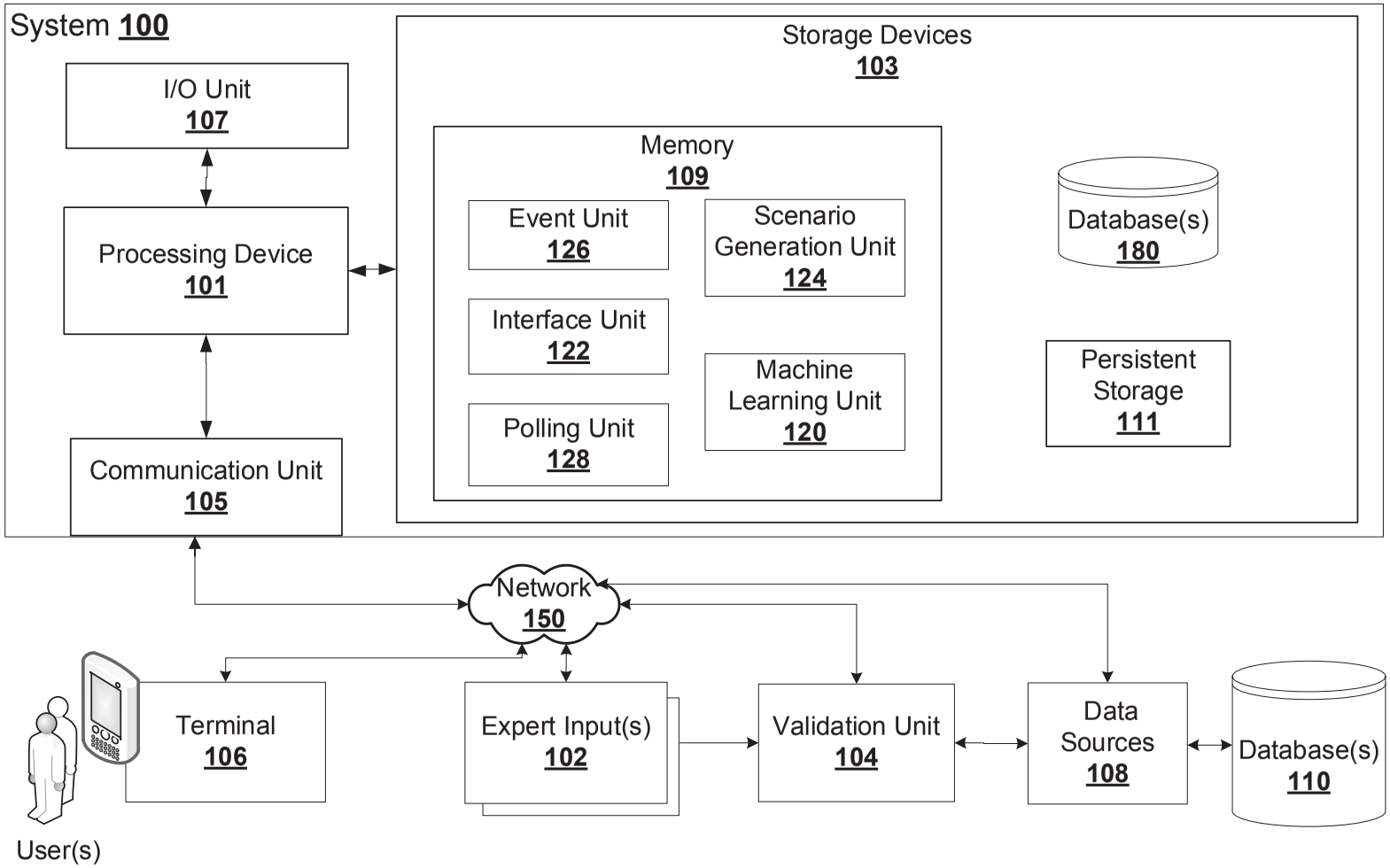

System 100
I/O Unit
107
Processing Device
101
Communication Unit
105
Storage Devices
103
Memory
109
Event Unit
126
Scenario Generation Unit
124
Interface Unit
122
Machine Learning Unit
120
Polling Unit
128
Database(s)
180
Persistent Storage
111
Network
150
Terminal
106
User(s)
Expert Input(s)
102
Validation Unit
104
Data Sources
108
Database(s)
110

FIG. 1

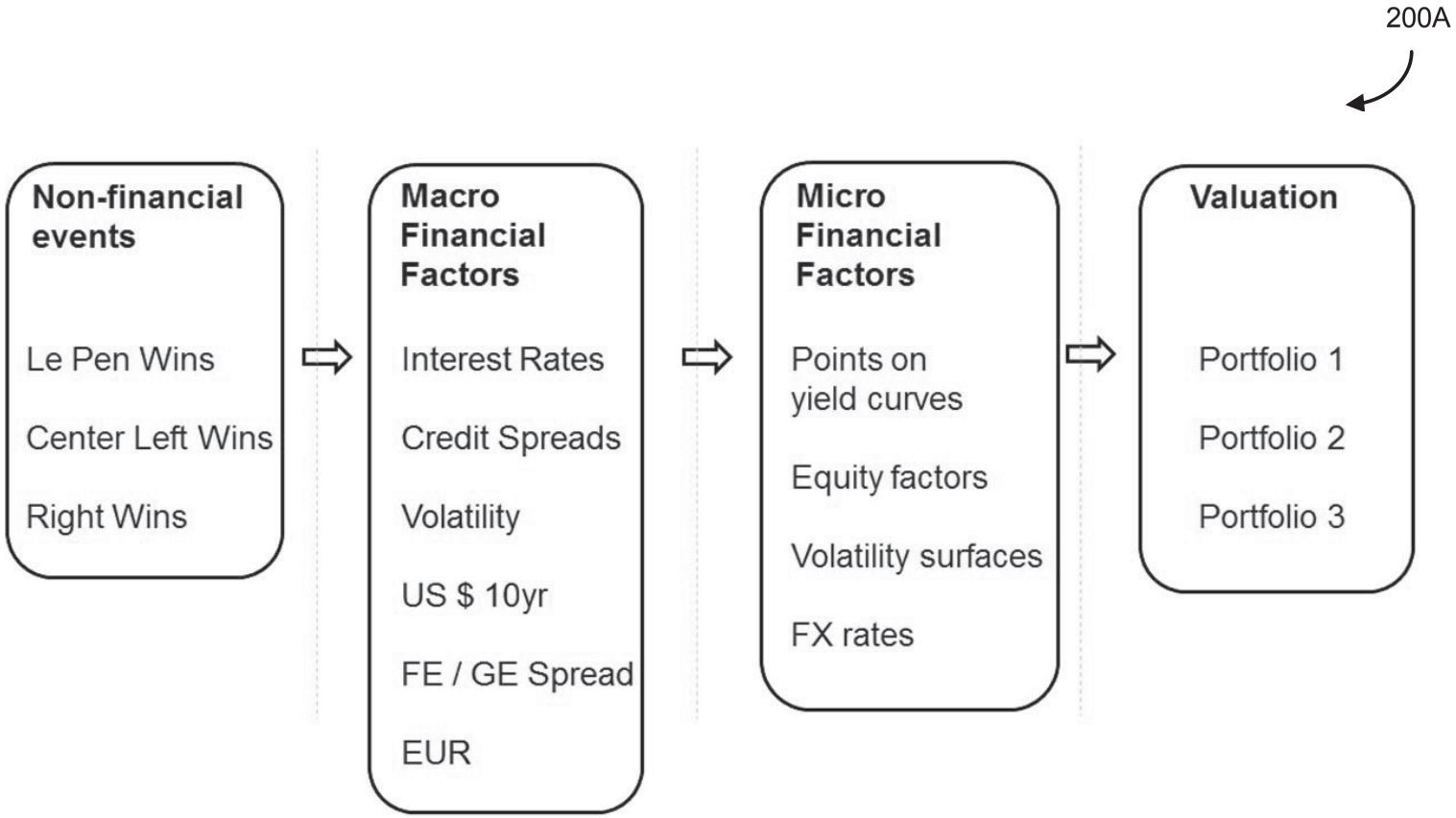

200A
Non-financial events
Le Pen Wins
Center Left Wins
Right Wins
Macro Financial Factors
Interest Rates
Credit Spreads
Volatility
US $ 10yr
FE / GE Spread
EUR
Micro Financial Factors
Points on yield curves
Equity factors
Volatility surfaces
FX rates
Valuation
Portfolio 1
Portfolio 2
Portfolio 3

FIG. 2A

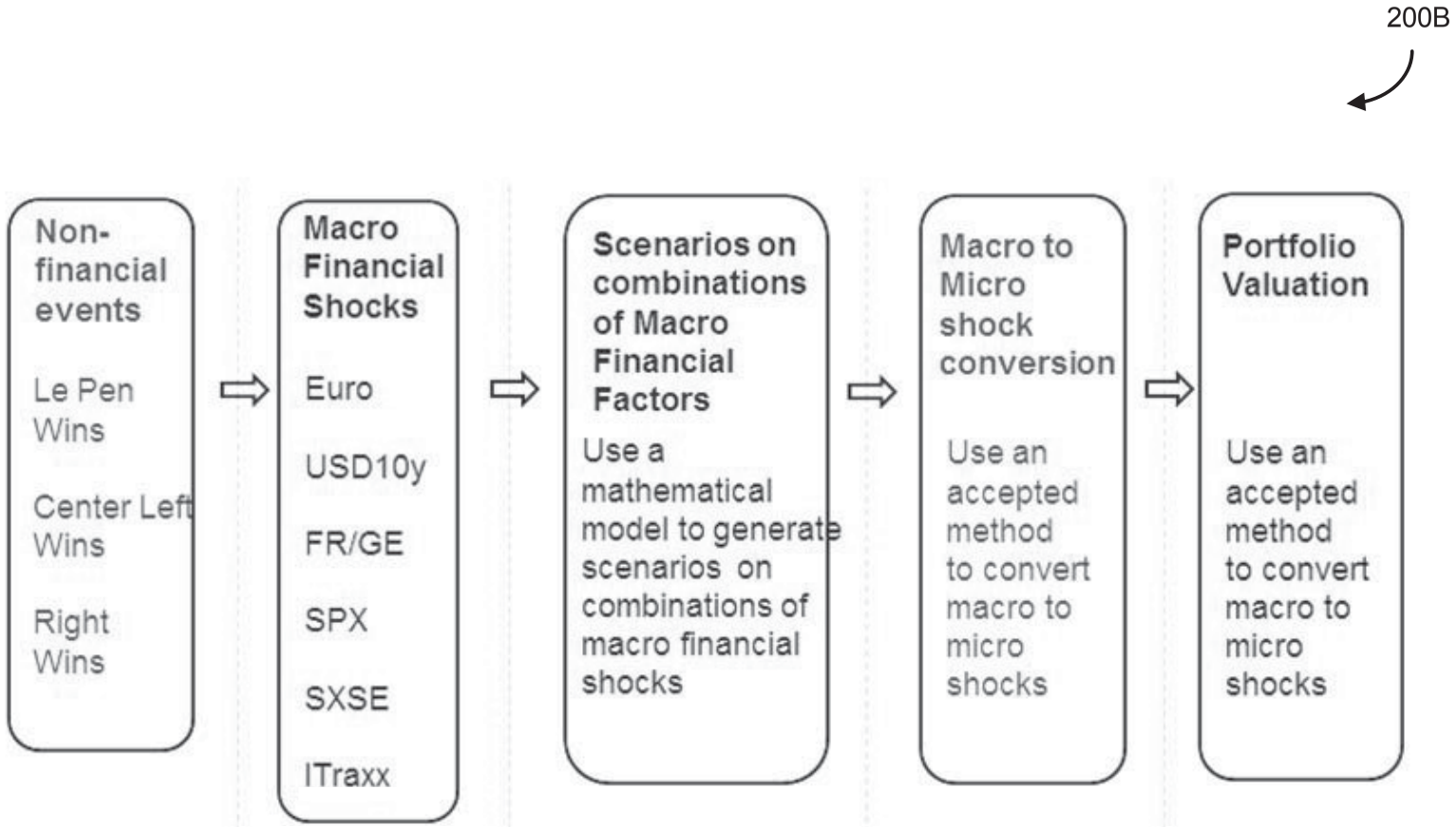

200B
Non-financial events
Le Pen Wins
Center Left Wins
Right Wins
Macro Financial Shocks
Euro
USD10y
FR/GE
SPX
SXSE
ITraxx
Scenarios on combinations of Macro Financial Factors
Use a mathematical model to generate scenarios on combinations of macro financial shocks
Macro to Micro shock conversion
Use an accepted method to convert macro to micro shocks
Portfolio Valuation
Use an accepted method to convert macro to micro shocks

FIG. 2B

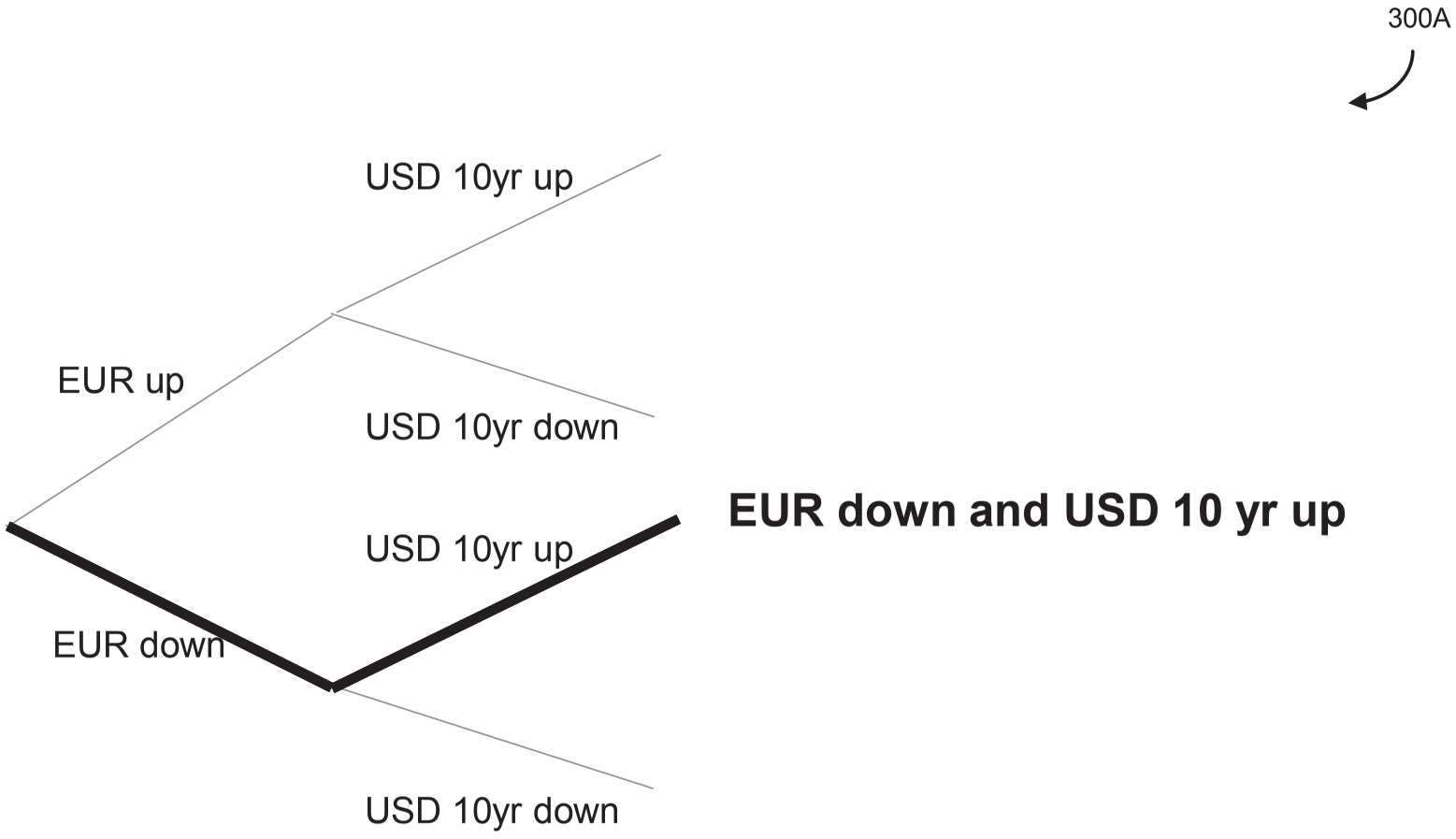

300A
USD 10yr up
EUR up
USD 10yr down
EUR down and USD 10 yr up
USD 10yr up
EUR down
USD 10yr down

FIG. 3A

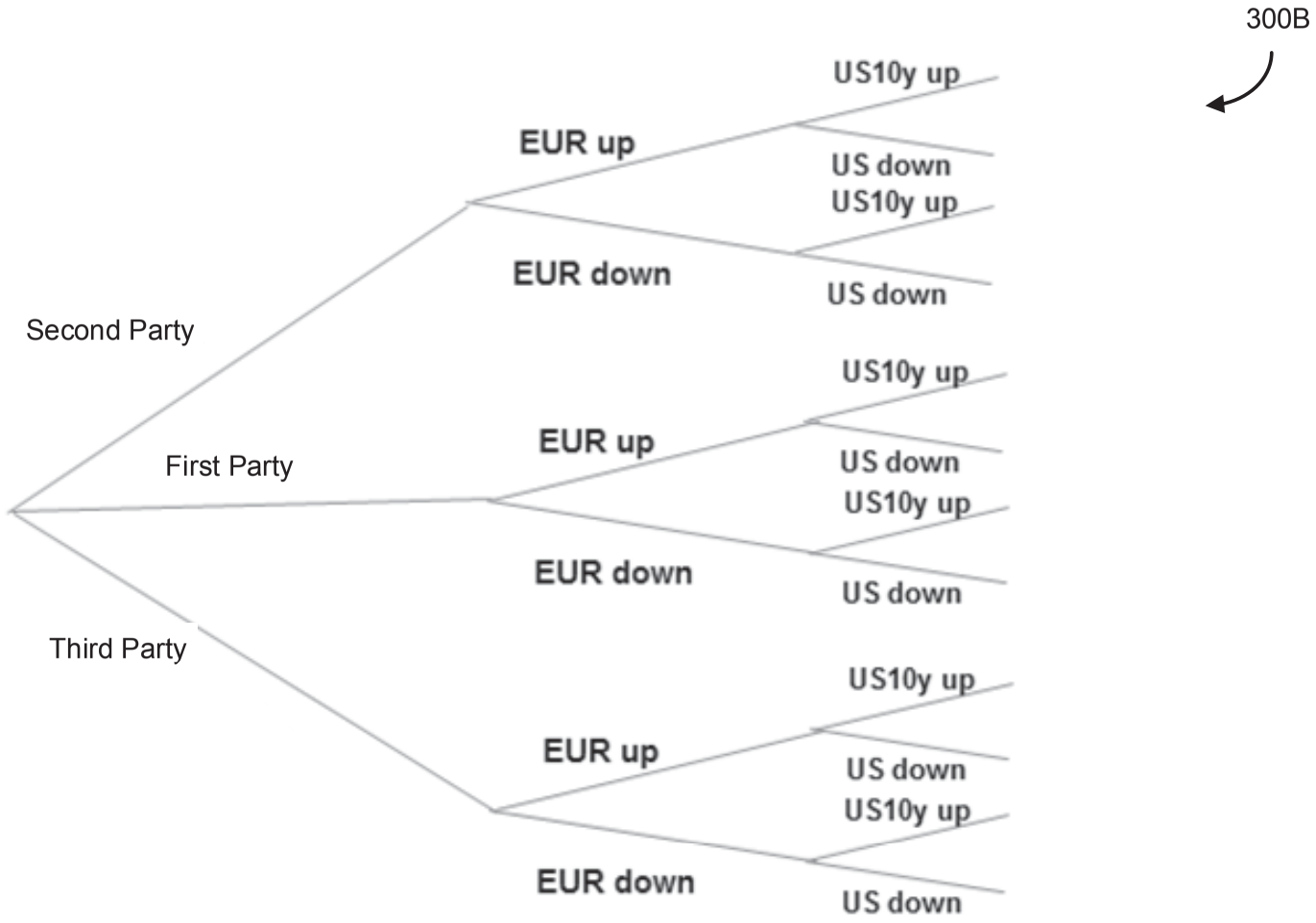

300B
Second Party
First Party
Third Party
EUR up
EUR down
EUR up
EUR down
EUR up
EUR down
US10y up
US down
US10y up
US down
US10y up
US down
US10y up
US down
US10y up
US down

FIG. 3B

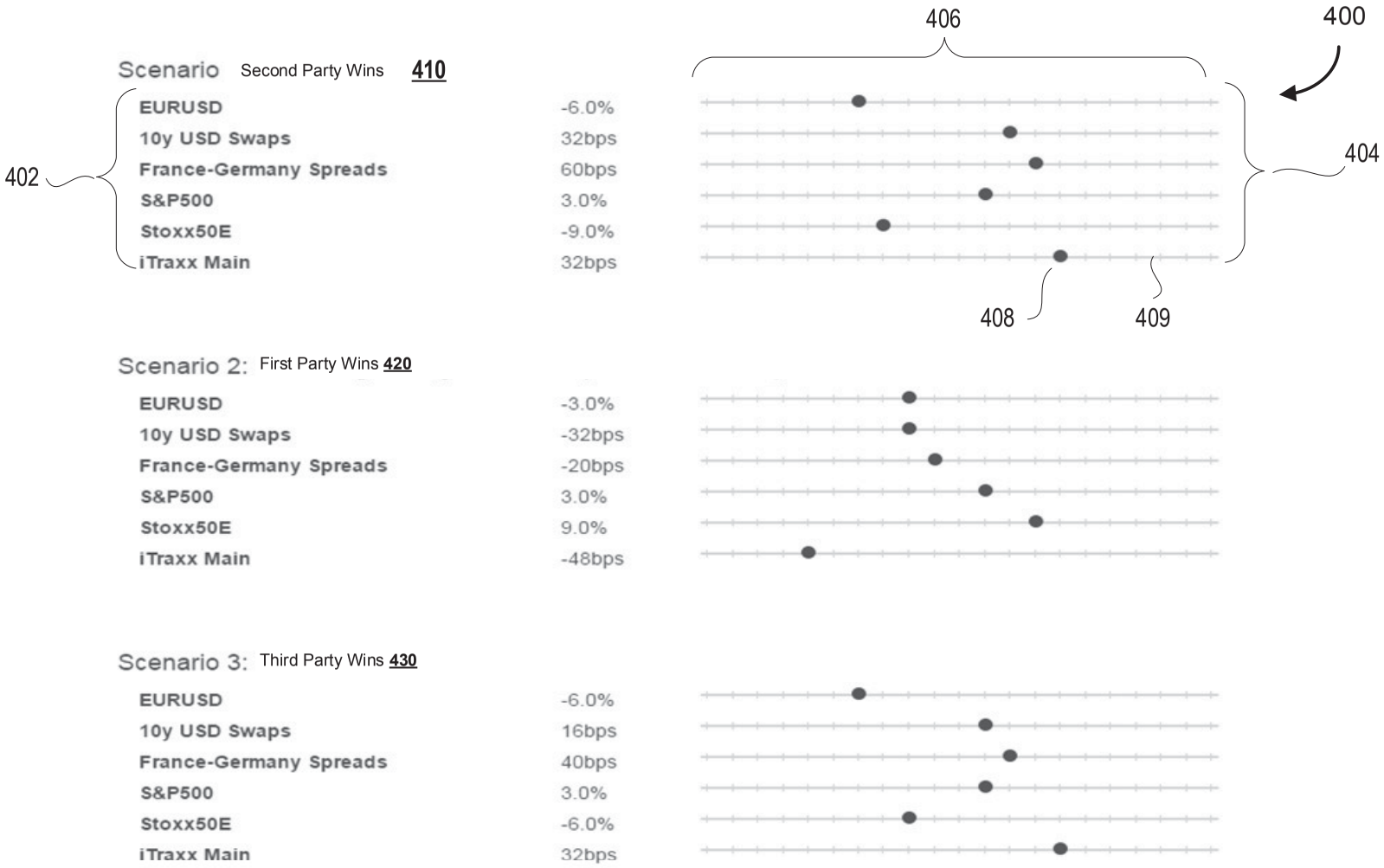

400
402
404
406
408
409
410
420
430
Scenario Second Party Wins
EURUSD -6.0%
10y USD Swaps 32bps
France-Germany Spreads 60bps
S&P500 3.0%
Stoxx50E -9.0%
iTraxx Main 32bps
Scenario 2: First Party Wins
EURUSD -3.0%
10y USD Swaps -32bps
France-Germany Spreads -20bps
S&P500 3.0%
Stoxx50E 9.0%
iTraxx Main -48bps
Scenario 3: Third Party Wins
EURUSD -6.0%
10y USD Swaps 16bps
France-Germany Spreads 40bps
S&P500 3.0%
Stoxx50E -6.0%
iTraxx Main 32bps

FIG. 4

500A

Second Party Wins						
	EUR	**US10y**	**FRGE**	**SPX**	**SX5E**	**iTraxx**
Probability Up	12%	20%	88%	20%	13%	79%
Probability Dn	88%	80%	12%	80%	87%	21%
Shock Up	7.38	64.8	47.39	15.68	18.29	28
Shock Dn	(7.06)	(37.00)	(47.50)	(10.56)	(16.27)	(34.00)
First Party Wins						
	EUR	**US10y**	**FRGE**	**SPX**	**SX5E**	**iTraxx**
Probability Up	77%	46%	13%	47%	75%	18%
Probability Dn	23%	54%	87%	53%	25%	82%
Shock Up	4.79	47.3	46.15	7.44	10.36	29.94
Shock Dn	(3.98)	(29.33)	(26.09)	(7.22)	(8.00)	(21.00)
Third Party Wins						
	EUR	**US10y**	**FRGE**	**SPX**	**SX5E**	**iTraxx**
Probability Up	13%	25%	71%	21%	17%	70%
Probability Dn	87%	75%	29%	79%	83%	30%
Shock Up	7.27	54.4	25.92	11.94	13.65	24.6
Shock Dn	(4.78)	(33.92)	(22.76)	(7.89)	(10.94)	(10.50)

FIG. 5A

500B

First Party						
	EUR (%)	US10y(bps)	FRGE (bp	SPX %	SX5E %	iTraxx bps
Probability Up	84%	94%	14%	92%	94%	27%
Probability Dn	16%	6%	86%	8%	6%	73%
Shock_up	5.00	49.20	22.50	6.00	9.82	23.07
Shock_Dn	(3.31)	(23.40)	(36.00)	(2.00)	(7.40)	(19.50)

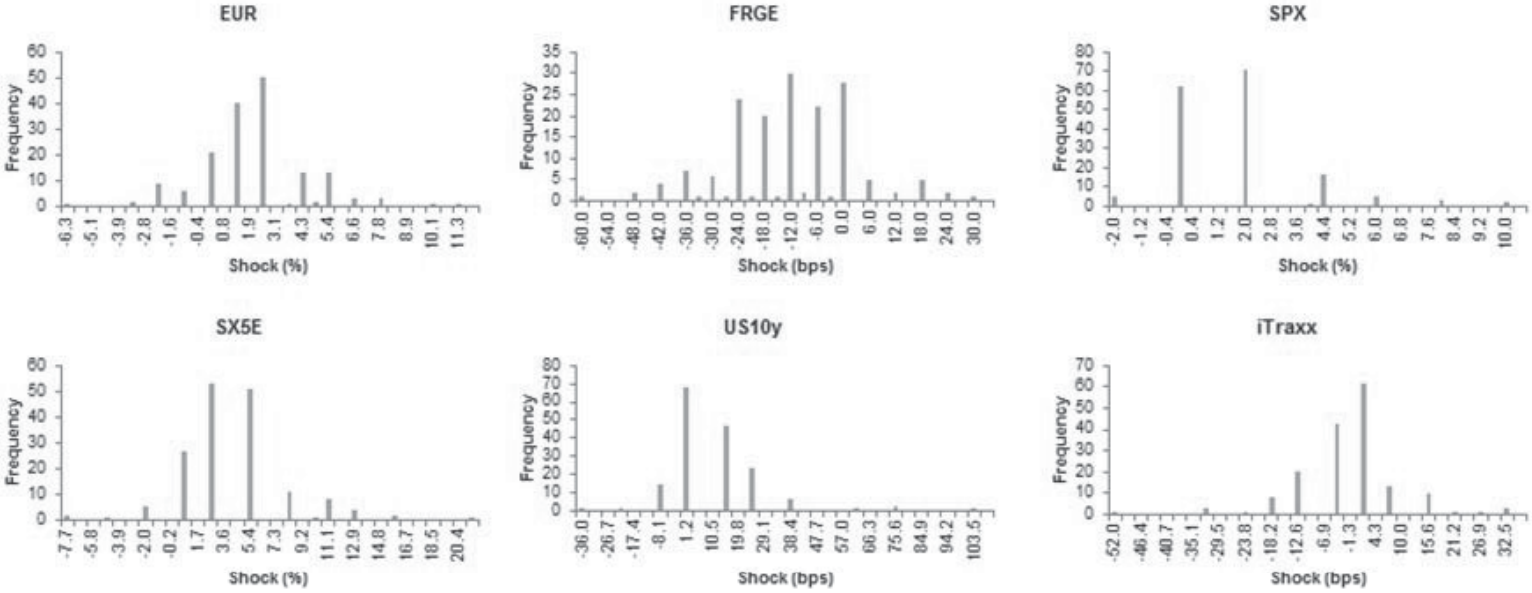


FIG. 5B

500C

Second Party						
	EUR (%)	US10y(bps)	FRGE (bp	SPX %	SX5E %	iTraxx bps
Probability Up	13%	26%	93%	31%	17%	26%
Probability Dn	87%	74%	7%	69%	83%	74%
Shock_up	10.65	60.00	102.00	7.10	10.58	61.10
Shock_Dn	(12.69)	(56.40)	(34.20)	(10.00)	(16.70)	(27.63)

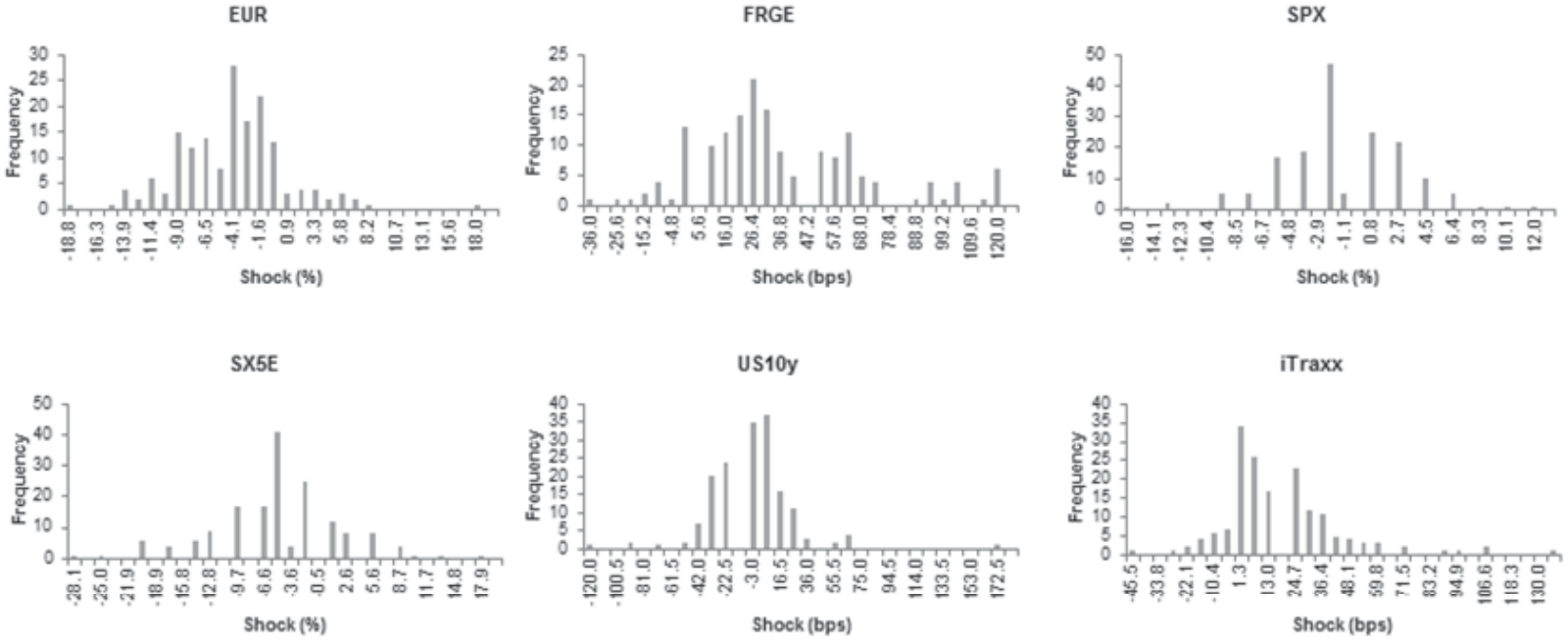


FIG. 5C

500D

Third Party						
	EUR	US10y	FRGE	SPX	SX5E	iTraxx
Probability	28%	57%	58%	52%	40%	60%
Probability	72%	43%	42%	48%	60%	40%
Up	6.50	36.00	72.00	8.96	10.20	41.60
Dn	(10.00)	(36.00)	(23.38)	(8.80)	(15.30)	(20.48)

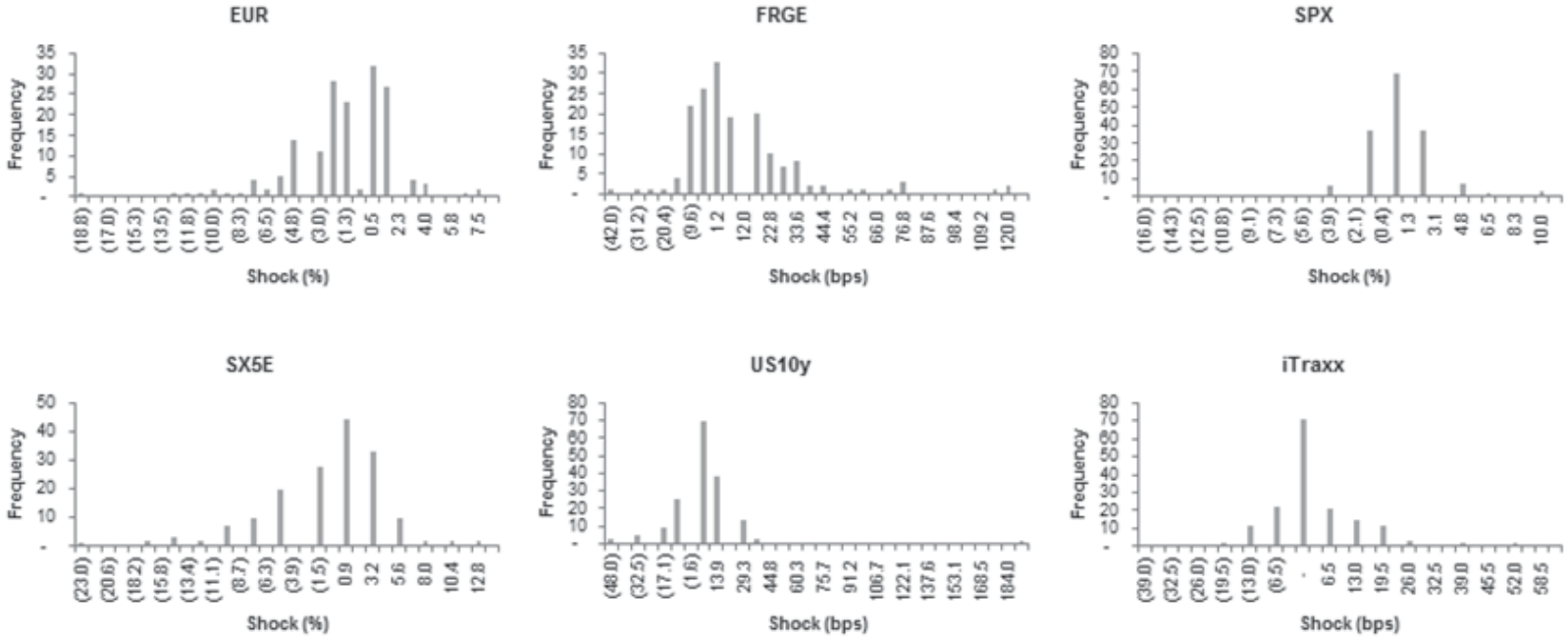


FIG. 5D

500E

Upside Shock Levels

Rates

US 10Y +50 bps

	2y	5y	10y
USD	28.69	53.88	50.00
EUR	13.52	19.02	19.31
GBP	10.42	17.65	18.00
JPY	2.48	4.85	3.13

FX

EUR +5.00%

CCY	EUR	GBP	JPY	CHF	HKD	TWD	KRW	AUD	MXN
Shock	5.00%	3.27%	3.01%	6.49%	0.01%	1.74%	6.25%	4.32%	2.07%

Credit

ITRAXX +25.00%

CD	ITRAXX EU	US IG	US HY	CDX EM
Shock	25.00%	23.91%	13.90%	16.73%

EQ

ESTOXX +10.00%

EQ	ESTOXX	NIKKEI	HSI	TOPIX	DAX	RUSSELL	SPX
Shock	10.00%	9.00%	10.60%	6.40%	11.79%	11.58%	6.00%

Downside Shock Levels

US 10Y -25 bps

	2y	5y	10y
USD	-22.32	-32.53	-25.00
EUR	-14.79	-14.67	-13.83
GBP	-14.81	-16.15	-14.61
JPY	-2.46	-4.10	-4.30

EUR -4.00%

CCY	EUR	GBP	JPY	CHF	HKD	TWD	KRW	AUD	MXN
Shock	-4.00%	-4.07%	1.69%	-3.13%	-0.04%	-1.15%	-5.30%	-4.75%	-3.01%

ITRAXX -20.00%

CD	ITRAXX EU	US IG	US HY	CDX EM
Shock	-20.00%	-17.72%	-9.90%	-13.15%

ESTOXX -7.50%

EQ	ESTOXX	NIKKEI	HSI	TOPIX	DAX	RUSSELL	SPX
Shock	-7.50%	-8.39%	-8.51%	-7.63%	-9.79%	-9.11%	-2.00%

FIG. 5E

500F

Upside Shock Levels

Rates

US 10Y +35 bps

	2y	5y	10y
USD	22.62	40.52	35.00
EUR	8.44	14.95	16.16
GBP	8.03	15.94	18.09
JPY	1.87	3.58	3.74

FX

EUR +7.00%

CCY	EUR	GBP	JPY	CHF	HKD	TWD	KRW	AUD	MXN
Shock	7.00%	2.60%	4.09%	10.17%	0.00%	2.43%	5.30%	5.15%	1.42%

Credit

ITRAXX +40.00%

CD	ITRAXX EU	US IG	US HY	CDX EM
Shock	40.00%	32.13%	22.70%	35.74%

EQ

ESTOXX +10.00%

EQ	ESTOXX	NIKKEI	HSI	TOPIX	DAX	RUSSELL	SPX
Shock	10.00%	9.00%	10.60%	6.40%	11.79%	11.58%	9.00%

Downside Shock Levels

US 10Y -35 bps

	2y	5y	10y
USD	-27.65	-41.23	-35.00
EUR	-20.60	-19.88	-17.49
GBP	-19.04	-19.58	-17.40
JPY	-3.11	-4.80	-4.86

EUR -10.00%

CCY	EUR	GBP	JPY	CHF	HKD	TWD	KRW	AUD	MXN
Shock	-10.00%	-9.72%	9.06%	-0.60%	0.05%	-2.76%	-10.19%	-12.98%	-4.00%

ITRAXX -25.00%

CD	ITRAXX EU	US IG	US HY	CDX EM
Shock	-25.00%	-23.24%	-9.80%	-15.56%

ESTOXX -15.00%

EQ	ESTOXX	NIKKEI	HSI	TOPIX	DAX	RUSSELL	SPX
Shock	-15.00%	-24.33%	-16.32%	-19.76%	-21.61%	-15.65%	-9.00%

FIG. 5F

500G

Upside Shock Levels

Rates

US 10Y +60 bps

	2y	5y	10y
USD	16.61	47.88	60.00
EUR	9.76	15.06	15.35
GBP	5.73	10.98	14.72
JPY	-0.20	2.35	6.40

