

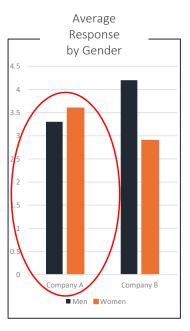


#### Demographic Data:

Organizational Alignment

- Seniority: Team Member/Manager/Senior Manager
- Tenure: Months of Employment
- Salary Band
- Title, Department, Location (HQ, Satellite, etc.)
- Age Range
- Parental Status
- Race
- Zip Code
- Gender





Aligned Organizations Outperform Organizations with a Demographic 'Gap'

### Gender Investing 1.0

#### Current Approach

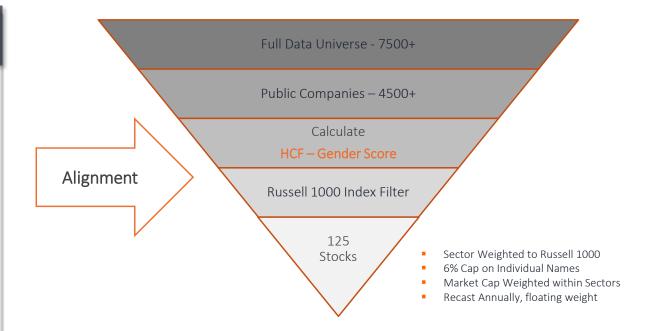
- Counting # of Women
  - Board
  - C-suite
  - Management
  - % of Employees
- Policy / Public Statements
- Women CEO's
- Women in Leadership Assessments
- Example = <u>SHE</u> ETF

Baseline Method = Gender Investing is about 'Counting'

#### IC Gender Investing 2.0

## Strong Signal: Intrinsic Motivation

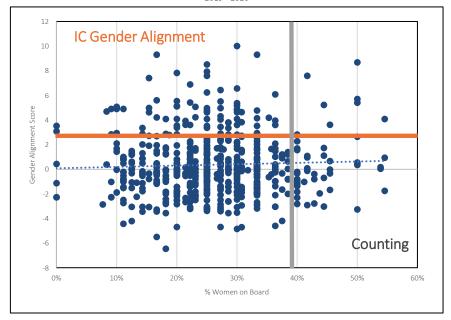
- Management
- Leadership / Right Direction
- Psychological Safety
- Alignment
- Diversity of Perspective
- Career Growth / Development
- Autonomy
- Trust / Transparency
- Effectiveness / Efficiency
- Motivation
- Purpose
- Compensation Fairness
- Pride



Opportunity = Invest When Women & Men Agree on Strong Signals

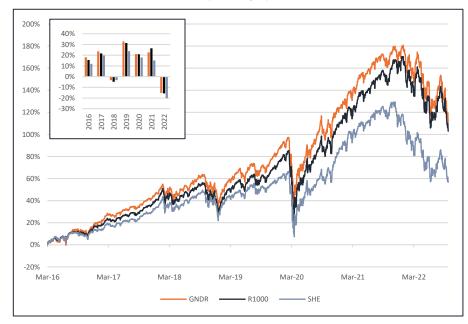
## IC Gender Investing - Alignment vs Counting

Correlation: Gender Alignment vs. Board Composition 2019 - 2020



IC Gender Alignment\* vs R1000 & SHE

Mar 8, 2016 – Sep 30, 2022



Index	Alpha	Beta	IR	Correlation	Standard Deviation	Sharpe
IC Gender Alignment	0.75%	0.99	0.30	0.99	23.12%	0.76
SSGA SHE ETF	(3.77%)	0.99	(1.36)	0.98	23.26%	0.46
Russell 1000	-	1.00	-	-	23.09%	0.71

