

# Portföy Analiz Raporu

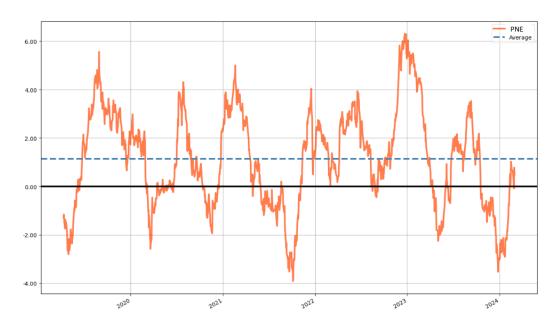
**Tarih:** 03.03.2024

Müşteri: FONERA A.Ş.

Raportör: Alper Ülkü

### Piyasa Nefes Endikatörü

Piyasa Nefes Endeksi (şu anki değeri = 0.8)



Aslında PNE'nin mavi çizgili ortalamayı geçmesi beklenmektedir ancak 31 Mart Yerel Seçimleri ile risklerin artması sebebiyle bu beklenti - sadece bu döneme özel olarak - gerçekçi olmayabilir. Piyasanın mavi çizgiye değip aşağı gitme ihtimali daha yüksek izlenmektedir. Aşağıdaki Markov Olasılıkları bu tezimizi doğrulamaktadır.

### **Markov Zincir Olasılıkları**

Portföyünüze ait Markov Zincir olasılıkları verilmektedir. Bunların tümünün 0.56'dan küçük olması izlenmekte ve aslında downtrend dönemine girmiş olabilecekleri ihtimali kuvvetlenmektedir.

| Lis | t for Long | :          |          |          |         |       |
|-----|------------|------------|----------|----------|---------|-------|
|     | Ticker     | Open-Close | Close    | Eff      | PWin_OC | PWin  |
| 0   | TAVHL.IS   | 0.998699   | 1.393326 | 0.716774 | 0.409   | 0.557 |
| 1   | ANSGR.IS   | 1.112058   | 2.453065 | 0.453334 | 0.443   | 0.530 |
| 2   | AGHOL.IS   | 1.406863   | 1.701415 | 0.826878 | 0.451   | 0.513 |
| 3   | ISMEN.IS   | 1.255854   | 1.969202 | 0.637748 | 0.558   | 0.509 |
| 4   | BIMAS.IS   | 0.921918   | 1.740673 | 0.529633 | 0.448   | 0.505 |
| 5   | MAVI.IS    | 0.876389   | 1.756890 | 0.498830 | 0.402   | 0.504 |
| 6   | TTKOM.IS   | 1.449350   | 1.097425 | 1.320683 | 0.579   | 0.500 |
| 7   | ASELS.IS   | 0.995266   | 1.329247 | 0.748744 | 0.392   | 0.495 |
| 8   | ENJSA.IS   | 1.257816   | 1.353324 | 0.929427 | 0.504   | 0.491 |
| 9   | TCELL.IS   | 1.272720   | 1.318341 | 0.965395 | 0.538   | 0.491 |
| 10  | ULKER.IS   | 1.504017   | 2.147459 | 0.700371 | 0.578   | 0.464 |
| 11  | XU100.IS   | 1.013889   | 1.070071 | 0.947497 | 0.598   | 0.464 |
| 12  | EKGYO.IS   | 0.932806   | 0.886722 | 1.051971 | 0.424   | 0.434 |
| 13  | THYAO.IS   | 0.998662   | 1.225190 | 0.815107 | 0.477   | 0.427 |

|    | Ticker   | Open-Close         | Close              | Eff                | PWin_OC | PWin V |
|----|----------|--------------------|--------------------|--------------------|---------|--------|
| 0  | KZBGY.IS | 1.069262396420986  | 0.6276028644467195 | 1.7037245318560226 | 0.49    | 0.581  |
| 1  | AYDEM.IS | 0.9674907010366802 | 1.0826260544347206 | 0.8936517803849116 | 0.491   | 0.576  |
| 2  | AHGAZ.IS | 0.756914092337773  | 1.219251253458986  | 0.6208023901475812 | 0.389   | 0.575  |
| 3  | TAVHL.IS | 0.9986988483743547 | 1.393325565846824  | 0.7167735042365161 | 0.409   | 0.557  |
| 4  | PGSUS.IS | 1.3042229451807859 | 1.0566819192824954 | 1.2342625736100177 | 0.482   | 0.553  |
| 5  | ODAS.IS  | 1.6656795568656637 | 0.8051895955007402 | 2.0686799310040667 | 0.585   | 0.55   |
| 6  | SNGYO.IS | 1.0183874710713776 | 0.7601440637067971 | 1.3397295587697837 | 0.449   | 0.546  |
| 7  | PETKM.IS | 1.0297563402483771 | 0.9169623924581545 | 1.123008259354944  | 0.442   | 0.541  |
| 8  | BUCIM.IS | 1.0388082790828215 | 0.747890665737275  | 1.3889841479152012 | 0.513   | 0.541  |
| 9  | CCOLA.IS | 0.7138687005613729 | 1.963006824950888  | 0.3636608347397024 | 0.345   | 0.538  |
| 10 | AKFGY.IS | 1.1038235344115044 | 0.7944996965522676 | 1.389331599749563  | 0.53    | 0.535  |
| 11 | ISCTR.IS | 1.384670507624386  | 1.69015712599572   | 0.8192554918872628 | 0.508   | 0.53   |
| 12 | KMPUR.IS | 1.5490786879707954 | 0.726881493048814  | 2.131129630874735  | 0.529   | 0.528  |
| 13 | SOKM.IS  | 1.3505768212308125 | 1.522540000877322  | 0.8870550662905347 | 0.478   | 0.526  |
| 14 | TTRAKIS  | 1.194565788089192  | 1.7842869268068549 | 0.6694919803212239 | 0.45    | 0.526  |
| 15 | OTKAR.IS | 0.8607010059685939 | 1.5796116847956545 | 0.5448813871492334 | 0.417   | 0.525  |
| 16 | DOAS.IS  | 1.622840962573274  | 1.2056576139164834 | 1.346021410922462  | 0.526   | 0.523  |
| 17 | GARAN.IS | 0.9929938927315942 | 1.7056235798866164 | 0.5821881829269767 | 0.434   | 0.523  |
| 18 | TURSG.IS | 1.0118071683758696 | 3.03275404492108   | 0.3336265168190385 | 0.485   | 0.519  |
| 19 | BRSAN.IS | 3.410114191309624  | 5.322220170753569  | 0.6407315146503585 | 0.669   | 0.519  |
| 20 | YKBNK.IS | 0.8384133388031937 | 1.5229293730105549 | 0.5505267372614941 | 0.44    | 0.518  |
| 21 | VESBE.IS | 1.3005692429563975 | 1.0552943727940098 | 1.232423176400529  | 0.392   | 0.514  |
| 22 | AGHOL.IS | 1.4068627159259328 | 1.7014146619338368 | 0.8268782134079444 | 0.451   | 0.513  |
| 23 | ISGYO.IS | 0.8836996346634949 | 0.9844843898646878 | 0.8976268631186267 | 0.478   | 0.513  |
| 24 | ISMEN.IS | 1.2558541788020918 | 1.9692023454576262 | 0.6377476553889854 | 0.558   | 0.509  |
| 25 | TUKAS.IS | 0.7290822850380619 | 0.8127204598440716 | 0.8970886316278555 | 0.417   | 0.509  |
| 26 | IZMDC.IS | 0.9369930633852185 | 0.7070648117620596 | 1.325186952876583  | 0.571   | 0.505  |
| 27 | ALARK.IS | 1.3805098859139686 | 1.071801132082295  | 1.2880280161972903 | 0.508   | 0.505  |
| 28 | BIMAS.IS | 0.9219180199829096 | 1.7406728878671625 | 0.5296331242985757 | 0.448   | 0.505  |
| 29 | GESAN.IS | 2.3067506713380266 | 0.75994888122743   | 3.0354024176103565 | 0.504   | 0.505  |
| 30 | EGEEN.IS | 1.6421942150130804 | 2.0728456080756907 | 0.7922414523373972 | 0.605   | 0.504  |
| 31 | DOHOL.IS | 0.9694624048908166 | 0.9590369341797896 | 1.010870770811286  | 0.444   | 0.504  |
| 32 | GLYHO.IS | 1.1300653120279116 | 0.8096872094011268 | 1.395681318547378  | 0.509   | 0.504  |
| 33 | KONYA.IS | 1.794699160130383  | 1.9971727346059882 | 0.898619898535942  | 0.482   | 0.504  |
| 34 | ECZYT.IS | 2.240986862122136  | 1.1626374697829327 | 1.927502699995153  | 0.6     | 0.504  |
| 35 | TTKOM.IS | 1.4493501759043208 | 1.0974250567535875 | 1.3206825987660618 | 0.579   | 0.5    |
| 36 | ECILC.IS | 1.42631057547479   | 1.0954586007149174 | 1.302023808651069  | 0.556   | 0.5    |
| 37 | GSDHO.IS | 1.3258866888629381 | 0.9027500655971    | 1.4687195707772844 | 0.563   | 0.495  |
| 38 | GWIND.IS | 1.0959488949656366 | 0.9705665995842526 | 1.1291846385761597 | 0.44    | 0.495  |
| 39 | KOZAA.IS | 1.4989914782438873 | 0.7618404515202709 | 1.9675923945133313 | 0.498   | 0.495  |
| 40 | VAKBN.IS | 1.268262089307342  | 0.9044067816439317 | 1.4023137763319662 | 0.541   | 0.495  |
| 41 | ASELS.IS | 0.9952656271546826 | 1.3292474143322845 | 0.7487436999489145 | 0.392   | 0.495  |
| 42 | ASUZU.IS | 2.2842232730718237 | 0.8302416577059301 | 2.751275188218622  | 0.579   | 0.491  |
| 43 | BERA.IS  | 1.490345341181292  | 0.9780325210017394 | 1.5238198210984042 | 0.541   | 0.491  |