FX

EUR +11.00%

CCY	EUR	GBP	JPY	CHF	HKD	TWD	KRW	AUD	MXN
Shock	11.00%	4.25%	5.79%	10.15%	0.00%	2.29%	5.21%	5.39%	2.01%

Credit

ITRAXX +60.00%

CD	ITRAXX EU	US IG	US HY	CDX EM
Shock	60.00%	29.35%	27.48%	33.15%

EQ

ESTOXX +11.00%

EQ	ESTOXX	NIKKEI	HSI	TOPIX	DAX	RUSSELL	SPX
Shock	11.00%	9.00%	10.60%	6.40%	11.79%	11.58%	7.50%

Downside Shock Levels

US 10Y -55 bps

	2y	5y	10y
USD	-29.94	-49.79	-55.00
EUR	-23.49	-22.81	-21.91
GBP	-26.21	-24.95	-22.50
JPY	-4.64	-6.06	-5.54

EUR -13.00%

CCY	EUR	GBP	JPY	CHF	HKD	TWD	KRW	AUD	MXN
Shock	-13.00%	-9.72%	9.06%	-0.60%	0.05%	-2.76%	-10.19%	-12.98%	-4.00%

ITRAXX -30.00%

CD	ITRAXX EU	US IG	US HY	CDX EM
Shock	-29.52%	-23.24%	-9.80%	-15.56%

ESTOXX -13.00%

EQ	ESTOXX	NIKKEI	HSI	TOPIX	DAX	RUSSELL	SPX
Shock	-13.00%	-24.33%	-16.32%	-19.76%	-21.61%	-15.65%	-10%

FIG. 5G

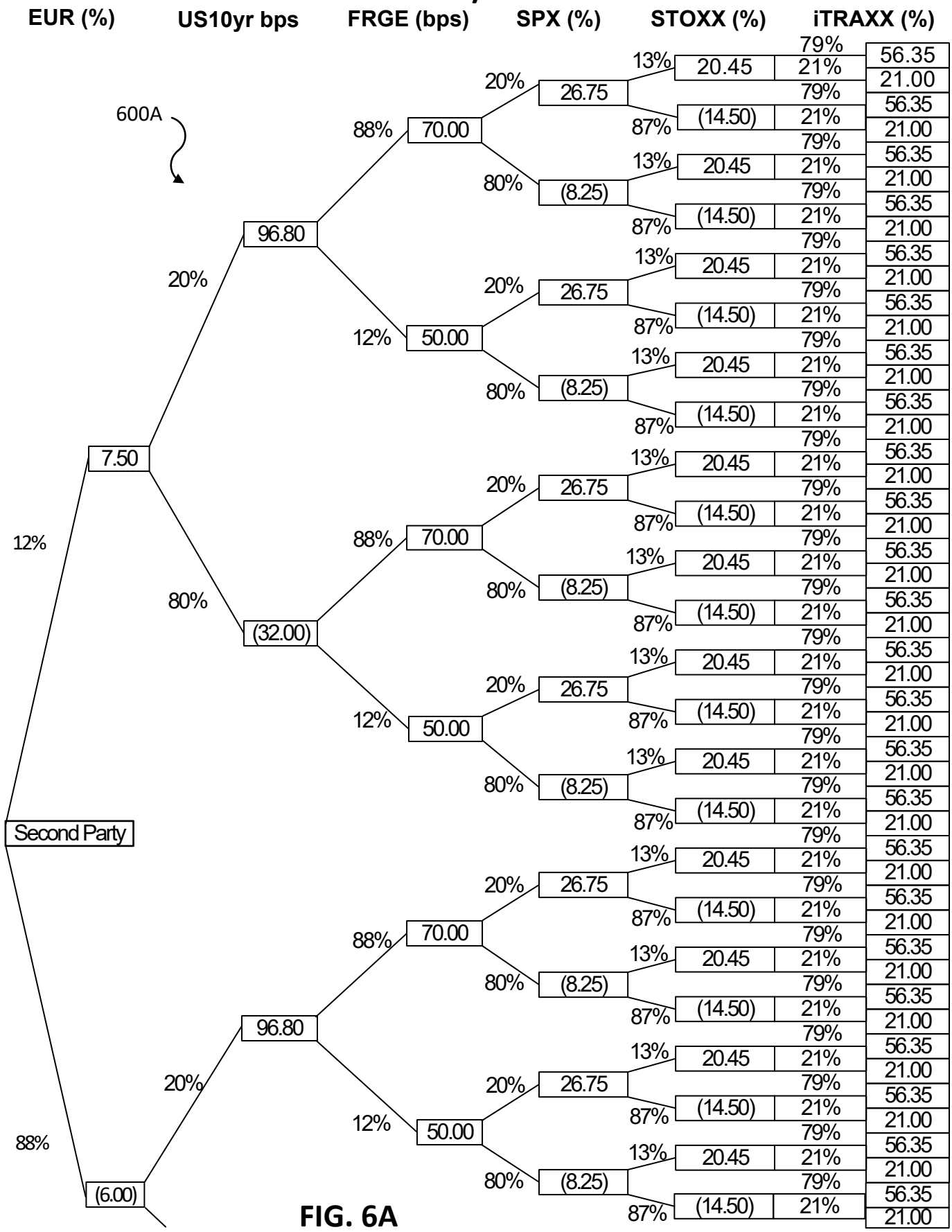

EUR (%)
US10yr bps
FRGE (bps)
SPX (%)
STOXX (%)
iTRAXX (%)
600A
Second Party
12%
88%
7.50
(6.00)
20%
80%
96.80
(32.00)
88%
12%
70.00
50.00
20%
80%
26.75
(8.25)
13%
87%
20.45
(14.50)
79%
21%
56.35
21.00

FIG. 6A

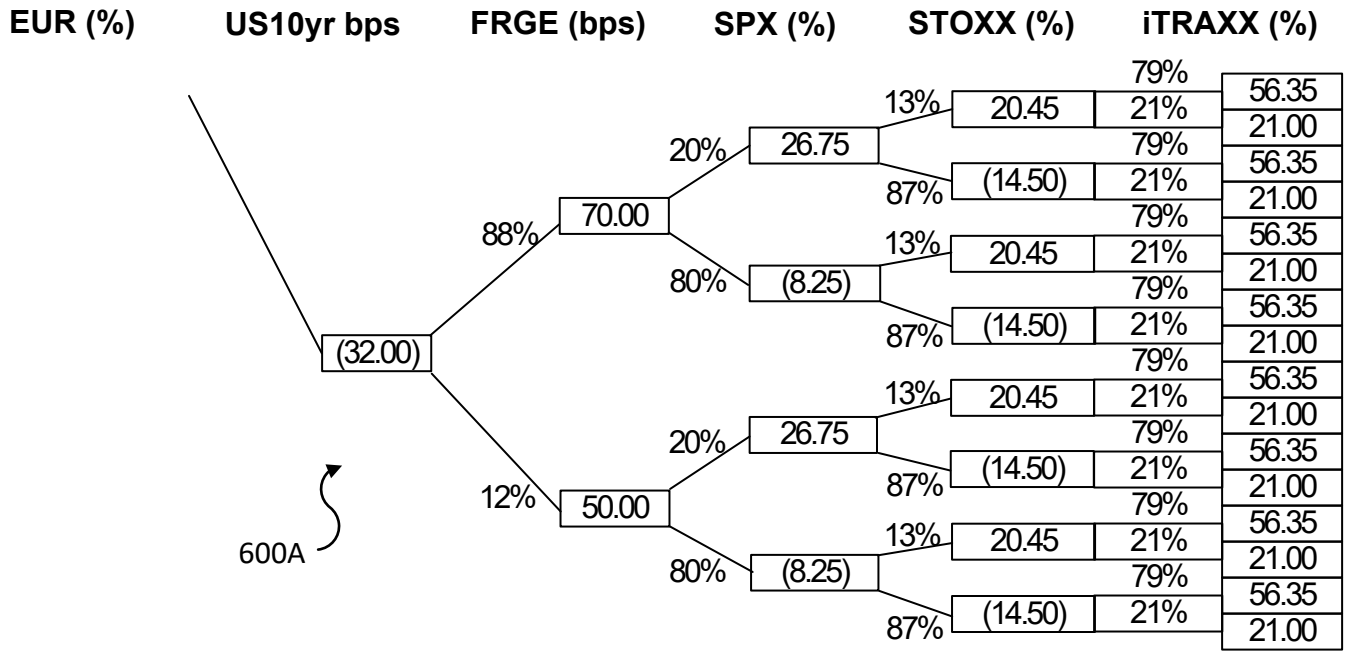


FIG. 6A (continued)

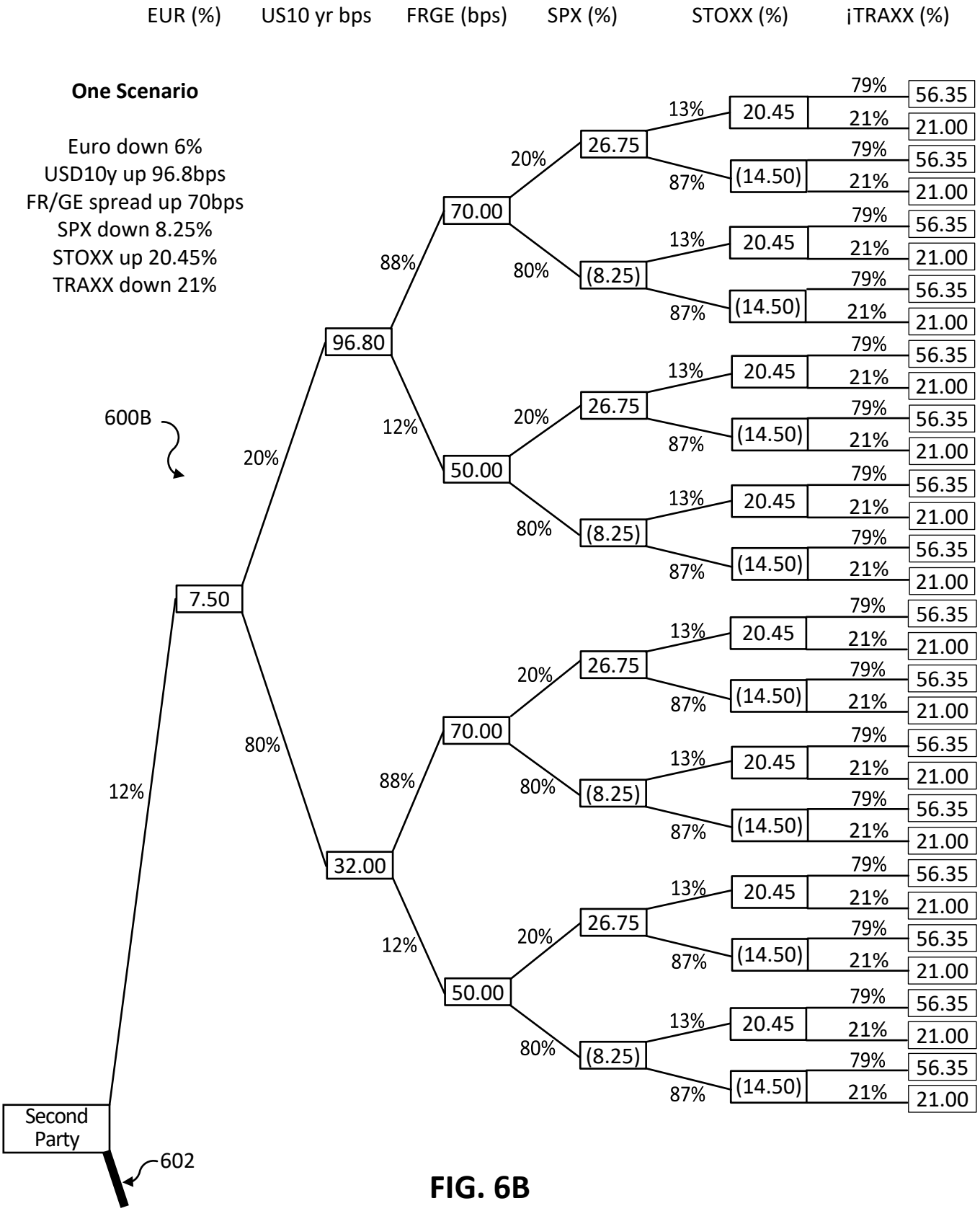
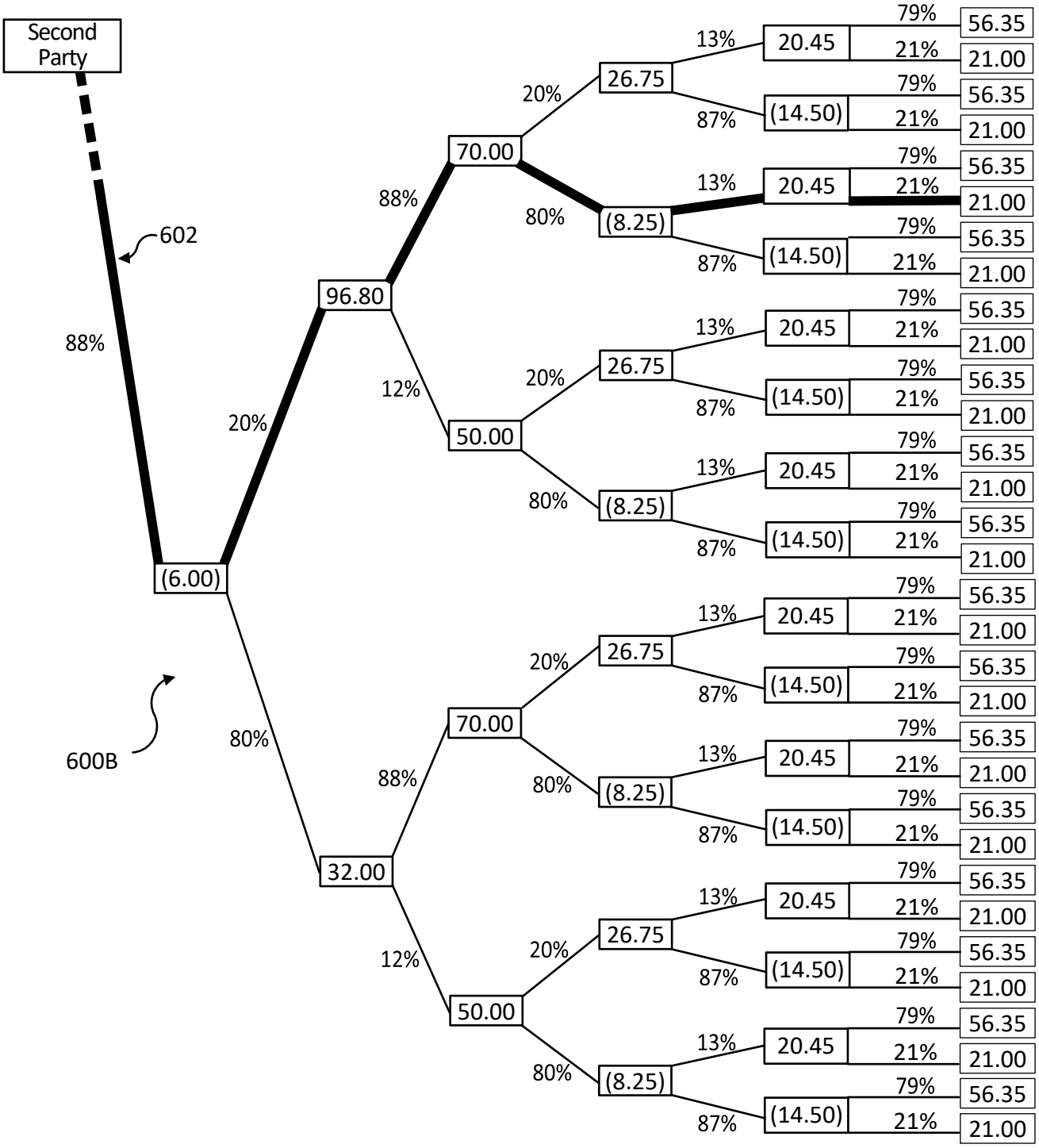

EUR (%)
US10 yr bps
FRGE (bps)
SPX (%)
STOXX (%)
¡TRAXX (%)
One Scenario
Euro down 6%
USD10y up 96.8bps
FR/GE spread up 70bps
SPX down 8.25%
STOXX up 20.45%
TRAXX down 21%
600B
602
Second Party
7.50
12%
80%
20%
96.80
32.00
88%
12%
70.00
50.00
20%
80%
26.75
(8.25)
13%
87%
20.45
(14.50)
79%
21%
56.35
21.00

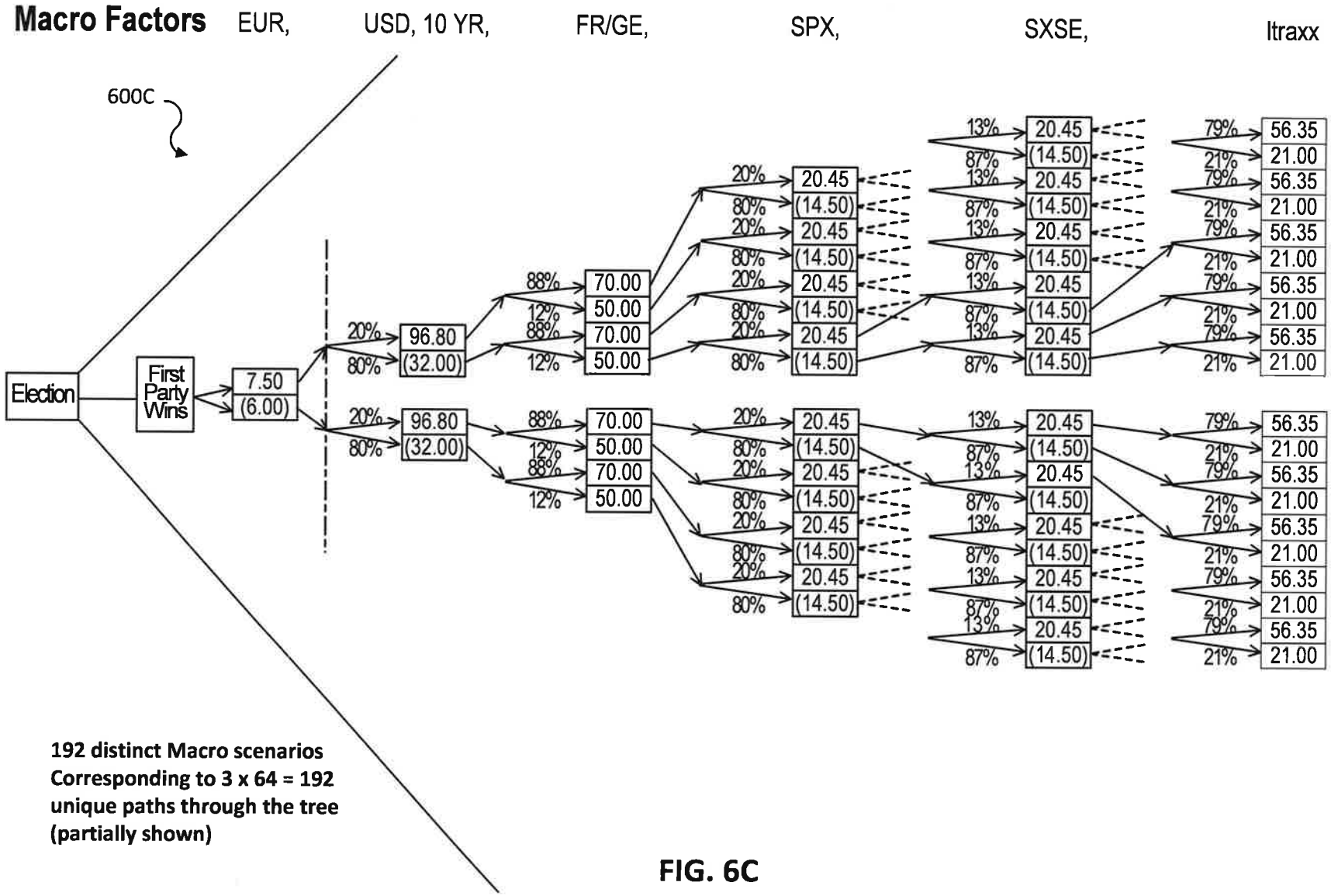
FIG. 6B



6 Macro Factors

2^6 paths in the tree = 64 paths = 64 scenarios

FIG. 6B (continued)



192 distinct Macro scenarios Corresponding to 3 x 64 = 192 unique paths through the tree (partially shown)

FIG. 6C

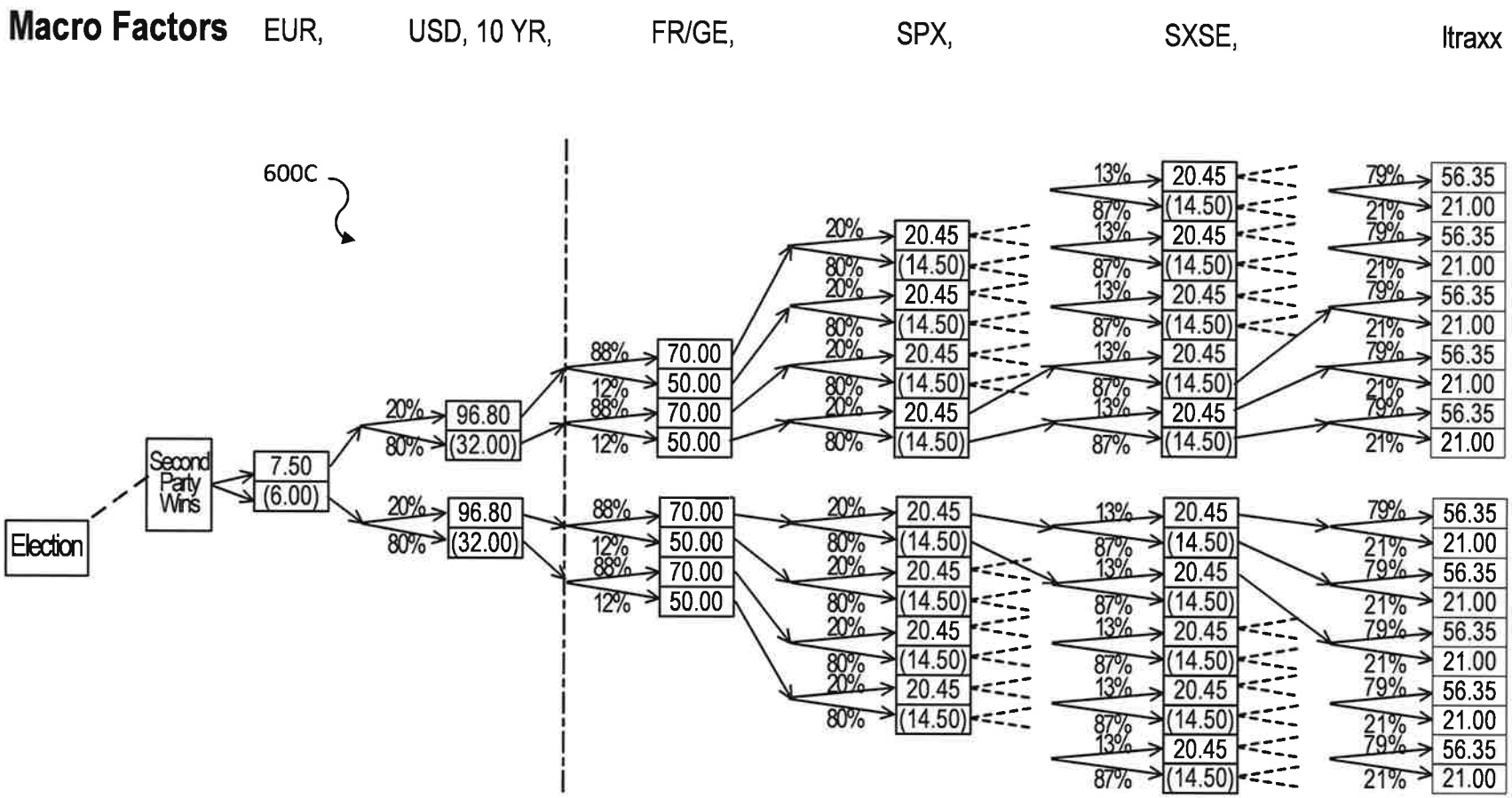


FIG. 6C (continued)

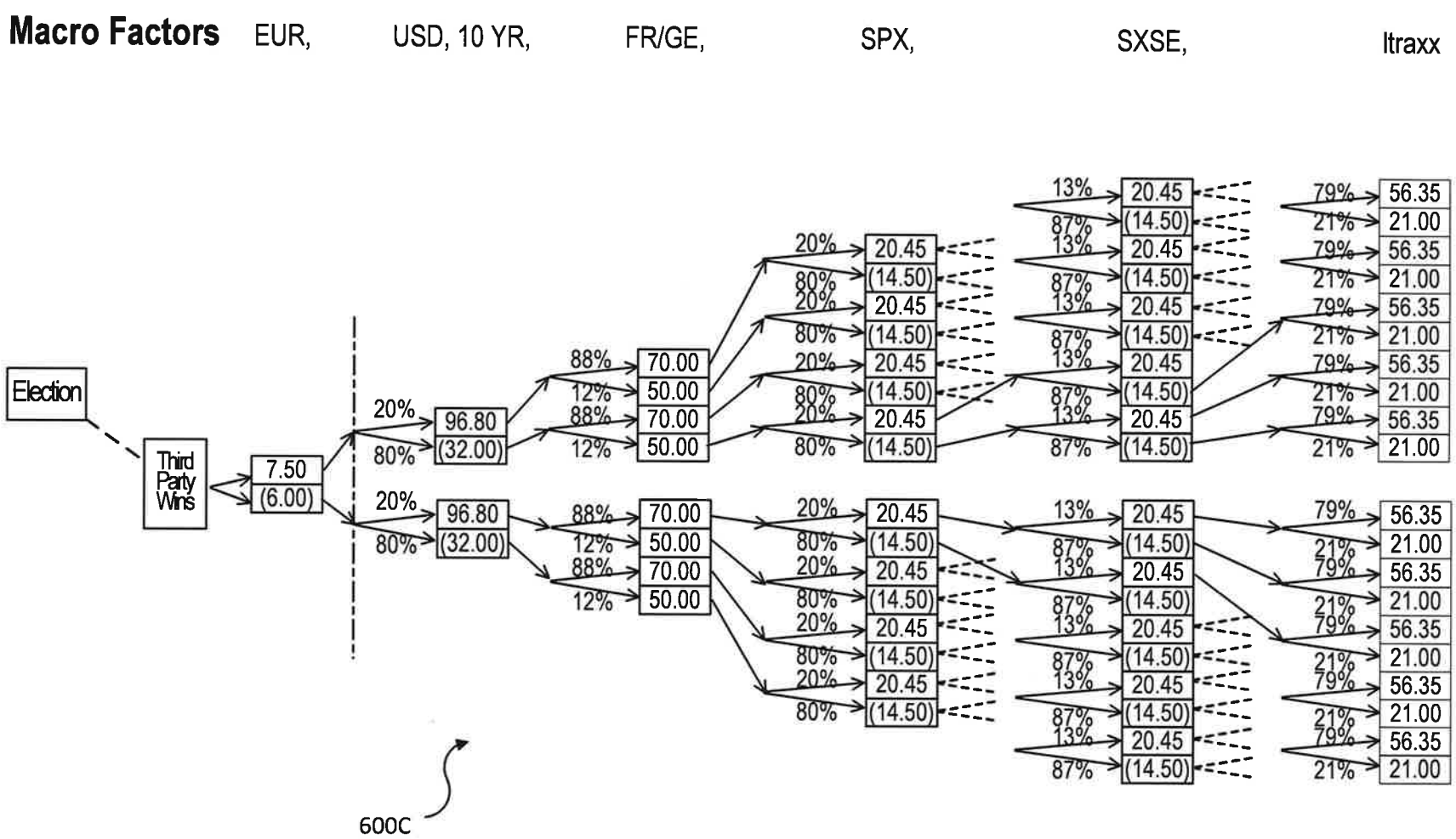


FIG. 6C (continued)

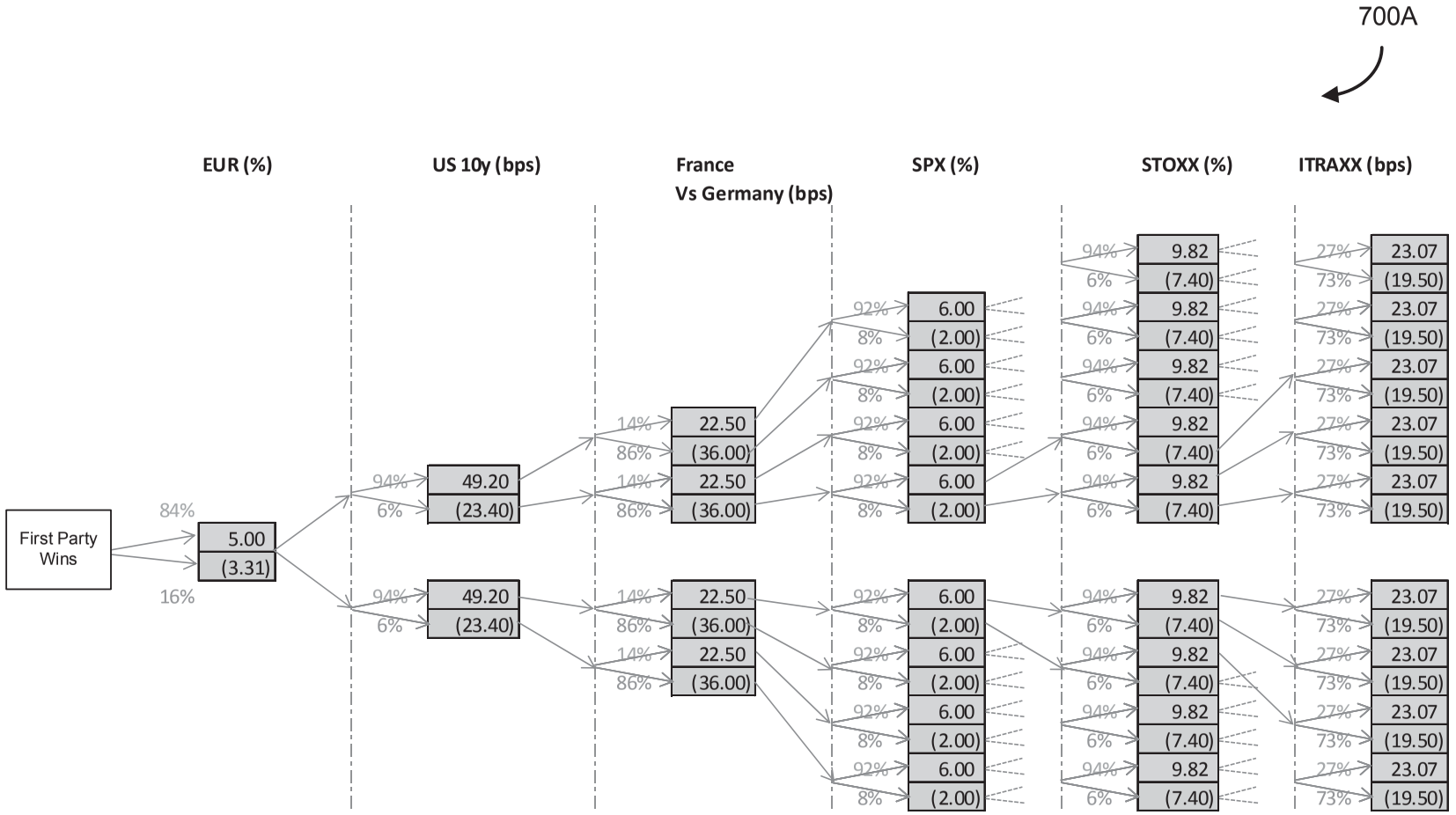

700A
EUR (%)
US 10y (bps)
France Vs Germany (bps)
SPX (%)
STOXX (%)
ITRAXX (bps)
First Party Wins
84%
16%
5.00
(3.31)
94%
6%
49.20
(23.40)
14%
86%
22.50
(36.00)
92%
8%
6.00
(2.00)
9.82
(7.40)
27%
73%
23.07
(19.50)

FIG. 7A

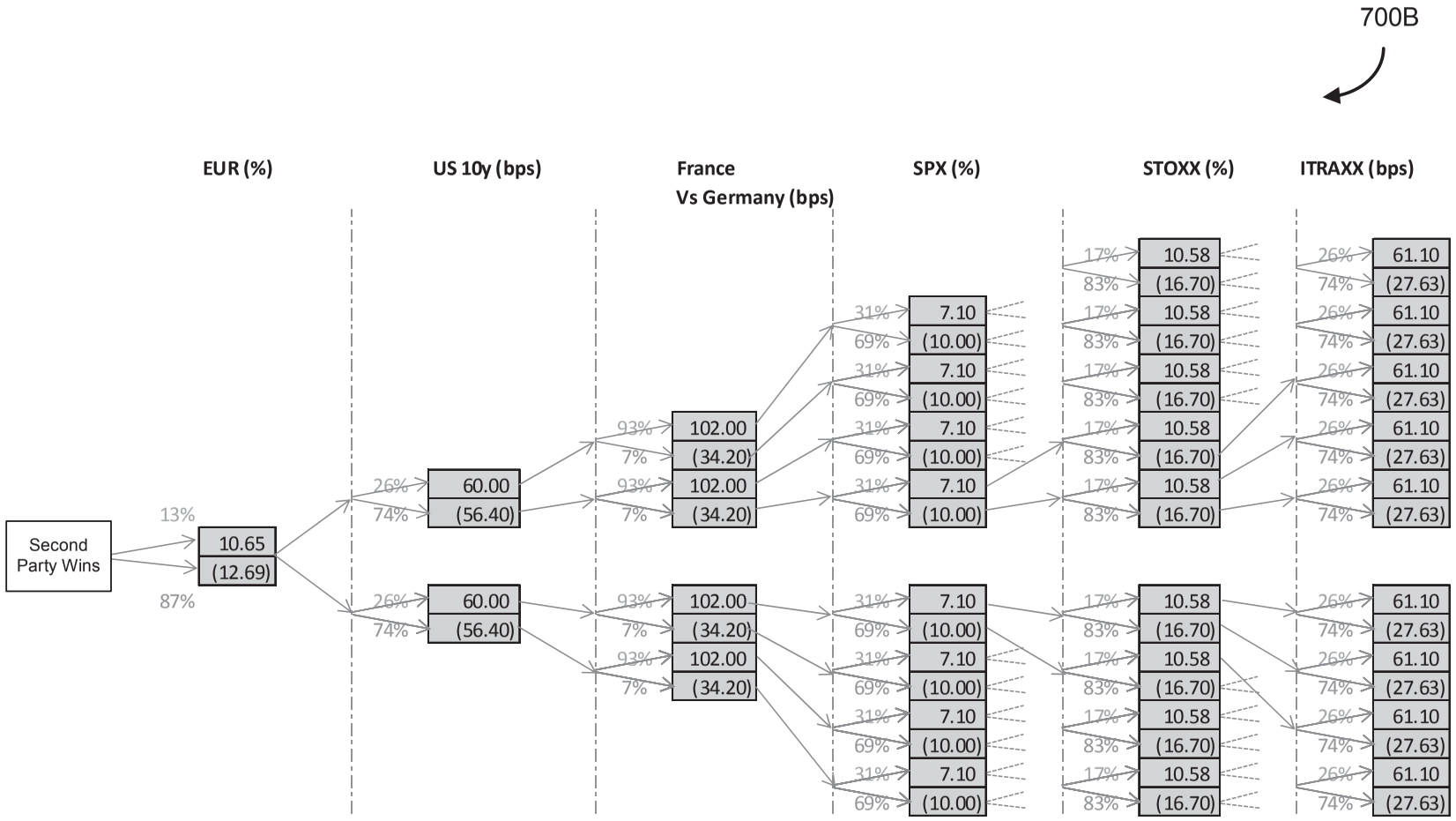

700B
EUR (%)
US 10y (bps)
France
Vs Germany (bps)
SPX (%)
STOXX (%)
ITRAXX (bps)
Second
Party Wins
13%
87%
10.65
(12.69)
26%
74%
60.00
(56.40)
93%
7%
102.00
(34.20)
31%
69%
7.10
(10.00)
17%
83%
10.58
(16.70)
26%
74%
61.10
(27.63)

FIG. 7B

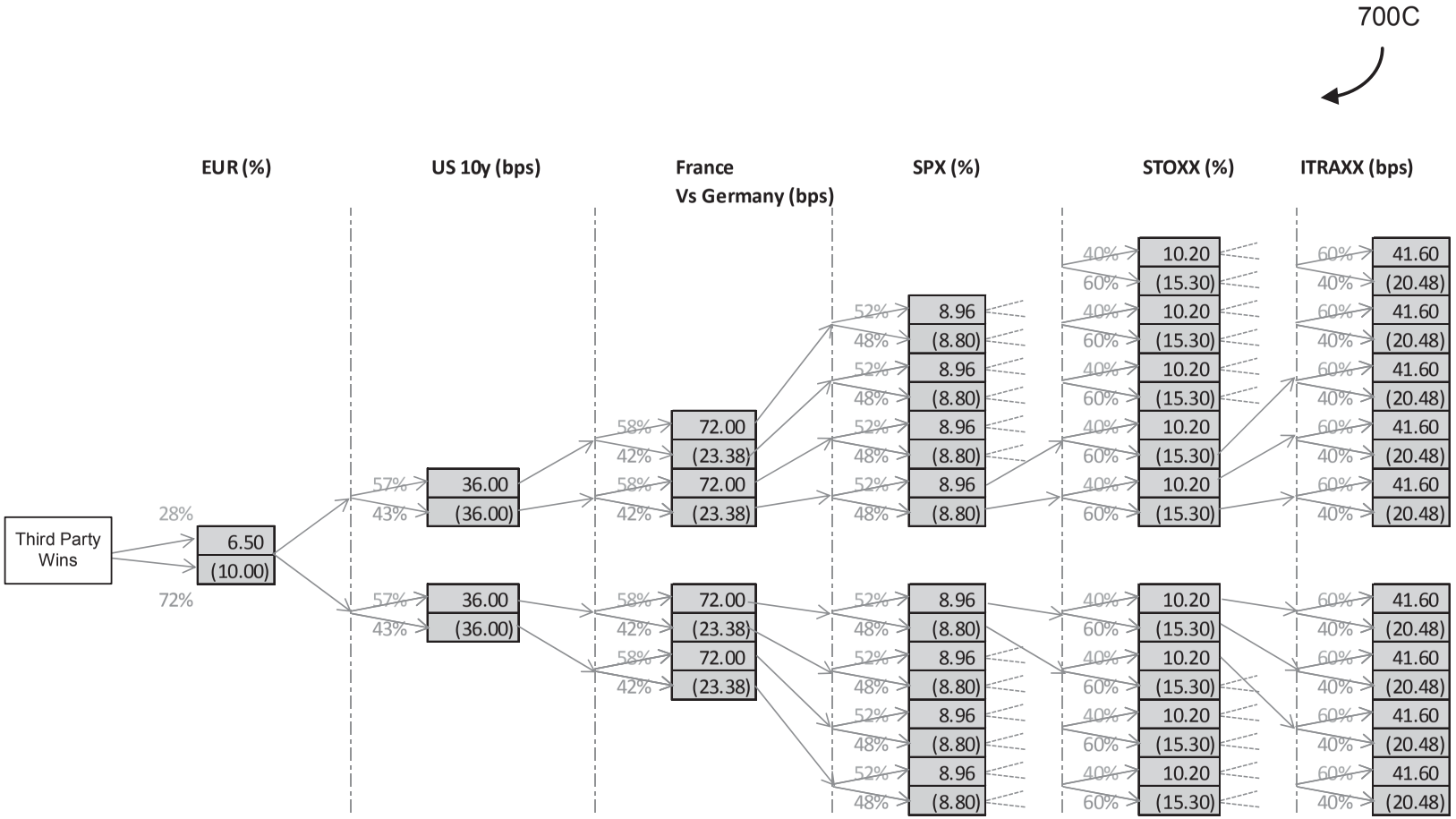

700C
EUR (%)
US 10y (bps)
France
Vs Germany (bps)
SPX (%)
STOXX (%)
ITRAXX (bps)
Third Party
Wins
28%
72%
6.50
(10.00)
57%
43%
36.00
(36.00)
58%
42%
72.00
(23.38)
52%
48%
8.96
(8.80)
40%
60%
10.20
(15.30)
60%
40%
41.60
(20.48)

