IIT Mandi

ALGO TRADING

NAME OF PROJECT:

Algo Trading

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Algo Trading

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02	Goals and Project vision
03	Strategy
04	Final Strategy
05	Other Things We Could Improved
06	Some of the future improvements that We can see in the statistical based approach are
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01 Goals and Project Visions

02 Introducing the Strategies

03 Introducing Final Strategy

04 Future Improvements

Overview

The project evolved across three strategies – EMA slope, ATR-based risk control, and trailing stop loss – each improving stability and profitability, leading to a robust long-only trading system with future scope for adaptive enhancements.

Target Audience

1. Retail Traders

2. Professional Traders

3.Students

4. Enthusiastic Learners

Strategies

Strategy 1

Overview

- Take a long entry when the slope of the faster EMA is more than the slope of the slower EMA and exit if the condition fails.
- Take a short entry when the slope of the faster EMA is less than the slope of the slower EMA and exit if the condition fails.

Results


EMA Slope PullBack - Responsive (Basic Einstein Mode)
Close entry(s) order Long
-94.5319
186.3425
Short
Long
+94.5932178
ntry(s) order Short
+87.1041
-144.1572
Short
141.0046
Short
-151.345
Short
-119.8371
Close entry(s) order
-128.8158
Short
-103.1442
Close entry(s) order Long
Short
Short
Long
+204.2103
Close entry(s) order Short
+151.345
+135.3123
-65.1173
Close entry(s) order Long
-68.534
Close entry(s) order Long
Long
+52.4194
Long
+55.9258
Long
+59.0976
Long
+65.1173
Long
+163.8959
-43.5073
Short
Short
Short
Short
Long
+45.0662
Close entry(s) order Short
+54.4
+45.02
-63.0763
Short
-73.6287
Short
Close entry(s) order Short
+44.519
3,000.00%
2,000.00%
1,267.08%
1,000.00%
142.15%
-1,000.00%

Net profit	+1,421.54 USDT +142.15%	+15,007.61 USDT +1,500.76%	-13,586.07 u -1,358.6
Gross profit	95,646.90 USDT 9,564.69%	68,022.83 USDT 6,802.28%	27,624.07 u 2,762.4
Gross loss	94,225.36 USDT 9,422.54%	53,015.22 USDT 5,301.52%	41,210.14 u 4,121.0
Commission paid	4,155.83 USDT	2,365.03 USDT	1,790.81 u
Buy & hold return	+12,698.49 USDT		

Total open trades	0	0	0
Winning trades	117	63	54
Losing trades	180	89	91
Percent profitable	39.39%	41.45%	37.24%
Avg P&L	4.79 USDT 1.03%	98.73 USDT 2.16%	-93.70 USDT -0.14%
	817.49 USDT	1,079.73 USDT	511.56 USDT