BIST100'e bütünüyle bakıldığında ise görüldüğü gibi sadece 4 hissenin Markov olasılıklarının 0.56 dan büyük olduğu izlenmektedir. BIST100 ün bütününe yönelik önümüzdeki günlerde downtrend davranış olasılığı yüksektir.

Bu bilgi ve tahminler ışığında sizin de portföyleriniz incelenerek yapay zeka ile elde edilen 4 ayrı portföy önerimiz aşağıda sunulmaktadır:

- 1. Maximum Drawdown (MDD) Optimize Portföyü
- 2. Negatif-Sharp Optimize Portföyü
- 3. Ağırlık Sınırlamalı Sharpe Optimize Portföyü
- 4. Ağırlık Sınırlamalı Negatif Sharpe Optimize Portföyü

### I. MDD Portföyü Performansı (26.12.2023 - 1.03.2023)

Portföyünüzden bağımsız olarak bir BIST30 uzayı seçilseydi nasıl olacağına dair bir portföy planladık. Buna göre:

### **Ağırlıklar**

| assets   | End PF % | Rebalance Buy Price | Rebalance Shares | Final_Cost |
|----------|----------|---------------------|------------------|------------|
| TUPRS.IS | 30.44    | 143.50              | 202.0            | 30440.0    |
| BIMAS.IS | 27.61    | 303.75              | 82.0             | 27610.0    |
| THYAO.IS | 14.25    | 227.70              | 66.0             | 14250.0    |
| TCELLIS  | 9.34     | 53.10               | 197.0            | 9340.0     |
| FROTO.IS | 7.91     | 736.00              | 13.0             | 7910.0     |
| ASELS.IS | 5.79     | 43.52               | 129.0            | 5790.0     |
| GARAN.IS | 4.23     | 56.20               | 69.0             | 4230.0     |
| GUBRF.IS | 0.00     | 172.60              | 1.0              | 0.0        |
| AKBNK.IS | 0.15     | 37.68               | 3.0              | 150.0      |
| SAHOLIS  | 0.06     | 61.70               | 1.0              | 60.0       |
| YKBNK.IS | 0.08     | 19.96               | 4.0              | 80.0       |
| EREGLIS  | 0.04     | 40.56               | 1.0              | 40.0       |
| ISCTR.IS | 0.04     | 8.92                | 5.0              | 40.0       |
| ENKALIS  | 0.03     | 33.64               | 1.0              | 30.0       |
| EKGYO.IS | 0.03     | 6.84                | 5.0              | 30.0       |
| SISE.IS  | 0.00     | 45.72               | 0.0              | 0.0        |

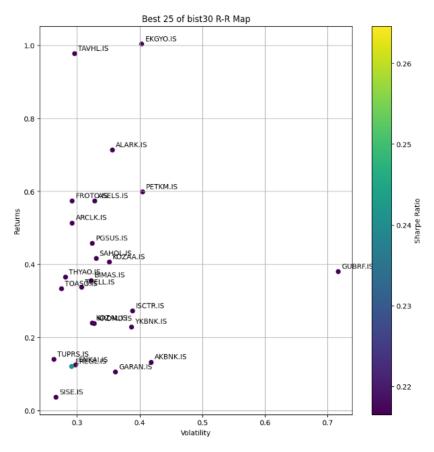
Eğer yeni portföy yapılacak ise alınması gereken ağırlıklar "End PF %" kolonundadır.