FIG. 7C

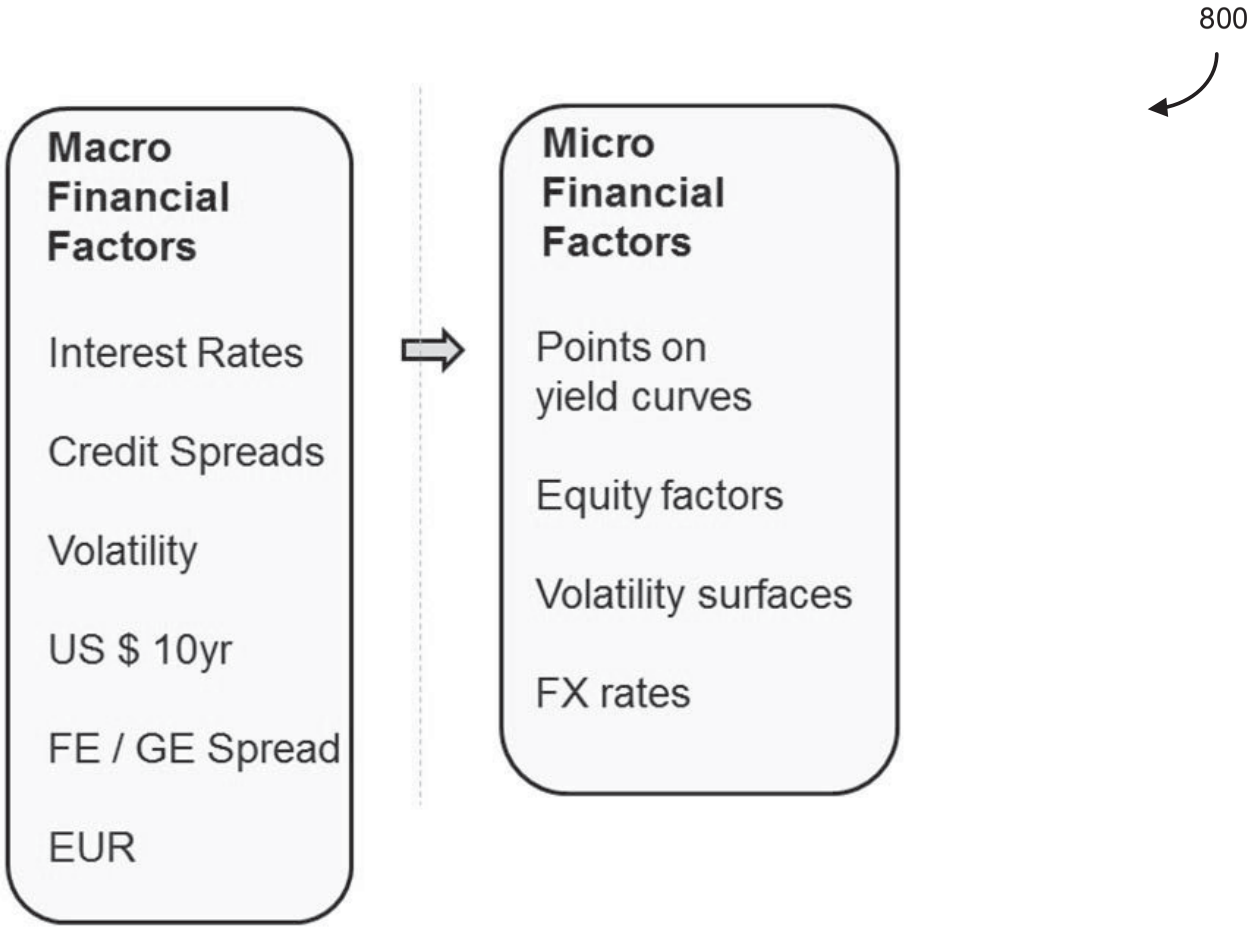

800
Macro Financial Factors
Interest Rates
Credit Spreads
Volatility
US $ 10yr
FE / GE Spread
EUR
Micro Financial Factors
Points on yield curves
Equity factors
Volatility surfaces
FX rates

FIG. 8

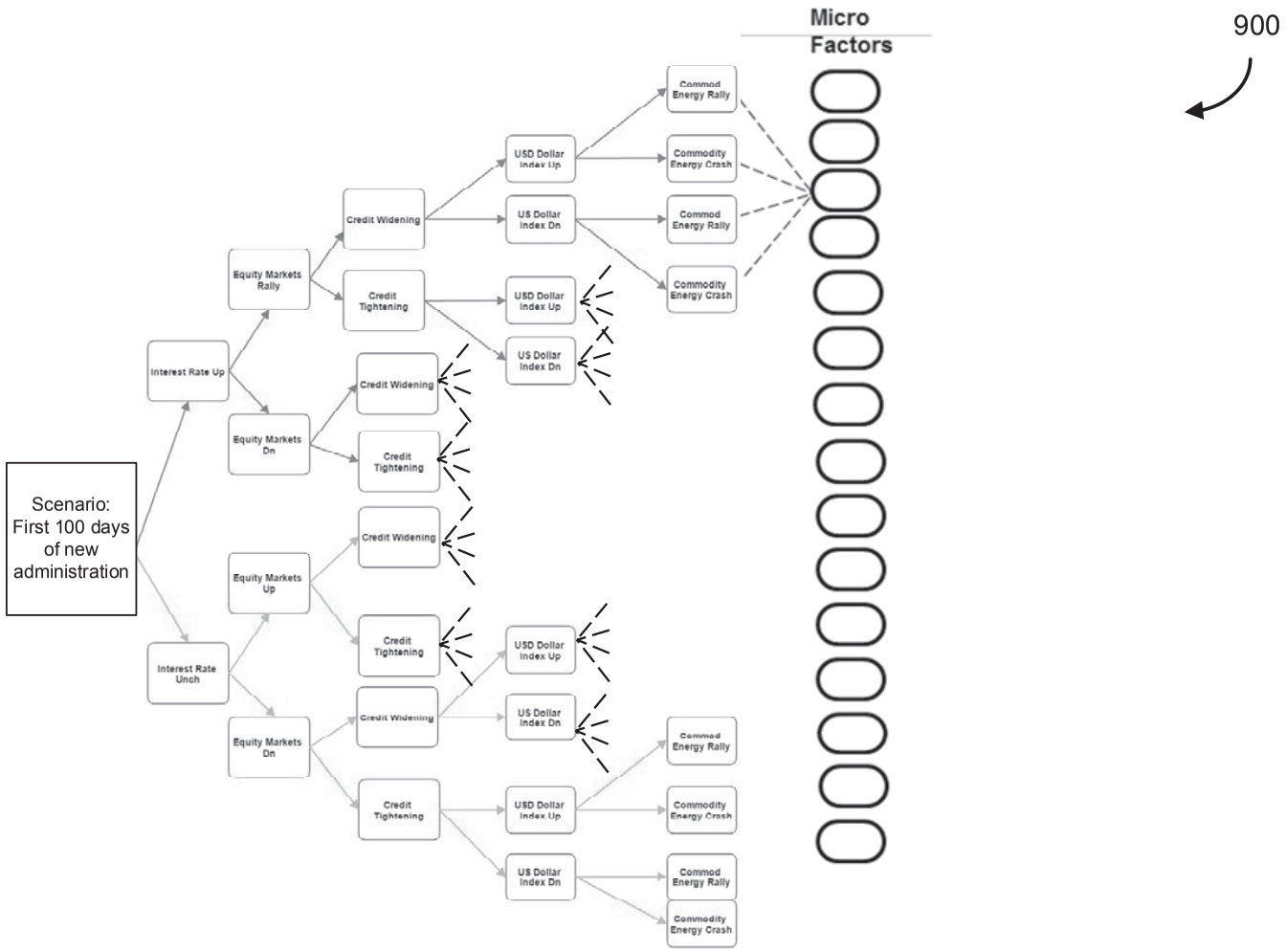

900
Micro Factors
Scenario: First 100 days of new administration
Interest Rate Up
Interest Rate Unch
Equity Markets Rally
Equity Markets Dn
Equity Markets Up
Equity Markets Dn
Credit Widening
Credit Tightening
Credit Widening
Credit Tightening
Credit Widening
Credit Tightening
Credit Widening
Credit Tightening
USD Dollar Index Up
US Dollar Index Dn
USD Dollar Index Up
US Dollar Index Dn
USD Dollar Index Up
US Dollar Index Dn
USD Dollar Index Up
US Dollar Index Dn
Commod Energy Rally
Commodity Energy Crash
Commod Energy Rally
Commodity Energy Crash
Commod Energy Rally
Commodity Energy Crash
Commod Energy Rally
Commodity Energy Crash

FIG. 9

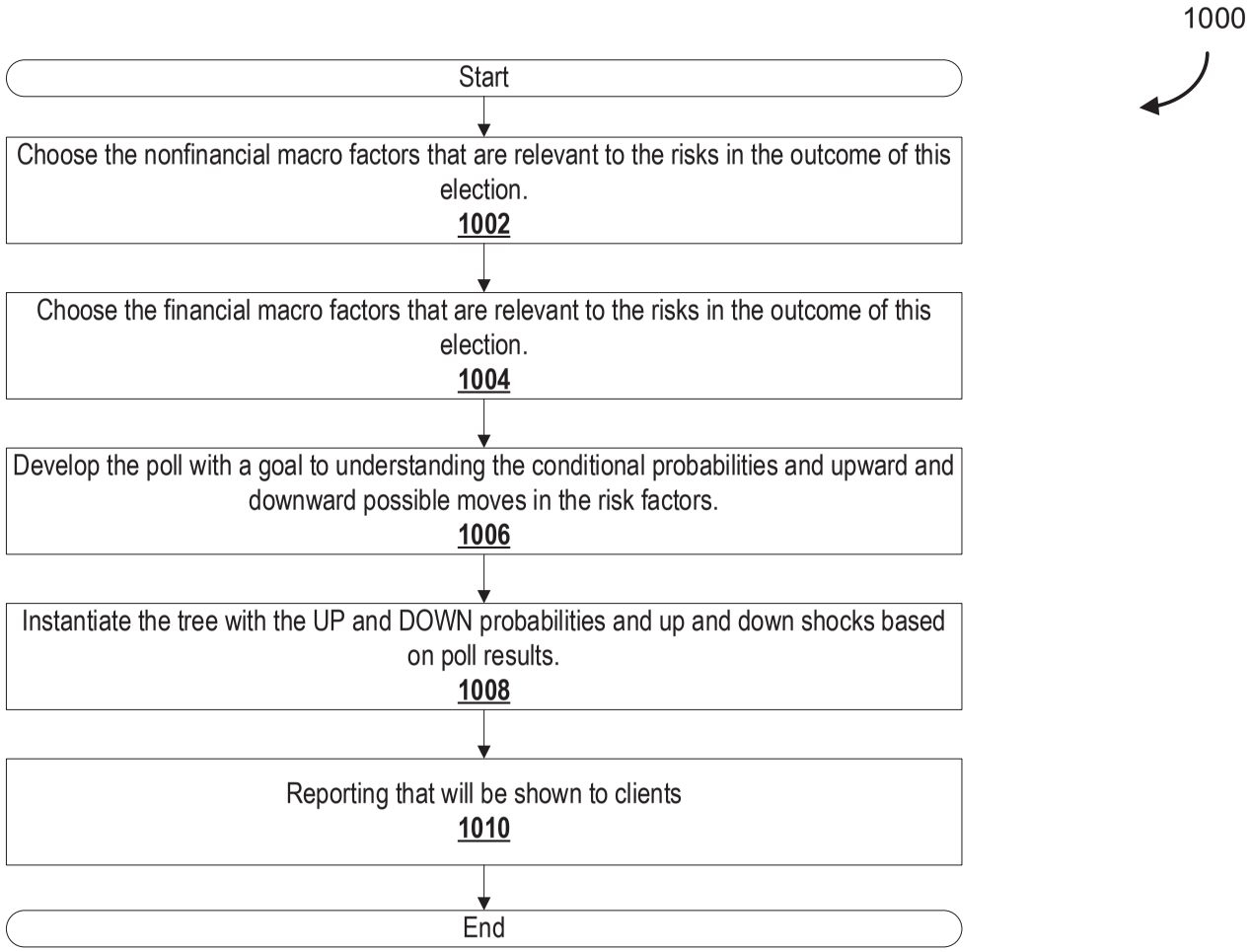

1000
Start
Choose the nonfinancial macro factors that are relevant to the risks in the outcome of this election.
1002
Choose the financial macro factors that are relevant to the risks in the outcome of this election.
1004
Develop the poll with a goal to understanding the conditional probabilities and upward and downward possible moves in the risk factors.
1006
Instantiate the tree with the UP and DOWN probabilities and up and down shocks based on poll results.
1008
Reporting that will be shown to clients
1010
End

FIG. 10

1100
1102
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Assets
ALL
EQUITIES
IR
CREDIT
FX
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Distribution of All Portfolio Shocks (% above or below current value)
1106
1108
1104
MAX LOSS
Mine
Market
-$ 123,000,000
-$ 16,500,000
BEST GAIN
Mine
Market
$ 450,989,000
$ 380,673,000
Loss
Gain
Market
1110
-10%
-9%
-8%
-7%
-6%
-5%
-4%
-3%
-2%
-1%
0
1%
2%
3%
4%
5%
6%
7%
8%
9%
10%
11%
12%
13%
14%

FIG. 11

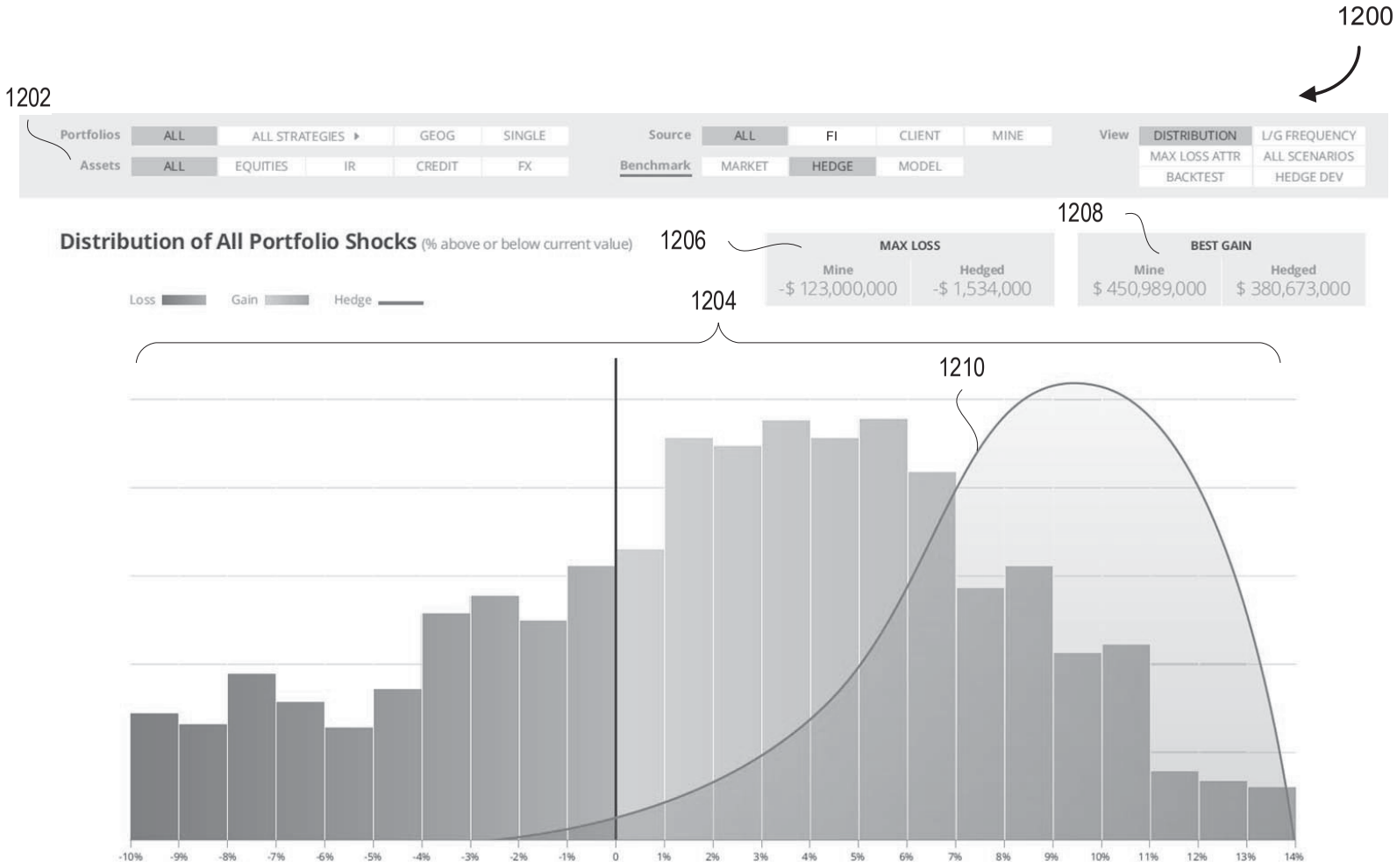

1200
1202
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Assets
ALL
EQUITIES
IR
CREDIT
FX
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Distribution of All Portfolio Shocks (% above or below current value)
1206
1208
MAX LOSS
Mine
-$ 123,000,000
Hedged
-$ 1,534,000
BEST GAIN
Mine
$ 450,989,000
Hedged
$ 380,673,000
Loss
Gain
Hedge
1204
1210
-10%
-9%
-8%
-7%
-6%
-5%
-4%
-3%
-2%
-1%
0
1%
2%
3%
4%
5%
6%
7%
8%
9%
10%
11%
12%
13%
14%

FIG. 12

1300
1302
1304
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Assets
ALL
FUND LONG/SHORT
CREDIT
FX
MACRO
QUANTITATIVE
REL VALUE / EVENT DRVN
DISTR / HIGH YIELD
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Distribution of
ks (% above or below current value)
MAX LOSS
Mine
-$ 123,000,000
Hedged
-$ 1,534,000
BEST GAIN
Mine
$ 450,989,000
Hedged
$ 380,673,000
Loss
Gain
Hedge
-10%
-9%
-8%
-7%
-6%
-5%
-4%
-3%
-2%
-1%
0
1%
2%
3%
4%
5%
6%
7%
8%
9%
10%
11%
12%
13%
14%

FIG. 13

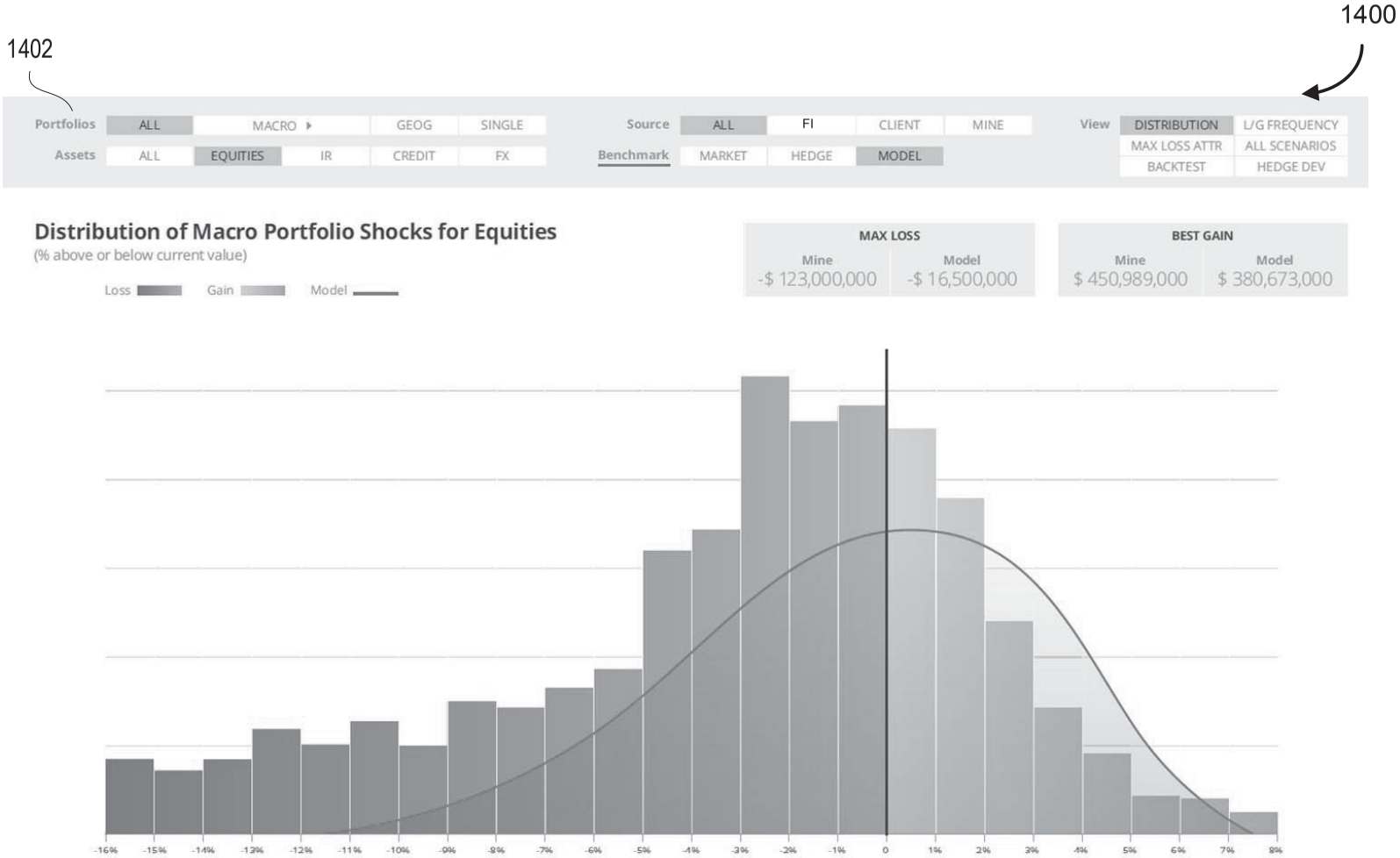

1400
1402
Portfolios
ALL
MACRO
GEOG
SINGLE
Assets
ALL
EQUITIES
IR
CREDIT
FX
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Distribution of Macro Portfolio Shocks for Equities
(% above or below current value)
Loss
Gain
Model
MAX LOSS
Mine
-$ 123,000,000
Model
-$ 16,500,000
BEST GAIN
Mine
$ 450,989,000
Model
$ 380,673,000
-16%
-15%
-14%
-13%
-12%
-11%
-10%
-9%
-8%
-7%
-6%
-5%
-4%
-3%
-2%
-1%
0
1%
2%
3%
4%
5%
6%
7%
8%

FIG. 14

1500
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Assets
ALL
EQUITIES
IR
CREDIT
FX
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Distribution of All Portfolio Shocks (% above or below current value)
Loss
Gain
Market
MAX LOSS
Mine
-$ 123,000,000
Market
-$ 16,500,000
BEST GAIN
Mine
$ 450,989,000
Market
$ 380,673,000
1504
The number of scenarios yielding a loss between
-7% and -8%
Click to see these scenarios.
-10%
-9%
-8%
-7%
-6%
-5%
-4%
-3%
-2%
-1%
0
1%
2%
3%
4%
5%
6%
7%
8%
9%
10%
11%
12%
13%
14%
1502

FIG. 15

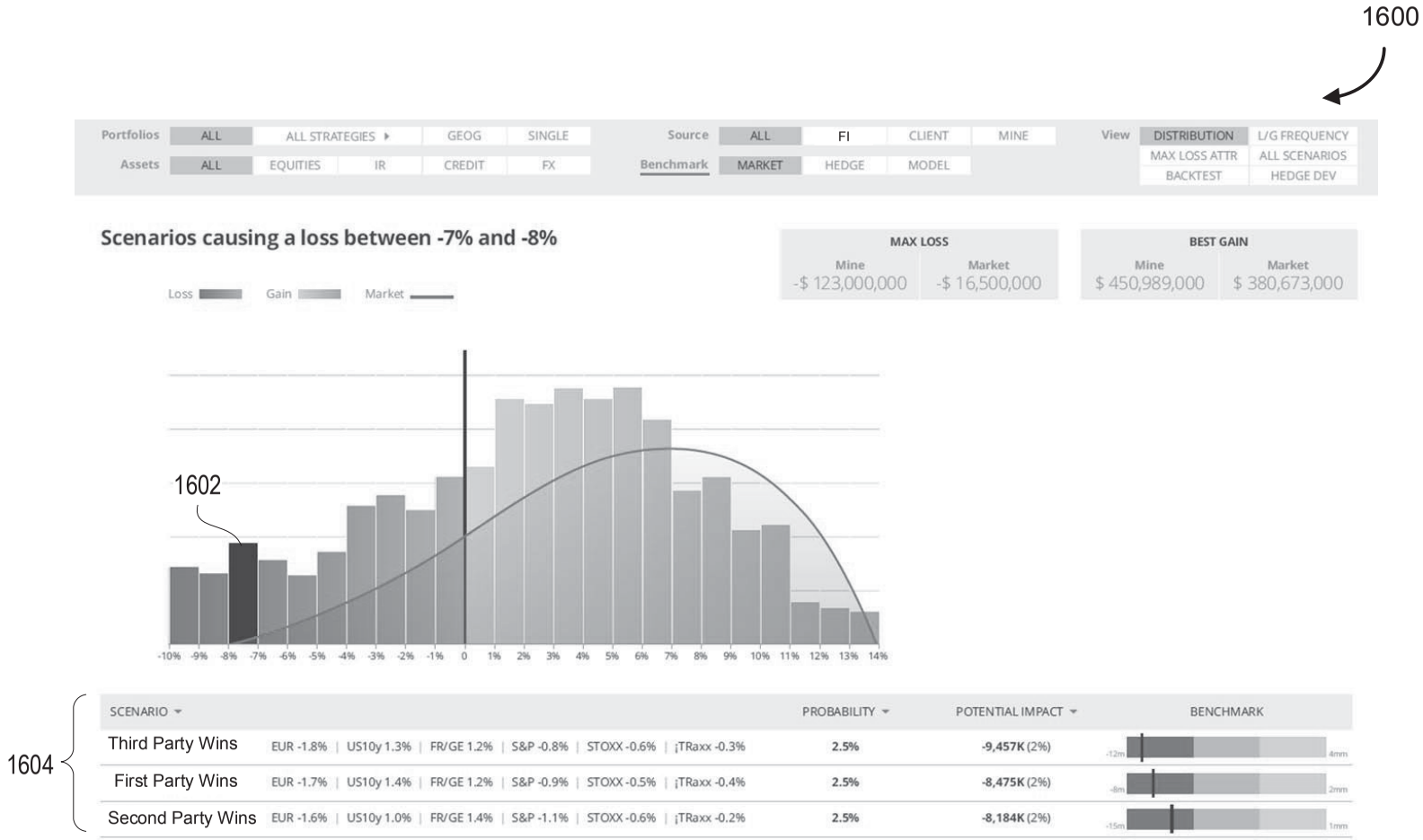

1600
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Assets
ALL
EQUITIES
IR
CREDIT
FX
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Scenarios causing a loss between -7% and -8%
MAX LOSS
Mine
-$ 123,000,000
Market
-$ 16,500,000
BEST GAIN
Mine
$ 450,989,000
Market
$ 380,673,000
Loss
Gain
Market
1602
-10% -9% -8% -7% -6% -5% -4% -3% -2% -1% 0 1% 2% 3% 4% 5% 6% 7% 8% 9% 10% 11% 12% 13% 14%
1604
SCENARIO
PROBABILITY
POTENTIAL IMPACT
BENCHMARK
Third Party Wins
EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%
2.5%
-9,457K (2%)
First Party Wins
EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%
2.5%
-8,475K (2%)
Second Party Wins
EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%
2.5%
-8,184K (2%)

FIG. 16

1700

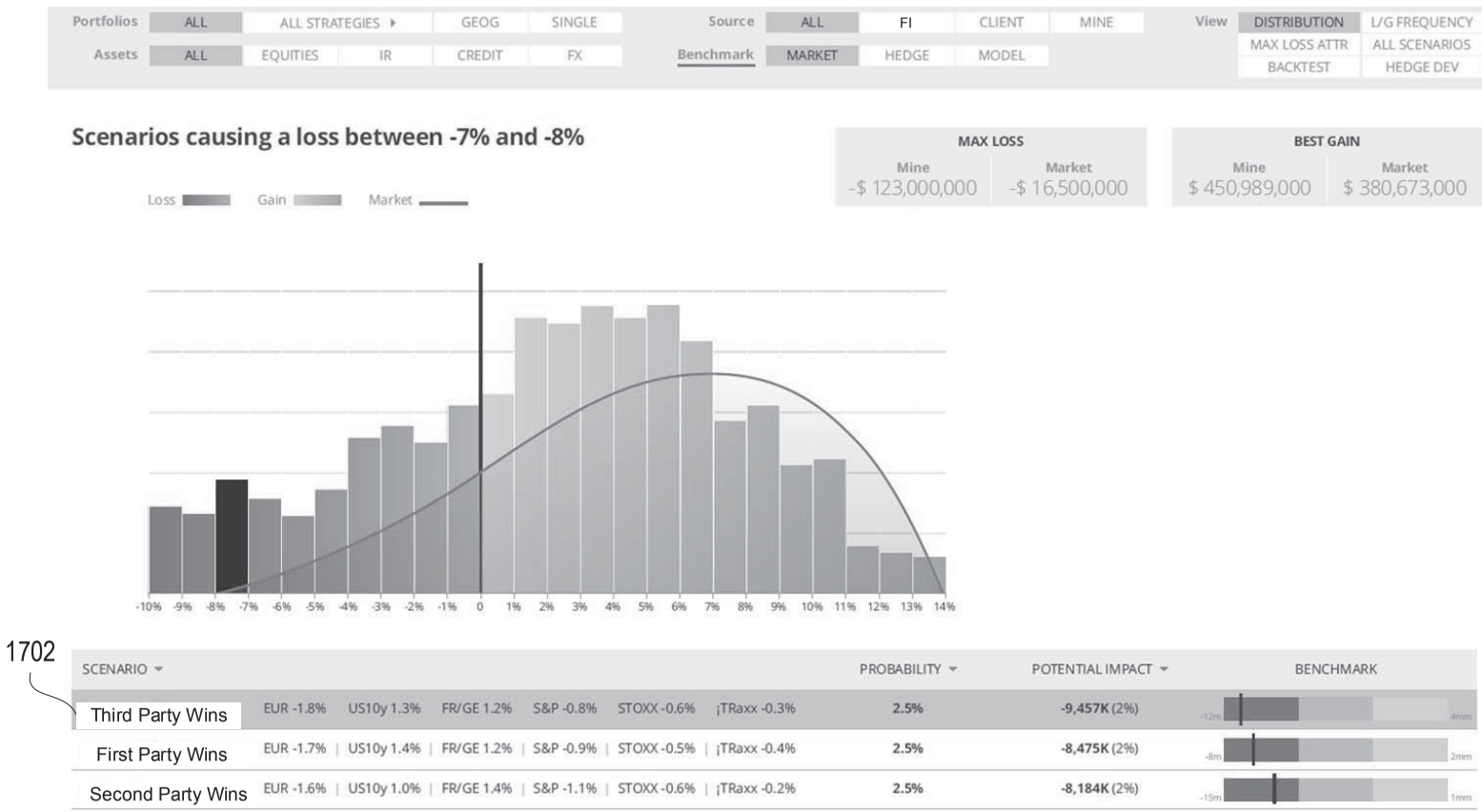

Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Assets
ALL
EQUITIES
IR
CREDIT
FX
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Scenarios causing a loss between -7% and -8%
MAX LOSS
Mine
-$ 123,000,000
Market
-$ 16,500,000
BEST GAIN
Mine
$ 450,989,000
Market
$ 380,673,000
Loss
Gain
Market
-10% -9% -8% -7% -6% -5% -4% -3% -2% -1% 0 1% 2% 3% 4% 5% 6% 7% 8% 9% 10% 11% 12% 13% 14%
1702
SCENARIO
PROBABILITY
POTENTIAL IMPACT
BENCHMARK
Third Party Wins
EUR -1.8% US10y 1.3% FR/GE 1.2% S&P -0.8% STOXX -0.6% ¡TRaxx -0.3%
2.5%
-9,457K (2%)
First Party Wins
EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%
2.5%
-8,475K (2%)
Second Party Wins
EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%
2.5%
-8,184K (2%)

FIG. 17

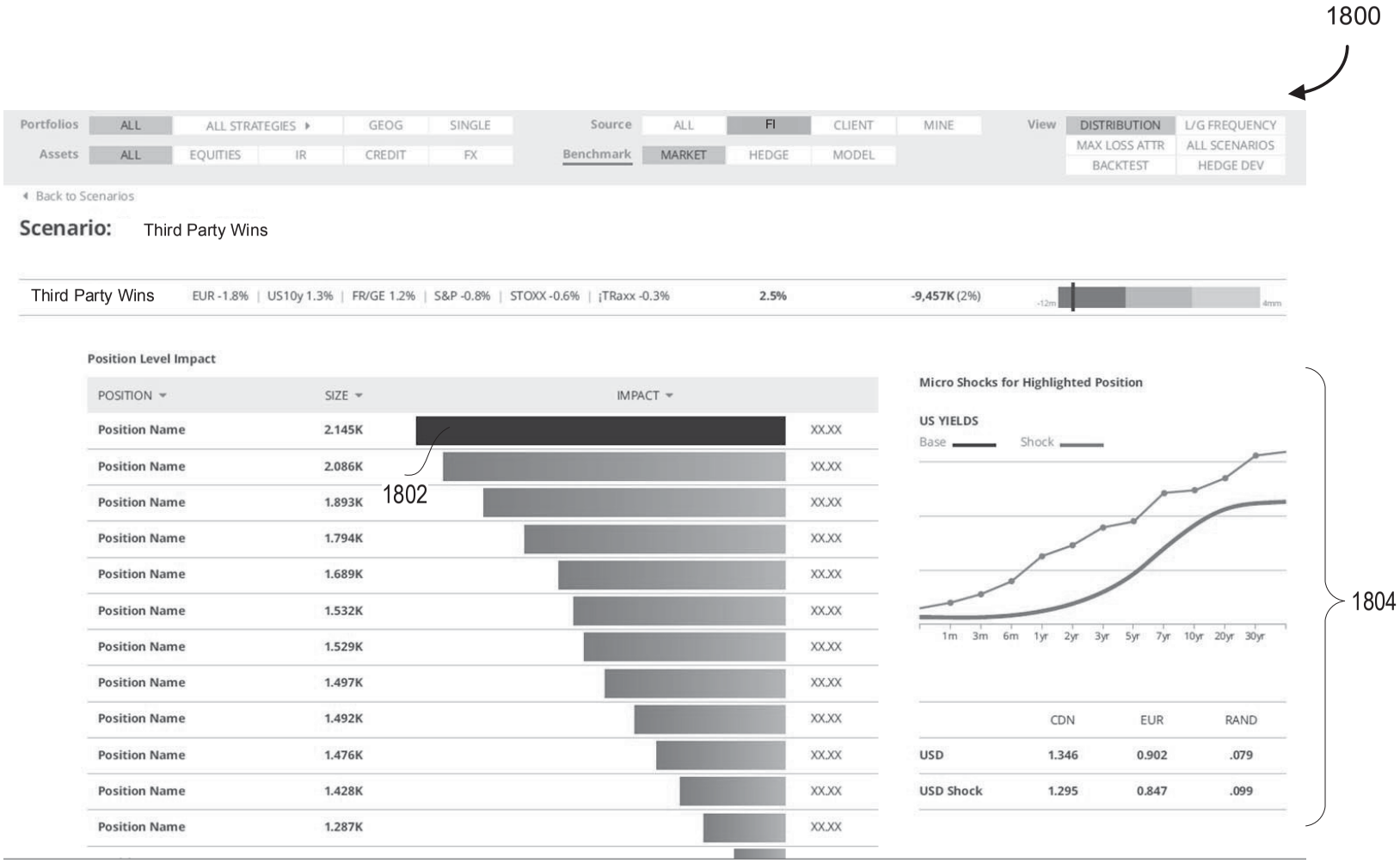

1800
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Source
ALL
FI
CLIENT
MINE
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Assets
ALL
EQUITIES
IR
CREDIT
FX
Benchmark
MARKET
HEDGE
MODEL
Back to Scenarios
Scenario: Third Party Wins
Third Party Wins
EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%
2.5%
-9,457K (2%)
Position Level Impact
POSITION
SIZE
IMPACT
Position Name 2.145K XX.XX
Position Name 2.086K XX.XX
1802
Position Name 1.893K XX.XX
Position Name 1.794K XX.XX
Position Name 1.689K XX.XX
Position Name 1.532K XX.XX
Position Name 1.529K XX.XX
Position Name 1.497K XX.XX
Position Name 1.492K XX.XX
Position Name 1.476K XX.XX
Position Name 1.428K XX.XX
Position Name 1.287K XX.XX
Micro Shocks for Highlighted Position
US YIELDS
Base
Shock
1m 3m 6m 1yr 2yr 3yr 5yr 7yr 10yr 20yr 30yr
CDN EUR RAND
USD 1.346 0.902 .079
USD Shock 1.295 0.847 .099
1804