harpe ratio	0.124		
ortino ratio	0.24		
rofit factor	1.015	1.283	0.67

Issues

- Overtrading
- True many times
- Very delayed Response
- Biggest current issue : it responds late many times . update is to wait and average out the effect .

```
//@version=5
strategy("EMA Slope Trading Strategy",
     overlay=true,
     initial_capital=1000,
     default_qty_type=strategy.percent_of_equity,
     default_qty_value=100,
     calc_on_every_tick=false,
     process_orders_on_close=true)

// Input parameters
fastLength = input.int(9, "Fast EMA Length", minval=1)
slowLength = input.int(21, "Slow EMA Length", minval=1)
minBarsPerTrade = input.int(5, "Minimum Bars Per Trade", minval=1)

// Calculate EMAs
fastEMA = ta.ema(close, fastLength)
slowEMA = ta.ema(close, slowLength)

// Calculate slopes (rate of change)
fastSlope = fastEMA - fastEMA[1]
slowSlope = slowEMA - slowEMA[1]

// Track entry bar for minimum holding period
var int entryBar = 0
```

```
barsInTrade = strategy.position_size != 0 ? bar_index - entryBar : 0
minBarsReached = barsInTrade >= minBarsPerTrade

// Long entry conditions
longCondition1 = fastSlope > 0  // Fast EMA has positive slope
longCondition2 = slowSlope > 0  // Slow EMA has positive slope
longCondition3 = fastEMA > slowEMA  // Fast EMA is greater than slow EMA
longCondition4 = fastSlope > slowSlope  // Fast EMA slope is greater than slow EMA slope

longEntry = longCondition1 and longCondition2 and longCondition3 and longCondition4

// Long exit conditions (any condition fails)
longExit = not longCondition1 or not longCondition2 or not longCondition3 or not longCondition4

// Short entry conditions
shortCondition1 = fastSlope < 0  // Fast EMA has negative slope
shortCondition2 = slowSlope < 0  // Slow EMA has negative slope
shortCondition3 = fastEMA < slowEMA  // Fast EMA is less than slow EMA
shortCondition4 = fastSlope < slowSlope  // Fast EMA slope is less than slow EMA slope

shortEntry = shortCondition1 and shortCondition2 and shortCondition3 and shortCondition4

// Short exit conditions (any condition fails)
shortExit = not shortCondition1 or not shortCondition2 or not shortCondition3 or not shortCondition4
```

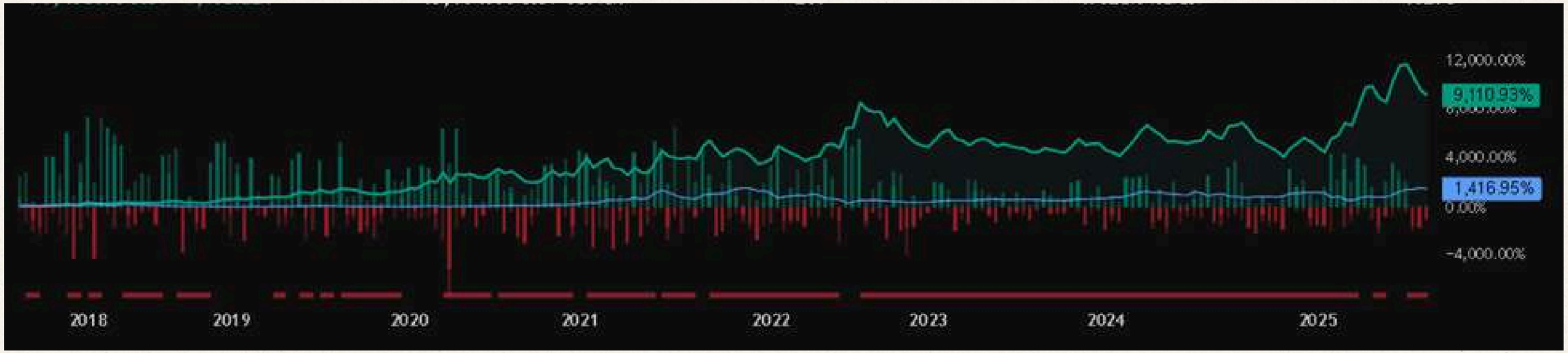
```
// Short exit conditions (any condition fails)
shortExit = not shortCondition1 or not shortCondition2 or not shortCondition3 or not shortCondition4

// Strategy execution
if longEntry and strategy.position_size <= 0
    strategy.entry("Long", strategy.long)
    entryBar := bar_index

if longExit and strategy.position_size > 0 and minBarsReached
    strategy.close("Long")

if shortEntry and strategy.position_size >= 0
    strategy.entry("Short", strategy.short)
    entryBar := bar_index

if shortExit and strategy.position_size < 0 and minBarsReached
    strategy.close("Short")

// Plot EMAs
plot(fastEMA, "Fast EMA", color=color.blue, linewidth=2)
plot(slowEMA, "Slow EMA", color=color.red, linewidth=2)

// Visual indicators for signals
plotshape(longEntry and strategy.position_size <= 0, "Long Entry", shape.triangleup, location.belowbar, color.green, size=size.sr
plotshape(shortEntry and strategy.position_size >= 0, "Short Entry", shape.triangledown, location.abovebar, color.red, size=size
```