### **Portföy Performans Künyesi**

| Performing STEP-4: Showing Tearsheet of Portfolio  *********************************  |   |                     |              |
|---|---|---------------------|--------------|
| **************************************  |   |                     | of Portfolio |
| Start date         2023-12-28           End date         2024-03-01           Total months         2           Backtest           Annual return         199.5%           Cumulative returns         22.2%           Annual volatility         18.1%           Sharpe ratio         6.18           Calmar ratio         71.59           Stability         0.93           Max drawdown         -2.8%           Omega ratio         2.50           Sortino ratio         10.81           Skew         -0.61           Kurtosis         -0.03           Tail ratio         1.33           Daily value at risk         -1.8% |   | _                   |              |
| End date 2024-03-01 Total months 2 Backtest  Annual return 199.5%  Cumulative returns 22.2%  Annual volatility 18.1%  Sharpe ratio 6.18  Calmar ratio 71.59  Stability 0.93  Max drawdown -2.8%  Omega ratio 2.50  Sortino ratio 10.81  Skew -0.61  Kurtosis -0.03  Tail ratio 1.33  Daily value at risk -1.8%  | * | ******* PORTFOLI    | TEARSHEET    |
| Total months   2   Backtest   |   | Start date          | 2023-12-28   |
| Annual return 199.5% Cumulative returns 22.2% Annual volatility 18.1% Sharpe ratio 6.18 Calmar ratio 71.59 Stability 0.93 Max drawdown -2.8% Omega ratio 2.50 Sortino ratio 10.81 Skew -0.61 Kurtosis -0.03 Tail ratio 1.33 Daily value at risk -1.8%   |   | End date            | 2024-03-01   |
| Backtest  |   | Total months        | 2            |
| Annual return 199.5%  Cumulative returns 22.2%  Annual volatility 18.1%  Sharpe ratio 6.18  Calmar ratio 71.59  Stability 0.93  Max drawdown -2.8%  Omega ratio 2.50  Sortino ratio 10.81  Skew -0.61  Kurtosis -0.03  Tail ratio 1.33  Daily value at risk -1.8%   |   | TOTAL MONTHS        | _            |
| Cumulative returns         22.2%           Annual volatility         18.1%           Sharpe ratio         6.18           Calmar ratio         71.59           Stability         0.93           Max drawdown         -2.8%           Omega ratio         2.50           Sortino ratio         10.81           Skew         -0.61           Kurtosis         -0.03           Tail ratio         1.33           Daily value at risk         -1.8%  |   |                     | Backtest     |
| Annual volatility 18.1%  Sharpe ratio 6.18  Calmar ratio 71.59  Stability 0.93  Max drawdown -2.8%  Omega ratio 2.50  Sortino ratio 10.81  Skew -0.61  Kurtosis -0.03  Tail ratio 1.33  Daily value at risk -1.8%   |   | Annual return       | 199.5%       |
| Annual volatility         18.1%           Sharpe ratio         6.18           Calmar ratio         71.59           Stability         0.93           Max drawdown         -2.8%           Omega ratio         2.50           Sortino ratio         10.81           Skew         -0.61           Kurtosis         -0.03           Tail ratio         1.33           Daily value at risk         -1.8%   |   | Cumulative returns  | 22.2%        |
| Sharpe ratio         6.18           Calmar ratio         71.59           Stability         0.93           Max drawdown         -2.8%           Omega ratio         2.50           Sortino ratio         10.81           Skew         -0.61           Kurtosis         -0.03           Tail ratio         1.33           Daily value at risk         -1.8%   |   |                     |              |
| Calmar ratio         71.59           Stability         0.93           Max drawdown         -2.8%           Omega ratio         2.50           Sortino ratio         10.81           Skew         -0.61           Kurtosis         -0.03           Tail ratio         1.33           Daily value at risk         -1.8%   |   | Annual volatility   | 18.1%        |
| Stability         0.93           Max drawdown         -2.8%           Omega ratio         2.50           Sortino ratio         10.81           Skew         -0.61           Kurtosis         -0.03           Tail ratio         1.33           Daily value at risk         -1.8%  |   | Sharpe ratio        | 6.18         |
| Max drawdown         -2.8%           Omega ratio         2.50           Sortino ratio         10.81           Skew         -0.61           Kurtosis         -0.03           Tail ratio         1.33           Daily value at risk         -1.8%   |   | Calmar ratio        | 71.59        |
| Omega ratio         2.50           Sortino ratio         10.81           Skew         -0.61           Kurtosis         -0.03           Tail ratio         1.33           Daily value at risk         -1.8%  |   | Stability           | 0.93         |
| Sortino ratio         10.81           Skew         -0.61           Kurtosis         -0.03           Tail ratio         1.33           Daily value at risk         -1.8%   |   | Max drawdown        | -2.8%        |
| Sortino ratio         10.81           Skew         -0.61           Kurtosis         -0.03           Tail ratio         1.33           Daily value at risk         -1.8%   |   | Omega ratio         | 2.50         |
| Skew         -0.61           Kurtosis         -0.03           Tail ratio         1.33           Daily value at risk         -1.8%   |   |                     | 40.04        |
| Kurtosis -0.03 Tail ratio 1.33 Daily value at risk -1.8%  |   | Sortino ratio       | 10.81        |
| Tail ratio 1.33 Daily value at risk -1.8%   |   | Skew                | -0.61        |
| Daily value at risk -1.8%   |   | Kurtosis            | -0.03        |
|   |   | Tail ratio          | 1.33         |
| ******* end of TEARSHEET ********   |   | Daily value at risk | -1.8%        |
|   | * | ****** end of T     | EARSHEET *** |

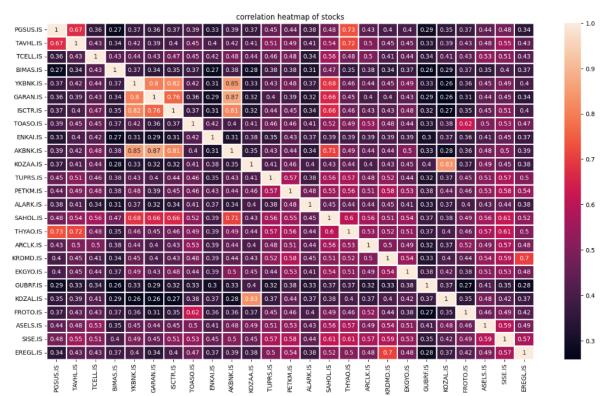
Sharpe Oranı 6.18 Stability .93, MDD -2.8% ile bu çok düzgün bir uptrend portföyüdür, ancak 20.02.2024'te downtrend başladığı tahmin edildiğinden bugünlerde girilmesi halinde yüksek performans garanti edilemez.

#### **Getiri-Risk Haritası**



TAVHL ve EKGYO en iyi getirili ve riski makul seviyede hisseler olmuştur.

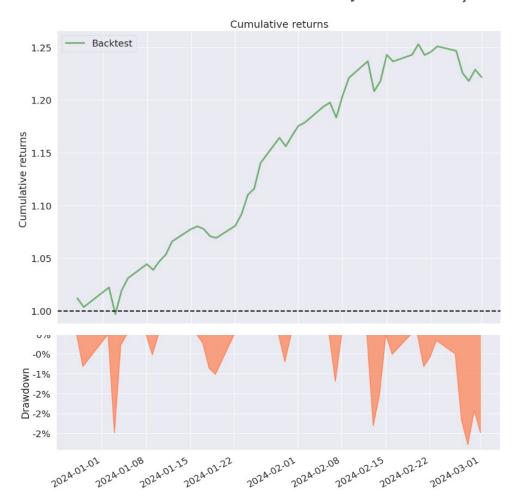
### Korelasyon Haritası



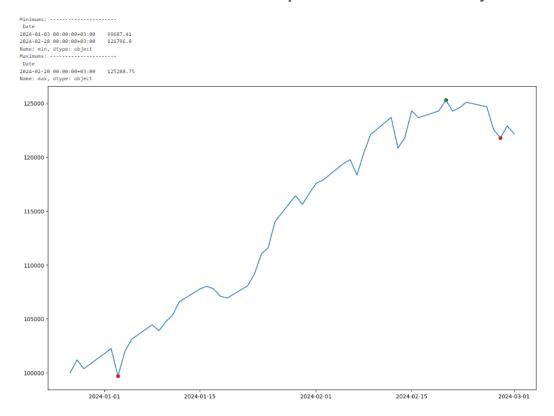
### 26.12.2023 - 1.03.2023 Arası Tarihsel Seyir:

| Date       |                   |           |
|------------|-------------------|-----------|
| 2023-12-27 | 00:00:00+03:00    | 98596.93  |
| 2023-12-28 | 00:00:00+03:00    | 99787.35  |
| 2023-12-29 | 00:00:00+03:00    | 98963.95  |
| 2024-01-02 | 00:00:00+03:00    | 100826.72 |
| 2024-01-03 | 00:00:00+03:00    | 98284.34  |
| 2024-01-04 | 00:00:00+03:00    | 100541.67 |
| 2024-01-05 | 00:00:00+03:00    | 101698.88 |
| 2024-01-08 | 00:00:00+03:00    | 103032.32 |
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| 2024-01-10 | 00:00:00+03:00    | 103318.84 |
| 2024-01-11 | 00:00:00+03:00    | 103942.00 |
| 2024-01-12 | 00:00:00+03:00    | 105191.21 |
| 2024-01-15 | 00:00:00+03:00    | 106361.62 |
| 2024-01-16 | 00:00:00+03:00    | 106614.41 |
| 2024-01-17 | 00:00:00+03:00    | 106365.31 |
| 2024-01-18 | 00:00:00+03:00    | 105686.61 |
| 2024-01-19 | 00:00:00+03:00    | 105519.50 |
| 2024-01-22 | 00:00:00+03:00    | 106667.99 |
| 2024-01-23 | 00:00:00+03:00    | 107777.32 |
| 2024-01-24 | 00:00:00+03:00    | 109610.92 |
| 2024-01-25 | 00:00:00+03:00    | 110194.41 |
| 2024-01-26 | 00:00:00+03:00    | 112623.10 |
| 2024-01-29 | 00:00:00+03:00    | 115015.81 |
| 2024-01-30 | 00:00:00+03:00    | 114204.09 |
| 2024-01-31 | 00:00:00+03:00    | 115216.18 |
| 2024-02-01 | 00:00:00+03:00    | 116143.61 |
| 2024-02-02 | 00:00:00+03:00    | 116453.19 |
| 2024-02-05 | 00:00:00+03:00    | 117987.38 |
| 2024-02-06 | 00:00:00+03:00    | 118356.50 |
| 2024-02-07 | 00:00:00+03:00    | 116931.99 |
| 2024-02-08 | 00:00:00+03:00    | 118991.25 |
| 2024-02-09 | 00:00:00+03:00    | 120696.78 |
| 2024-02-12 | 00:00:00+03:00    | 122276.56 |
| 2024-02-13 | 00:00:00+03:00    | 119424.47 |
| 2024-02-14 | 00:00:00+03:00    | 120392.56 |
| 2024-02-15 | 00:00:00+03:00    | 122884.51 |
| 2024-02-16 | 00:00:00+03:00    | 122252.77 |
| 2024-02-19 | 00:00:00+03:00    | 122883.57 |
| 2024-02-20 | 00:00:00+03:00    | 123885.68 |
| 2024-02-21 | 00:00:00+03:00    | 122860.27 |
| 2024-02-22 | 00:00:00+03:00    | 123162.58 |
| 2024-02-23 | 00:00:00+03:00    | 123684.71 |
|            | 00:00:00+03:00    |           |
|            | 00:00:00+03:00    | 121155.25 |
|            | 00:00:00+03:00    |           |
|            | 00:00:00+03:00    |           |
|            | 00:00:00+03:00    |           |
|            | folio, dtype: flo |           |
|            | 2 21              |           |

### 26.12.2023 - 1.03.2023 Arası Tarihsel Grafik Seyir/Maksimum Çökme



### 26.12.2023 - 1.03.2023 Arası Uptrend-Downtrend Endikasyonu



Alttaki kırmızı nokta uptrend işareti, üstteki yeşil nokta downtrend işaretidir. En sondaki kırmızı nokta ise henüz uptrend olarak değerlendirilmemelidir.

## II. N-SHARPE Portföyü Performansı (26.12.2023 - 1.03.2023)

Portföyünüzde yer alan bazı hisselerle yapılan N-Sharpe özellikli bir optimize portföy aşağıdadır:

Ağırlıklar

| assets   | End PF % | Rebalance Buy Price | Rebalance Shares | Final_Cost |
|----------|----------|---------------------|------------------|------------|
| EKGYO.IS | 47.67    | 6.84                | 6997.0           | 47670.0    |
| AGHOLIS  | 25.82    | 187.00              | 142.0            | 25820.0    |
| ISMEN.IS | 12.76    | 29.06               | 439.0            | 12760.0    |
| ENJSA.IS | 13.74    | 43.90               | 291.0            | 13740.0    |

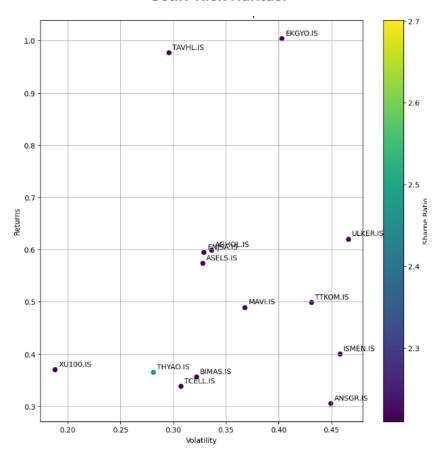
Eğer yeni portföy yapılacak ise alınması gereken ağırlıklar "End PF %" kolonundadır.

### Portföy Performans Künyesi

| ******* PORTFOLI    | D TEARSHEET  | *******  |
|---------------------|--------------|----------|
| Start date          | 2023-12-28   |          |
| End date            | 2024-03-01   |          |
| Total months        | 2            |          |
|                     | Backtest     |          |
| Annual return       | 863.7%       |          |
| Cumulative returns  | 51.2%        |          |
| Annual volatility   | 27.1%        |          |
| Sharpe ratio        | 8.54         |          |
| Calmar ratio        | 177.45       |          |
| Stability           | 0.95         |          |
| Max drawdown        | -4.9%        |          |
| Omega ratio         | 3.75         |          |
| Sortino ratio       | 17.77        |          |
| Skew                | -0.14        |          |
| Kurtosis            | 0.52         |          |
| Tail ratio          | 1.76         |          |
| Daily value at risk | -2.5%        |          |
| ****** end of Ti    | EARCHEET *** | ******** |

Sharpe Oranı 8.54 Stability 0.95, MDD -4.9% ile bu çok düzgün bir uptrend portföyüdür, ancak 20.02.2024'te downtrend başladığı tahmin edildiğinden bugünlerde girilmesi halinde yüksek performans garanti edilemez.

### **Getiri-Risk Haritası**



TAVHL ve EKGYO burada da en iyi getirili ve riski makul seviyede hisseler olmuştur. Ancak bu pozitif ayrışma çok daha fazla risk taşımaktadır. Downtrend de bunları alaşağı olma riskleri artmıştır.