FIG. 18

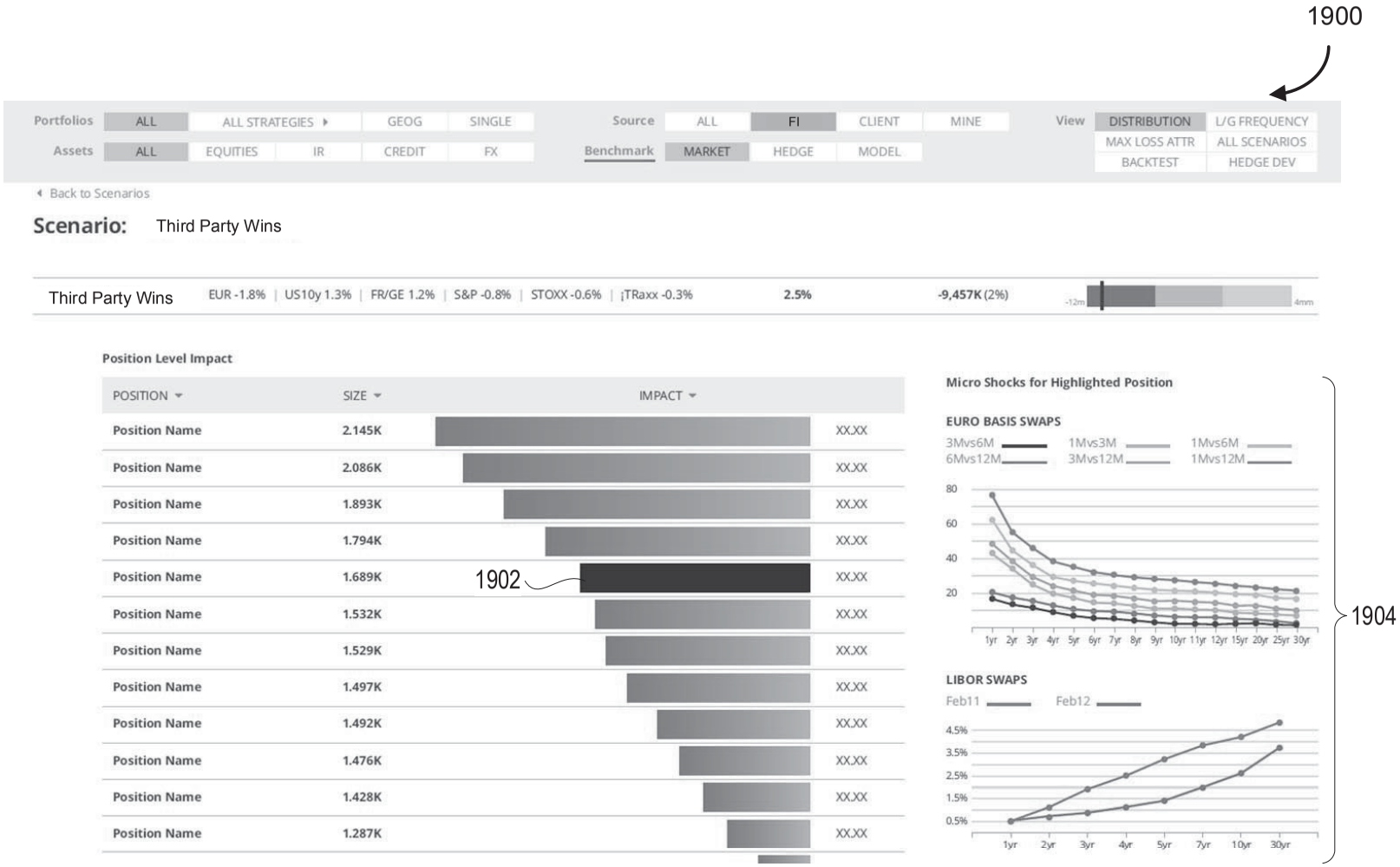

1900
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Assets
ALL
EQUITIES
IR
CREDIT
FX
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Back to Scenarios
Scenario: Third Party Wins
Third Party Wins
EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%
2.5%
-9,457K (2%)
Position Level Impact
POSITION
SIZE
IMPACT
Position Name 2.145K XX.XX
Position Name 2.086K XX.XX
Position Name 1.893K XX.XX
Position Name 1.794K XX.XX
Position Name 1.689K XX.XX
1902
Position Name 1.532K XX.XX
Position Name 1.529K XX.XX
Position Name 1.497K XX.XX
Position Name 1.492K XX.XX
Position Name 1.476K XX.XX
Position Name 1.428K XX.XX
Position Name 1.287K XX.XX
Micro Shocks for Highlighted Position
EURO BASIS SWAPS
3Mvs6M
1Mvs3M
1Mvs6M
6Mvs12M
3Mvs12M
1Mvs12M
80
60
40
20
1yr 2yr 3yr 4yr 5yr 6yr 7yr 8yr 9yr 10yr 11yr 12yr 15yr 20yr 25yr 30yr
LIBOR SWAPS
Feb11
Feb12
4.5%
3.5%
2.5%
1.5%
0.5%
1yr 2yr 3yr 4yr 5yr 7yr 10yr 30yr
1904

FIG. 19

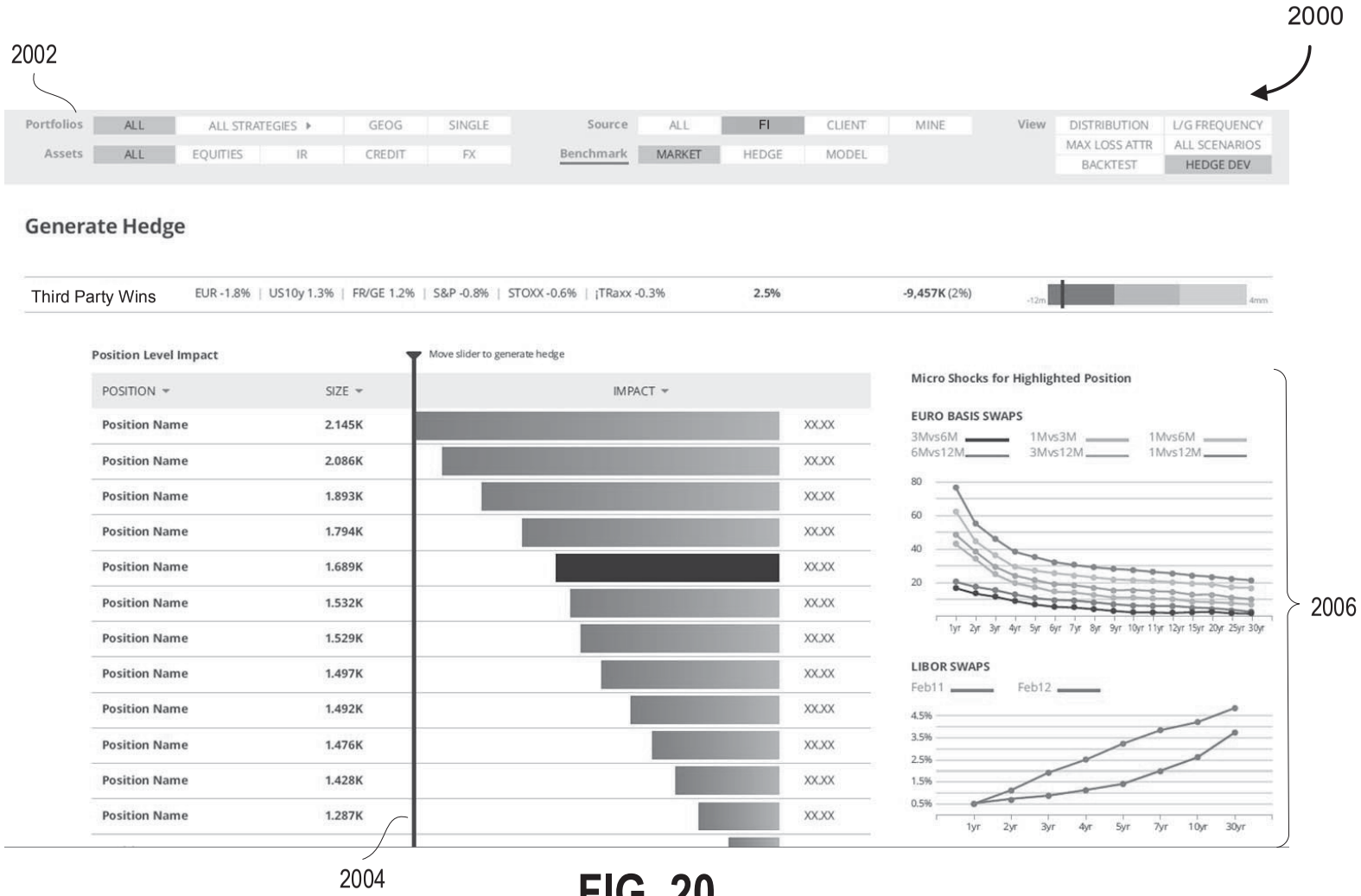

2000
2002
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Assets
ALL
EQUITIES
IR
CREDIT
FX
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Generate Hedge
Third Party Wins
EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%
2.5%
-9,457K (2%)
Position Level Impact
Move slider to generate hedge
POSITION
SIZE
IMPACT
Position Name 2.145K XX.XX
Position Name 2.086K XX.XX
Position Name 1.893K XX.XX
Position Name 1.794K XX.XX
Position Name 1.689K XX.XX
Position Name 1.532K XX.XX
Position Name 1.529K XX.XX
Position Name 1.497K XX.XX
Position Name 1.492K XX.XX
Position Name 1.476K XX.XX
Position Name 1.428K XX.XX
Position Name 1.287K XX.XX
Micro Shocks for Highlighted Position
EURO BASIS SWAPS
3Mvs6M
1Mvs3M
1Mvs6M
6Mvs12M
3Mvs12M
1Mvs12M
80
60
40
20
1yr 2yr 3yr 4yr 5yr 6yr 7yr 8yr 9yr 10yr 11yr 12yr 15yr 20yr 25yr 30yr
LIBOR SWAPS
Feb11
Feb12
4.5%
3.5%
2.5%
1.5%
0.5%
1yr 2yr 3yr 4yr 5yr 7yr 10yr 30yr
2006
2004

FIG. 20

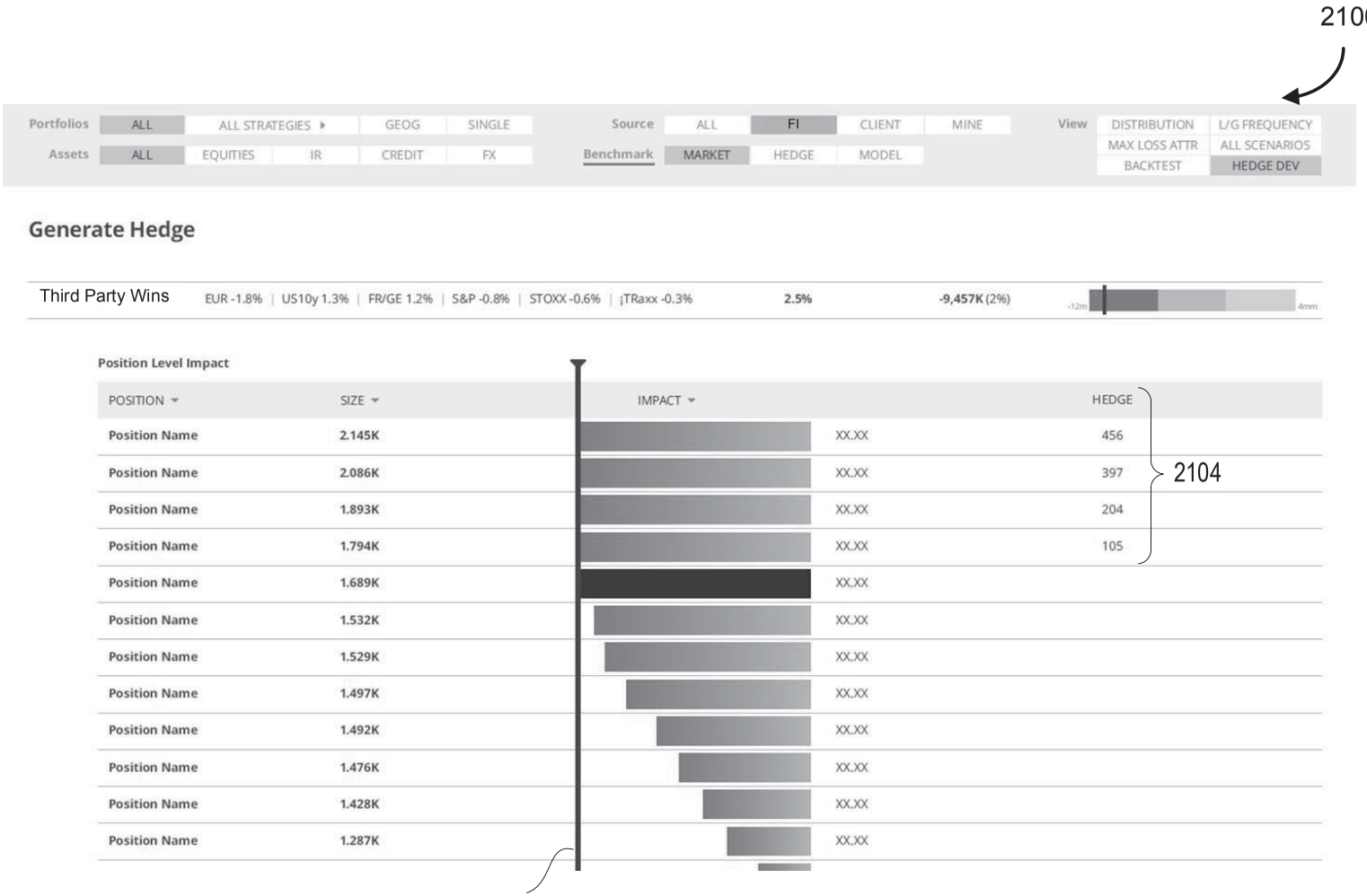

2100
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Assets
ALL
EQUITIES
IR
CREDIT
FX
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Generate Hedge
Third Party Wins
EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%
2.5%
-9,457K (2%)
Position Level Impact
POSITION
SIZE
IMPACT
HEDGE
Position Name 2.145K XX.XX 456
Position Name 2.086K XX.XX 397
Position Name 1.893K XX.XX 204
Position Name 1.794K XX.XX 105
Position Name 1.689K XX.XX
Position Name 1.532K XX.XX
Position Name 1.529K XX.XX
Position Name 1.497K XX.XX
Position Name 1.492K XX.XX
Position Name 1.476K XX.XX
Position Name 1.428K XX.XX
Position Name 1.287K XX.XX
2104
2102

FIG. 21

2202

2200

Portfolios	ALL	ALL STRATEGIES ▸	GEOG	SINGLE	Source	ALL	FI	CLIENT	MINE	View	DISTRIBUTION	L/G FREQUENCY
Assets	ALL	EQUITIES	IR	CREDIT	FX	Benchmark	MARKET	HEDGE	MODEL		MAX LOSS ATTR	ALL SCENARIOS
											BACKTEST	HEDGE DEV

All Scenarios

SCENARIO		PROBABILITY	POTENTIAL IMPACT	BENCHMARK
Third Party Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	2.5%	-9,457K (2%)	-12m 4mm
First Party Wins	EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%	2.5%	-8,475K (2%)	-8m 2mm
Second Party Wins	EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%	2.5%	-8,184K (2%)	-15m 1mm
First Party Wins	EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%	2.5%	-8,086K (2%)	-10m 4mm
Second Party Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	2.5%	-7,285K (2%)	-8m 6mm
Third Party Wins	EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%	2.5%	-7,168K (2%	-3m 2mm
Second Party Wins	EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%	2.5%	-7,023K (2%)	-4m 8mm
Second Party Wins	EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%	2.5%	-6,996K (2%)	-15m 3mm
First Party Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	2.5%	-6,831K (2%)	-7m 5mm
Third Party Wins	EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%	2.5%	-6,732K (2%)	-12m 8mm
First Party Wins	EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%	2.5%	-6,710K (2%)	-8m 6mm
Second Party Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	2.5%	-6,667K (2%)	-18m 1mm
First Party Wins	EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%	2.5%	-6,792K (2%)	-5m 2mm
Second Party Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	2.5%	-6,586K (2%)	-1m 8mm
Third Party Wins	EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%	2.5%	-5,987K (2%)	-2m 1mm

FIG. 22

2300
2302
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Assets
ALL
EQUITIES
IR
CREDIT
FX
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Macro Factor Loss / Gain Frequency based on GS Source
DOWN
UP
PR (DOWN)
Second Party Wins
EUR 96%
US$10yr 66%
FR/GE 71%
S&P 2%
STOXX 45%
iTRAXX 67%
Third Party Wins
EUR 52%
US$10yr 59%
FR/GE 69%
S&P 29%
STOXX 46%
iTRAXX 64%
First Party Wins
EUR 11%
US$10yr 59%
FR/GE 69%
S&P 2%
STOXX 29%
iTRAXX 46%
2306
2308
2310
2312

FIG. 23

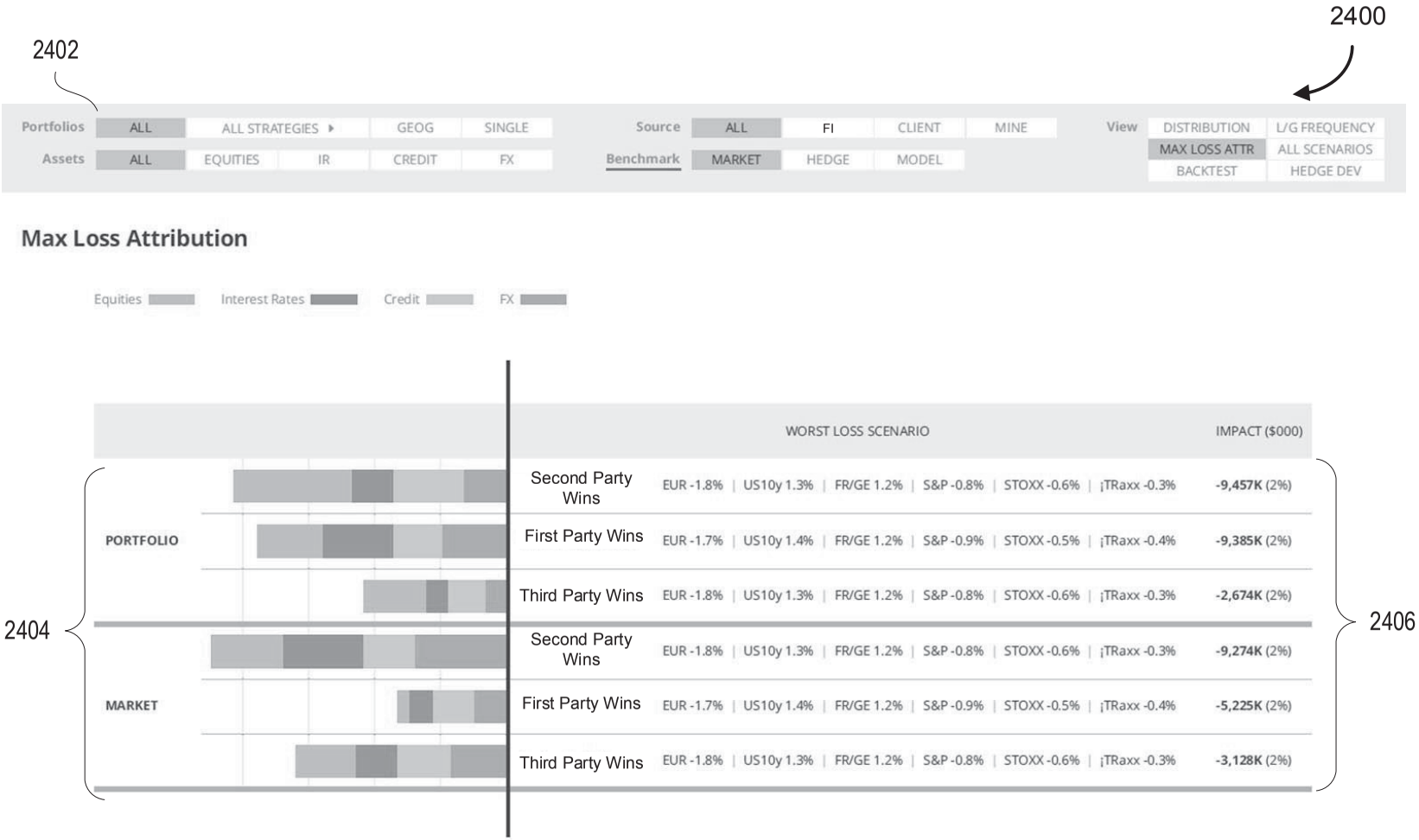

2400
2402
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Assets
ALL
EQUITIES
IR
CREDIT
FX
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Max Loss Attribution
Equities
Interest Rates
Credit
FX
WORST LOSS SCENARIO
IMPACT ($000)
PORTFOLIO
Second Party Wins
EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%
-9,457K (2%)
First Party Wins
EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%
-9,385K (2%)
Third Party Wins
EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%
-2,674K (2%)
MARKET
Second Party Wins
EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%
-9,274K (2%)
First Party Wins
EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%
-5,225K (2%)
Third Party Wins
EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%
-3,128K (2%)
2404
2406

FIG. 24

2500
2502
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Source
ALL
FI
CLIENT
MINE
View
DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
Assets
ALL
EQUITIES
IR
CREDIT
FX
Benchmark
MARKET
HEDGE
MODEL
Back Testing: Scenarios Vs. Actual S&P
2504
S&P
2500
2400
2200
2000
1800
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Forward scenarios and how they actually performed. The actual S&P should be within the boundaries of the S&P scenarios (boxes) X% of the time assuming that the upward and downward movements in the S&P were chosen within X/2% of the tails.

FIG. 25

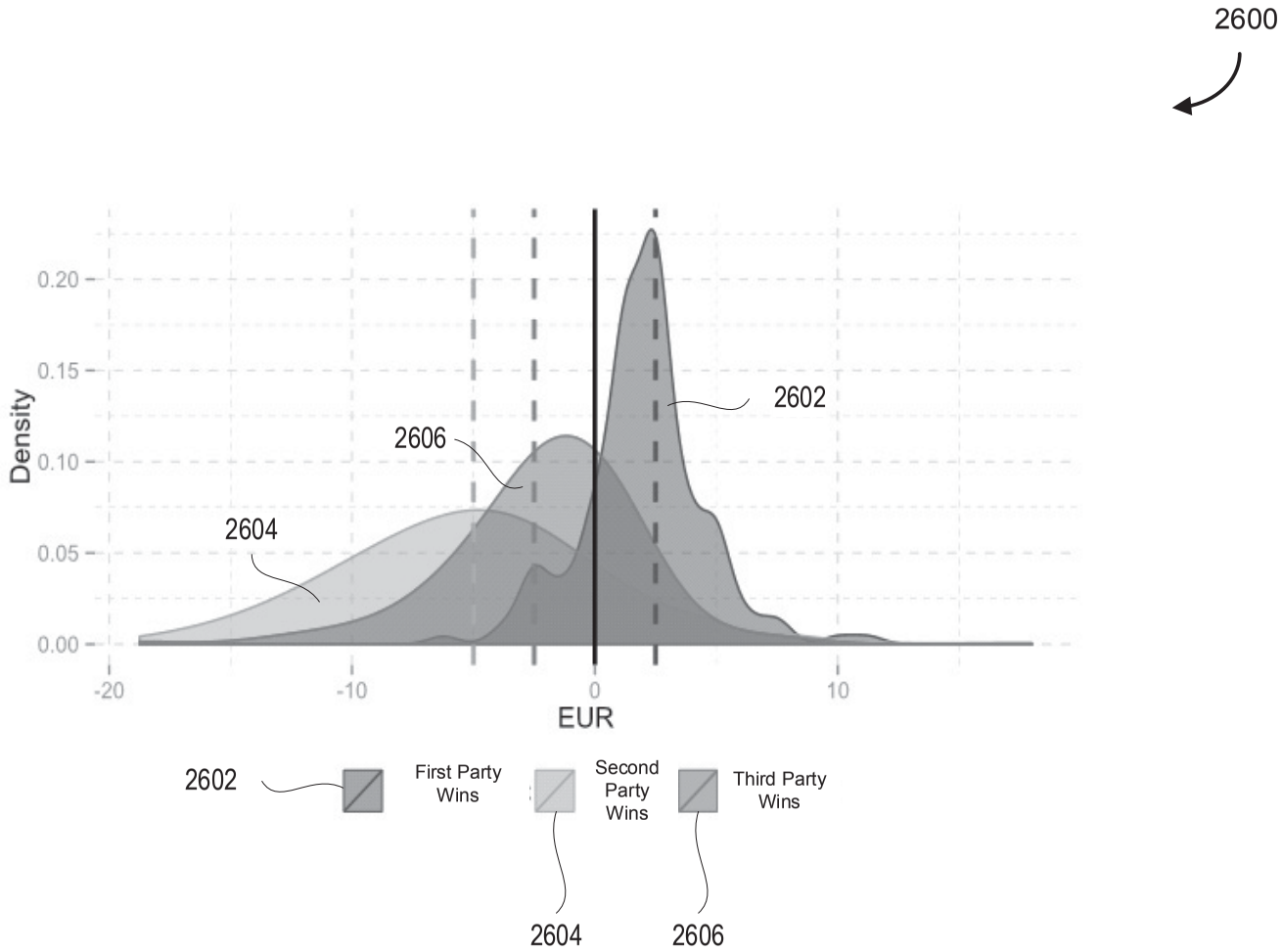

2600
Density
0.20
0.15
0.10
0.05
0.00
-20
-10
0
10
EUR
2602
2604
2606
2602
First Party Wins
Second Party Wins
Third Party Wins
2604
2606

FIG. 26

2700

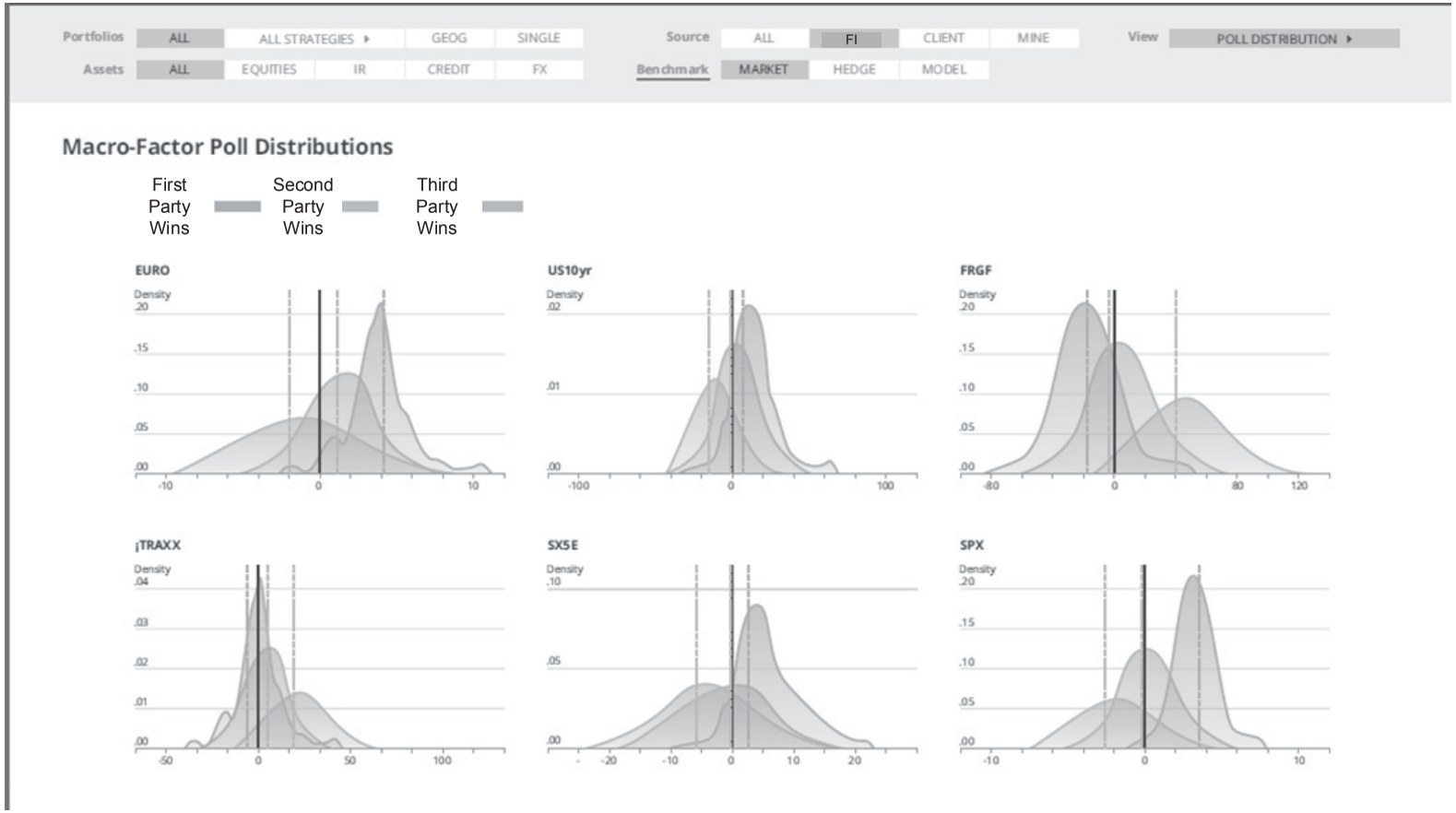

Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Source
ALL
FI
CLIENT
MINE
View
POLL DISTRIBUTION
Assets
ALL
EQUITIES
IR
CREDIT
FX
Benchmark
MARKET
HEDGE
MODEL
Macro-Factor Poll Distributions
First Party Wins
Second Party Wins
Third Party Wins
EURO
US10yr
FRGF
iTRAXX
SX5E
SPX
Density

FIG. 27

2800
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Source
ALL
FI
CLIENT
MINE
View
POLL DISTRIBUTION
Assets
ALL
EQUITIES
IR
CREDIT
FX
Benchmark
MARKET
HEDGE
MODEL
Macro-Factor Poll Distributions for Euro
First Party Wins
2802
Second Party Wins
2804
Third Party Wins
2806
Density
.20
.15
.10
.05
.00
-10
-8
-6
-4
-2
0
2
4
6
8
10
2806
2802
2804

FIG. 28

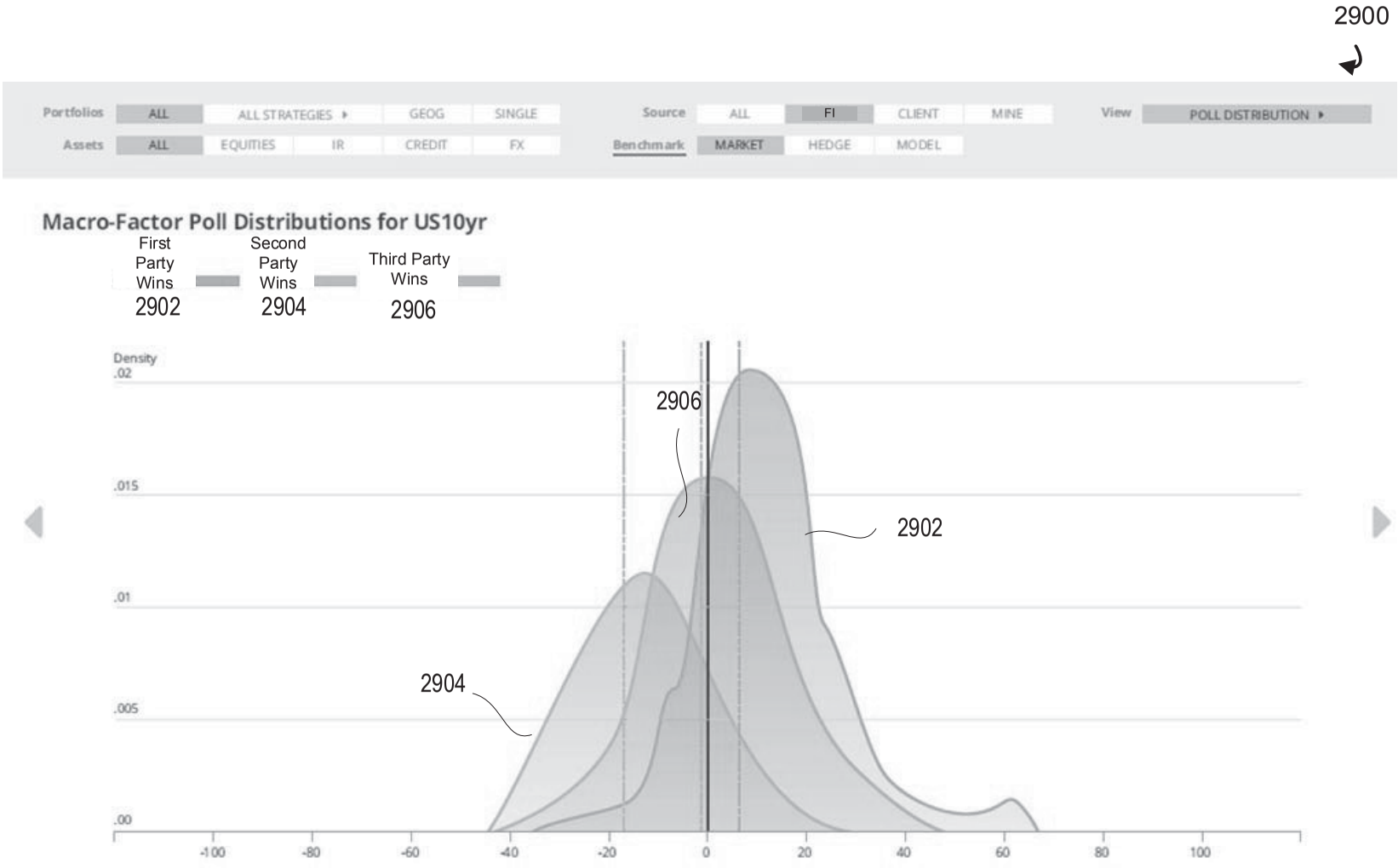

2900
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Source
ALL
FI
CLIENT
MINE
View
POLL DISTRIBUTION
Assets
ALL
EQUITIES
IR
CREDIT
FX
Benchmark
MARKET
HEDGE
MODEL
Macro-Factor Poll Distributions for US10yr
First Party Wins
2902
Second Party Wins
2904
Third Party Wins
2906
Density
.02
.015
.01
.005
.00
2906
2902
2904
-100
-80
-60
-40
-20
0
20
40
60
80
100

FIG. 29

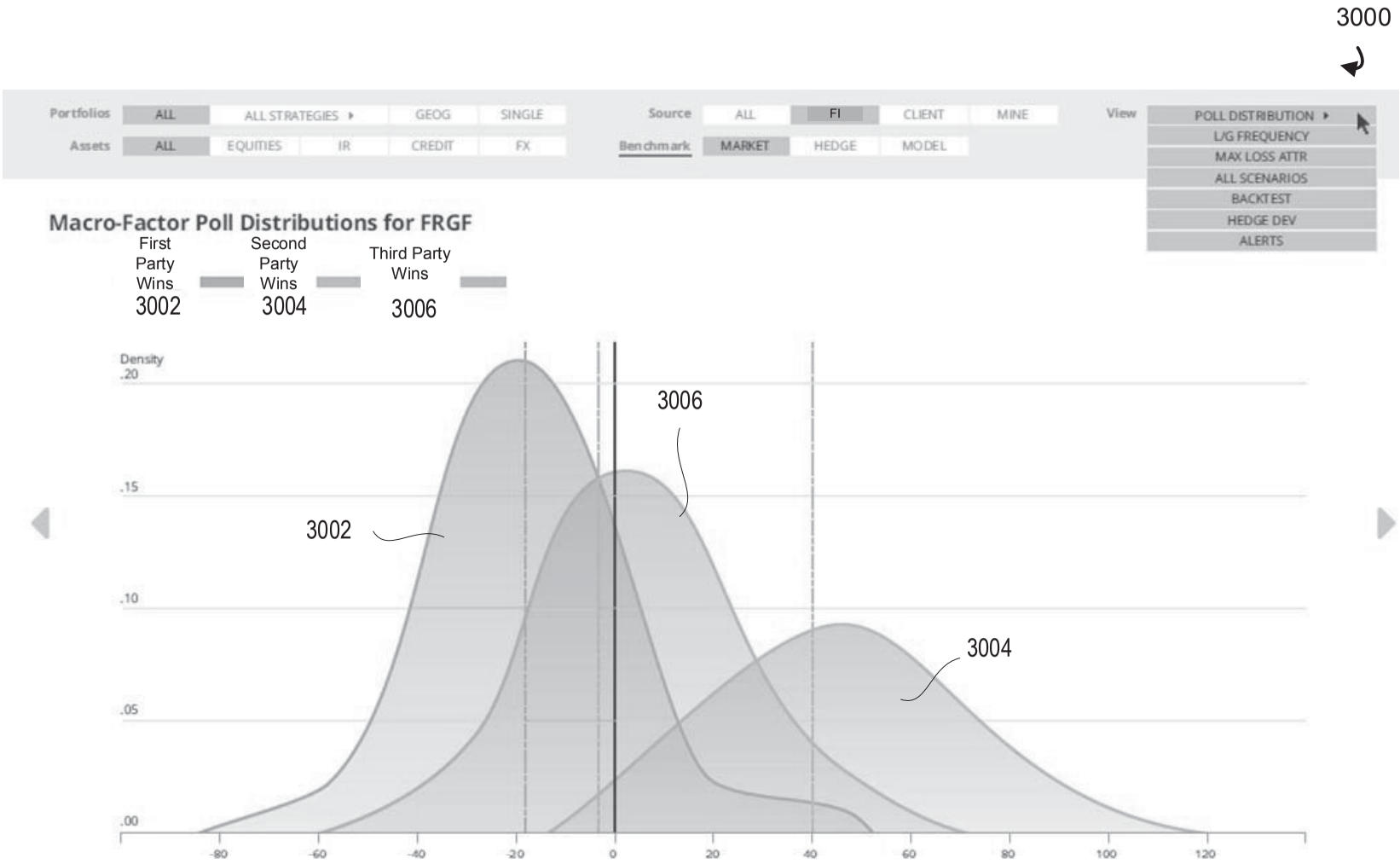

3000
Portfolios
ALL
ALL STRATEGIES
GEOG
SINGLE
Assets
ALL
EQUITIES
IR
CREDIT
FX
Source
ALL
FI
CLIENT
MINE
Benchmark
MARKET
HEDGE
MODEL
View
POLL DISTRIBUTION
L/G FREQUENCY
MAX LOSS ATTR
ALL SCENARIOS
BACKTEST
HEDGE DEV
ALERTS
Macro-Factor Poll Distributions for FRGF
First Party Wins
3002
Second Party Wins
3004
Third Party Wins
3006
Density
.20
.15
.10
.05
.00
-80
-60
-40
-20
0
20
40
60
80
100
120