Strategy 2 (Updated)

- PULLBACK ENTRY MECHANISM
- ATR-BASED STOP LOSS & TAKE PROFIT(NEW)
- SLOP CALCULATION METHOD
- ENHANCED PARAMETERS

Results


-17.3212
TrendFail_Long
+24.8708
Short
Long
+17.3212
TrendFail_Short
+21.0908
Exit Short (ATR)
+17.4
TrendFail_Short
+24.8708
-27.7959
Short
Long
+26.6642
TrendFail_Short
+27.7959
-26.6642
TrendFail_Long
Long
Exit Short (ATR)
+26.7728
-20.7884
TrendFail_Long
-37.2726
Short
Long
+39.7319
-14.2928
-15.7315
Exit Long
TrendFail_Long
Long
+15.8327
Long
+15.7315
Exit Short (ATR)
+18.6158
Long
+14.8817
-16.1389
Short
-15.3517
Short
TrendFail_Short
+16.1389
TrendFail_Short
+15.3517
-14.7561
Short
-19.593
Short
-25.3938
Short
TrendFail_Short
+19.593
Exit Short (ATR)
+14.7561
TradingView
18:53:04
3,600.00
3,200.00
2,800.00
2,400.00
2,169.15
2,169.15
2,001.26
1,985.70
1,937.17
1,200.00


12,000.00%
9,110.93%
4,000.00%
1,416.95%
0.00%
-4,000.00%
2018
2019
2020
2021
2022
2023
2024
2025

Open P&L	+451.66 USDT +0.49%		
Net profit	+91,017.27 USDT +9,101.73%	+116,778.78 USDT +11,677.88%	−25,761.51 USDT −2,576.15%
Gross profit	401,856.89 USDT 40,185.69%	280,056.40 USDT 28,005.64%	121,800.49 USDT 12,180.05%
Gross loss	310,839.61 USDT 31,083.96%	163,277.62 USDT 16,327.76%	147,561.99 USDT 14,756.20%
Commission paid	15,868.65 USDT	9,049.11 USDT	6,819.54 USDT
[illegible]	+13,067.02 USDT		

Total trades	207	116	91
Total open trades	1	0	1
Winning trades	102	63	39
Losing trades	105	53	52
Percent profitable	49.28%	54.31%	42.86%
Avg P&L	439.70 USDT 3.08%	1,006.71 USDT 4.50%	−283.09 USDT 1.27%