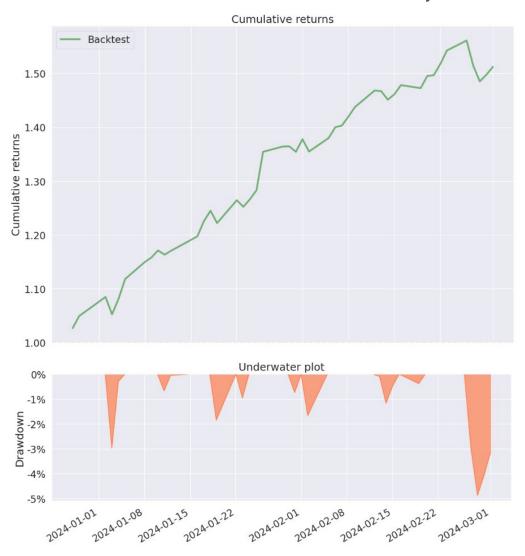
### Korelasyon Haritası



### 26.12.2023 - 1.03.2023 Arası Tarihsel Seyir:

| Date       |                |           |
|------------|----------------|-----------|
|            | 00:00:00+03:00 | 99816.96  |
| 2023-12-28 |                | 102478.06 |
| 2023-12-29 | 00:00:00+03:00 | 104737.56 |
| 2024-01-02 | 00:00:00+03:00 | 108277.49 |
| 2024-01-03 | 00:00:00+03:00 | 105056.40 |
| 2024-01-04 | 00:00:00+03:00 | 107955.26 |
| 2024-01-05 | 00:00:00+03:00 | 111620.12 |
| 2024-01-08 | 00:00:00+03:00 | 114779.66 |
| 2024-01-09 | 00:00:00+03:00 | 115609.43 |
| 2024-01-10 | 00:00:00+03:00 | 116928.55 |
| 2024-01-11 | 00:00:00+03:00 | 116140.39 |
| 2024-01-12 | 00:00:00+03:00 | 116873.05 |
| 2024-01-15 | 00:00:00+03:00 | 118869.93 |
| 2024-01-16 | 00:00:00+03:00 | 119549.77 |
| 2024-01-17 | 00:00:00+03:00 | 122391.22 |
| 2024-01-18 | 00:00:00+03:00 | 124309.02 |
| 2024-01-19 | 00:00:00+03:00 | 122009.94 |
| 2024-01-22 | 00:00:00+03:00 | 126255.53 |
| 2024-01-23 | 00:00:00+03:00 | 125043.84 |
| 2024-01-24 | 00:00:00+03:00 | 126444.47 |
| 2024-01-25 | 00:00:00+03:00 | 128107.99 |
| 2024-01-26 | 00:00:00+03:00 | 135251.61 |
| 2024-01-29 | 00:00:00+03:00 | 136242.80 |
| 2024-01-30 | 00:00:00+03:00 | 136270.65 |
| 2024-01-31 | 00:00:00+03:00 | 135259.85 |
| 2024-02-01 | 00:00:00+03:00 | 137601.56 |
| 2024-02-02 | 00:00:00+03:00 | 135304.67 |
| 2024-02-05 | 00:00:00+03:00 | 137841.33 |
| 2024-02-06 | 00:00:00+03:00 | 139823.95 |
| 2024-02-07 | 00:00:00+03:00 | 140135.40 |
| 2024-02-08 | 00:00:00+03:00 | 141804.58 |
| 2024-02-09 | 00:00:00+03:00 | 143587.41 |
| 2024-02-12 | 00:00:00+03:00 | 146653.62 |
| 2024-02-13 | 00:00:00+03:00 | 146515.49 |
| 2024-02-14 | 00:00:00+03:00 | 144941.00 |
| 2024-02-15 | 00:00:00+03:00 | 145950.77 |
| 2024-02-16 | 00:00:00+03:00 | 147648.92 |
| 2024-02-19 | 00:00:00+03:00 | 147088.08 |
| 2024-02-20 | 00:00:00+03:00 | 149328.81 |
| 2024-02-21 | 00:00:00+03:00 | 149506.67 |
| 2024-02-22 | 00:00:00+03:00 | 151590.20 |
| 2024-02-23 | 00:00:00+03:00 | 154086.07 |
| 2024-02-26 | 00:00:00+03:00 | 155941.17 |
| 2024-02-27 | 00:00:00+03:00 |           |
| 2024-02-28 | 00:00:00+03:00 | 148342.35 |
|            | 00:00:00+03:00 |           |
|            | 00:00:00+03:00 |           |
|            |                |           |

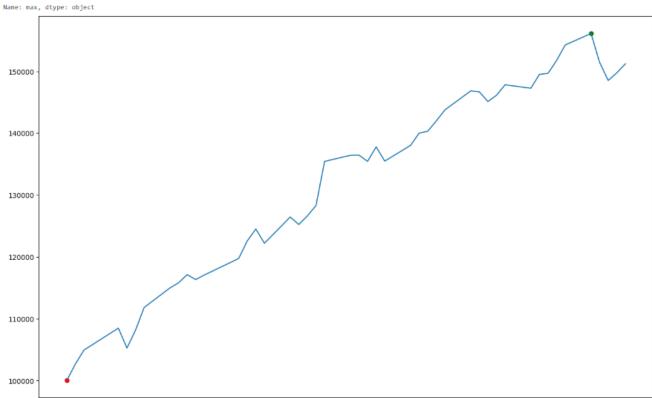
### 26.12.2023 - 1.03.2023 Arası Tarihsel Grafik Seyir:



### 26.12.2023 - 1.03.2023 Arası Uptrend-Downtrend Endikasyonu



2024-01-01



2024-02-01

2024-02-15

2024-03-01

Alttaki kırmızı nokta uptrend işareti, üstteki yeşil nokta downtrend işaretidir.

2024-01-15

# III. Ağırlık sınırlamalı SHARPE Portföyü Performansı (26.12.2023 - 1.03.2023)

Portföyünüzde yer alan hisselerle yapılan Ağırlık sınırlama özellikli bir optimize portföy aşağıdadır:

### **Ağırlıklar**

| assets   | End PF % | Rebalance Buy Price | Rebalance Shares | Final_Cost |
|----------|----------|---------------------|------------------|------------|
| TAVHLIS  | 8.49     | 102.50              | 87.0             | 8490.0     |
| AGHOLIS  | 7.43     | 187.00              | 48.0             | 7430.0     |
| ISMEN.IS | 7.75     | 29.06               | 309.0            | 7750.0     |
| MAVI.IS  | 9.30     | 106.40              | 84.0             | 9300.0     |
| TTKOM.IS | 9.65     | 24.42               | 368.0            | 9650.0     |
| ASELS.IS | 10.72    | 43.52               | 206.0            | 10720.0    |
| ENJSA.IS | 8.37     | 43.90               | 205.0            | 8370.0     |
| TCELL.IS | 9.34     | 53.10               | 169.0            | 9340.0     |
| EKGYO.IS | 7.73     | 6.84                | 1315.0           | 7730.0     |
| THYAO.IS | 9.82     | 227.70              | 39.0             | 9820.0     |
| ULKER.IS | 5.86     | 74.85               | 75.0             | 5860.0     |
| BIMAS.IS | 5.52     | 303.75              | 14.0             | 5520.0     |

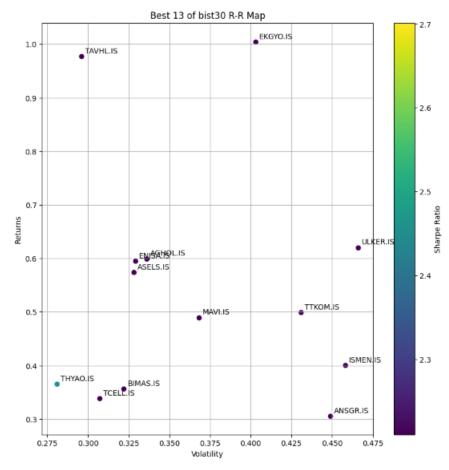
Eğer yeni portföy yapılacak ise alınması gereken ağırlıklar "End PF %" kolonundadır.