FIG. 30

3114
3116
3118
3120
3122

3100A

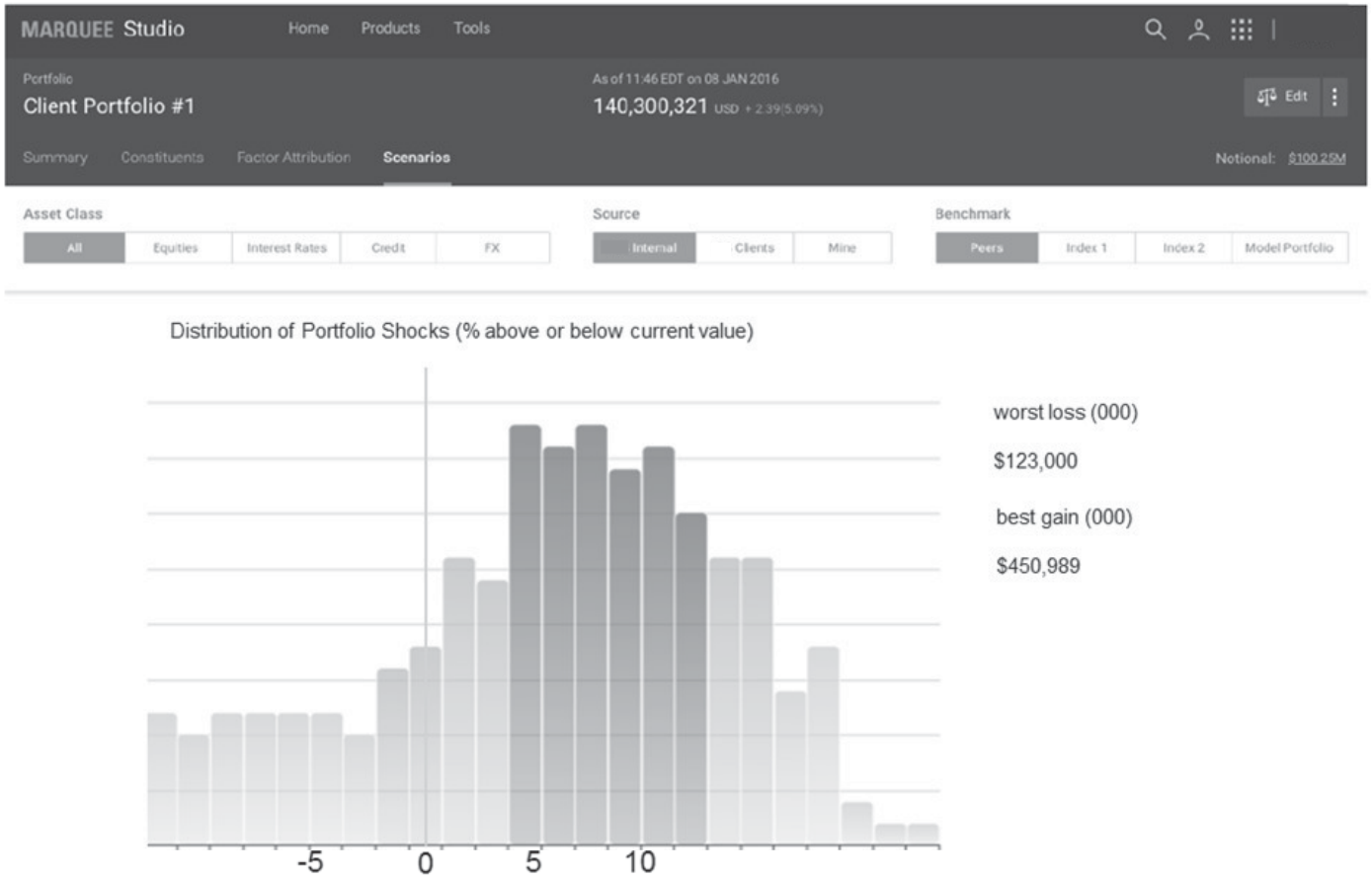


FIG. 31A

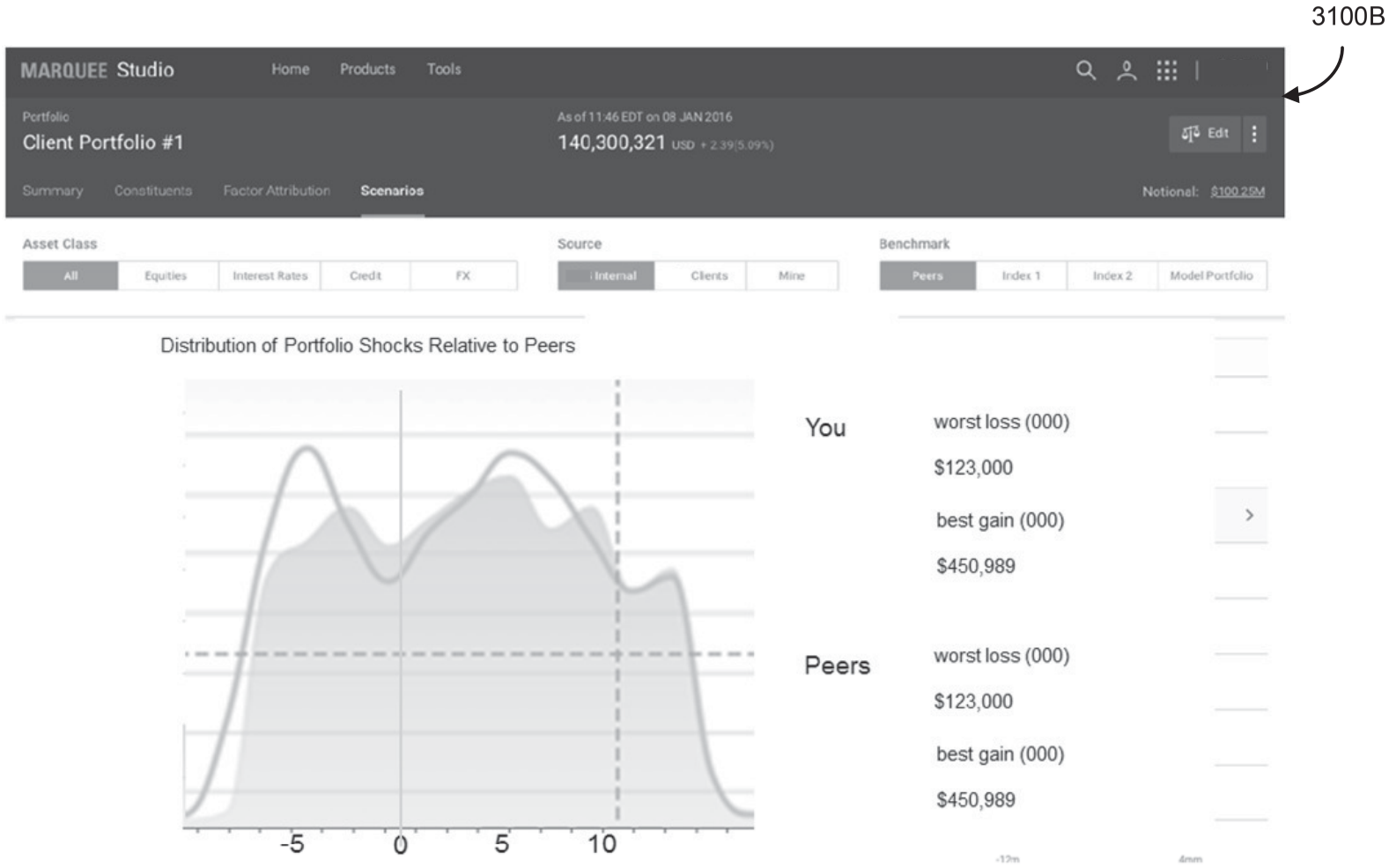

3100B
MARQUEE Studio
Home
Products
Tools
Portfolio
Client Portfolio #1
As of 11:46 EDT on 08 JAN 2016
140,300,321 USD + 2.39(5.09%)
Edit
Summary
Constituents
Factor Attribution
Scenarios
Notional: $100.25M
Asset Class
All
Equities
Interest Rates
Credit
FX
Source
Internal
Clients
Mine
Benchmark
Peers
Index 1
Index 2
Model Portfolio
Distribution of Portfolio Shocks Relative to Peers
-5
0
5
10
You
worst loss (000)
$123,000
best gain (000)
$450,989
Peers
worst loss (000)
$123,000
best gain (000)
$450,989

FIG. 31B

3100C

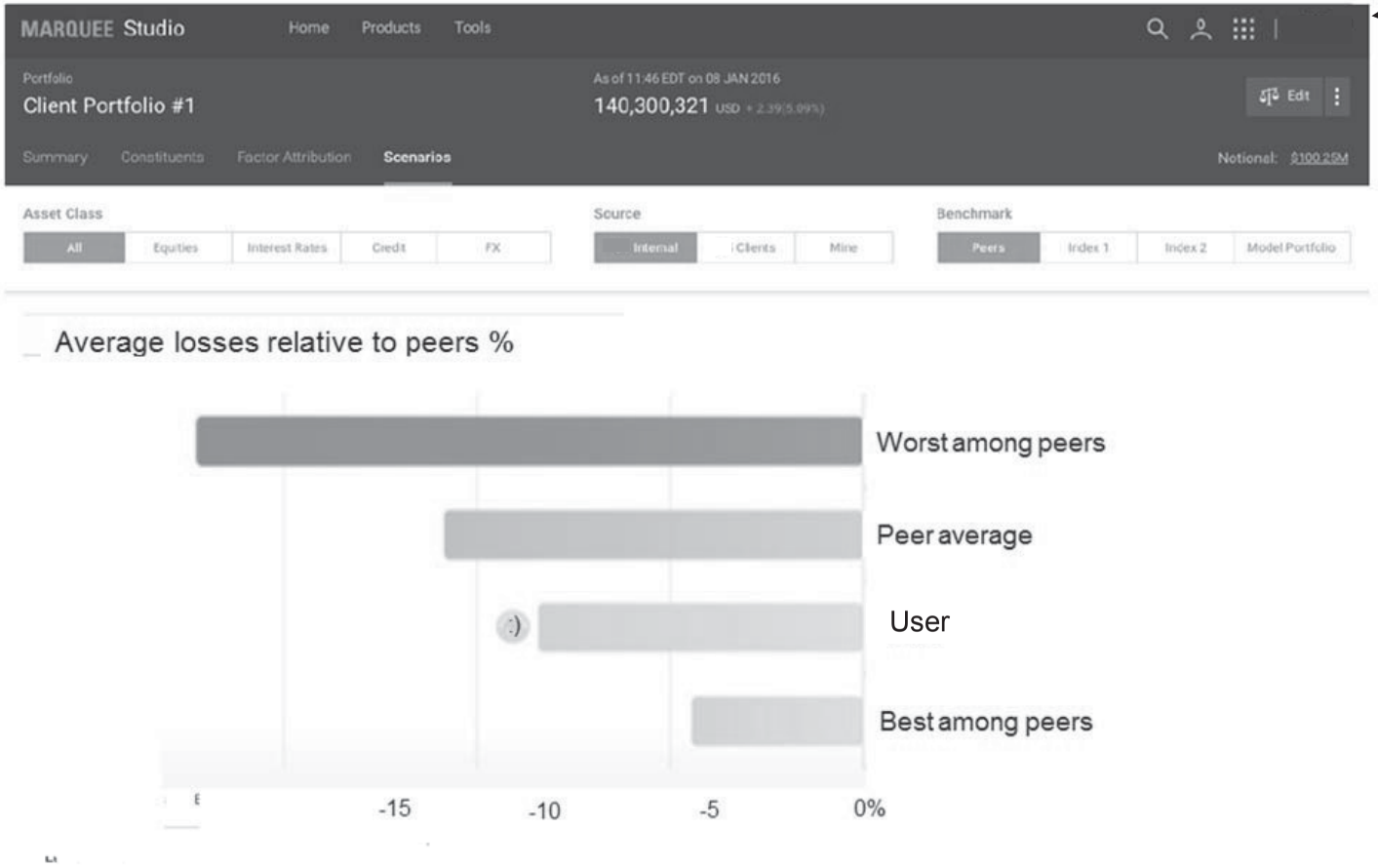


FIG. 31C

3100D

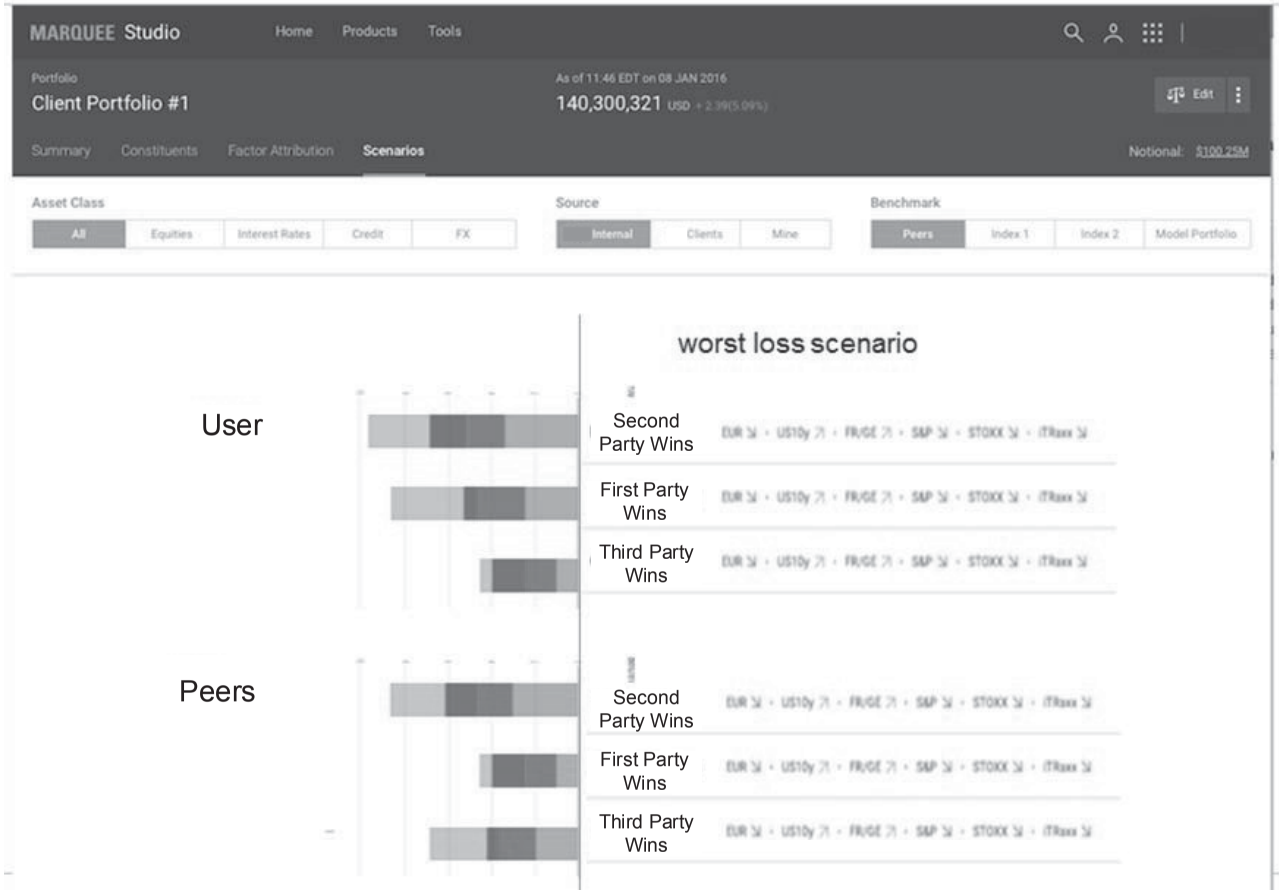


FIG. 31D

3100E

MARQUEE Studio | Home | Products | Tools

Portfolio
Client Portfolio #1

As of 11:46 EDT on 08 JAN 2016
140,300,321 USD + 2.39(5.09%)

Edit

Summary | Constituents | Factor Attribution | Scenarios

Notional: $100.25M

Asset Class: All | Equities | Interest Rates | Credit | FX

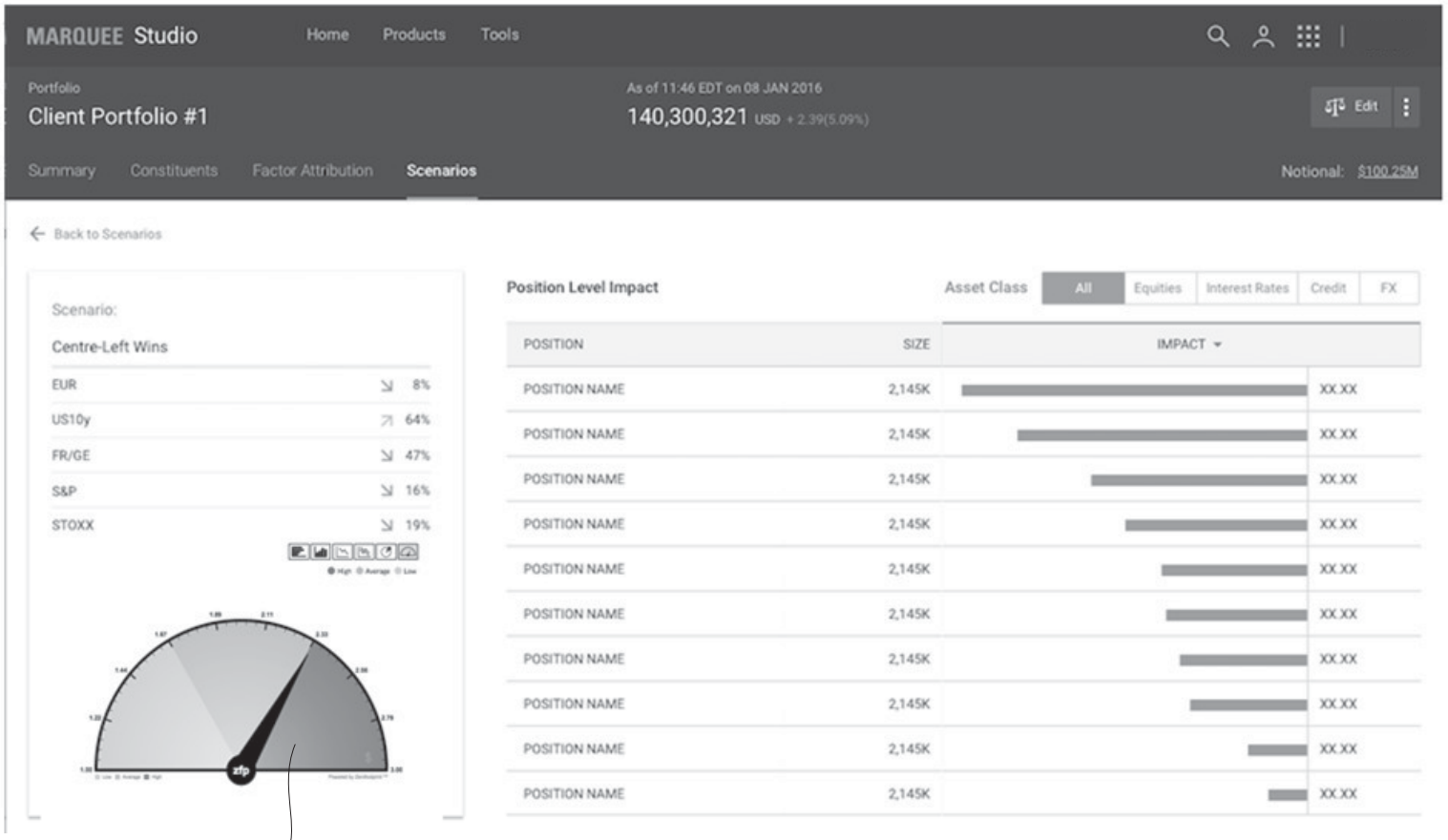
Source: Internal | Clients | Mine

Benchmark: Peers | Index 1 | Index 2 | Model Portfolio

SCENARIO		PROBABILITY	POTENTIAL IMPACT	BENCHMARK
Second Party Wins	EUR · US10y · FR/GE · S&P · STOXX · iTRaxx	2.5%	-8,231K (45%)	-12m 4mm
First Party Wins	EUR · US10y · FR/GE · S&P · STOXX · iTRaxx	2.5%	-8,231K (45%)	-12m 4mm
Third Party Wins	EUR · US10y · FR/GE · S&P · STOXX · iTRaxx	2.5%	-7,124K (2%)	-12m 4mm
Second Party Wins	EUR · US10y · FR/GE · S&P · STOXX · iTRaxx	2.5%	-5,124K (2%)	-12m 4mm
Second Party Wins	EUR · US10y · FR/GE · S&P · STOXX · iTRaxx	2.5%	-2,145K (2%)	-12m 4mm
Third Party Wins	EUR · US10y · FR/GE · S&P · STOXX · iTRaxx	2.5%	-1,657K (2%)	-12m 4mm
Third Party Wins	EUR · US10y · FR/GE · S&P · STOXX · iTRaxx	2.5%	-1,547K (2%)	-12m 4mm
First Party Wins	EUR · US10y · FR/GE · S&P · STOXX · iTRaxx	2.5%	-875K (2%)	-12m 4mm
Second Party Wins	EUR · US10y · FR/GE · S&P · STOXX · iTRaxx	2.5%	-284K (2%)	-12m 4mm

FIG. 31E

3100F



3102

FIG. 31F

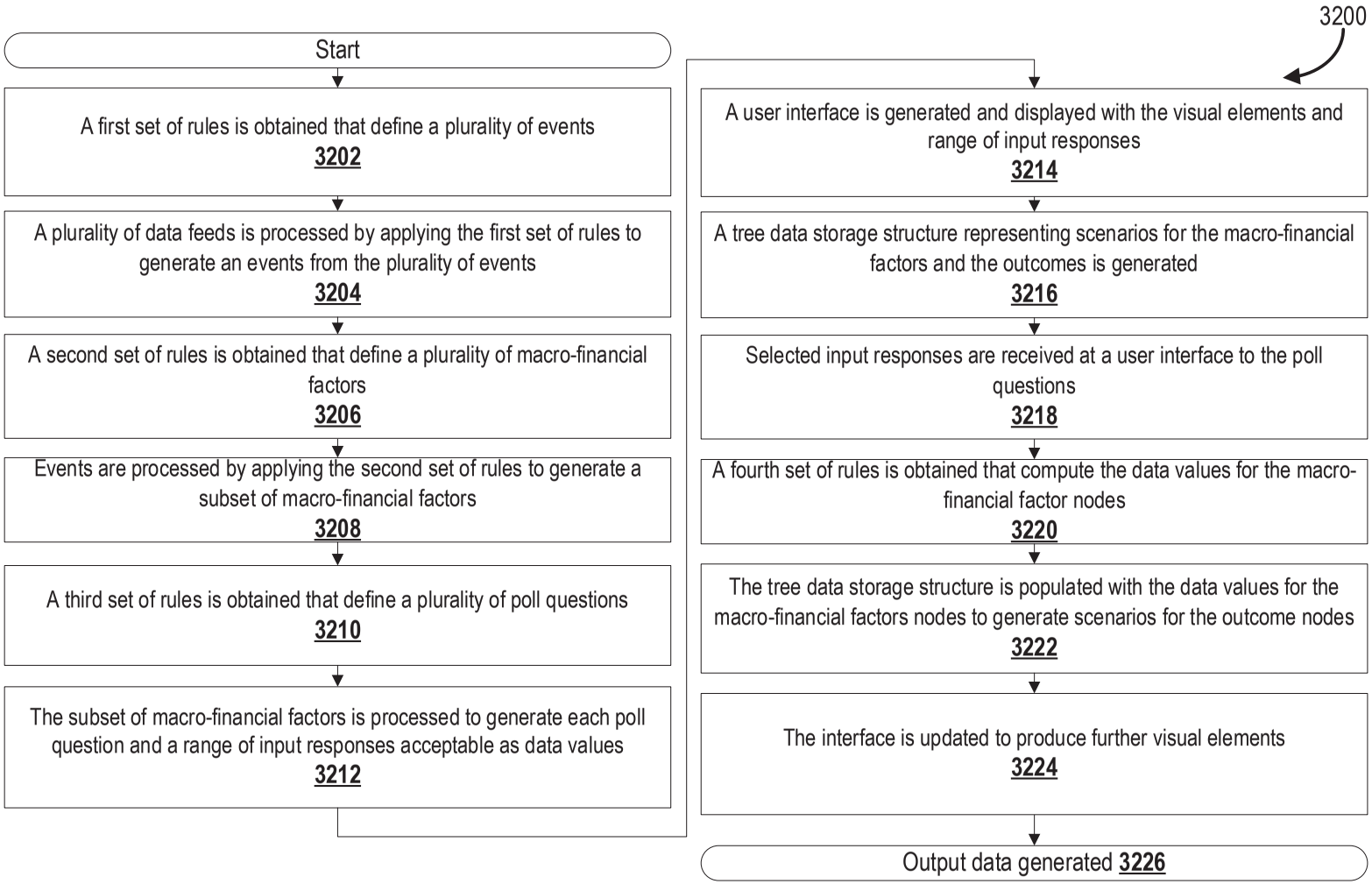

3200
Start
A first set of rules is obtained that define a plurality of events
3202
A plurality of data feeds is processed by applying the first set of rules to generate an events from the plurality of events
3204
A second set of rules is obtained that define a plurality of macro-financial factors
3206
Events are processed by applying the second set of rules to generate a subset of macro-financial factors
3208
A third set of rules is obtained that define a plurality of poll questions
3210
The subset of macro-financial factors is processed to generate each poll question and a range of input responses acceptable as data values
3212
A user interface is generated and displayed with the visual elements and range of input responses
3214
A tree data storage structure representing scenarios for the macro-financial factors and the outcomes is generated
3216
Selected input responses are received at a user interface to the poll questions
3218
A fourth set of rules is obtained that compute the data values for the macro-financial factor nodes
3220
The tree data storage structure is populated with the data values for the macro-financial factors nodes to generate scenarios for the outcome nodes
3222
The interface is updated to produce further visual elements
3224
Output data generated 3226

FIG. 32

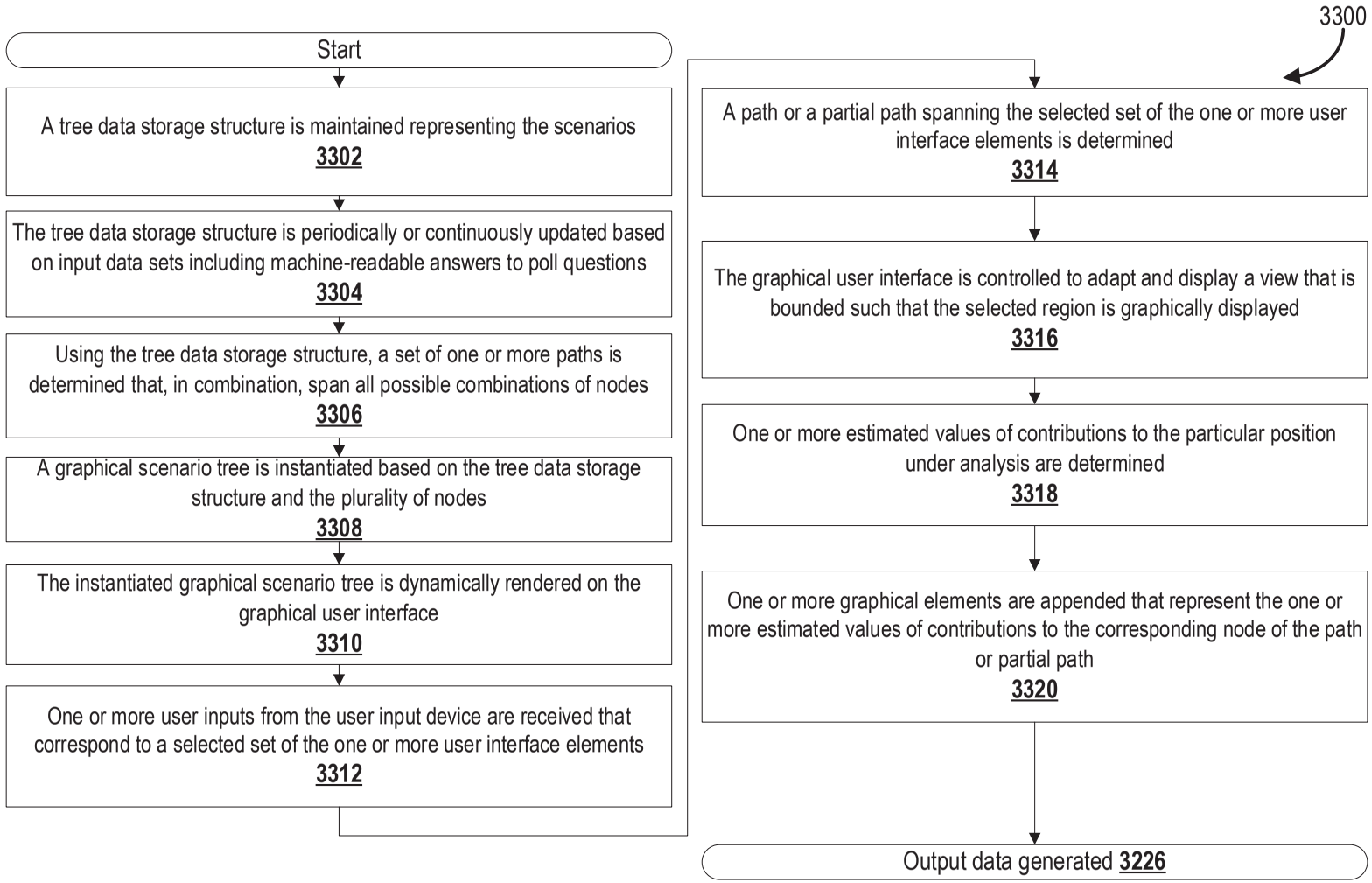

3300
Start
A tree data storage structure is maintained representing the scenarios
3302
The tree data storage structure is periodically or continuously updated based on input data sets including machine-readable answers to poll questions
3304
Using the tree data storage structure, a set of one or more paths is determined that, in combination, span all possible combinations of nodes
3306
A graphical scenario tree is instantiated based on the tree data storage structure and the plurality of nodes
3308
The instantiated graphical scenario tree is dynamically rendered on the graphical user interface
3310
One or more user inputs from the user input device are received that correspond to a selected set of the one or more user interface elements
3312
A path or a partial path spanning the selected set of the one or more user interface elements is determined
3314
The graphical user interface is controlled to adapt and display a view that is bounded such that the selected region is graphically displayed
3316
One or more estimated values of contributions to the particular position under analysis are determined
3318
One or more graphical elements are appended that represent the one or more estimated values of contributions to the corresponding node of the path or partial path
3320
Output data generated 3226

FIG. 33

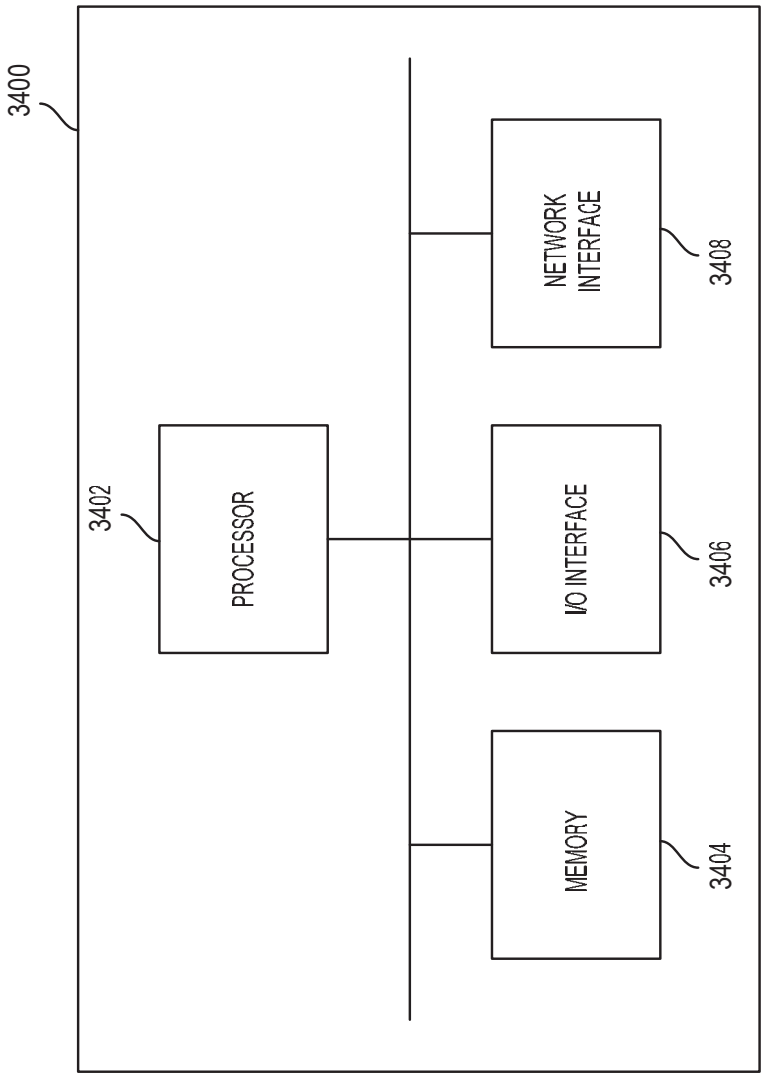

3400
3402
PROCESSOR
MEMORY
3404
I/O INTERFACE
3406
NETWORK
INTERFACE
3408

FIG. 34

Scenario 1: Second Party Wins

EURUSD	-3.60%	EUR weaker — EUR stronger	11-th percentile -1.18 stdev	No Opinion
10y USD Swaps	-103.5bps	Rates lower — Rates higher		No Opinion
France German Spreads	44.0bps	Spread Lower — Spread higher		No Opinion
S&P500	-11.70%	Selloff — Rally		No Opinion
Stoxx50e	-32.50%	Selloff — Rally		No Opinion
iTraxx Main	-26.0bps	Spreads Tighter — Spreads Wider		No Opinion

Scenario 2: First Party Wins

EURUSD	NA		No Opinion
10y USD Swaps	69.0bps	Rates lower — Rates higher	No Opinion
France German Spreads	-27.5bps	Spread Lower — Spread higher	No Opinion
S&P500	NA		No Opinion
Stoxx50e	-22.50%	Selloff — Rally	No Opinion
iTraxx Main	NaNbps	Spreads Tighter — Spreads Wider	No Opinion

FIG. 35

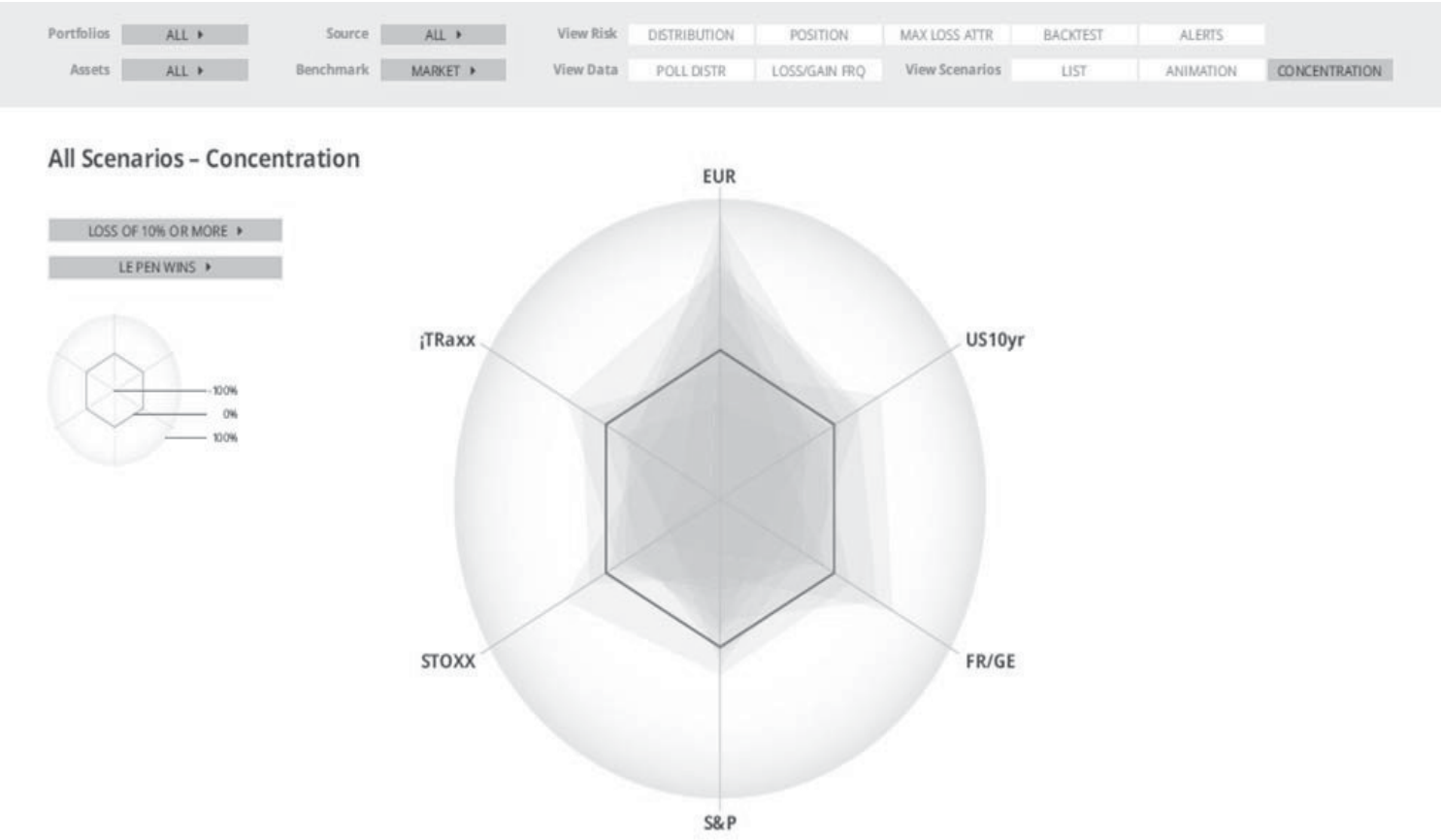

Portfolios
ALL
Source
ALL
View Risk
DISTRIBUTION
POSITION
MAX LOSS ATTR
BACKTEST
ALERTS
Assets
ALL
Benchmark
MARKET
View Data
POLL DISTR
LOSS/GAIN FRQ
View Scenarios
LIST
ANIMATION
CONCENTRATION
All Scenarios – Concentration
LOSS OF 10% OR MORE
LE PEN WINS
100%
0%
100%
EUR
US10yr
FR/GE
S&P
STOXX
iTRaxx

FIG. 36

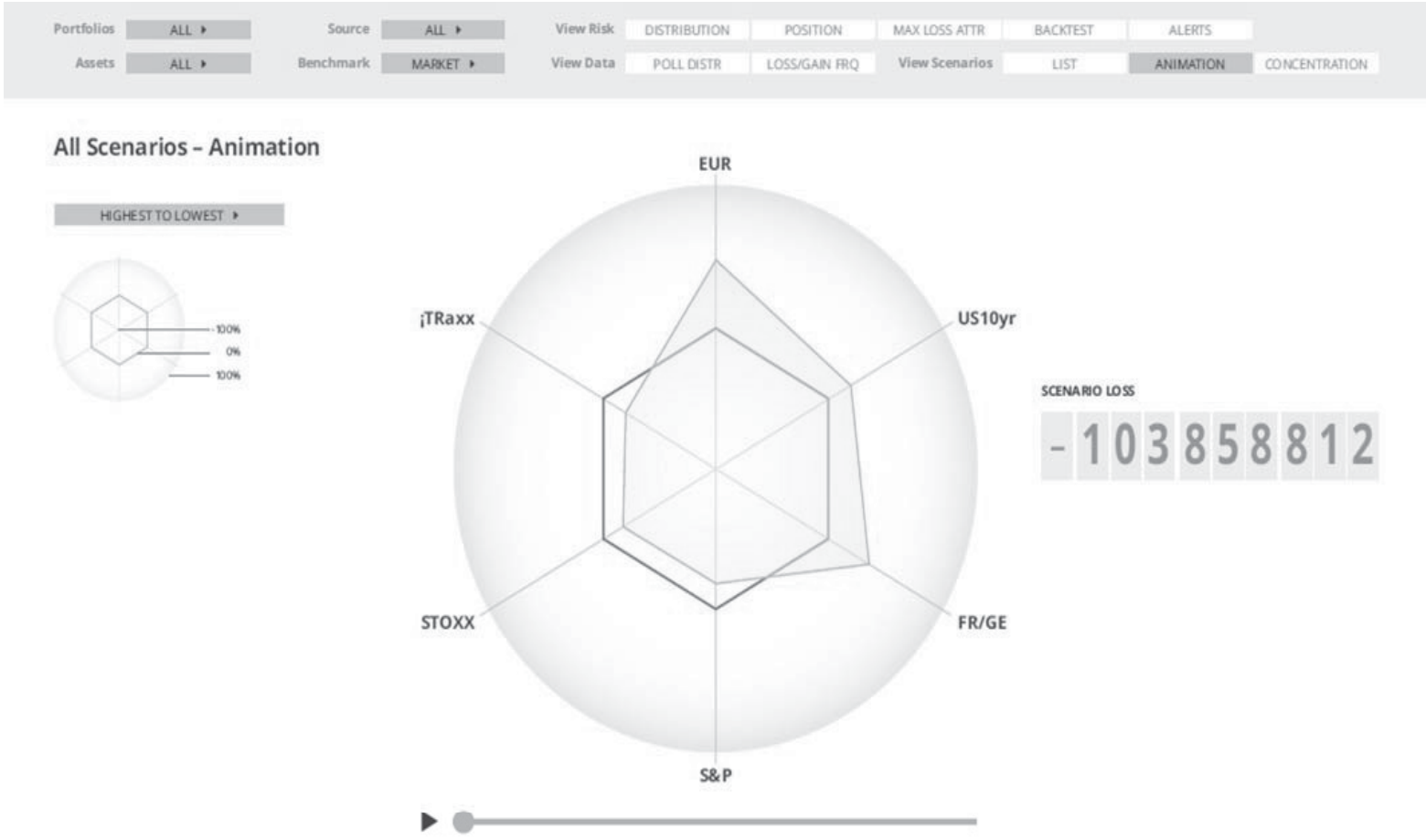

Portfolios
ALL
Source
ALL
View Risk
DISTRIBUTION
POSITION
MAX LOSS ATTR
BACKTEST
ALERTS
Assets
ALL
Benchmark
MARKET
View Data
POLL DISTR
LOSS/GAIN FRQ
View Scenarios
LIST
ANIMATION
CONCENTRATION
All Scenarios – Animation
HIGHEST TO LOWEST
100%
0%
100%
EUR
US10yr
FR/GE
S&P
STOXX
iTRaxx
SCENARIO LOSS
-103858812