Sharpe ratio	0.337		
Sortino ratio	0.723		
Profit factor	1.293	1.715	0.825

Issues

- Low Sortino Ratio
- Shorting trades are lossmaking
- Works poorly in sideways market
- And again overtrading

```
//@version=5
strategy("EMA Slope Pullback - Responsive (Basic Einstein Mode)",
  overlay=true,
  initial_capital=1000,
  default_qty_type=strategy.percent_of_equity,
  default_qty_value=100,
  calc_on_every_tick=false,
  pyramiding=1)

// === INPUTS ===
fastLen = input.int(10, "Fast EMA (10)")
slowLen = input.int(21, "Slow EMA (20)")
slopeSmooth = input.int(12, "Slope smoothing (small)", minval=1)

minSlopeDiffPct = input.float(0.0001, "Min slopeDiff (%)", step=0.0001,
  tooltip="Minimum percent slope difference (fastSlope% - slowSlope%). Example 0.0005 = 0.05%")

touchLookback = input.int(3, "EMA touch lookback bars", minval=1,
  tooltip="Allow entry if price touched the fast EMA within last N bars")

minHoldBars = input.int(6, "Min bars to hold", minval=1)
atrLen = input.int(14, "ATR length")
stopAtrMult = input.float(2.5, "Stop loss (ATR x)")
tpAtrMult = input.float(4, "Take profit (ATR x)")
```

```
// === INDICATORS / SLOPES ===
emaFast = ta.ema(close, fastLen)
emaSlow = ta.ema(close, slowLen)

fastPct = (emaFast - emaFast[1]) / emaFast[1]      // immediate percent slope of fast EMA
slowPct = (emaSlow - emaSlow[1]) / emaSlow[1]      // immediate percent slope of slow EMA

slopeDiffPctRaw = fastPct - slowPct
slopeDiffPct = ta.ema(slopeDiffPctRaw, slopeSmooth)  // small smoothing

atr = ta.atr(atrLen)

// === PRICE TOUCH / PULLBACK ===
priceTouchRecent = ta.lowest(low, touchLookback) <= emaFast   // touched fast EMA within last N bars
priceAtOrBelowEMA = close <= emaFast                          // current bar close at/below fast EMA
enterPullbackCond = priceAtOrBelowEMA or priceTouchRecent

// === TREND CONDITIONS ===
longTrendCond  = emaFast > emaSlow and  slopeDiffPct > minSlopeDiffPct
shortTrendCond = emaFast < emaSlow and slopeDiffPct < -minSlopeDiffPct

inLong  = strategy.position_size > 0
inShort = strategy.position_size < 0
```

```
longEntrySignal  = longTrendCond and enterPullbackCond and not inLong
shortEntrySignal = shortTrendCond and enterPullbackCond and not inShort

// === EXECUTION & EXITS ===
var int entryBar = na
var float long_stop = na
var float long_tp   = na
var float short_stop = na
var float short_tp   = na

if (longEntrySignal)
    strategy.entry("Long", strategy.long)
    entryBar := bar_index
    long_stop := close - stopAtrMult * atr
    long_tp   := close + tpAtrMult * atr
    strategy.exit("Exit Long (ATR)", from_entry="Long", stop=long_stop, limit=long_tp)

if (shortEntrySignal)
    strategy.entry("Short", strategy.short)
    entryBar := bar_index
    short_stop := close + stopAtrMult * atr
    short_tp   := close - tpAtrMult * atr
    strategy.exit("Exit Short (ATR)", from_entry="Short", stop=short_stop, limit=short_tp)
```

```
// exit on trend-fail but only after minimum hold
longTrendFail = not longTrendCond
shortTrendFail = not shortTrendCond

if (inLong and longTrendFail and (bar_index - entryBar) >= minHoldBars)
    strategy.close("Long", comment="TrendFail_Long")

if (inShort and shortTrendFail and (bar_index - entryBar) >= minHoldBars)
    strategy.close("Short", comment="TrendFail_Short")

// === PLOTS ===
plot(emaFast, title="EMA Fast", linewidth=2, color=color.yellow)
plot(emaSlow, title="EMA Slow", linewidth=2, color=color.blue)
plotshape(longEntrySignal, title="LongEntry", style=shape.triangleup, location=location.belowbar, color=color.green, size=size.sr
plotshape(shortEntrySignal, title="ShortEntry", style=shape.triangledown, location=location.abovebar, color=color.red, size=size

// slopeDiff display (scaled percent = pct * 10000 for readability)
plot(slopeDiffPct * 10000, title="slopeDiff (scaled x10000)", style=plot.style_columns, color=color.new(color.orange, 80))

// === Drawdown-only helper (top-level; no local-scope plot calls) ===
// user controls for clutter
showAbove = input.float(1.0, "Plot drawdowns >= (%)", step=0.1)  // increase to 5 or 10 to reduce clutter
plotMaxDDLine = input.bool(true, "Show Max Drawdown line")
```

```
// running equity peak and drawdown (percent)
var float eqPeak = strategy.equity           // initialize once
eqPeak := math.max(eqPeak, strategy.equity) // update peak each bar

drawdownAbs = eqPeak - strategy.equity
drawdownPct = eqPeak != 0.0 ? (drawdownAbs / eqPeak) * 100.0 : 0.0

// running maximum drawdown observed
var float maxDD = 0.0
maxDD := math.max(maxDD, drawdownPct)

// top-level plots only (use ternary to conditionally show)
plotDD = drawdownPct >= showAbove ? drawdownPct : na
plot(plotDD, title="Drawdown %", style=plot.style_area, linewidth=1, color=color.new(color.red, 85))
hline(0, "Zero", color=color.new(color.gray, 85))
plot(plotMaxDDLine ? maxDD : na, title="Max Drawdown %", style=plot.style_line, linewidth=1, color=color.new(color.maroon, 0))

// small info table (top-right), use manual rounding to 2 decimals
curDDrounded = math.round(drawdownPct * 100) / 100.0
maxDDrounded = math.round(maxDD * 100) / 100.0

var table info = table.new(position.top_right, 1, 2)
if barstate.islast
    table.cell(info, 0, 0, "Cur DD: " + str.tostring(curDDrounded) + "%")
    table.cell(info, 0, 1, "Max DD: " + str.tostring(maxDDrounded) + "%")
```