### **Portföy Performans Künyesi**

| howing Tearsheet of Portfolio  *********************************  |                     |              |         |
|---|---------------------|--------------|---------|
| ### PORTFOLIO TEARSHEET ***********************************   | Performing STEP-4:  |              |         |
| Start date 2023-12-28 End date 2024-03-01 Total months 2 Backtest  Annual return 491.5%  Cumulative returns 38.3%  Annual volatility 21.3% Sharpe ratio 8.48  Calmar ratio 112.28 Stability 0.94  Max drawdown -4.4%  Omega ratio 3.73  Sortino ratio 17.20  Skew -0.38  Kurtosis 0.11 Tail ratio 1.32  Daily value at risk -2.0%   |                     |              |         |
| Start date         2023-12-28           End date         2024-03-01           Total months         2           Backtest           Annual return         491.5%           Cumulative returns         38.3%           Annual volatility         21.3%           Sharpe ratio         8.48           Calmar ratio         112.28           Stability         0.94           Max drawdown         -4.4%           Omega ratio         3.73           Sortino ratio         17.20           Skew         -0.38           Kurtosis         0.11           Tail ratio         1.32           Daily value at risk         -2.0% |                     |              |         |
| End date 2024-03-01  Total months 2  Backtest  Annual return 491.5%  Cumulative returns 38.3%  Annual volatility 21.3%  Sharpe ratio 8.48  Calmar ratio 112.28  Stability 0.94  Max drawdown -4.4%  Omega ratio 3.73  Sortino ratio 17.20  Skew -0.38  Kurtosis 0.11  Tail ratio 1.32  Daily value at risk -2.0%  |                     |              |         |
| Total months   2     Backtest   | Start date          | 2023-12-28   |         |
| Backtest Annual return 491.5% Cumulative returns 38.3% Annual volatility 21.3% Sharpe ratio 8.48 Calmar ratio 112.28 Stability 0.94 Max drawdown -4.4% Omega ratio 3.73 Sortino ratio 17.20 Skew -0.38 Kurtosis 0.11 Tail ratio 1.32 Daily value at risk -2.0%  | End date            | 2024-03-01   |         |
| Annual return 491.5%  Cumulative returns 38.3%  Annual volatility 21.3%  Sharpe ratio 8.48  Calmar ratio 112.28  Stability 0.94  Max drawdown -4.4%  Omega ratio 3.73  Sortino ratio 17.20  Skew -0.38  Kurtosis 0.11  Tail ratio 1.32  Daily value at risk -2.0%   | Total months        | 2            |         |
| Annual return 491.5%  Cumulative returns 38.3%  Annual volatility 21.3%  Sharpe ratio 8.48  Calmar ratio 112.28  Stability 0.94  Max drawdown -4.4%  Omega ratio 3.73  Sortino ratio 17.20  Skew -0.38  Kurtosis 0.11  Tail ratio 1.32  Daily value at risk -2.0%   |                     | Backtoct     |         |
| Cumulative returns         38.3%           Annual volatility         21.3%           Sharpe ratio         8.48           Calmar ratio         112.28           Stability         0.94           Max drawdown         -4.4%           Omega ratio         3.73           Sortino ratio         17.20           Skew         -0.38           Kurtosis         0.11           Tail ratio         1.32           Daily value at risk         -2.0%  |                     |              |         |
| Annual volatility 21.3%  Sharpe ratio 8.48  Calmar ratio 112.28  Stability 0.94  Max drawdown -4.4%  Omega ratio 3.73  Sortino ratio 17.20  Skew -0.38  Kurtosis 0.11  Tail ratio 1.32  Daily value at risk -2.0%   | Annual return       | 491.5%       |         |
| Sharpe ratio 8.48  Calmar ratio 112.28  Stability 0.94  Max drawdown -4.4%  Omega ratio 3.73  Sortino ratio 17.20  Skew -0.38  Kurtosis 0.11  Tail ratio 1.32  Daily value at risk -2.0%  | Cumulative returns  | 38.3%        |         |
| Sharpe ratio 8.48  Calmar ratio 112.28  Stability 0.94  Max drawdown -4.4%  Omega ratio 3.73  Sortino ratio 17.20  Skew -0.38  Kurtosis 0.11  Tail ratio 1.32  Daily value at risk -2.0%  | A                   | 24.00/       |         |
| Calmar ratio         112.28           Stability         0.94           Max drawdown         -4.4%           Omega ratio         3.73           Sortino ratio         17.20           Skew         -0.38           Kurtosis         0.11           Tail ratio         1.32           Daily value at risk         -2.0%   | Annual volatility   | 21.3%        |         |
| Stability         0.94           Max drawdown         -4.4%           Omega ratio         3.73           Sortino ratio         17.20           Skew         -0.38           Kurtosis         0.11           Tail ratio         1.32           Daily value at risk         -2.0%   | Sharpe ratio        | 8.48         |         |
| Max drawdown         -4.4%           Omega ratio         3.73           Sortino ratio         17.20           Skew         -0.38           Kurtosis         0.11           Tail ratio         1.32           Daily value at risk         -2.0%  | Calmar ratio        | 112.28       |         |
| Omega ratio 3.73  Sortino ratio 17.20  Skew -0.38  Kurtosis 0.11  Tail ratio 1.32  Daily value at risk -2.0%  | Stability           | 0.94         |         |
| Sortino ratio         17.20           Skew         -0.38           Kurtosis         0.11           Tail ratio         1.32           Daily value at risk         -2.0%  | Max drawdown        | -4.4%        |         |
| Skew         -0.38           Kurtosis         0.11           Tail ratio         1.32           Daily value at risk         -2.0%  | Omega ratio         | 3.73         |         |
| Kurtosis 0.11 Tail ratio 1.32 Daily value at risk -2.0%   | Sortino ratio       | 17.20        |         |
| Tail ratio 1.32 Daily value at risk -2.0%   | Skew                | -0.38        |         |
| Daily value at risk -2.0%   | Kurtosis            | 0.11         |         |
|   | Tail ratio          | 1.32         |         |
| ******* end of TEARSHEET *********  | Daily value at risk | -2.0%        |         |
|   | ******* end of T    | EARSHEET *** | ******* |

Sharpe Oranı 8.48 Stability 0.94, MDD -4.4% ile bu çok düzgün bir uptrend portföyüdür, ancak 20.02.2024'te downtrend başladığı tahmin edildiğinden bugünlerde girilmesi halinde yüksek performans garanti edilemez.

#### **Getiri-Risk Haritası**



TAVHL ve EKGYO burada da en iyi getirili ve riski makul seviyede hisseler olmuştur. Ancak bu pozitif ayrışma çok daha fazla risk taşımaktadır. Downtrend de bunları alaşağı olma riskleri artmıştır.

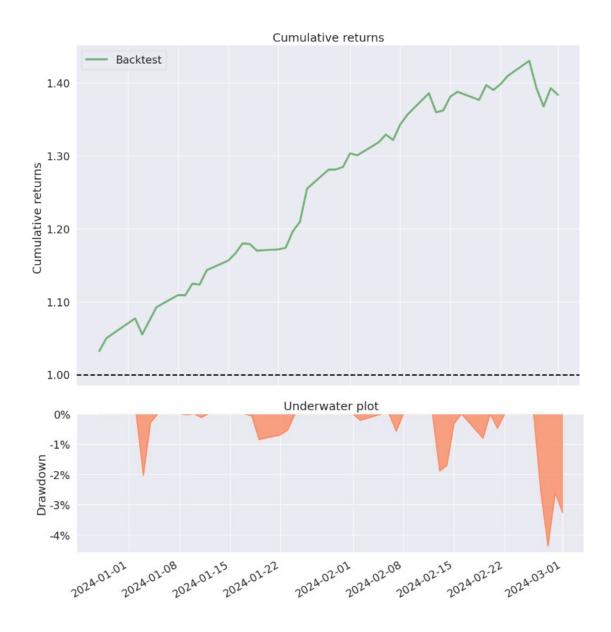
### Korelasyon Haritası



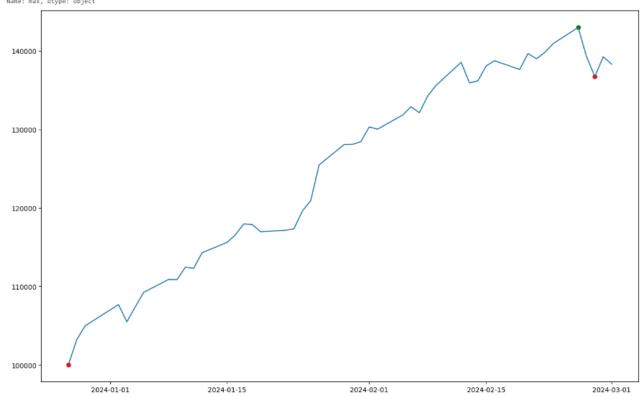
### 26.12.2023 - 1.03.2023 Arası Tarihsel Seyir:

| Date       |                |           |
|------------|----------------|-----------|
| 2023-12-27 | 00:00:00+03:00 | 100000.0  |
| 2023-12-28 | 00:00:00+03:00 | 103209.08 |
| 2023-12-29 | 00:00:00+03:00 | 104975.36 |
| 2024-01-02 | 00:00:00+03:00 | 107688.89 |
| 2024-01-03 | 00:00:00+03:00 | 105492.3  |
| 2024-01-04 | 00:00:00+03:00 | 107384.2  |
| 2024-01-05 | 00:00:00+03:00 | 109240.51 |
| 2024-01-08 | 00:00:00+03:00 | 110889.3  |
| 2024-01-09 | 00:00:00+03:00 | 110859.91 |
| 2024-01-10 | 00:00:00+03:00 | 112452.47 |
| 2024-01-11 | 00:00:00+03:00 | 112319.16 |
| 2024-01-12 | 00:00:00+03:00 | 114296.83 |
| 2024-01-15 | 00:00:00+03:00 | 115613.56 |
| 2024-01-16 | 00:00:00+03:00 | 116601.12 |
| 2024-01-17 | 00:00:00+03:00 | 117971.5  |
| 2024-01-18 | 00:00:00+03:00 | 117886.23 |
| 2024-01-19 | 00:00:00+03:00 | 116972.39 |
| 2024-01-22 | 00:00:00+03:00 | 117151.77 |
| 2024-01-23 | 00:00:00+03:00 | 117355.44 |
| 2024-01-24 | 00:00:00+03:00 | 119605.11 |
| 2024-01-25 | 00:00:00+03:00 | 120922.62 |
| 2024-01-26 | 00:00:00+03:00 | 125477.18 |
| 2024-01-29 | 00:00:00+03:00 | 128079.46 |
| 2024-01-30 | 00:00:00+03:00 | 128098.61 |
| 2024-01-31 | 00:00:00+03:00 | 128440.45 |
| 2024-02-01 | 00:00:00+03:00 | 130314.13 |
| 2024-02-02 | 00:00:00+03:00 | 130036.04 |
| 2024-02-05 | 00:00:00+03:00 | 131838.22 |
| 2024-02-06 | 00:00:00+03:00 | 132898.46 |
| 2024-02-07 | 00:00:00+03:00 | 132134.1  |
| 2024-02-08 | 00:00:00+03:00 | 134268.03 |
| 2024-02-09 | 00:00:00+03:00 | 135620.67 |
| 2024-02-12 | 00:00:00+03:00 | 138556.12 |
|            | 00:00:00+03:00 | 135939.21 |
|            | 00:00:00+03:00 | 136191.76 |
|            | 00:00:00+03:00 | 138105.24 |
|            | 00:00:00+03:00 | 138755.73 |
|            | 00:00:00+03:00 | 137640.79 |
|            | 00:00:00+03:00 | 139672.61 |
| 2024-02-21 |                | 139001.7  |
| 2024-02-22 |                | 139798.4  |
|            | 00:00:00+03:00 | 140931.49 |
|            | 00:00:00+03:00 | 142995.24 |
|            | 00:00:00+03:00 | 139285.21 |
|            | 00:00:00+03:00 | 136736.04 |
|            | 00:00:00+03:00 | 139254.97 |
| 2024-03-01 | 00:00:00+03:00 | 138327.54 |

### 26.12.2023 - 1.03.2023 Arası Tarihsel Grafik Seyir:



### 26.12.2023 - 1.03.2023 Arası Uptrend-Downtrend Endikasyonu



Alttaki kırmızı nokta uptrend işareti, üstteki yeşil nokta downtrend işaretidir.

## IV. Ağırlık sınırlamalı N-Sharpe BIST100 Portföyü Performansı (26.12.2023 - 1.03.2023)

Portföyünüz dışında bağımsız olarak BIST100'den tümüyle yapay zekanın seçtiği hisseler ve ağırlıkları aşağıdadır:

### **Ağırlıklar**

| assets   | End PF % | Rebalance Buy Price | Rebalance Shares | Final_Cost |
|----------|----------|---------------------|------------------|------------|
| AHGAZ.IS | 9.15     | 9.62                | 935.0            | 9150.0     |
| TUKAS.IS | 8.33     | 6.30                | 1428.0           | 8330.0     |
| GWIND.IS | 8.76     | 20.78               | 433.0            | 8760.0     |
| IPEKE.IS | 8.11     | 29.82               | 301.0            | 8110.0     |
| PENTA.IS | 10.01    | 17.11               | 526.0            | 10010.0    |
| TOASO.IS | 9.98     | 211.50              | 42.0             | 9980.0     |
| KARSN.IS | 9.59     | 8.13                | 1107.0           | 9590.0     |
| KOZAL.IS | 8.18     | 18.99               | 473.0            | 8180.0     |
| GUBRF.IS | 6.79     | 172.60              | 52.0             | 6790.0     |
| HALKB.IS | 8.00     | 11.49               | 579.0            | 8000.0     |
| TTRAK.IS | 4.33     | 688.00              | 6.0              | 4330.0     |
| AKFGY.IS | 3.26     | 1.75                | 1611.0           | 3260.0     |
| KOZAA.IS | 1.74     | 39.48               | 49.0             | 1740.0     |
| IZMDC.IS | 1.96     | 5.52                | 318.0            | 1960.0     |
| QUAGR.IS | 1.30     | 5.31                | 201.0            | 1300.0     |
| KZBGY.IS | 0.51     | 17.13               | 26.0             | 510.0      |

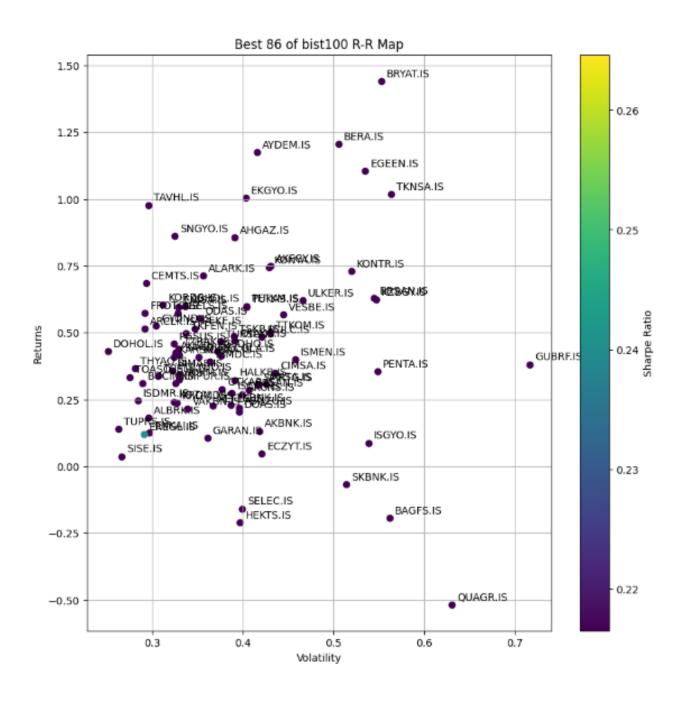
Eğer yeni portföy yapılacak ise alınması gereken ağırlıklar "End PF %" kolonundadır.