FIG. 37

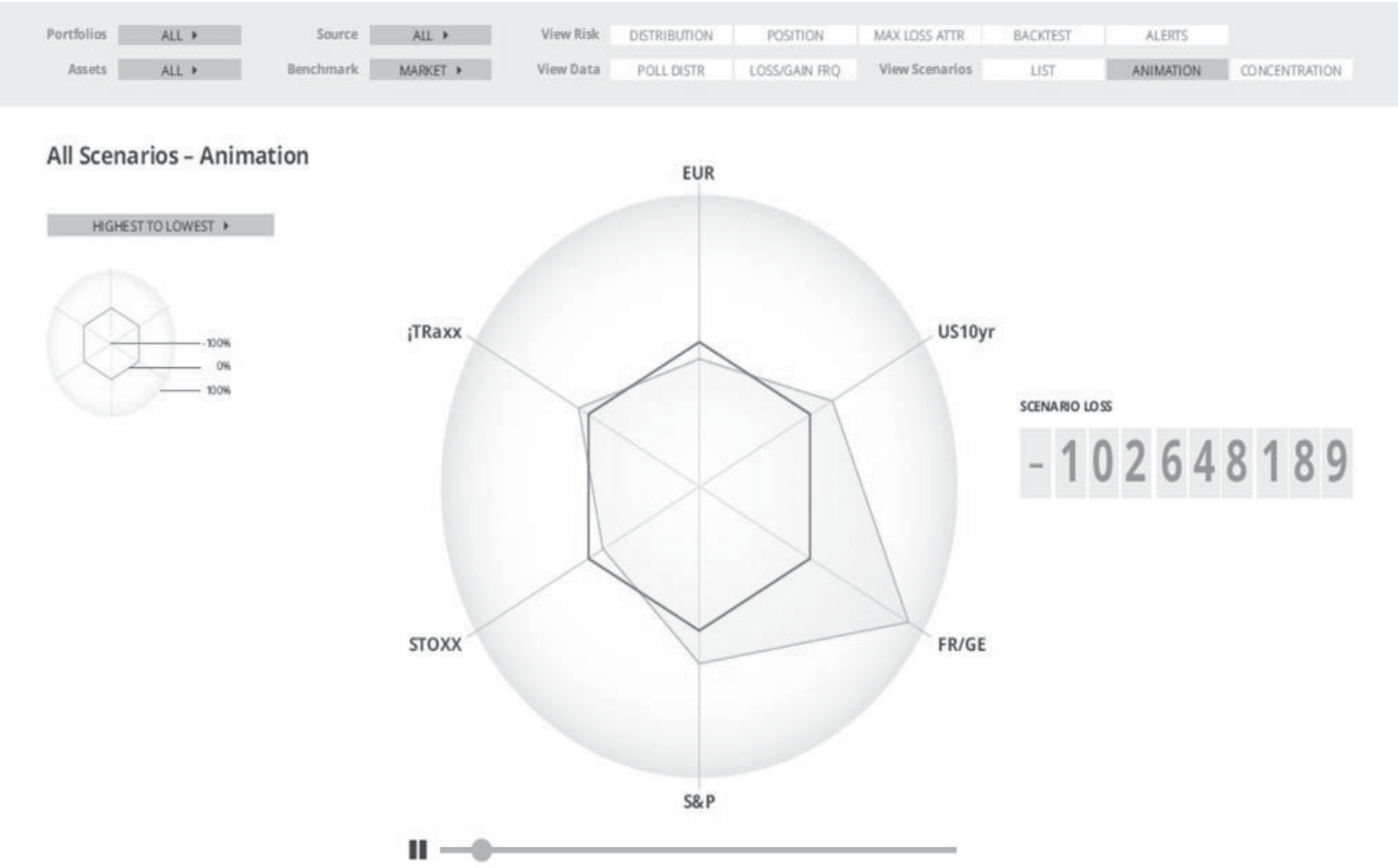

Portfolios
ALL
Source
ALL
View Risk
DISTRIBUTION
POSITION
MAX LOSS ATTR
BACKTEST
ALERTS
Assets
ALL
Benchmark
MARKET
View Data
POLL DISTR
LOSS/GAIN FRQ
View Scenarios
LIST
ANIMATION
CONCENTRATION
All Scenarios – Animation
HIGHEST TO LOWEST
-100%
0%
100%
EUR
US10yr
FR/GE
S&P
STOXX
¡TRaxx
SCENARIO LOSS
-102648189

FIG. 38

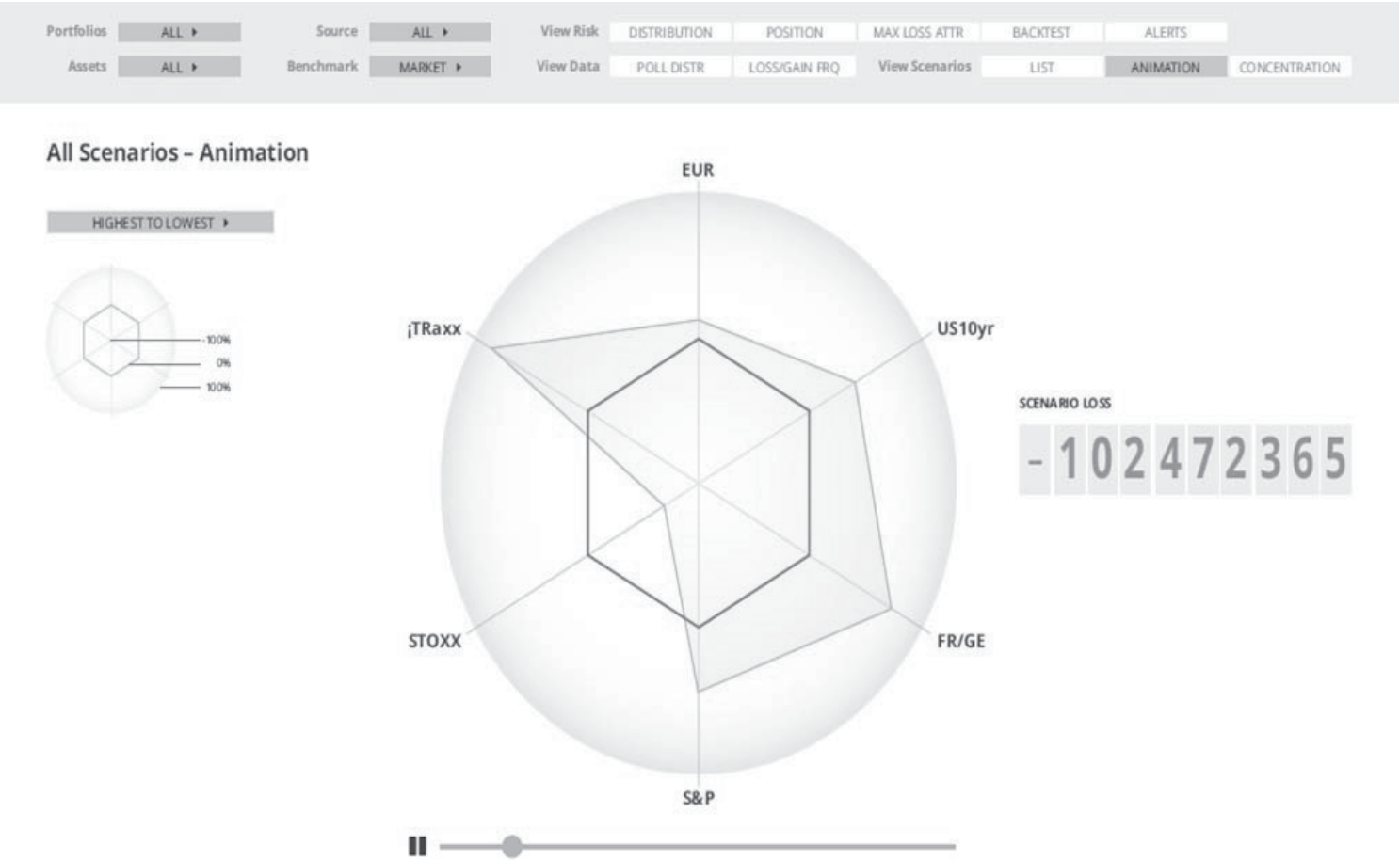

Portfolios
ALL
Source
ALL
View Risk
DISTRIBUTION
POSITION
MAX LOSS ATTR
BACKTEST
ALERTS
Assets
ALL
Benchmark
MARKET
View Data
POLL DISTR
LOSS/GAIN FRQ
View Scenarios
LIST
ANIMATION
CONCENTRATION
All Scenarios - Animation
HIGHEST TO LOWEST
100%
0%
100%
EUR
US10yr
FR/GE
S&P
STOXX
iTRaxx
SCENARIO LOSS
-102472365

FIG. 39

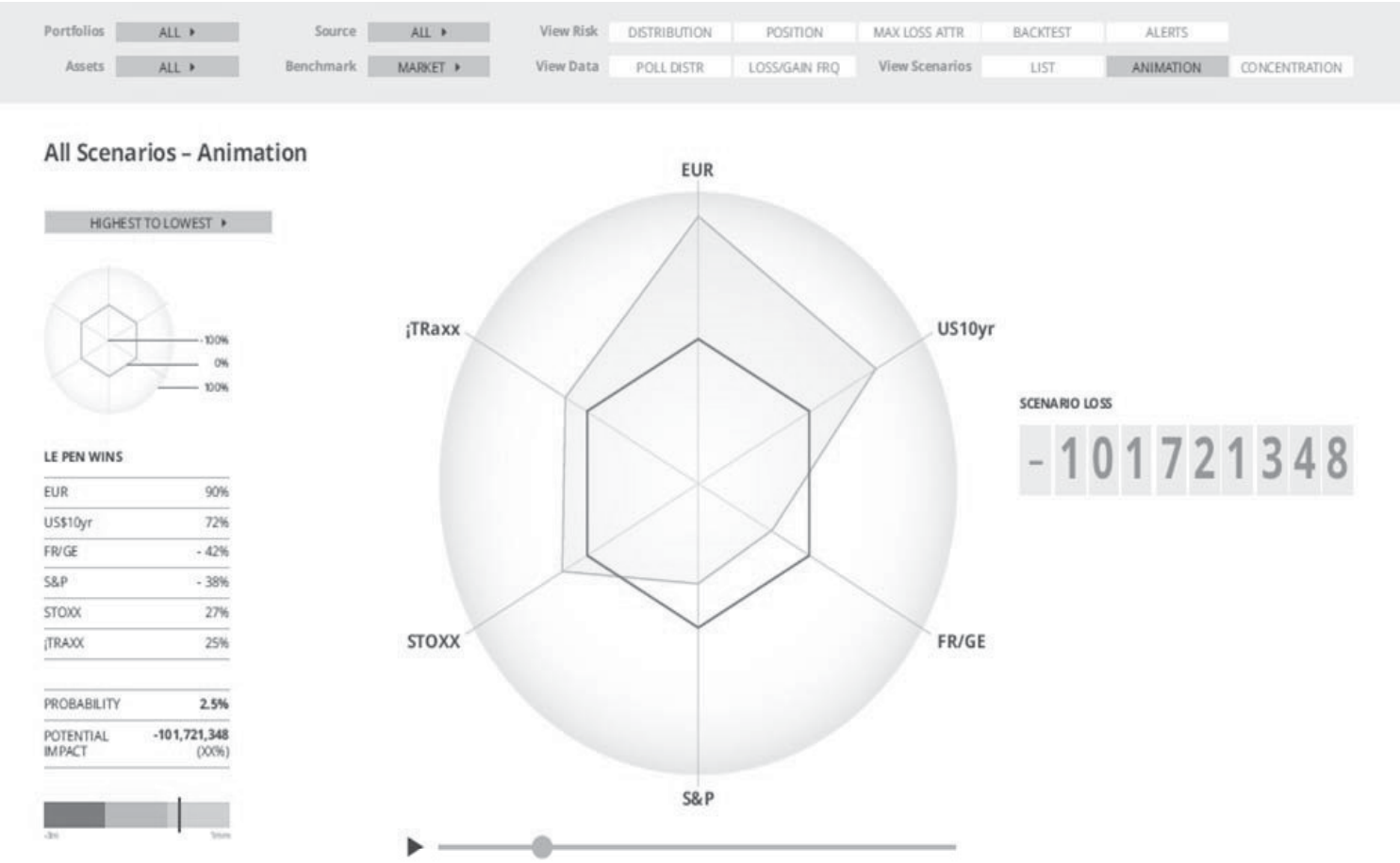

Portfolios
ALL
Source
ALL
View Risk
DISTRIBUTION
POSITION
MAX LOSS ATTR
BACKTEST
ALERTS
Assets
ALL
Benchmark
MARKET
View Data
POLL DISTR
LOSS/GAIN FRQ
View Scenarios
LIST
ANIMATION
CONCENTRATION
All Scenarios – Animation
HIGHEST TO LOWEST
100%
0%
100%
LE PEN WINS
EUR 90%
US$10yr 72%
FR/GE - 42%
S&P - 38%
STOXX 27%
¡TRAXX 25%
PROBABILITY 2.5%
POTENTIAL IMPACT -101,721,348 (XX%)
EUR
US10yr
FR/GE
S&P
STOXX
¡TRaxx
SCENARIO LOSS
-101721348

FIG. 40

Date	Filter: EUR	GBP	HKD	JPY	CHF
12-Dec-08	5.49%	1.83%	0.02%	1.01%	3.76%
15-Dec-08	5.56%	3.02%	0.01%	2.29%	3.85%
16-Dec-08	6.73%	3.65%	-0.01%	2.72%	5.75%
17-Dec-08	10.26%	4.25%	0.00%	5.79%	10.15%
18-Dec-08	7.54%	0.96%	0.00%	2.38%	10.19%
19-Mar-09	6.98%	5.38%	0.03%	4.45%	6.12%
20-Mar-09	5.37%	3.81%	0.03%	2.44%	5.62%

FIG. 41

Upside Shock Levels

Rates

US 10Y +60 bps

	2y	5y	10y
USD	16.61	47.88	60.00
EUR	9.76	15.06	15.35
GBP	5.73	10.98	14.72
JPY	-0.20	2.35	6.40

FX

EUR +11.00%

CCY	EUR	GBP	JPY	CHF	HKD	TWD	KRW	AUD	MXN
Shock	11.00%	4.25%	5.79%	10.15%	0.00%	2.29%	5.21%	5.39%	2.01%

Credit

ITRAXX +60.00%

CD	ITRAXX EU	US IG	US HY	CDX EM
Shock	60.00%	29.35%	27.46%	33.15%

EQ

ESTOXX +11.00%

EQ	ESTOXX	NIKKEI	HSI	TOPIX	DAX	RUSSELL	SPX
Shock	11.00%	9.00%	10.60%	6.40%	11.79%	11.58%	7.50%

Downside Shock Levels

Rates

US 10Y -55 bps

	2y	5y	10y
USD	-29.94	-49.79	-55.00
EUR	-23.49	-22.81	-21.91
GBP	-26.21	-24.95	-22.50
JPY	-4.64	-6.06	-5.54

FX

EUR -13.00%

CCY	EUR	GBP	JPY	CHF	HKD	TWD	KRW	AUD	MXN
Shock	-13.00%	-9.72%	9.06%	-0.60%	0.06%	-2.76%	-10.19%	-12.98%	-4.00%

Credit

ITRAXX -30.00%

CD	ITRAXX EU	US IG	US HY	CDX EM
Shock	-29.52%	-23.24%	-9.80%	-15.56%

EQ

ESTOXX -13.00%

EQ	ESTOXX	NIKKEI	HSI	TOPIX	DAX	RUSSELL	SPX
Shock	-13.00%	-24.33%	-16.32%	-19.76%	-21.61%	-15.65%	-10%

FIG. 42

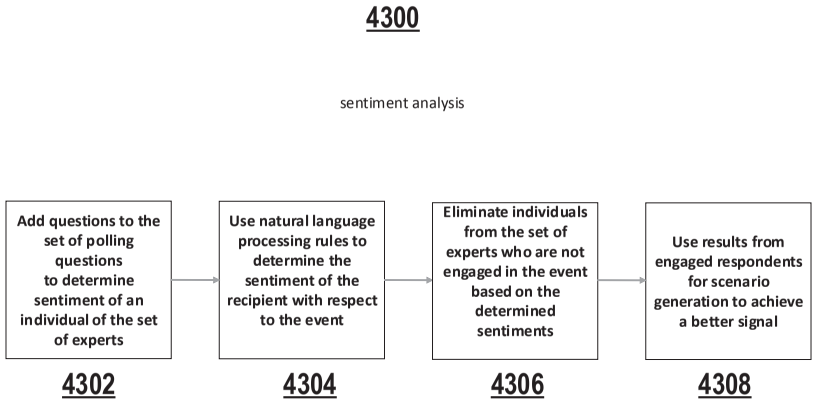

4300
sentiment analysis
Add questions to the set of polling questions to determine sentiment of an individual of the set of experts
4302
Use natural language processing rules to determine the sentiment of the recipient with respect to the event
4304
Eliminate individuals from the set of experts who are not engaged in the event based on the determined sentiments
4306
Use results from engaged respondents for scenario generation to achieve a better signal
4308

FIG. 43

Know your Bets for All Equities by GICs Level 2 Sectors

4404 **SCENARIO 82** **Center-Left Wins** EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%

PROBABILITY **2.5%** POTENTIAL IMPACT **-9,457K** (2%) EQ IR CR FX

	CENTER-LEFT WINS			LE PEN WINS			CENTER-RIGHT WINS		
		ALL PORTFOLIOS	PEERS		ALL PORTFOLIOS	PEERS		ALL PORTFOLIOS	PEERS
5 LARGEST LOSSES	4406 Energy	4402 -9.3%	+3.7%	Food & Staples Retailing	-10.1%	-9.9%	Automobiles & Components	-8.1%	+1.9%
	Materials	-8.3%	+5.6%	Food, Beverage & Tobacco	-9.9%	-6.3%	Energy	-6.6%	-7.3%
	Capital Goods	-6.3%	+1.9%	Insurance	-7.3%	-2.1%	Commercial & Prof Services	-6.6%	-8.3%
	Commercial & Prof. Services	-3.4%	-7.3%	Retailing	-6.8%	+5.6%	Software & Tech Services	-5.9%	-6.3%
	Transportation	-3.1%	-2.1%	Household & Pers Products	-6.2%	+5.6%	Tech Hardware & Equipment	-2.1%	-9.9%
		ALL PORTFOLIOS	PEERS		ALL PORTFOLIOS	PEERS		ALL PORTFOLIOS	PEERS
5 LARGEST GAINS	Automobiles & Components	+9.8%	-6.3%	Diversified Financials	+4.0%	+5.6%	Cons Durables & Apparel	+10.5%	+3.7%
	Cons Durables & Apparel	+7.7%	+1.9%	Pharma, Bio & Life Sciences	+3.7%	-7.3%	Consumer Services	+7.5%	+5.6%
	Consumer Services	+5.6%	-8.3%	Automobiles & Components	+3.2%	-6.3%	Insurance	+7.1%	-2.1%
	Media	+3.9%	+3.7%	Health Care Equip & Services	+2.0%	+3.7%	Retailing	+4.3%	+1.9%
	Retailing	+3.1%	-9.9%	Banks	+1.9%	-8.3%	Diversified Financials	+2.2%	+5.6%

4400

FIG. 44

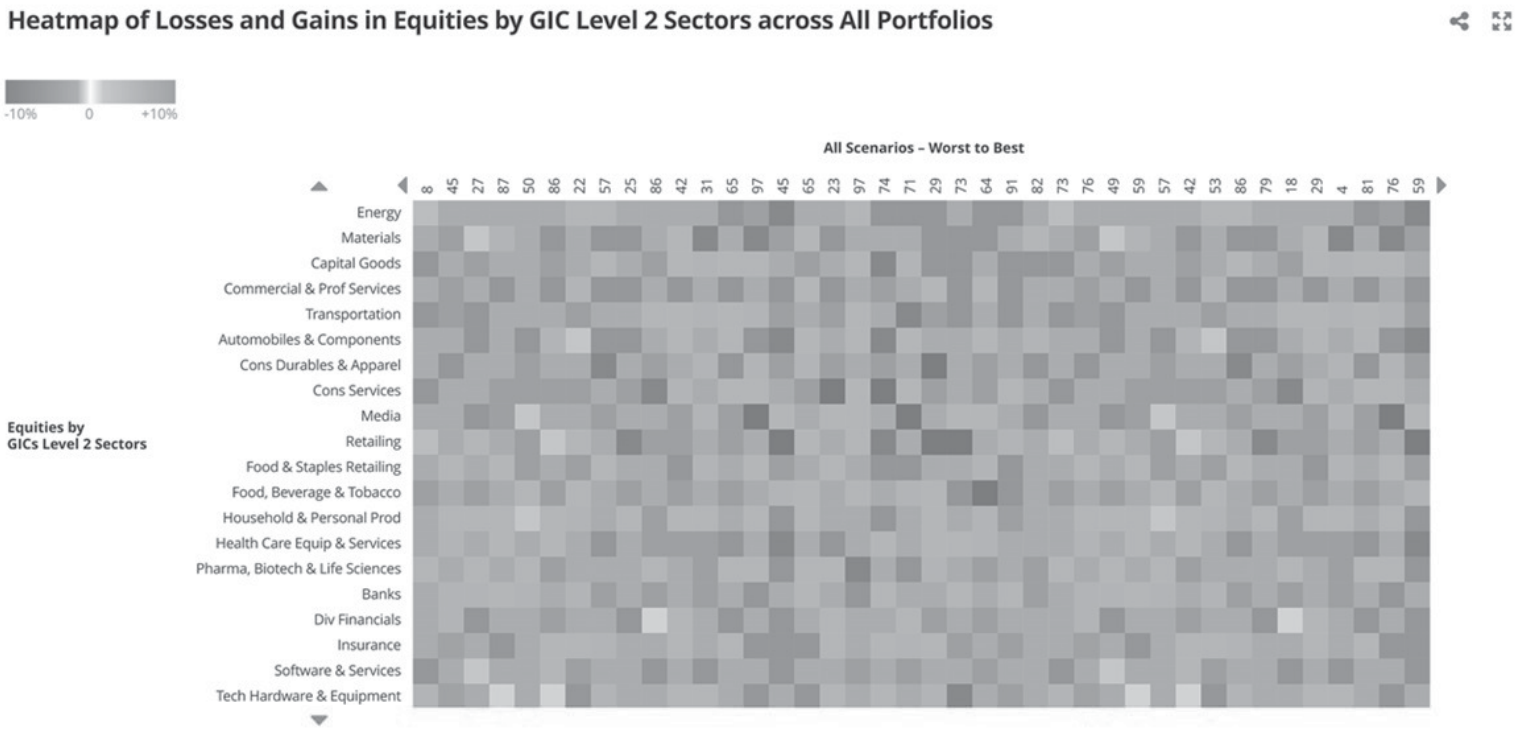

Heatmap of Losses and Gains in Equities by GIC Level 2 Sectors across All Portfolios
-10%
0
+10%
All Scenarios – Worst to Best
8 45 27 87 50 86 22 57 25 86 42 31 65 97 45 65 23 97 74 71 29 73 64 91 82 73 76 49 59 57 42 53 86 79 18 29 4 81 76 59
Equities by GICs Level 2 Sectors
Energy
Materials
Capital Goods
Commercial & Prof Services
Transportation
Automobiles & Components
Cons Durables & Apparel
Cons Services
Media
Retailing
Food & Staples Retailing
Food, Beverage & Tobacco
Household & Personal Prod
Health Care Equip & Services
Pharma, Biotech & Life Sciences
Banks
Div Financials
Insurance
Software & Services
Tech Hardware & Equipment

FIG. 45

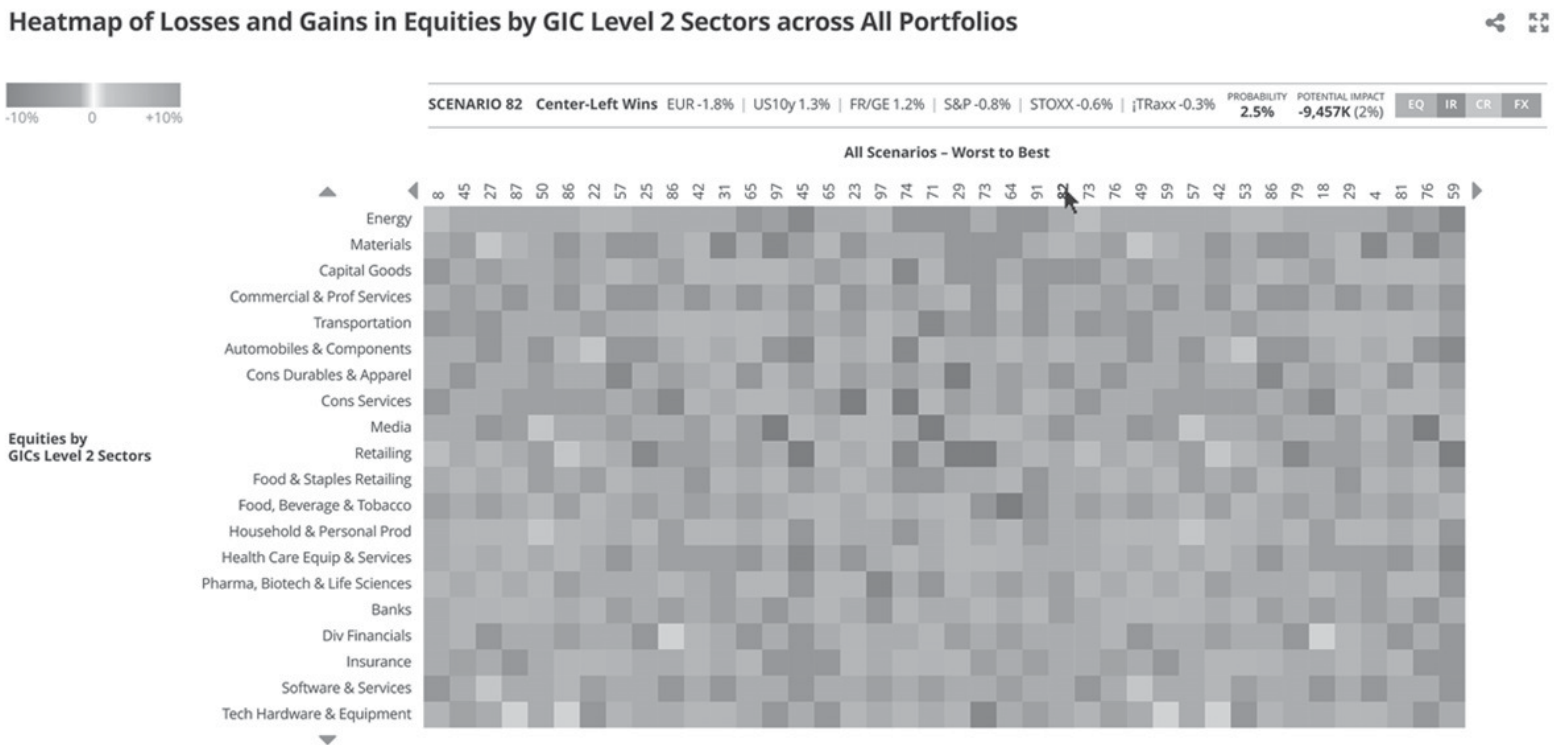

Heatmap of Losses and Gains in Equities by GIC Level 2 Sectors across All Portfolios
-10%
0
+10%
SCENARIO 82 Center-Left Wins EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%
PROBABILITY 2.5%
POTENTIAL IMPACT -9,457K (2%)
EQ IR CR FX
All Scenarios – Worst to Best
8 45 27 87 50 86 22 57 25 86 42 31 65 97 45 65 23 97 74 71 29 73 64 91 82 73 76 49 59 57 42 53 86 79 18 29 4 81 76 59
Equities by GICs Level 2 Sectors
Energy
Materials
Capital Goods
Commercial & Prof Services
Transportation
Automobiles & Components
Cons Durables & Apparel
Cons Services
Media
Retailing
Food & Staples Retailing
Food, Beverage & Tobacco
Household & Personal Prod
Health Care Equip & Services
Pharma, Biotech & Life Sciences
Banks
Div Financials
Insurance
Software & Services
Tech Hardware & Equipment

FIG. 46

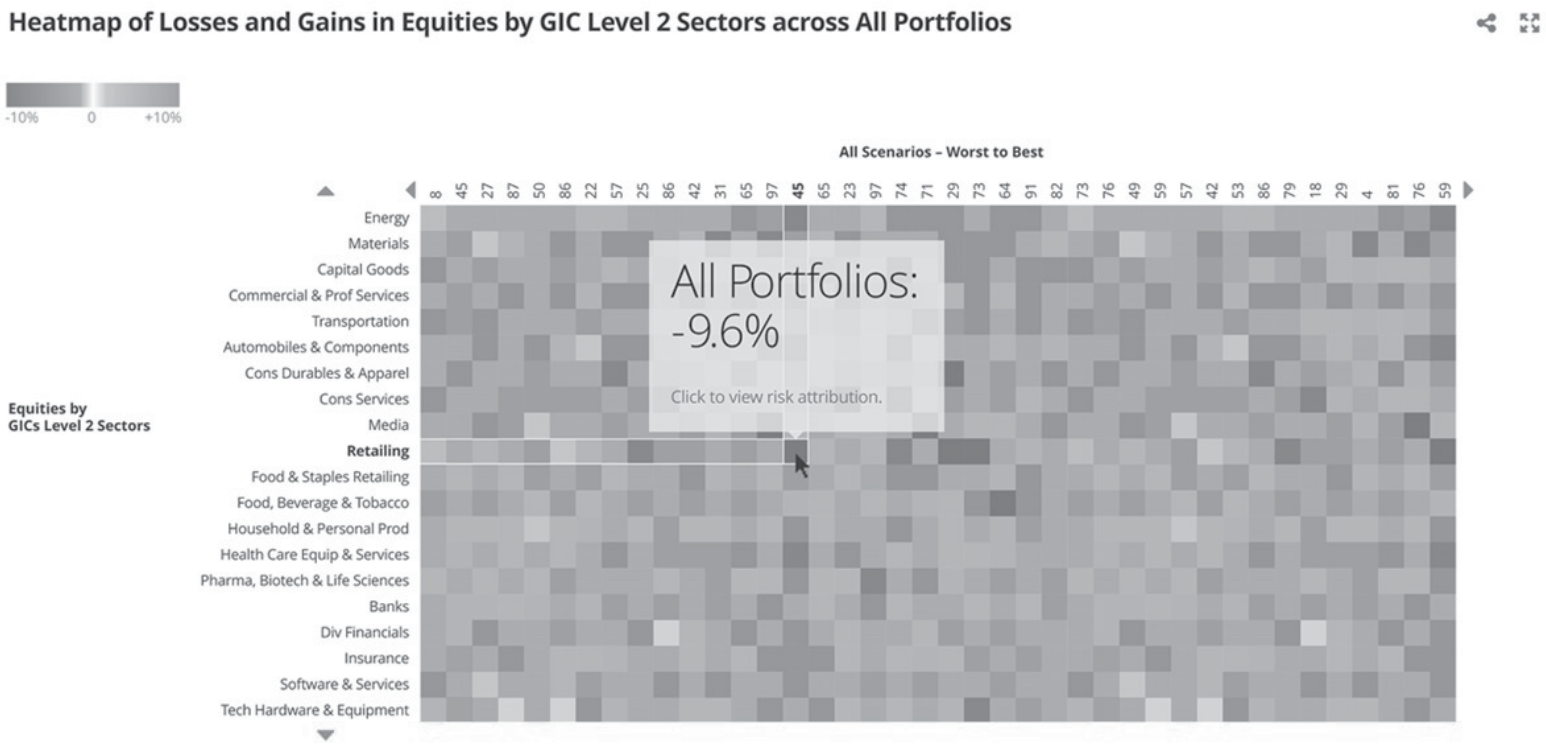

Heatmap of Losses and Gains in Equities by GIC Level 2 Sectors across All Portfolios
-10%
0
+10%
All Scenarios – Worst to Best
8 45 27 87 50 86 22 57 25 86 42 31 65 97 45 65 23 97 74 71 29 73 64 91 82 73 76 49 59 57 42 53 86 79 18 29 4 81 76 59
Equities by
GICs Level 2 Sectors
Energy
Materials
Capital Goods
Commercial & Prof Services
Transportation
Automobiles & Components
Cons Durables & Apparel
Cons Services
Media
Retailing
Food & Staples Retailing
Food, Beverage & Tobacco
Household & Personal Prod
Health Care Equip & Services
Pharma, Biotech & Life Sciences
Banks
Div Financials
Insurance
Software & Services
Tech Hardware & Equipment
All Portfolios:
-9.6%
Click to view risk attribution.

FIG. 47

GICs Sector Level Drilldown
MACRO SCENARIO 45
Center-Left Wins
EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%
PROBABILITY
2.5%
POTENTIAL IMPACT
-9,457K (2%)
Position Level Impact
SECTORS
LOSS / GAIN
IMPACT
Energy -2.145K
Materials -2.086K
Industrials -1.893K
Consumer Discretionary -1.794K
Consumer Staples -1.689K
Health Care 0.86K
Financials 1.16K
Information Technology 2.158K
Telecommunication Services 2.289K
Utilities 4.568K
Real Estate 6.578K
ATTRIBUTION
MICRO SHOCKS
DEVELOP HEDGE
MAX LOSS ATTRIBUTION – CONSUMER DISCRETIONARY
Credit
Equities
IT
FX

FIG. 48

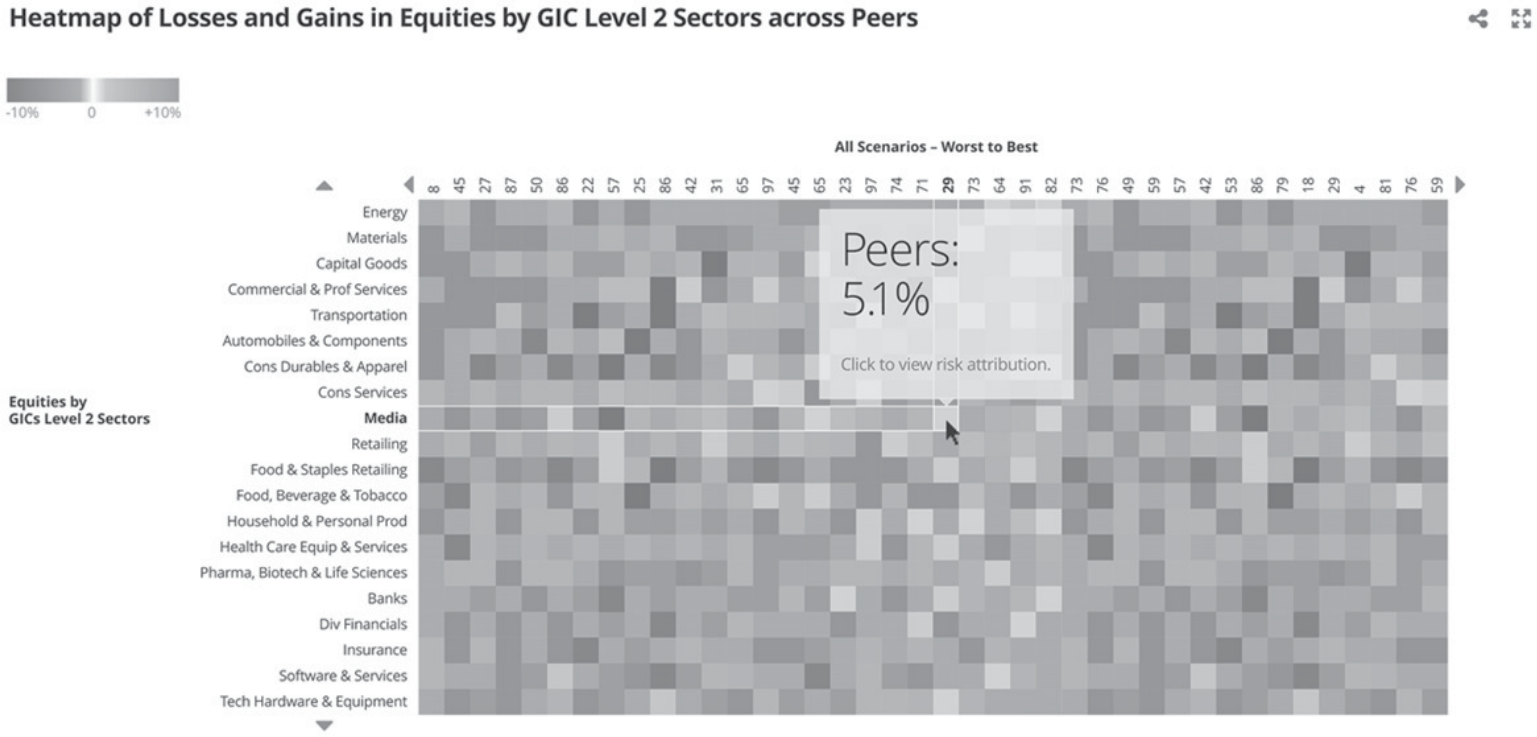

Heatmap of Losses and Gains in Equities by GIC Level 2 Sectors across Peers
-10%
0
+10%
All Scenarios – Worst to Best
8 45 27 87 50 86 22 57 25 86 42 31 65 97 45 65 23 97 74 71 29 73 64 91 82 73 76 49 59 57 42 53 86 79 18 29 4 81 76 59
Equities by
GICs Level 2 Sectors
Energy
Materials
Capital Goods
Commercial & Prof Services
Transportation
Automobiles & Components
Cons Durables & Apparel
Cons Services
Media
Retailing
Food & Staples Retailing
Food, Beverage & Tobacco
Household & Personal Prod
Health Care Equip & Services
Pharma, Biotech & Life Sciences
Banks
Div Financials
Insurance
Software & Services
Tech Hardware & Equipment
Peers:
5.1%
Click to view risk attribution.

FIG. 49

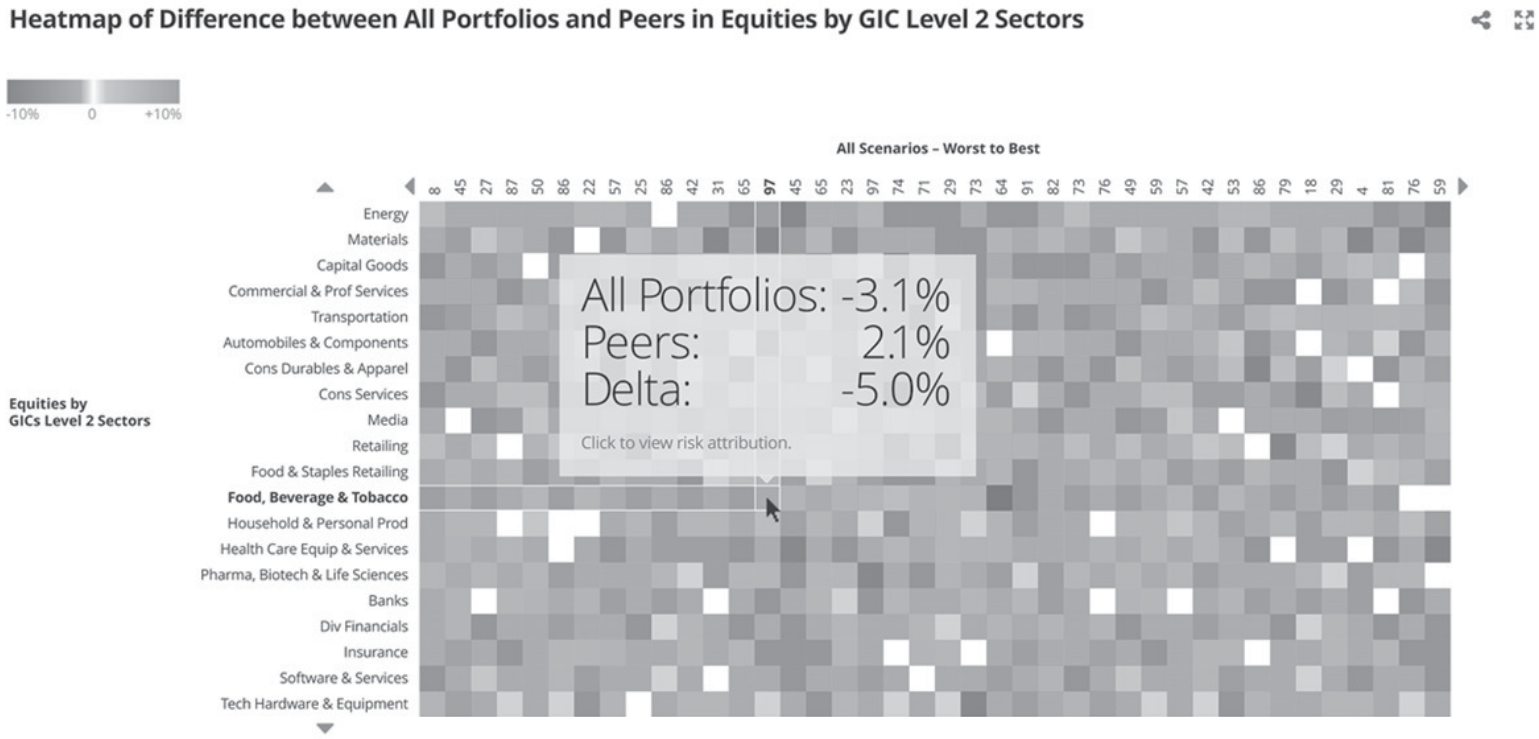

Heatmap of Difference between All Portfolios and Peers in Equities by GIC Level 2 Sectors
-10%
0
+10%
All Scenarios – Worst to Best
8 45 27 87 50 86 22 57 25 86 42 31 65 97 45 65 23 97 74 71 29 73 64 91 82 73 76 49 59 57 42 53 86 79 18 29 4 81 76 59
Equities by GICs Level 2 Sectors
Energy
Materials
Capital Goods
Commercial & Prof Services
Transportation
Automobiles & Components
Cons Durables & Apparel
Cons Services
Media
Retailing
Food & Staples Retailing
Food, Beverage & Tobacco
Household & Personal Prod
Health Care Equip & Services
Pharma, Biotech & Life Sciences
Banks
Div Financials
Insurance
Software & Services
Tech Hardware & Equipment
All Portfolios: -3.1%
Peers: 2.1%
Delta: -5.0%
Click to view risk attribution.