Strategy 3

- Asymmetric trailing sl
- Exit when trailing sl hits or short condition and condition is true

Results


SELL
0.01
BUY
EMA Slope Pullback with Asymmetric Trailing SL 10 21 12 0.0001 3 17 4.625 10 2.75
3,704.32 3,508.53 0.00 0.00 3,110.56
4,800.00
4,298.42
10:39:33
4,000.00
3,600.00
3,177.76
2,800.00
2,320.51
2,064.74
1,778.38
-138.9422
Short
-108.2516
Short
95.9258
Short
-38.0366
Exit Long TSL
Short
Long
+38.0366
Long
Exit Short TSL
+69.4711
Long
+47.9629
Short TSL

Performance

Metric	All	Long	Short
Open P&L	-9,262.21 USDT -3.22%		
Net profit	+286,215.45 USDT +28,621.54%	+346,025.13 USDT +34,602.51%	-59,809.68 USDT -5,980.97%
Gross profit	839,583.80 USDT 83,958.38%	593,471.84 USDT 59,347.18%	246,111.96 USDT 24,611.20%
Gross loss	553,368.35 USDT 55,336.83%	247,446.71 USDT 24,744.67%	305,921.64 USDT 30,592.16%

Metric	All	Long	Short
Total trades	89	43	46
Total open trades	1	0	1
Winning trades	36	20	16
Losing trades	53	23	30

Sharpe ratio	0.251		
Sortino ratio	1.103		
Profit factor	1.517	2.398	0.804

Issues solved

- Improved sortino ratio
- Less trades
- Apply this strategy for short trades

```
//@version=5
strategy("EMA Slope Pullback with Asymmetric Trailing SL",overlay=true,initial_capital=1000,default_qty_type=strategy.percent_of_ec
//
// === INPUTS ===
fastLen = input.int(10, "Fast EMA (10)")
slowLen = input.int(21, "Slow EMA (20)")
slopeSmooth = input.int(12, "Slope smoothing (small)", minval=1)

minSlopeDiffPct = input.float(0.0001, "Min slopeDiff (%)", step=0.0001,
  tooltip="Minimum percent slope difference (fastSlope% - slowSlope%). Example 0.0005 = 0.05%")
//
touchLookback = input.int(3, "EMA touch lookback bars", minval=1,
  tooltip="Allow entry if price touched the fast EMA within last N bars")


// --- Asymmetric Trailing Stop Inputs ---
longAtrLen = input.int(17, "Long ATR Length", group="Long Trailing Stop")
longStopAtrMult = input.float(4.625, "Long Stop (ATR x)", group="Long Trailing Stop")

shortAtrLen = input.int(10, "Short ATR Length", group="Short Trailing Stop")
shortStopAtrMult = input.float(2.75, "Short Stop (ATR x)", group="Short Trailing Stop") // Start with a tighter value for shorts
//
// === INDICATORS / SLOPES ===
emaFast = ta.ema(close, fastLen)
emaSlow = ta.ema(close, slowLen)