<sup>\*</sup> Based on simulation / back-testing

#### IC Gender Robustness Test

#### IC Gender Alignment vs. Russell 1000

Mar 8, 2016 – Sep 16, 2022

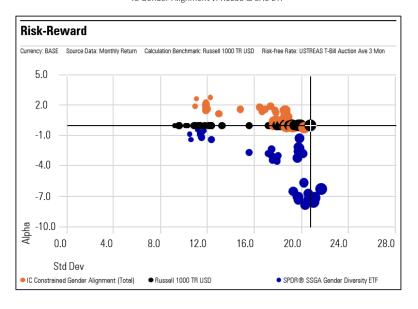
Sector	IC Gender Alignment %	R1000 Benchmark %	Allocation Effect	Selection Effect	Total Attribution
Total Portfolio	100.00	100.00	(3.54)	20.15	16.60
› Communication Services	10.15	9.78	(1.25)	16.14	14.90
Consumer Discretionary	10.82	10.62	0.25	2.94	3.20
› Consumer Staples	6.70	6.91	0.74	3.53	4.27
› Energy	4.68	4.59	(1.19)	4.58	3.39
> Financials	12.60	12.77	(0.25)	0.67	0.42
› Health Care	13.82	13.88	0.93	0.04	0.98
› Industrials	9.28	9.49	(0.17)	(5.55)	(5.71)
› Information Technology	22.26	22.31	0.50	(3.28)	(2.78)
› Materials	2.70	2.88	0.10	(3.83)	(3.72)
› Real Estate	3.61	3.54	(0.24)	3.42	3.17
› Utilities	1.34	2.95	0.55	(1.39)	(0.84)

Index	Alpha	Beta	IR	Correlation	Standard Deviation	Sharpe
IC Gender Alignment	0.75%	0.99	0.30	0.99	23.12%	0.76
Random Selection	(1.54%)	1.14	(0.10)	0.94	28.81%	0.68
Russell 1000 - TR	-	-	-	-	23.09%	0.71

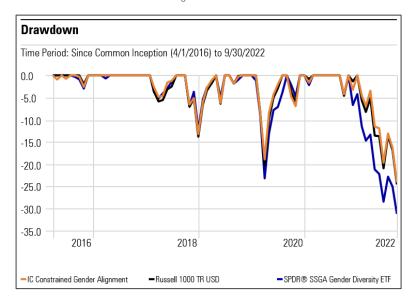
<sup>\*</sup> Based on simulation / back-testing

## Gender Investing – Risk Profile vs. Benchmarks

Risk-Reward Matrix — Stronger Alpha Profile
IC Gender Alignment v. R1000 & SHE ETF



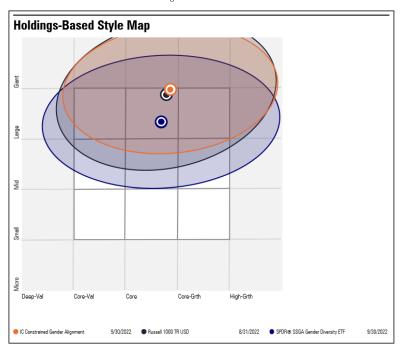
Drawdowns – Less Downside/Skew Risk
IC Gender Alignment v. R1000 & SHE ETF



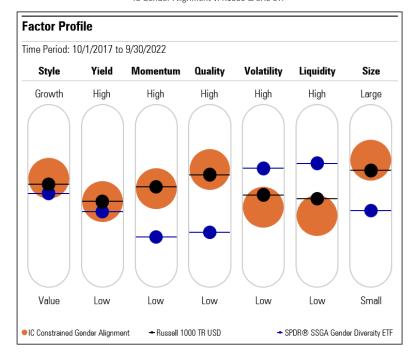
<sup>\*</sup> Based on simulation / back-testing

### Gender Investing – Factor Analysis

Holdings Map – Less Style Drift IC Gender Alignment v. R1000 & SHE ETF



Factor Profile – Less Unintended Risks
IC Gender Alignment v. R1000 & SHE ETF



<sup>\*</sup> Based on simulation / back-testing

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