FIG. 50

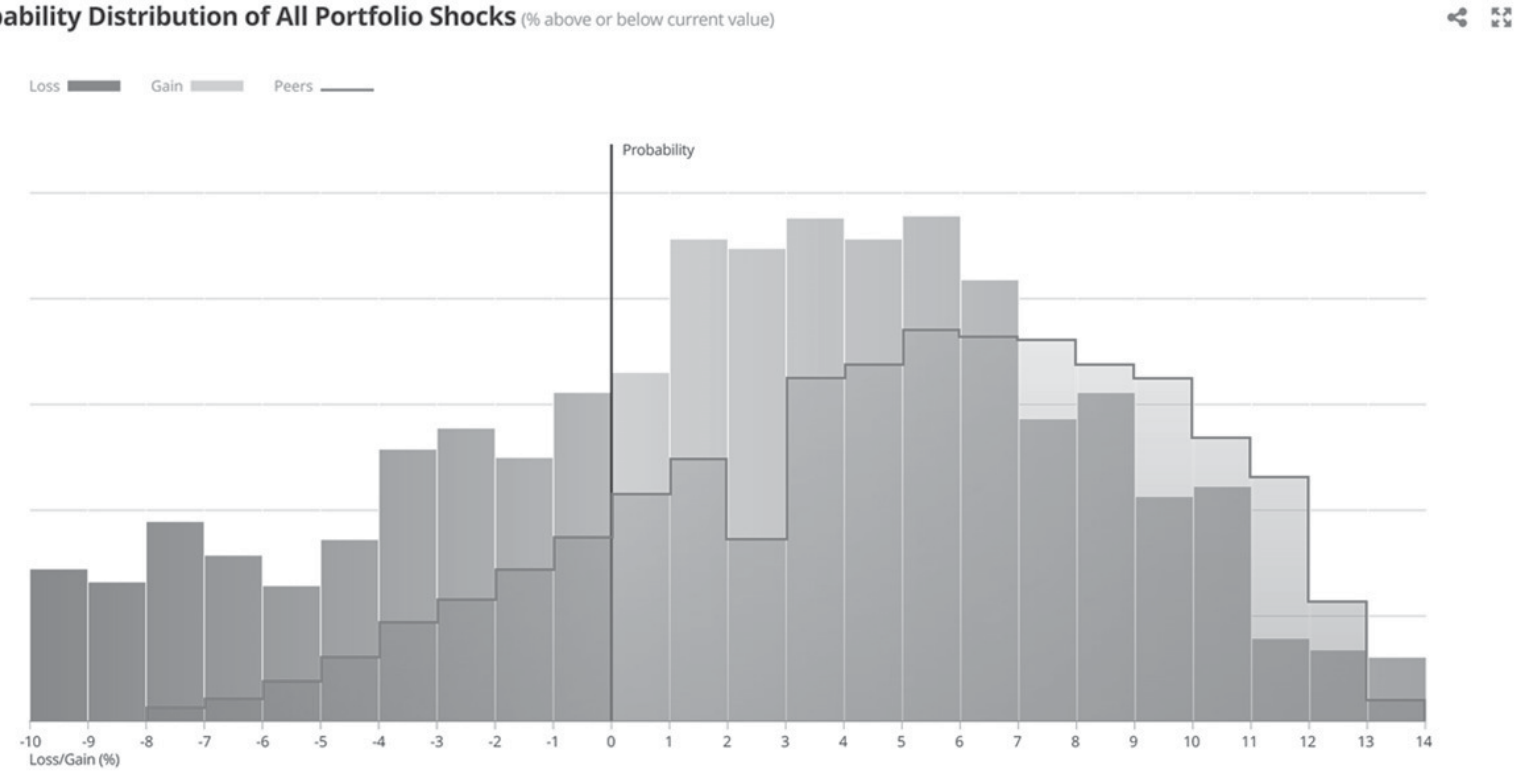

Probability Distribution of All Portfolio Shocks (% above or below current value)
Loss
Gain
Peers
Probability
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Loss/Gain (%)

FIG. 51

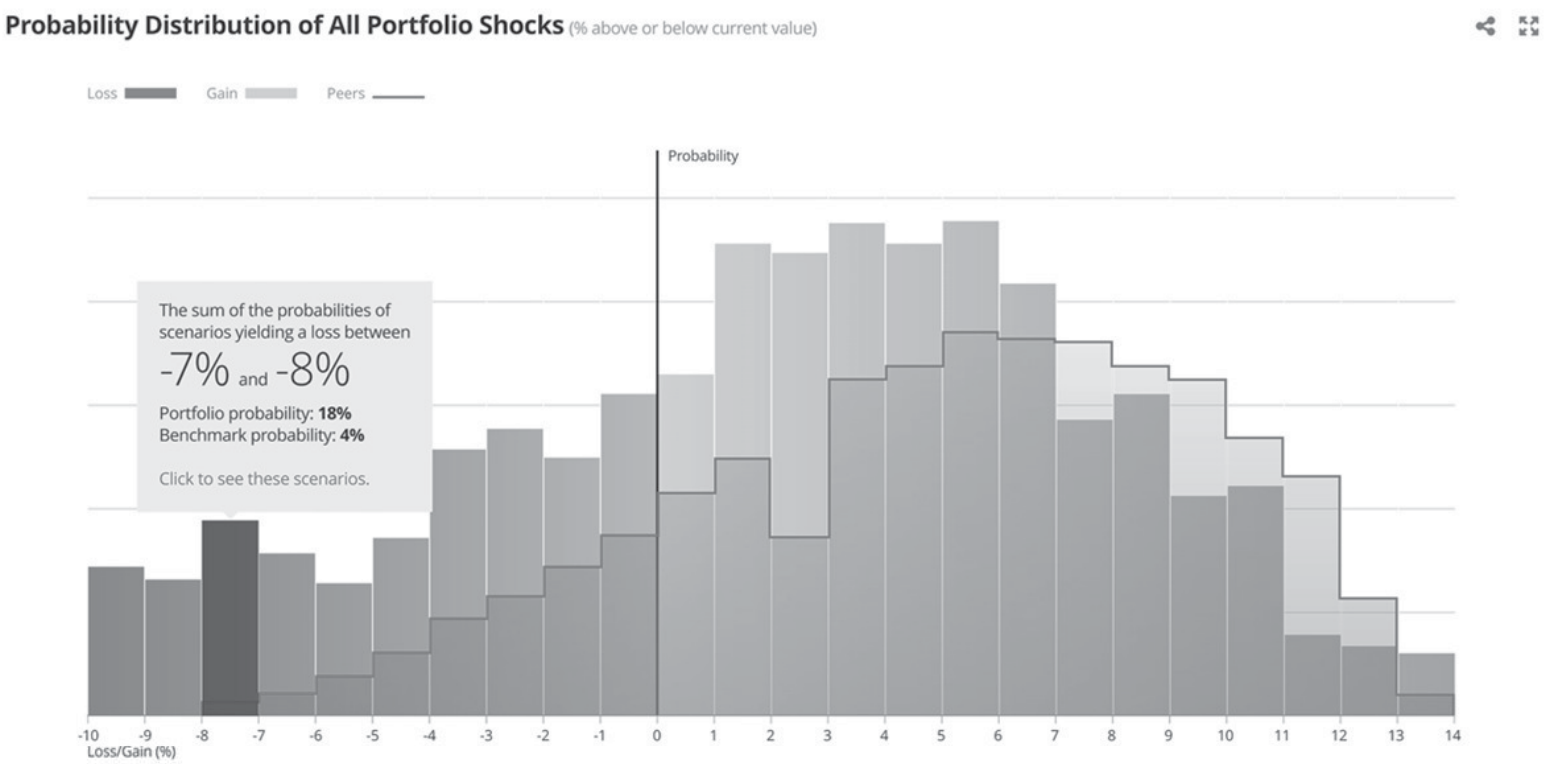
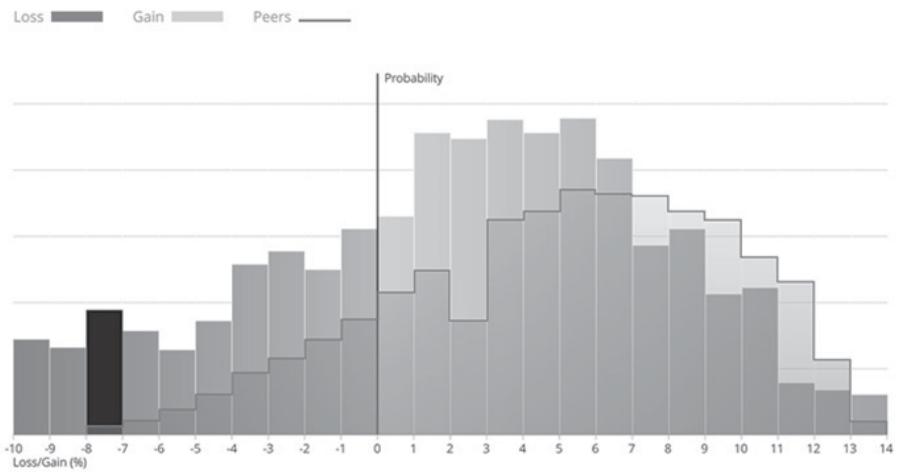

Probability Distribution of All Portfolio Shocks (% above or below current value)
Loss
Gain
Peers
Probability
The sum of the probabilities of scenarios yielding a loss between
-7% and -8%
Portfolio probability: 18%
Benchmark probability: 4%
Click to see these scenarios.
-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
Loss/Gain (%)

FIG. 52

Probability Distribution of All Portfolio Shocks



The sum of the probabilities of scenarios yielding a loss between

-7% and -8%

Portfolio probability: **18%**
Benchmark probability: **4%**

SCENARIOS CAUSING LOSS BETWEEN -7% AND -8%

SCENARIO		PROBABILITY	POTENTIAL IMPACT	ATTRIBUTION (Equities, IR, Credit, FX)	SECTOR DRILLDOWN
Center-Left Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	**2.5%**	**-9,457K** (2%)		
Center-Right Wins	EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%	**2.5%**	**-8,475K** (2%)		
Le Pen Wins	EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%	**2.5%**	**-8,184K** (2%)		

FIG. 53

GICs Sector Level Drilldown

Scenarios causing loss between 7% and 8%

MACRO SCENARIO 10658	Center-Left Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	PROBABILITY 2.5%	POTENTIAL IMPACT -9,457K (2%)

Position Level Impact

SECTORS	LOSS / GAIN	IMPACT
Energy	-2.145K	
Materials	-2.086K	
Industrials	-1.893K	
Consumer Discretionary	-1.794K	
Consumer Staples	-1.689K	
Health Care	-1.532K	
Financials	-1.529K	
Information Technology	-1.325K	
Telecommunication Services	-.015K	
Utilities	0.083K	
Real Estate	1.428K	

ATTRIBUTION | MICRO SHOCKS | DEVELOP HEDGE

MAX LOSS ATTRIBUTION – ENERGY

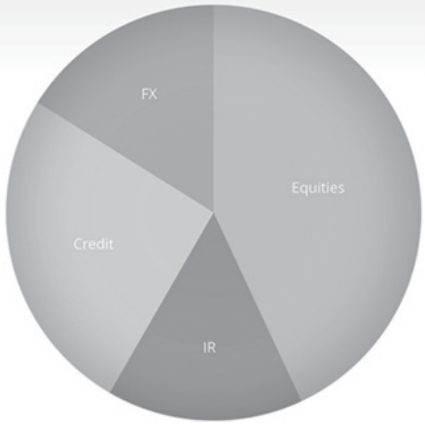


FIG. 54

GICs Sector Level Drilldown

Scenarios causing loss between 7% and 8%

MACRO SCENARIO 10658	Center-Left Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	PROBABILITY 2.5%	POTENTIAL IMPACT -9,457K (2%)

Position Level Impact

SECTORS	LOSS / GAIN	IMPACT
Energy	-2.145K	
Materials	-2.086K	
Industrials	-1.893K	
Consumer Discretionary	-1.794K	
Consumer Staples	-1.689K	
Health Care	-1.532K	
Financials	-1.529K	
Information Technology	-1.325K	
Telecommunication Services	-.015K	
Utilities	0.083K	
Real Estate	1.428K	

ATTRIBUTION | MICRO SHOCKS | DEVELOP HEDGE

INTEREST RATES

Rates Shock (Max)

SHOCK LEVEL +50 bps

	2y	5y	10y
USD	28.69	53.88	62.60
EUR	13.52	19.02	19.31
GBP	10.42	17.56	18.00
JPY	2.48	4.85	3.13

FX SHOCKS

CREDIT SHOCKS

EQUITY SHOCKS

FIG. 55

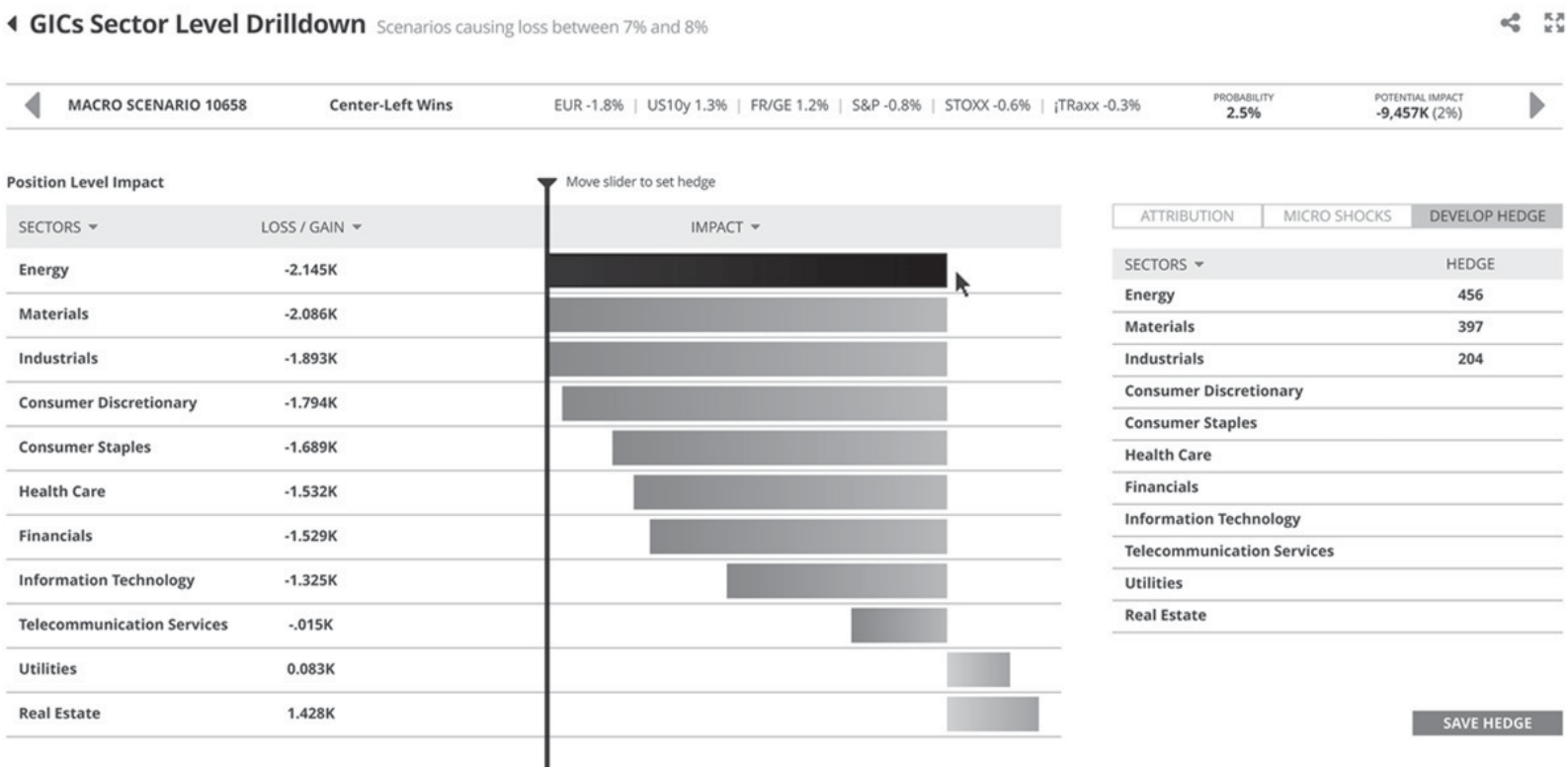

GICs Sector Level Drilldown
Scenarios causing loss between 7% and 8%
MACRO SCENARIO 10658
Center-Left Wins
EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%
PROBABILITY
2.5%
POTENTIAL IMPACT
-9,457K (2%)
Position Level Impact
Move slider to set hedge
SECTORS
LOSS / GAIN
IMPACT
Energy -2.145K
Materials -2.086K
Industrials -1.893K
Consumer Discretionary -1.794K
Consumer Staples -1.689K
Health Care -1.532K
Financials -1.529K
Information Technology -1.325K
Telecommunication Services -.015K
Utilities 0.083K
Real Estate 1.428K
ATTRIBUTION
MICRO SHOCKS
DEVELOP HEDGE
SECTORS
HEDGE
Energy 456
Materials 397
Industrials 204
Consumer Discretionary
Consumer Staples
Health Care
Financials
Information Technology
Telecommunication Services
Utilities
Real Estate
SAVE HEDGE

FIG. 56

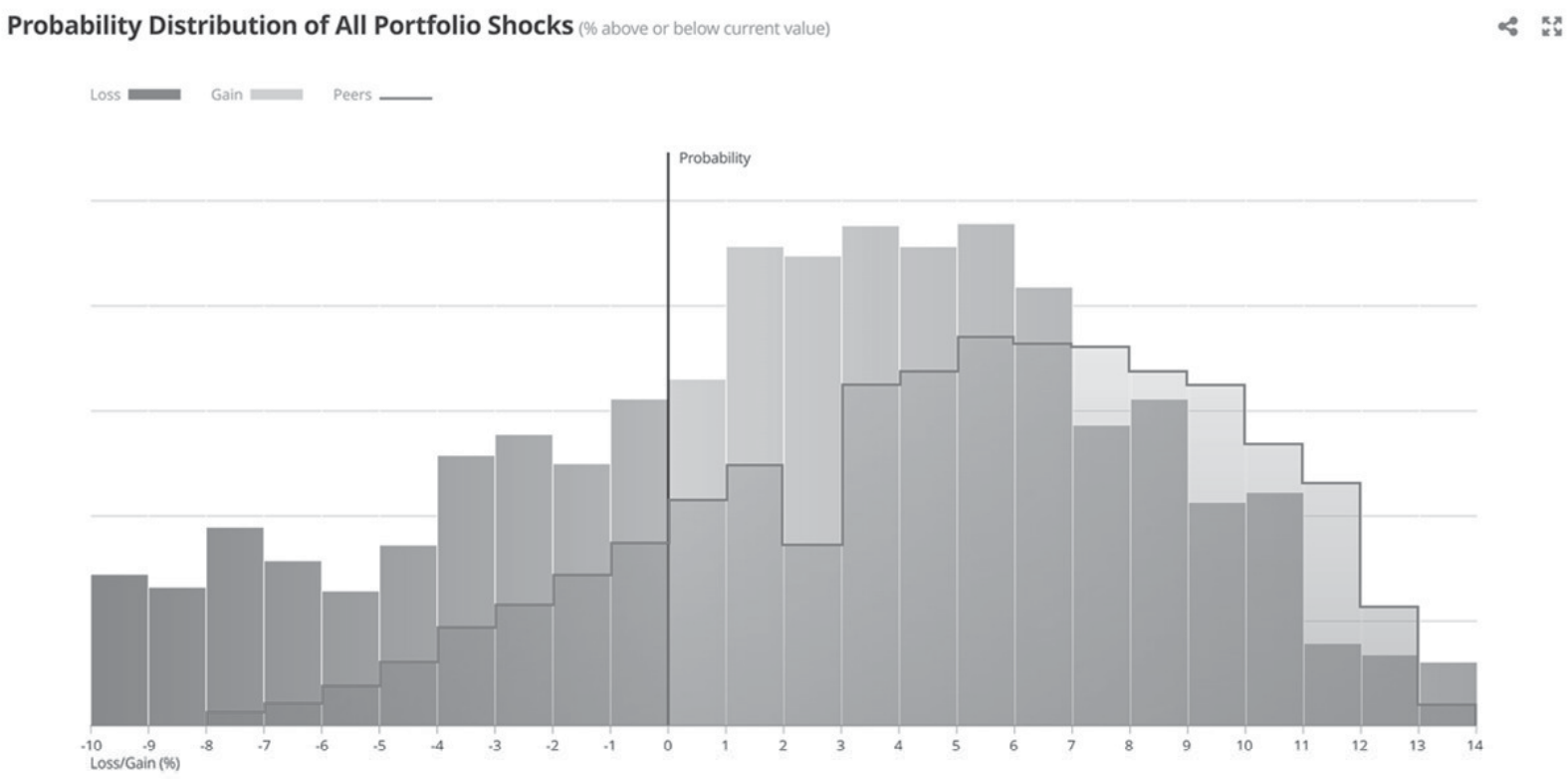

Probability Distribution of All Portfolio Shocks (% above or below current value)
Loss
Gain
Peers
Probability
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Loss/Gain (%)

FIG. 57

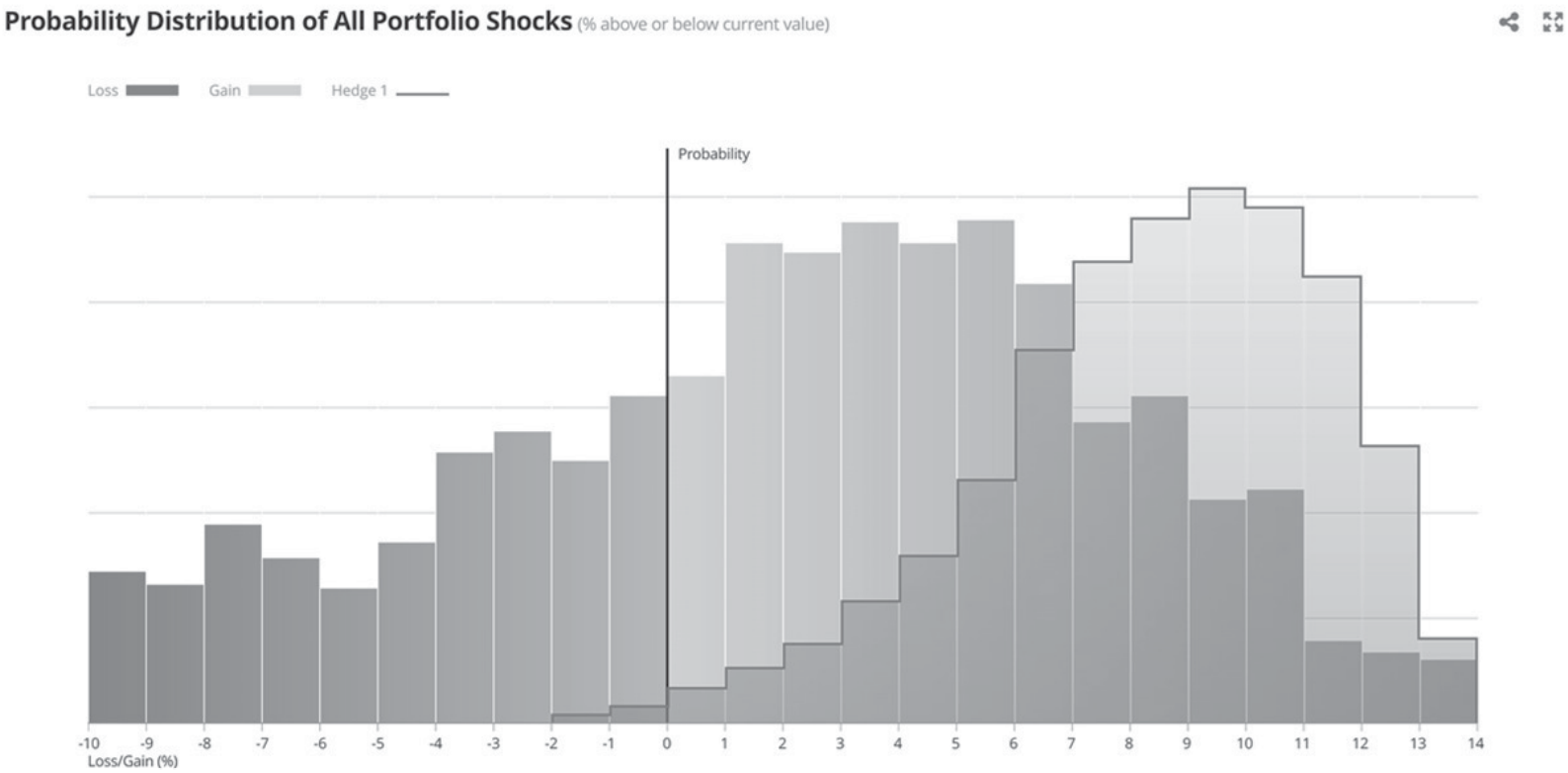

Probability Distribution of All Portfolio Shocks (% above or below current value)
Loss
Gain
Hedge 1
Probability
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Loss/Gain (%)

FIG. 58

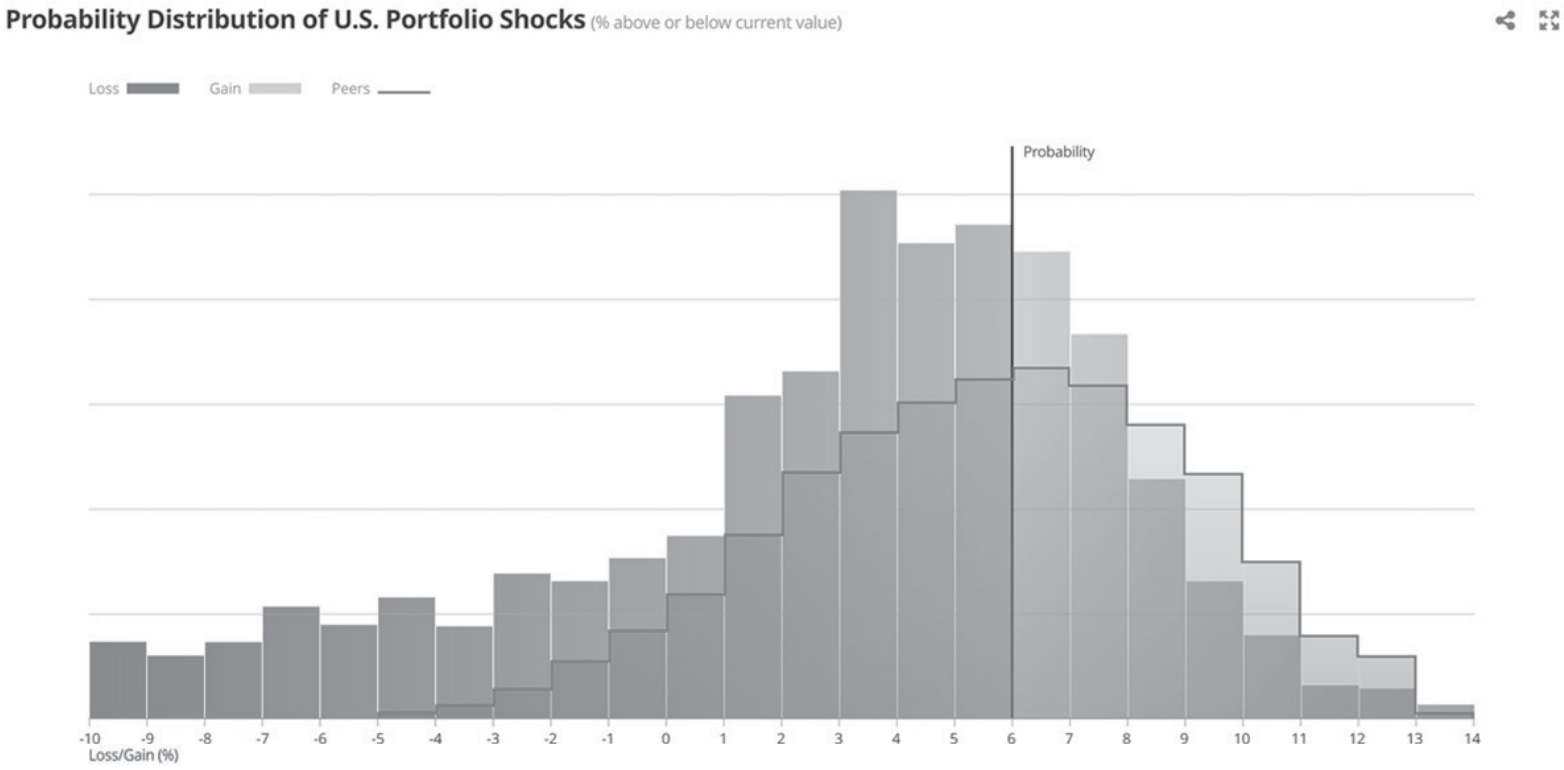

Probability Distribution of U.S. Portfolio Shocks (% above or below current value)
Loss
Gain
Peers
Probability
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Loss/Gain (%)

FIG. 59

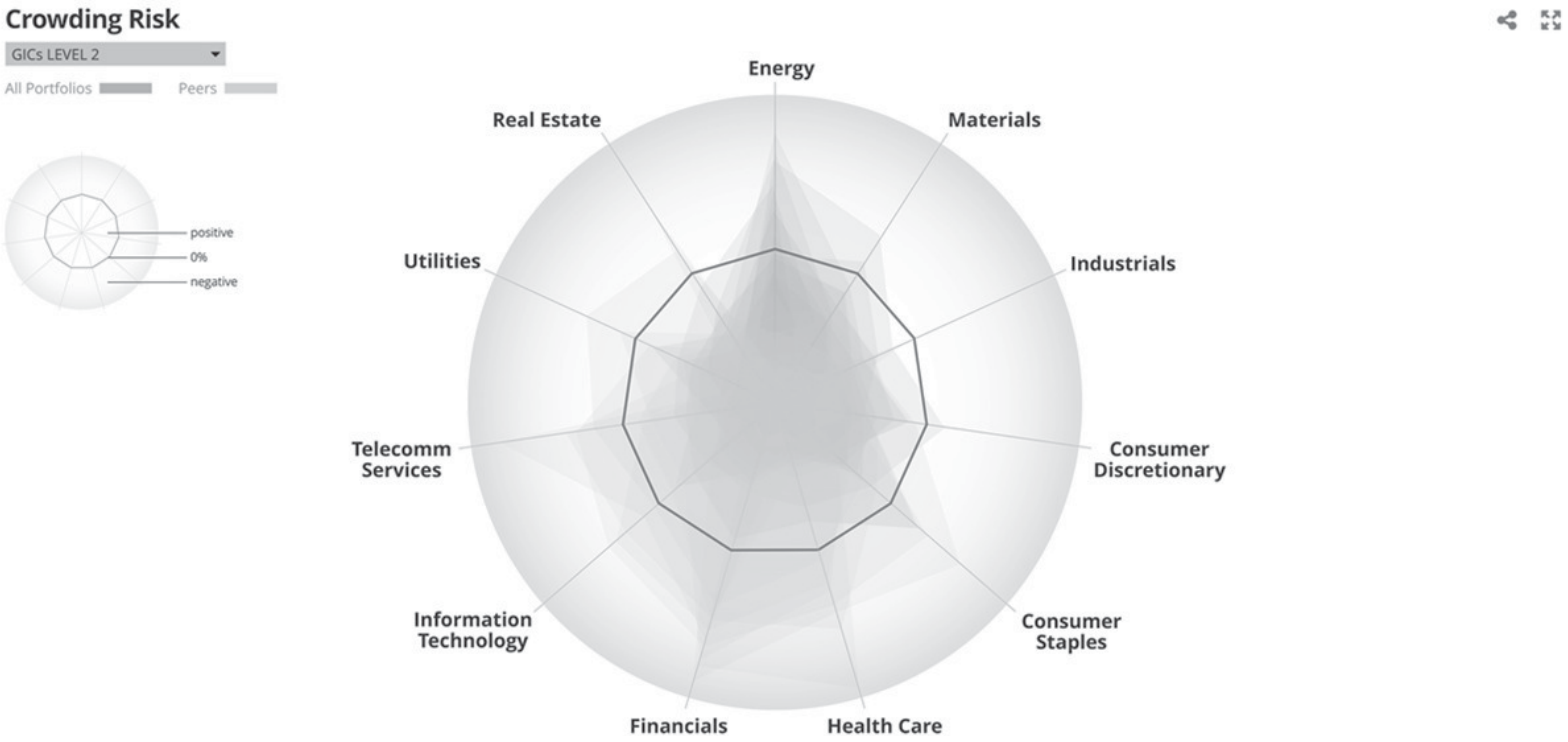

Crowding Risk
GICs LEVEL 2
All Portfolios
Peers
positive
0%
negative
Energy
Materials
Industrials
Consumer Discretionary
Consumer Staples
Health Care
Financials
Information Technology
Telecomm Services
Utilities
Real Estate

FIG. 60

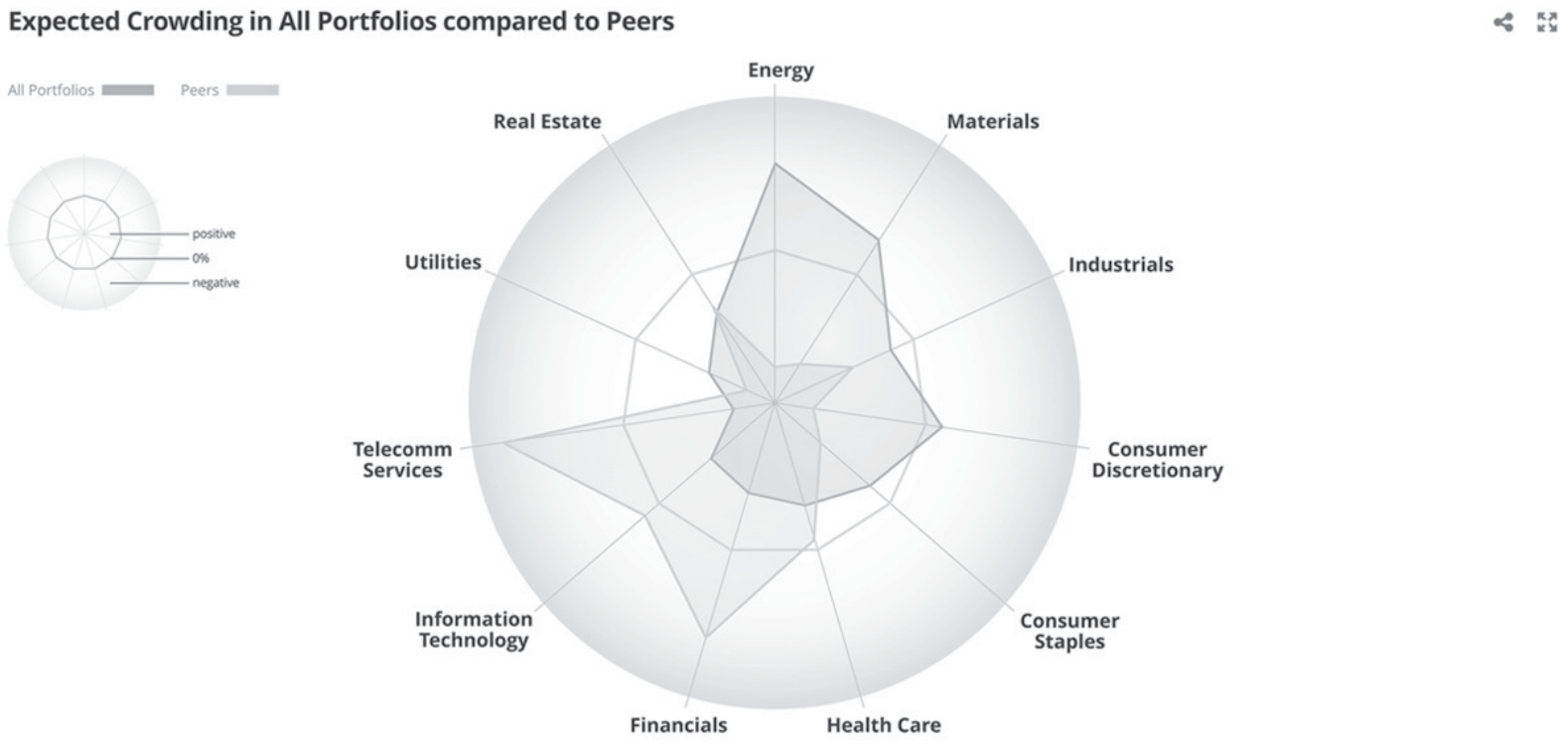

Expected Crowding in All Portfolios compared to Peers
All Portfolios
Peers
positive
0%
negative
Energy
Materials
Industrials
Consumer Discretionary
Consumer Staples
Health Care
Financials
Information Technology
Telecomm Services
Utilities
Real Estate

FIG. 61

Macro Scenarios

CATEGORY	MACRO SCENARIO	PROBABILITY	SCENARIO DRILLDOWN
Center-Left Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	2.5%	▸
Center-Right Wins	EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%	2.5%	▸
Le Pen Wins	EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%	2.5%	▸
Center-Right Wins	EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%	2.5%	▸
Le Pen Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	2.5%	▸
Center-Left Wins	EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%	2.5%	▸
Le Pen Wins	EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%	2.5%	▸
Le Pen Wins	EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%	2.5%	▸
Center-Right Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	2.5%	▸
Center-Left Wins	EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%	2.5%	▸
Center-Right Wins	EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%	2.5%	▸
Le Pen Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	2.5%	▸
Center-Right Wins	EUR -1.6% | US10y 1.0% | FR/GE 1.4% | S&P -1.1% | STOXX -0.6% | ¡TRaxx -0.2%	2.5%	▸
Le Pen Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	2.5%	▸
Center-Left Wins	EUR -1.7% | US10y 1.4% | FR/GE 1.2% | S&P -0.9% | STOXX -0.5% | ¡TRaxx -0.4%	2.5%	▸

FIG. 62

Micro Scenario Drilldown

MACRO SCENARIO 10658	Center-Left Wins	EUR -1.8% | US10y 1.3% | FR/GE 1.2% | S&P -0.8% | STOXX -0.6% | ¡TRaxx -0.3%	PROBABILITY 2.5%	POTENTIAL IMPACT -9,457K (2%)