```

```
fastPct = (emaFast - emaFast[1]) / emaFast[1]
slowPct = (emaSlow - emaSlow[1]) / emaSlow[1]

slopeDiffPctRaw = fastPct - slowPct
slopeDiffPct = ta.ema(slopeDiffPctRaw, slopeSmooth)

// Create two separate ATR indicators
atrLong = ta.atr(longAtrLen)
atrShort = ta.atr(shortAtrLen)

// === PRICE TOUCH / PULLBACK ===
priceTouchRecent = ta.lowest(low, touchLookback) <= emaFast
priceAtOrBelowEMA = close <= emaFast
enterPullbackCond = priceAtOrBelowEMA or priceTouchRecent

// === TREND CONDITIONS ===
longTrendCond  = emaFast > emaSlow and  slopeDiffPct > minSlopeDiffPct
shortTrendCond = emaFast < emaSlow and slopeDiffPct < -minSlopeDiffPct

inLong  = strategy.position_size > 0
inShort = strategy.position_size < 0

// === ENTRY SIGNALS ===
longEntrySignal  = longTrendCond and enterPullbackCond and not inLong
shortEntrySignal = shortTrendCond and enterPullbackCond and not inShort
```

```
// === TRAILING STOP LOSS EXECUTION & MANAGEMENT ===
var float long_trailing_stop = na
var float short_trailing_stop = na

if strategy.position_size == 0
    long_trailing_stop := na
    short_trailing_stop := na

// --- Entry and Initial Stop Placement ---
if (longEntrySignal)
    strategy.entry("Long", strategy.long)
    long_trailing_stop := close - longStopAtrMult * atrLong

if (shortEntrySignal)
    strategy.entry("Short", strategy.short)
    short_trailing_stop := close + shortStopAtrMult * atrShort

// --- Trailing Logic for Active Trades ---
if (inLong)
    potential_long_stop = close - longStopAtrMult * atrLong
    long_trailing_stop := math.max(long_trailing_stop, potential_long_stop)
    strategy.exit("Exit Long TSL", from_entry="Long", stop=long_trailing_stop)

if (inShort)
    potential_short_stop = close + shortStopAtrMult * atrShort
    short_trailing_stop := math.min(short_trailing_stop, potential_short_stop)
```

```
// === PLOTS & UI ===
plot(emaFast, title="EMA Fast", linewidth=2, color=color.yellow)
plot(emaSlow, title="EMA Slow", linewidth=2, color=color.blue)
plotshape(longEntrySignal, title="LongEntry", style=shape.triangleup, location=location.belowbar, color=color.green, size=size.sr
plotshape(shortEntrySignal, title="ShortEntry", style=shape.triangledown, location=location.abovebar, color=color.red, size=size
plot(inLong ? long_trailing_stop : na, title="Long Trailing Stop", color=color.new(color.green, 0), style=plot.style_linebr)
plot(inShort ? short_trailing_stop : na, title="Short Trailing Stop", color=color.new(color.red, 0), style=plot.style_linebr)
// (The rest of the drawdown plotting code remains the same)
// ...
```