### Portföy Performans Künyesi

| ******** PORTFOLI   |              |          |
|---------------------|--------------|----------|
|                     |              |          |
| Start date          | 2023-12-28   |          |
| End date            | 2024-03-01   |          |
| Total months        | 2            |          |
|                     | Backtest     |          |
| Annual return       | 329.7%       |          |
| Cumulative returns  | 30.5%        |          |
| Annual volatility   | 23.4%        |          |
| Sharpe ratio        | 6.37         |          |
| Calmar ratio        | 75.06        |          |
| Stability           | 0.93         |          |
| Max drawdown        | -4.4%        |          |
| Omega ratio         | 2.67         |          |
| Sortino ratio       | 11.33        |          |
| Skew                | -0.51        |          |
| Kurtosis            | -0.04        |          |
| Tail ratio          | 1.53         |          |
| Daily value at risk | -2.4%        |          |
| ******** end of TI  | EARSHEET *** | ******** |

Sharpe Oranı 6.37 Stability 0.93, MDD -4.4% ile bu çok düzgün bir uptrend portföyüdür, ancak 20.02.2024'te downtrend başladığı tahmin edildiğinden bugünlerde girilmesi halinde yüksek performans garanti edilemez.

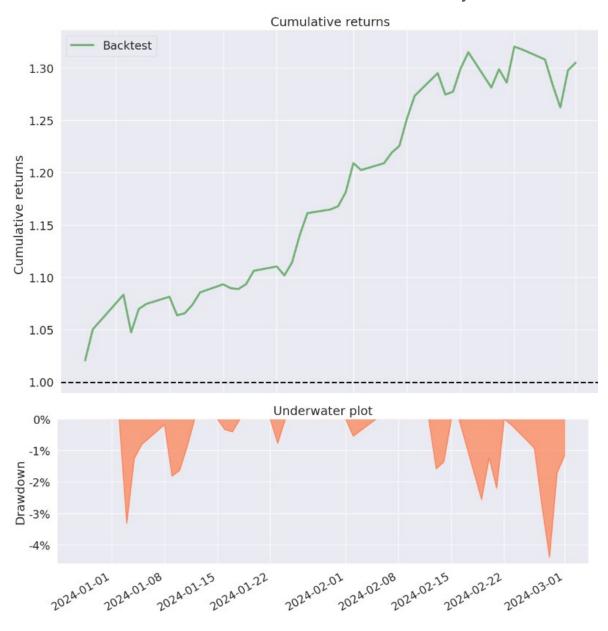
### **Getiri-Risk Haritası**



#### 26.12.2023 - 1.03.2023 Arası Tarihsel Seyir:

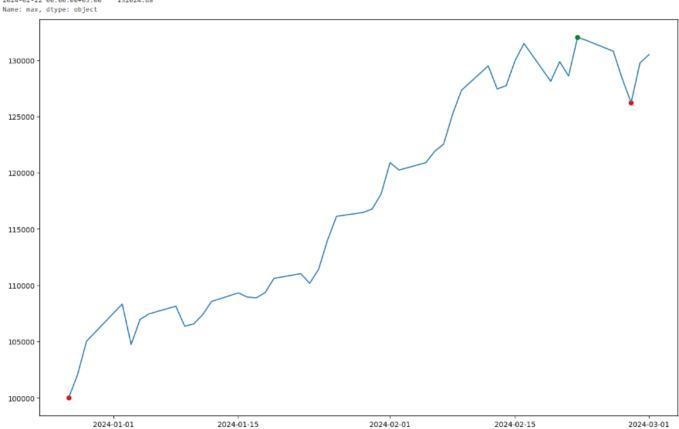
```
Performing STEP-3:
Construct Time series...
Residue cash: 605.4600000000064
Date
2023-12-27 00:00:00+03:00
2023-12-28 00:00:00+03:00 102062.66
2023-12-29 00:00:00+03:00 105027.98
2024-01-02 00:00:00+03:00
2024-01-03 00:00:00+03:00
                          104740.79
2024-01-04 00:00:00+03:00 106970.81
2024-01-05 00:00:00+03:00 107458.77
2024-01-08 00:00:00+03:00 108136.08
2024-01-09 00:00:00+03:00 106367.39
2024-01-10 00:00:00+03:00 106561.27
2024-01-11 00:00:00+03:00 107379.54
2024-01-12 00:00:00+03:00
                        108557.66
2024-01-15 00:00:00+03:00 109324.41
2024-01-16 00:00:00+03:00 108954.12
2024-01-17 00:00:00+03:00 108878.32
2024-01-18 00:00:00+03:00 109343.05
2024-01-19 00:00:00+03:00 110615.88
2024-01-22 00:00:00+03:00 111031.65
2024-01-23 00:00:00+03:00 110174.91
2024-01-24 00:00:00+03:00 111428.08
2024-01-25 00:00:00+03:00 114018.94
2024-01-26 00:00:00+03:00 116123.55
2024-01-29 00:00:00+03:00 116473.66
2024-01-30 00:00:00+03:00 116778.74
2024-01-31 00:00:00+03:00 118122.31
2024-02-01 00:00:00+03:00
                        120899.33
2024-02-02 00:00:00+03:00
                          120239.0
2024-02-05 00:00:00+03:00 120893.37
2024-02-06 00:00:00+03:00 121899.97
2024-02-07 00:00:00+03:00 122544.15
2024-02-08 00:00:00+03:00 125185.75
2024-02-09 00:00:00+03:00 127331.48
2024-02-12 00:00:00+03:00 129494.78
2024-02-13 00:00:00+03:00
                        127446.76
2024-02-14 00:00:00+03:00 127729.87
2024-02-15 00:00:00+03:00 129950.67
2024-02-16 00:00:00+03:00 131487.74
2024-02-19 00:00:00+03:00 128124.29
2024-02-20 00:00:00+03:00 129870.24
2024-02-21 00:00:00+03:00 128595.69
2024-02-22 00:00:00+03:00
                          132024.68
2024-02-23 00:00:00+03:00 131759.59
2024-02-26 00:00:00+03:00 130800.83
2024-02-27 00:00:00+03:00 128376.66
2024-02-28 00:00:00+03:00 126224.95
2024-02-29 00:00:00+03:00 129764.23
2024-03-01 00:00:00+03:00 130491.11
```

26.12.2023 - 1.03.2023 Arası Tarihsel Grafik Seyir:



### 26.12.2023 - 1.03.2023 Arası Uptrend-Downtrend Endikasyonu

Minimums:
Date
2023-12-27 00:00:00+03:00 100000.0
2024-02-28 00:00:00+03:00 126224.95
Name: min, dtype: object
Maximums:
Date
2024-02-22 00:00:00+03:00 132024.68



## Görüş ve Değerlendirme

MHI endeksinin belirttiği gibi BIST30 yükseliş trendi 26.12.2023 te başlamış olup trendin 20 şubatta tamamlandığı veya önümüzdeki en fazla 2 hafta daha devam edebileceği düşünülmektedir.

31 Mart 2024'deki Belediye Seçimleri'nden önce ay boyunca kararsız bir piyasa beklentisi hakimdir.

Mart ayı içerisinde downtrend'e girilmesi ve bu rejimin en az Haziran sonuna dek sürmesi beklenmektedir.

Risklerin azaltılması gereken bu dönemde, en ağırlıkları en çok dağıtılmış olan veya ağırlık sınırlamalı portföylerle devam edilmesi güvenli olacak, alternatif yatırım araçların ağırlıklarının arttırılması da ayrıca uygun olacaktır.

Saygılarımızla,

Alper Ülkü