INTEREST RATES

SHOCK LEVEL +50 bps

	2y	5y	10y
USD	28.69	53.88	62.60
EUR	13.52	19.02	19.31
GBP	10.42	17.56	18.00
JPY	2.48	4.85	3.13

FX SHOCKS

SHOCK LEVEL +5%

CCY	Shock
GBP	3.27%
EUR	6.85%
JPY	3.01%
CHF	6.49%
HKD	0.01%
TWD	1.74%
KRW	6.25%
AUD	4.32%
MXN	2.07%

CREDIT SHOCKS

SHOCK LEVEL +25 bps

¡TRAXX EU	US IG	US HY	CDX EM
.0306	0.239	0.139	0.167

FIG. 63

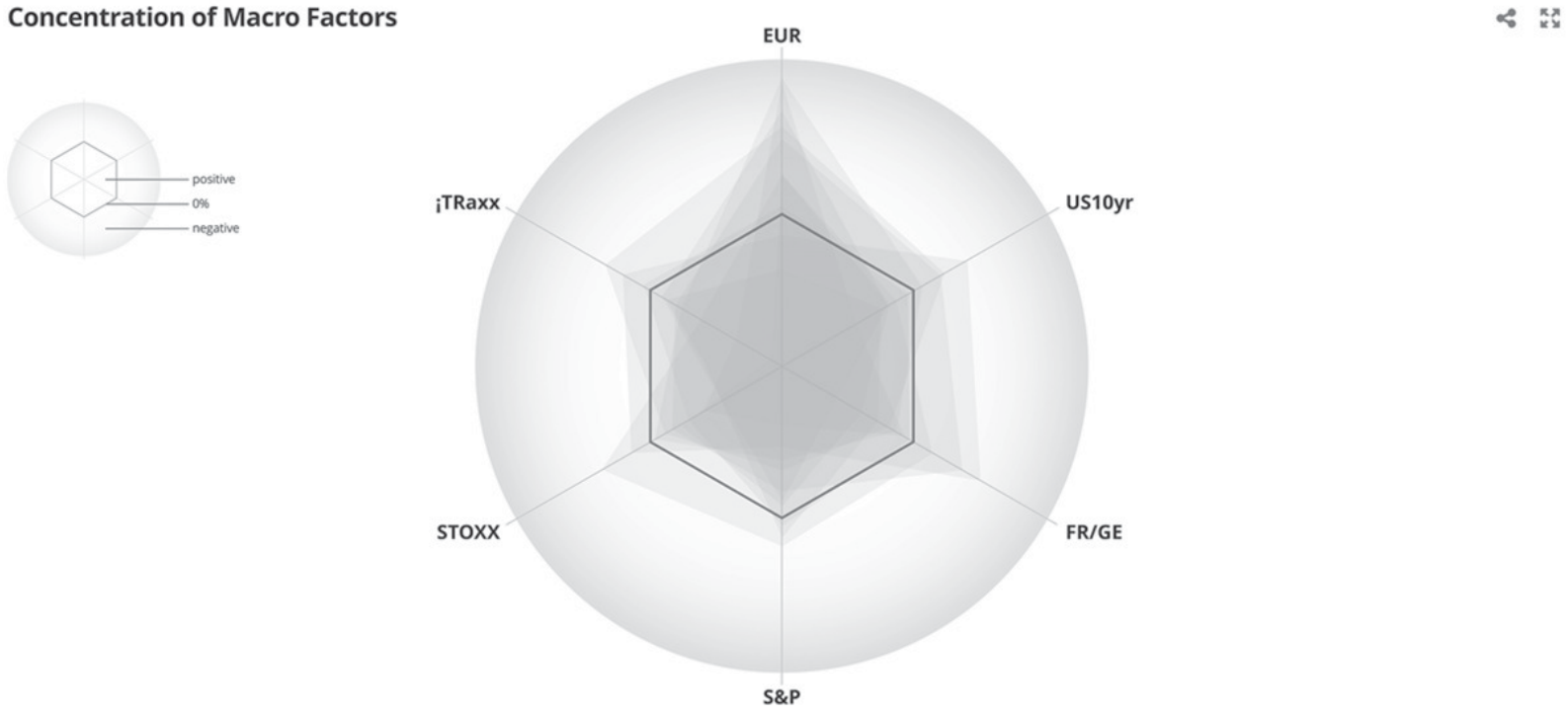
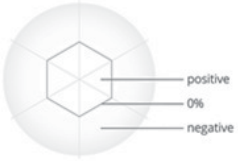

Concentration of Macro Factors
positive
0%
negative
EUR
US10yr
FR/GE
S&P
STOXX
¡TRaxx

FIG. 64

Macro Scenario Animation



LE PEN WINS

EUR	90%
US$10yr	72%
FR/GE	- 42%
S&P	- 38%
STOXX	27%
¡TRAXX	25%
PROBABILITY	**2.5%**

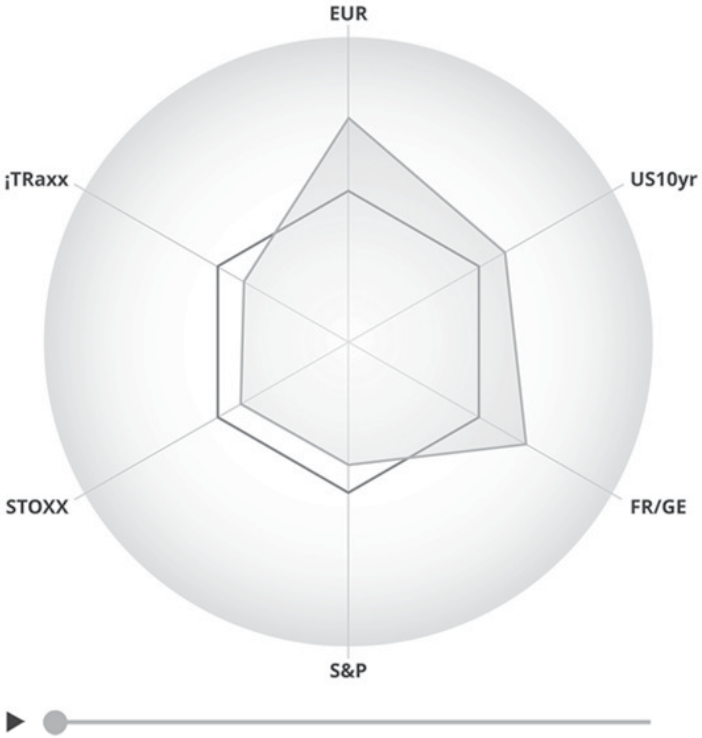
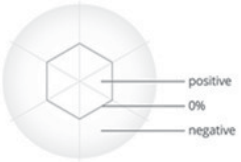


FIG. 65

Macro Scenario Animation



LE PEN WINS

EUR	90%
US$10yr	72%
FR/GE	- 42%
S&P	- 38%
STOXX	27%
¡TRAXX	25%
PROBABILITY	**2.5%**

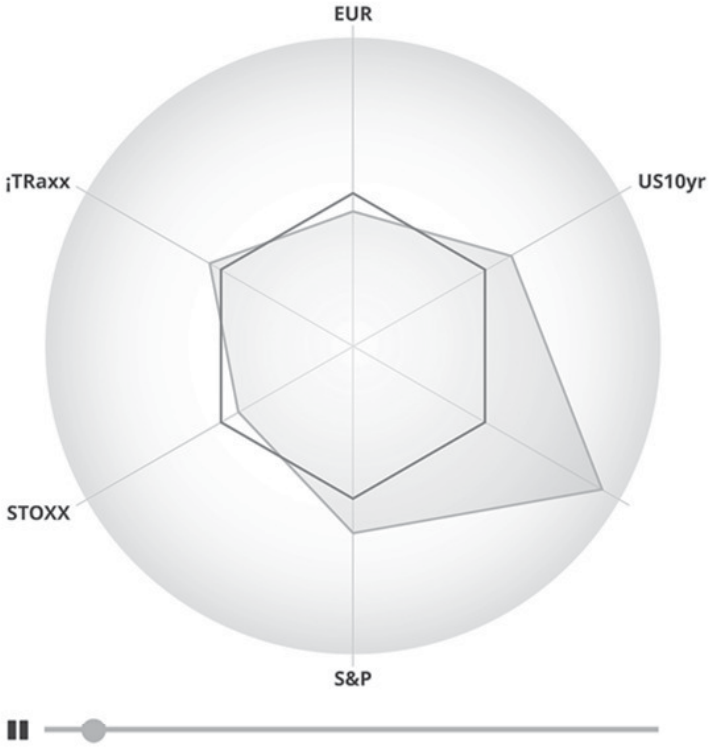
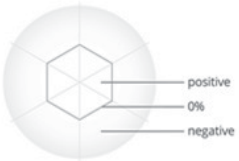


FIG. 66

Macro Scenario Animation



LE PEN WINS

EUR	90%
US$10yr	72%
FR/GE	- 42%
S&P	- 38%
STOXX	27%
¡TRAXX	25%
PROBABILITY	**2.5%**

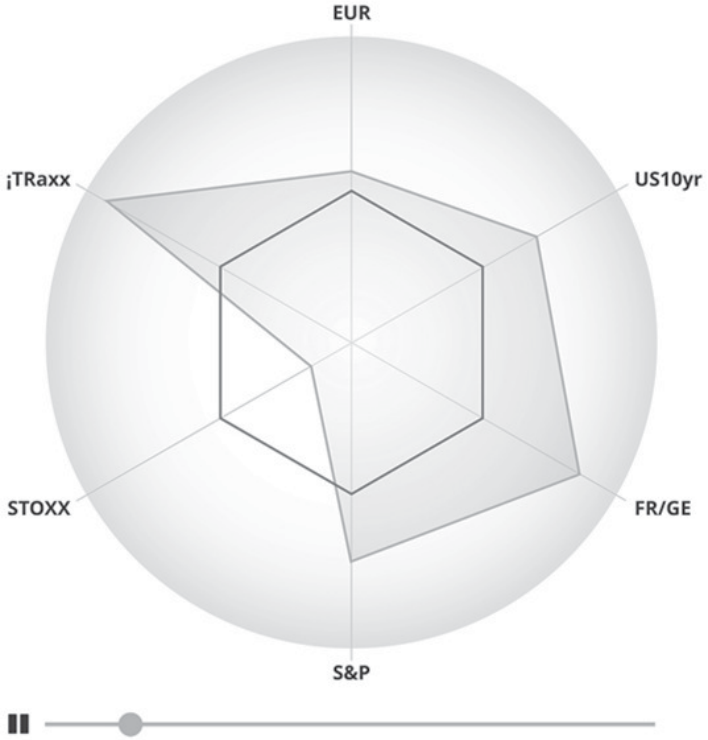
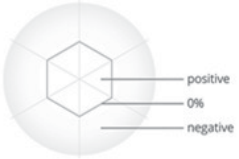


FIG. 67

Macro Scenario Animation



LE PEN WINS

EUR	90%
US$10yr	72%
FR/GE	- 42%
S&P	- 38%
STOXX	27%
¡TRAXX	25%
PROBABILITY	**2.5%**

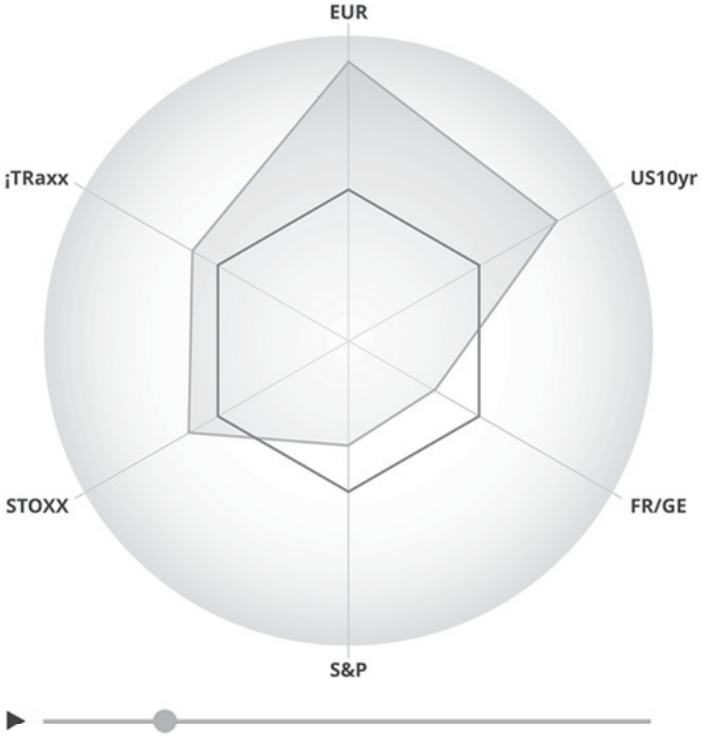


FIG. 68

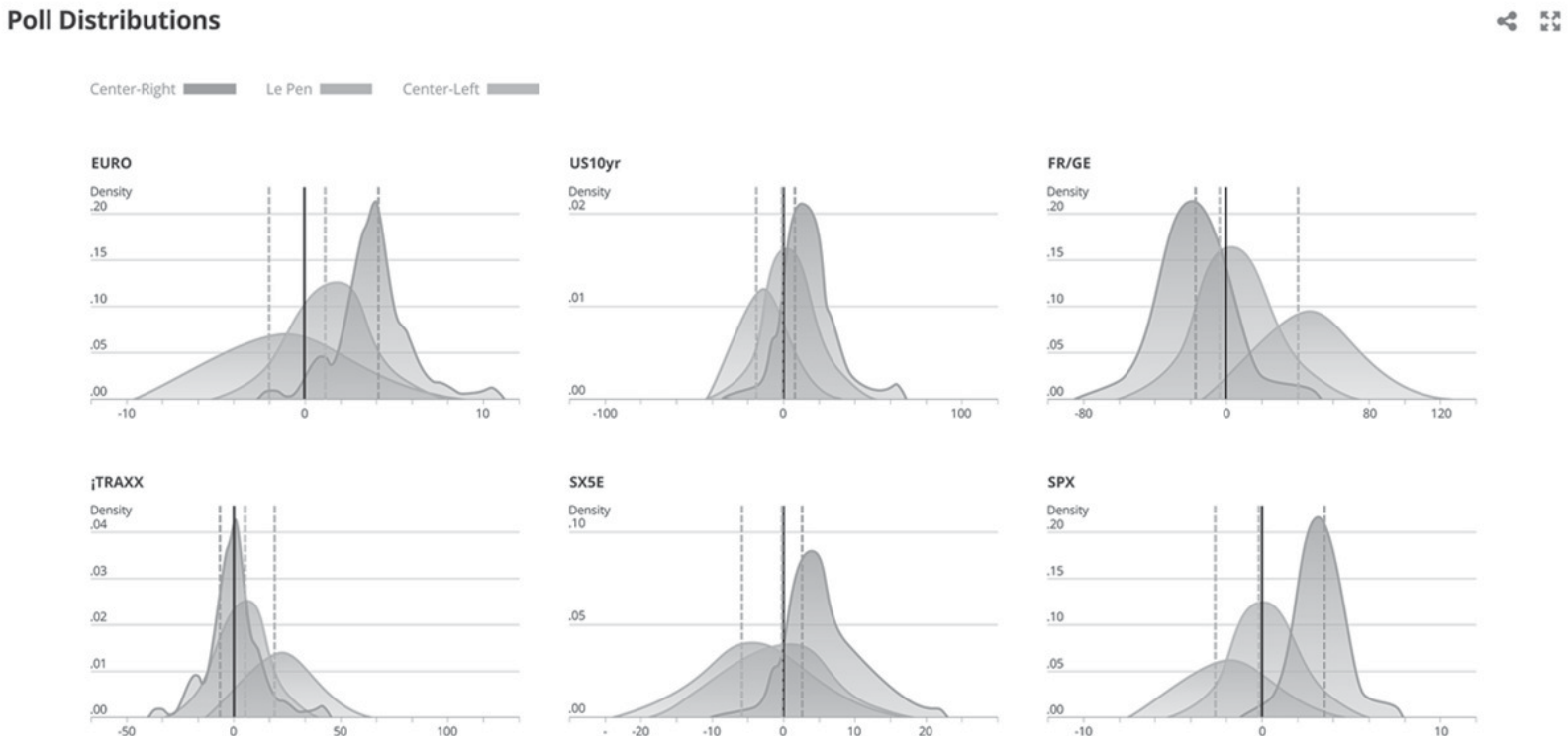

Poll Distributions
Center-Right
Le Pen
Center-Left
EURO
Density
.20
.15
.10
.05
.00
-10
0
10
US10yr
Density
.02
.01
.00
-100
0
100
FR/GE
Density
.20
.15
.10
.05
.00
-80
0
80
120
¡TRAXX
Density
.04
.03
.02
.01
.00
-50
0
50
100
SX5E
Density
.10
.05
.00
-20
-10
0
10
20
SPX
Density
.20
.15
.10
.05
.00
-10
0
10

FIG. 69

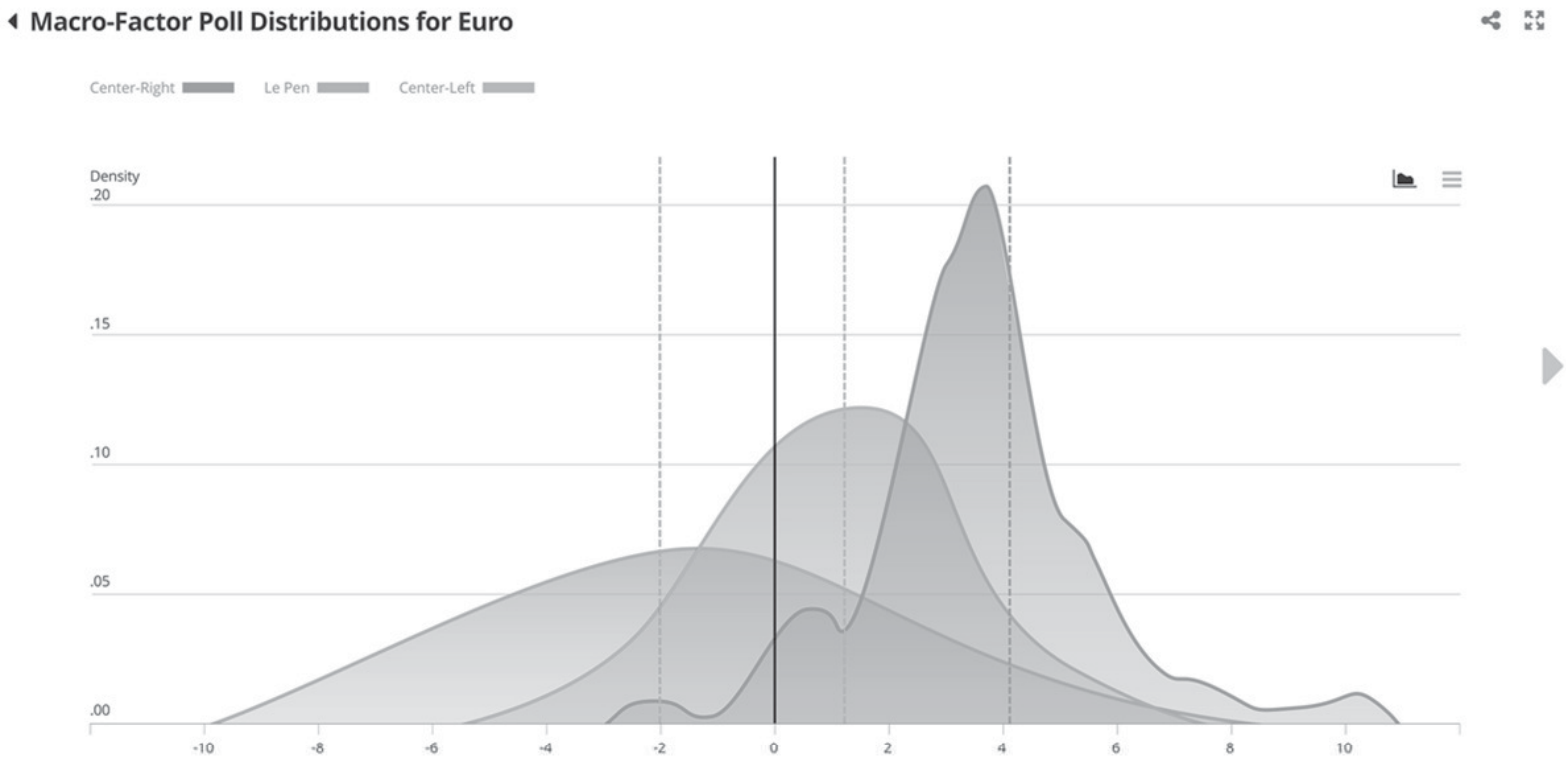

Macro-Factor Poll Distributions for Euro
Center-Right
Le Pen
Center-Left
Density
.20
.15
.10
.05
.00
-10
-8
-6
-4
-2
0
2
4
6
8
10

FIG. 70

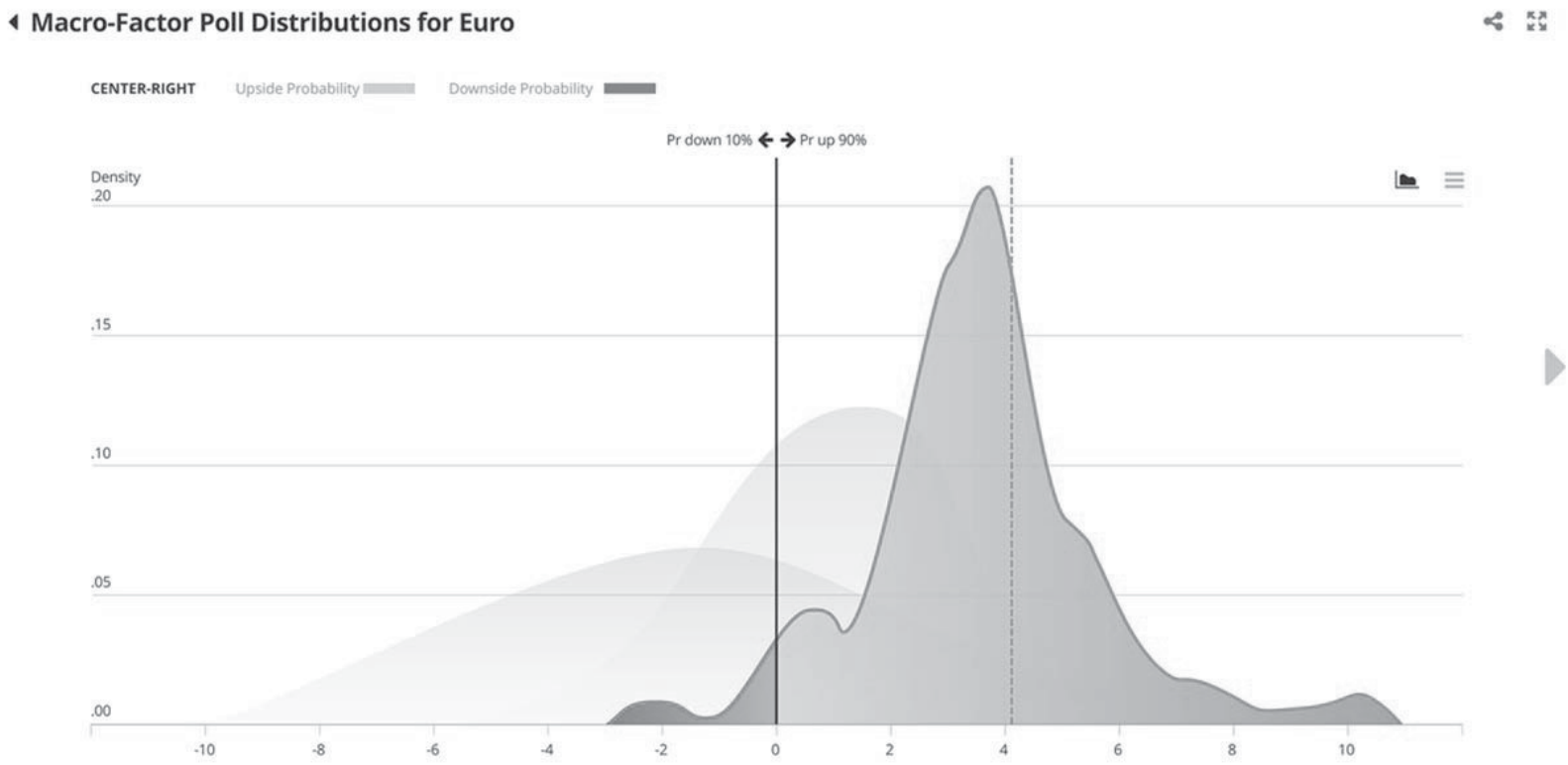

Macro-Factor Poll Distributions for Euro
CENTER-RIGHT
Upside Probability
Downside Probability
Pr down 10%
Pr up 90%
Density
.20
.15
.10
.05
.00
-10
-8
-6
-4
-2
0
2
4
6
8
10

FIG. 71

Macro-Factor Poll Distributions for Euro

	CENTER-RIGHT	LE PEN	CENTER-LEFT
Probability Up	0.85	0.31	0.62
Magnitude Up	10.5	7.0	7.5
Probability Down	0.15	0.69	0.38
Magnitude Down	-3.1	-9.8	-5.3

FIG. 72

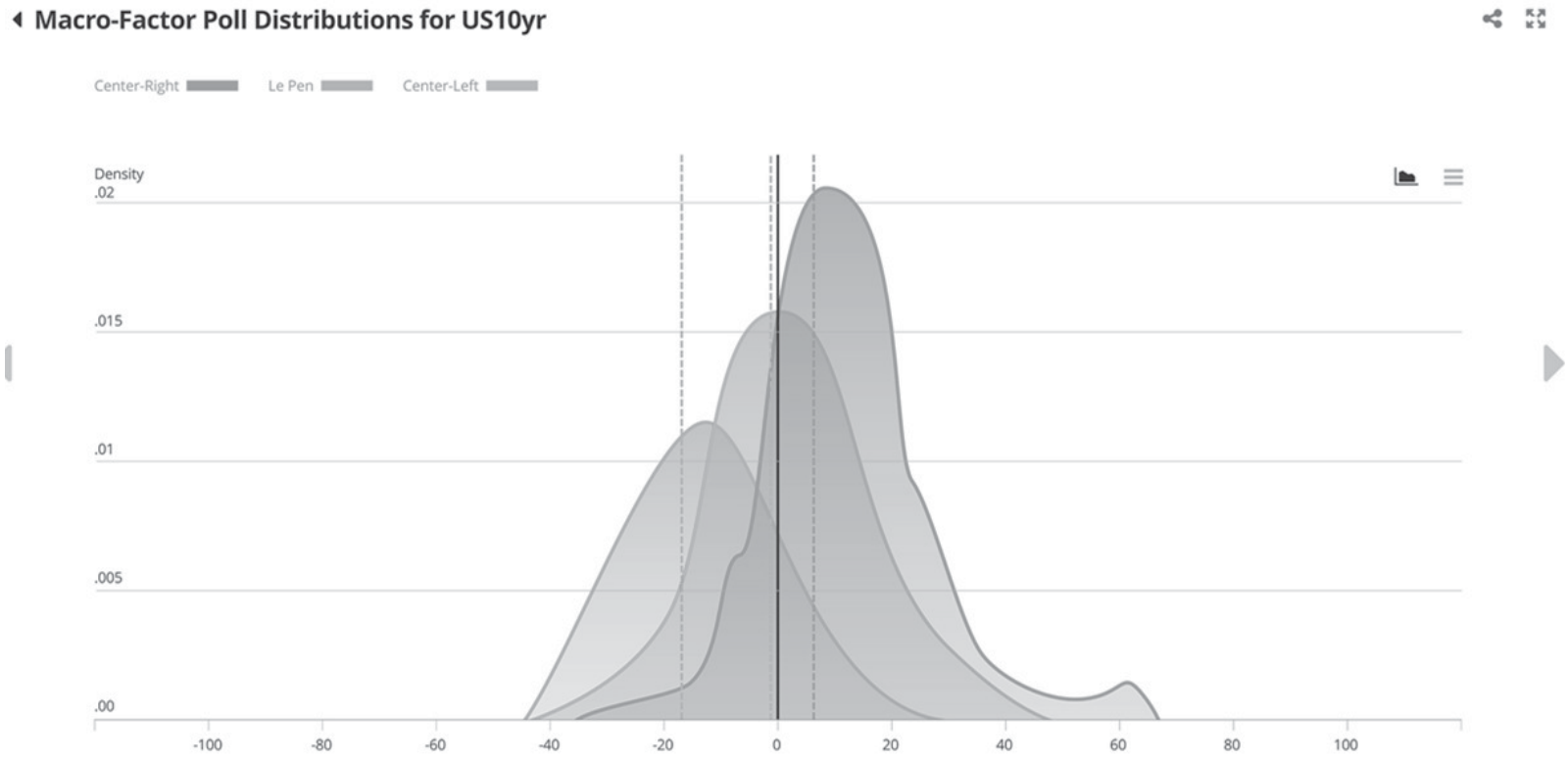

Macro-Factor Poll Distributions for US10yr
Center-Right
Le Pen
Center-Left
Density
.02
.015
.01
.005
.00
-100
-80
-60
-40
-20
0
20
40
60
80
100

FIG. 73

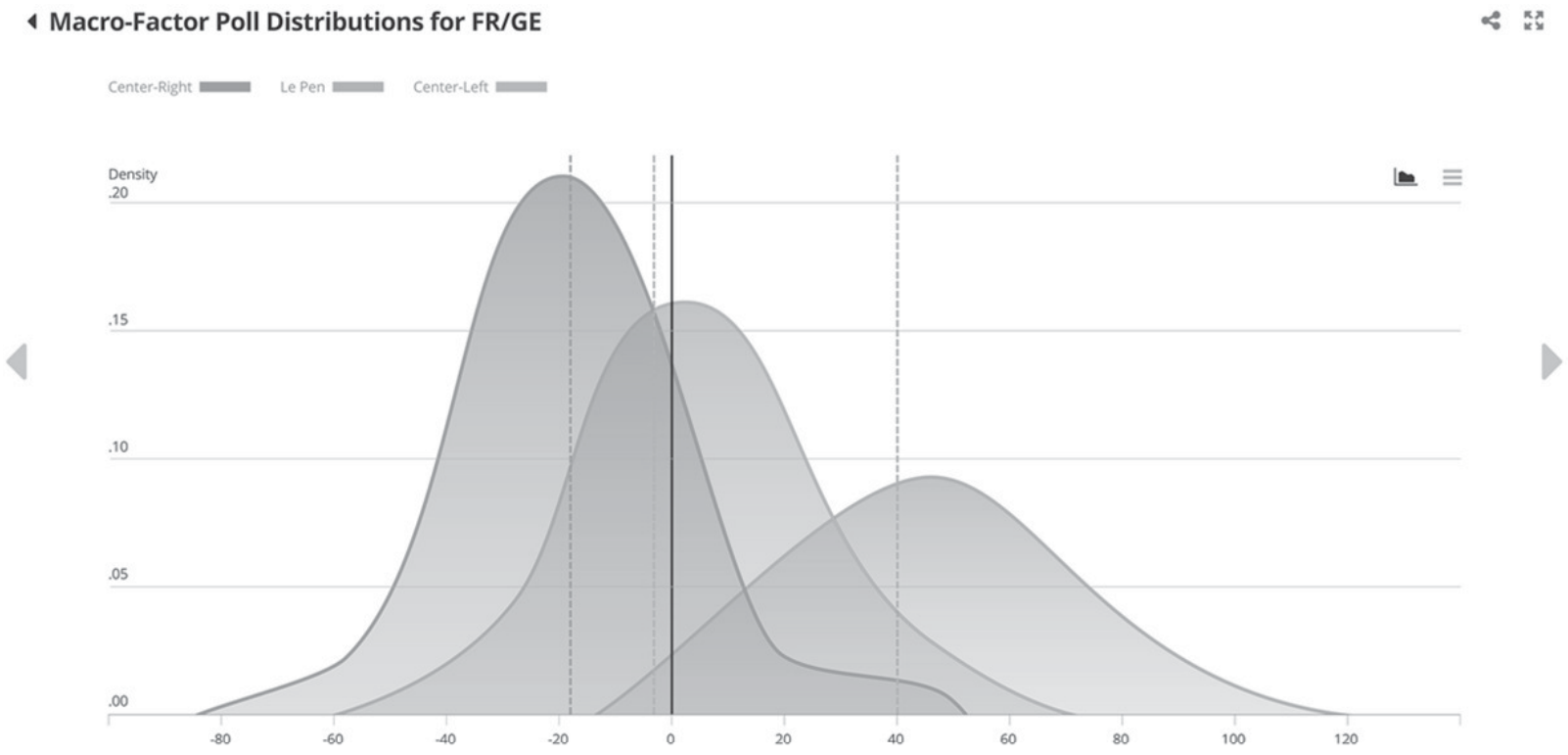

Macro-Factor Poll Distributions for FR/GE
Center-Right
Le Pen
Center-Left
Density
.20
.15
.10
.05
.00
-80
-60
-40
-20
0
20
40
60
80
100
120

FIG. 74

Macro Factor Loss / Gain Frequency based on GS Source

CATEGORY	MACRO SCENARIOS	DOWN	UP	FREQUENCY DOWN
LE PEN	EUR			96%
	US$10yr			66%
	FR/GE			71%
	S&P			2%
	STOXX			45%
	¡TRAXX			67%
LEFT	EUR			52%
	US$10yr			59%
	FR/GE			69%
	S&P			29%
	STOXX			46%
	¡TRAXX			64%
RIGHT	EUR			11%
	US$10yr			59%
	FR/GE			69%
	S&P			2%
	STOXX			29%
	¡TRAXX			46%

FIG. 75

My Opinion

EVENT PROBABILITIES

Probability of Center-Right Win	Enter value
Probability of Le Pen Win	Enter value
Probability of Center-Left Win	Enter value

EURO

	CENTER-RIGHT	LE PEN	CENTER-LEFT
PROBABILITY UP	Enter value	Enter value	Enter value
MAGNITUDE UP	Enter value	Enter value	Enter value
PROBABILITY DOWN	Enter value	Enter value	Enter value
MAGNITUDE DOWN	Enter value	Enter value	Enter value

US10yr

	CENTER-RIGHT	LE PEN	CENTER-LEFT
PROBABILITY UP	Enter value	Enter value	Enter value
MAGNITUDE UP	Enter value	Enter value	Enter value
PROBABILITY DOWN	Enter value	Enter value	Enter value
MAGNITUDE DOWN	Enter value	Enter value	Enter value

FR/GE

	CENTER-RIGHT	LE PEN	CENTER-LEFT
PROBABILITY UP	Enter value	Enter value	Enter value
MAGNITUDE UP	Enter value	Enter value	Enter value
PROBABILITY DOWN	Enter value	Enter value	Enter value
MAGNITUDE DOWN	Enter value	Enter value	Enter value

¡TRAXX

	CENTER-RIGHT	LE PEN	CENTER-LEFT
PROBABILITY UP	Enter value	Enter value	Enter value
MAGNITUDE UP	Enter value	Enter value	Enter value
PROBABILITY DOWN	Enter value	Enter value	Enter value
MAGNITUDE DOWN	Enter value	Enter value	Enter value

SX5E

	CENTER-RIGHT	LE PEN	CENTER-LEFT
PROBABILITY UP	Enter value	Enter value	Enter value
MAGNITUDE UP	Enter value	Enter value	Enter value
PROBABILITY DOWN	Enter value	Enter value	Enter value
MAGNITUDE DOWN	Enter value	Enter value	Enter value

SPX

	CENTER-RIGHT	LE PEN	CENTER-LEFT
PROBABILITY UP	Enter value	Enter value	Enter value
MAGNITUDE UP	Enter value	Enter value	Enter value
PROBABILITY DOWN	Enter value	Enter value	Enter value
MAGNITUDE DOWN	Enter value	Enter value	Enter value

SAVE AS

FIG. 76

Macro S&P Backtest
Monthly Scenario vs. Actual S&P
S&P
2500
2400
2200
2000
1800
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Forward scenarios and how they actually performed. The actual S&P should be within the boundaries of the S&P scenarios (boxes) X% of the time assuming that the upward and downward movements in the S&P were chosen within X/2% of the tails.

FIG. 77

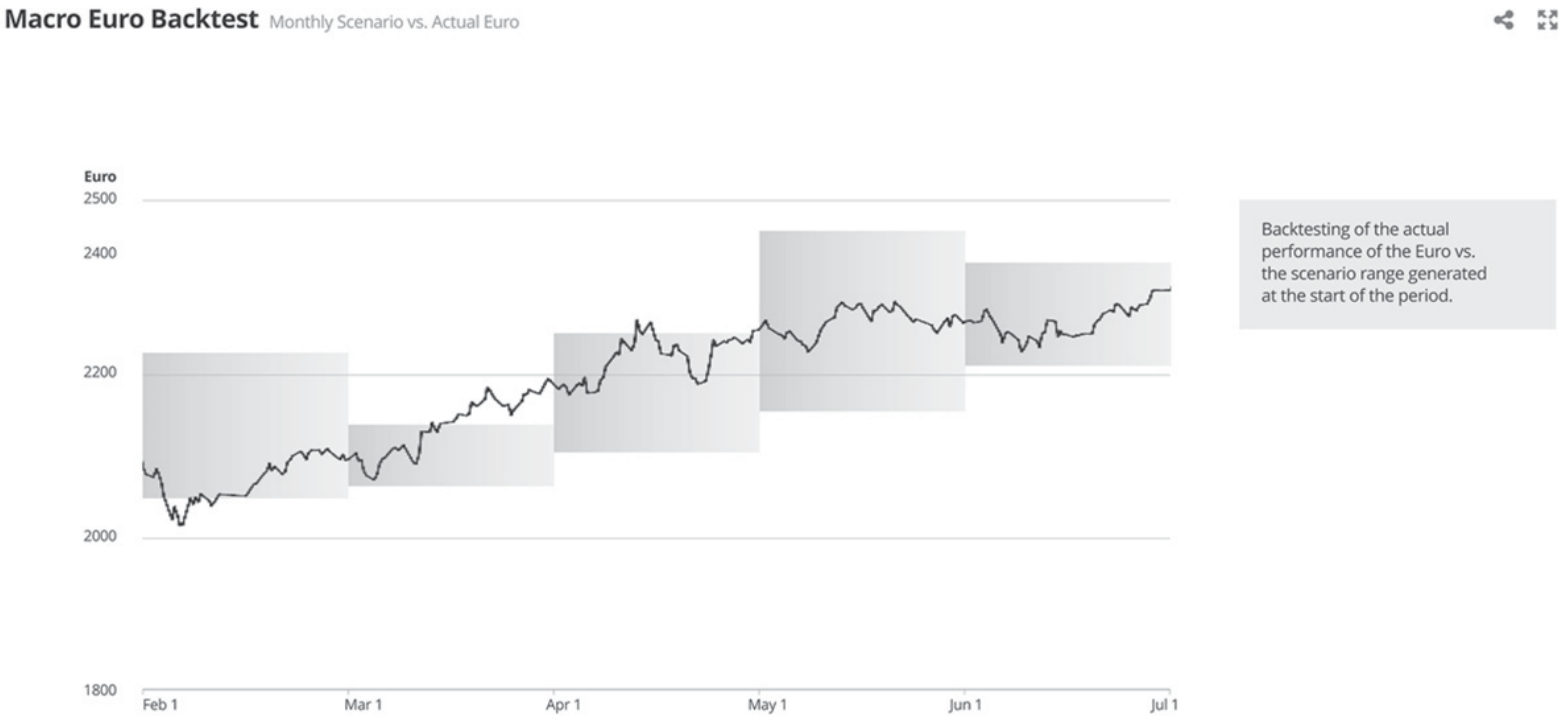

Macro Euro Backtest
Monthly Scenario vs. Actual Euro
Euro
2500
2400
2200
2000
1800
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Backtesting of the actual performance of the Euro vs. the scenario range generated at the start of the period.

FIG. 78