Final Strategy

Without short position

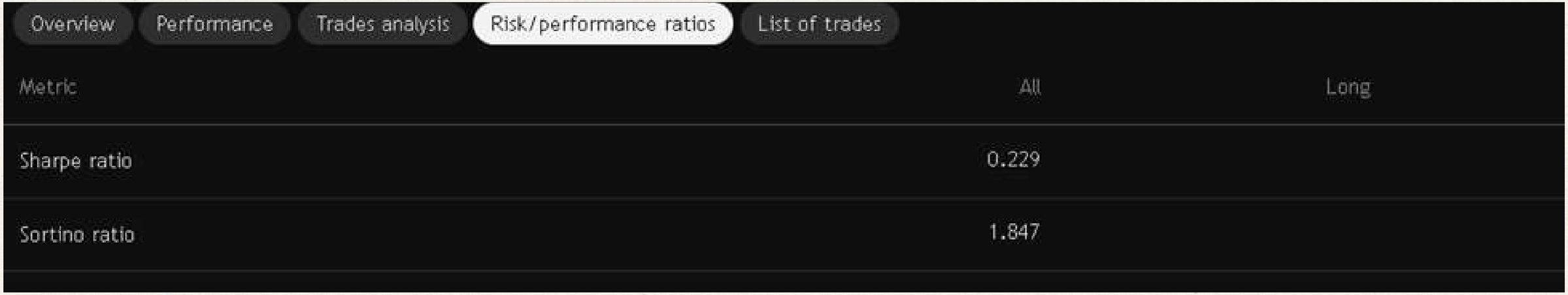
```
//@version=5
strategy("EMA Slope Pullback - Long Only and trailing sl with conditions",
  overlay=true,
  initial_capital=1000,
  default_qty_type=strategy.percent_of_equity,
  default_qty_value=100,
  calc_on_every_tick=false,
  pyramiding=1,
  commission_type=strategy.commission.percent,
  commission_value=0.05,
  slippage=2)

// === INPUTS ===
fastLen = input.int(10, "Fast EMA (10)")
slowLen = input.int(21, "Slow EMA (20)")
slopeSmooth = input.int(12, "Slope smoothing (small)", minval=1)

minSlopeDiffPct = input.float(0.0001, "Min slopeDiff (%)", step=0.0001,
  tooltip="Minimum percent slope difference (fastSlope% - slowSlope%). Example 0.0005 = 0.05%")

touchLookback = input.int(3, "EMA touch lookback bars", minval=1,
  tooltip="Allow entry if price touched the fast EMA within last N bars")

// --- Trailing Stop Inputs ---
atrLen = input.int(17, "ATR length")
stopAtrMult = input.float(4.625, "Trailing Stop (ATR x)")
```

```
// --- Exit Option ---
useShortSignalExit = input.bool(true, "Exit Long on Short Signal",
  tooltip="Close long positions when short conditions are met")

// --- Min Bars Per Trade Filter ---
minBarsPerTrade = input.int(5, "Min Bars Per Trade", minval=1,
  tooltip="Minimum bars to hold position before allowing exit")

// === INDICATORS / SLOPES ===
emaFast = ta.ema(close, fastLen)
emaSlow = ta.ema(close, slowLen)

fastPct = (emaFast - emaFast[1]) / emaFast[1]
slowPct = (emaSlow - emaSlow[1]) / emaSlow[1]

slopeDiffPctRaw = fastPct - slowPct
slopeDiffPct = ta.ema(slopeDiffPctRaw, slopeSmooth)

atr = ta.atr(atrLen)

// === PRICE TOUCH / PULLBACK ===
priceTouchRecent = ta.lowest(low, touchLookback) <= emaFast
priceAtOrBelowEMA = close <= emaFast
enterPullbackCond = priceAtOrBelowEMA or priceTouchRecent
```

```
// === TREND CONDITIONS ===
longTrendCond  = emaFast > emaSlow and slopeDiffPct > minSlopeDiffPct
shortTrendCond = emaFast < emaSlow and slopeDiffPct < -minSlopeDiffPct

inLong  = strategy.position_size > 0

// === TRACK BARS IN TRADE ===
var int barsInTrade = 0
if inLong
    barsInTrade += 1
else
    barsInTrade := 0

// === ENTRY & EXIT SIGNALS ===
longEntrySignal  = longTrendCond and enterPullbackCond and not inLong
shortExitSignal = shortTrendCond and enterPullbackCond and barsInTrade >= minBarsPerTrade

// === TRAILING STOP LOSS EXECUTION & MANAGEMENT ===
var float long_trailing_stop = na

if strategy.position_size == 0
    long_trailing_stop := na

if (longEntrySignal)
    strategy.entry("Long", strategy.long)
```

```
78      long_trailing_stop := close - stopAtrMult * atr
79
80  if (inLong and useShortSignalExit and shortExitSignal)
81      strategy.close("Long", comment="Short Signal Exit")
82      long_trailing_stop := na
83
84  if (inLong)
85      potential_long_stop = close - stopAtrMult * atr
86      long_trailing_stop := math.max(long_trailing_stop, potential_long_stop)
87      strategy.exit("Exit Long TSL", from_entry="Long", stop=long_trailing_stop)
88
89  // === PLOTS ===
90  plot(emaFast, title="EMA Fast", linewidth=2, color=color.yellow)
91  plot(emaSlow, title="EMA Slow", linewidth=2, color=color.blue)
92  plotshape(longEntrySignal, title="LongEntry", style=shape.triangleup, location=location.belowbar, color=color.green, size=size.
93  plotshape(shortExitSignal and inLong, title="ShortExitSignal", style=shape.xcross, location=location.abovebar, color=color.orar
94
95  plot(inLong ? long_trailing_stop : na, title="Long Trailing Stop", color=color.new(color.green, 0), style=plot.style_linebr)
96
97  plot(slopeDiffPct * 10000, title="slopeDiff (scaled x10000)", style=plot.style_columns, color=color.new(color.orange, 80))
98
99  // === Drawdown Display ===
100 showAbove = input.float(1.0, "Plot drawdowns >= (%)", step=0.1)
101 plotMaxDDLine = input.bool(true, "Show Max Drawdown line")
102
103 var float eqPeak = strategy.equity
```

```
showAbove = input.float(1.0, "Plot drawdowns >= (%)", step=0.1)
plotMaxDDLine = input.bool(true, "Show Max Drawdown line")

var float eqPeak = strategy.equity
eqPeak := math.max(eqPeak, strategy.equity)

drawdownAbs = eqPeak - strategy.equity
drawdownPct = eqPeak != 0.0 ? (drawdownAbs / eqPeak) * 100.0 : 0.0

var float maxDD = 0.0
maxDD := math.max(maxDD, drawdownPct)

plotDD = drawdownPct >= showAbove ? drawdownPct : na
plot(plotDD, title="Drawdown %", style=plot.style_area, linewidth=1, color=color.new(color.red, 85))
hline(0, "Zero", color=color.new(color.gray, 85))
plot(plotMaxDDLine ? maxDD : na, title="Max Drawdown %", style=plot.style_line, linewidth=1, color=color.new(color.maroon, 0))

curDDrounded = math.round(drawdownPct * 100) / 100.0
maxDDrounded = math.round(maxDD * 100) / 100.0

var table info = table.new(position.top_right, 1, 2)
if barstate.islast
    table.cell(info, 0, 0, "Cur DD: " + str.tostring(curDDrounded) + "%")
    table.cell(info, 0, 1, "Max DD: " + str.tostring(maxDDrounded) + "%")
```



Other Things We Could Improved

- Using Bollinger bands strategy when the market is sideways , and using this strategy when we are having bullish /bearish markets .
- But this is ok since the trades in those conditions due to trailing sl will not result in much huge losses .
- To reduce the drawdown what I could do is that . when we see that we had repetetive losses in same position try avoiding taking that position
- Different atr sl’s for different conditions . and maybe we could profit through that .

Some of the future improvements that We can see in the statistical based approach are

- Using different candlestick conditions and putting them as extra conditions.
- Like exit on top when a strong bearish hammer appears.
- Like using the other patterns like the morning star pattern.
- Engulfing candles .
- Multiple bullish and bearish signals
- Multipule bullish and bearish signal .
- May be using different categories of indicators . to improve the strength of trade that might come
- Also like there would be issues in this case because we might miss certain profitable trades . or may have delayed entry .

Our doubts

- Even after applying these, the market is speculation. Is there any way to remove that?
- Some of the future improvements that we can see in the statistical-based approach are:
- Or how to employ probabilities and use the probabilistic-based approach as I am saying, if possible?
- Other suggestions for improvements

Our Team

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