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BetEMACrossOver6ATM Strategy Manual

Overview

The `BetEMACrossOver6ATM` is a NinjaTrader strategy designed to predict the probability of the next price bar being bullish or bearish using a heuristic algorithm. It leverages Exponential Moving Average (EMA) crossovers, supplemented by indicators like ADX, ATR, Bollinger Bands, RSI, and Directional Movement (DM). The strategy supports both managed entries and ATM (Automated Trading Machine) templates for trade execution. It is optimized for minute or tick-based charts and uses NinjaTrader's Strategy Analyzer for back-testing.

The algorithm dynamically adjusts internal filters on each EMA crossover to enhance trade signals. It includes three time-based trading windows, customizable profit/loss targets, and robust risk management features.

Key Features

- **EMA Crossover Detection:** Identifies bullish (fast EMA crosses above slow EMA) or bearish (fast EMA crosses below slow EMA) signals within a 3-bar lookback.
- **Probability Calculation:** Uses historical data from DM, Bollinger Bands, and RSI to compute the likelihood of bullish or bearish bars.
- **Dynamic Filters:** Adjusts thresholds for Directional Index (DI) based on recent averages, ensuring adaptability to market conditions.
- **Time-Based Trading Windows:** Supports three configurable trading sessions (Timer 1, Timer 2, Timer 3) with distinct ATM templates or manual trade parameters.
- **Risk Management:** Enforces maximum profit/loss limits and end-of-session trade closure. All limits are reset on next session.
- **Visualization:** Displays entry arrows, probability data, and timer-based chart highlights.
- **Alerts and Notifications:** Provides sound alerts and optional email notifications for entries and profit/loss events. *Not all emails may be sent dependent on system usage.*

Notes

- The algorithm's dynamic nature simplifies the optimization process by automatically adjusting internal filters.
- Regularly monitor performance to ensure alignment with market conditions.
- Emailing may not be processed depending on what else the system is doing.
- The Max Profit and Max Loss looks at unrealized profit + total profit during an entry and will clamp and stop trading if the unrealized profit + total profit are equal or greater than the settings.
- The total P and L used for the strategy will reset on new session Bar 0.
- Data calculation is done on Price Change and does NOT require TICK REPLAY, do not enable it.
- Enable End of Session is only used for canceling all entries if the Broker does not support **TIF**. If you need to use this set it several minutes prior to intraday market close. This will reset when the time is less than the reset time or on new session.
- All timers use NinjaTrader's time setup, if you have chosen CME it will use CME time.
- The strategy uses ATM "Advanced Trade Management" The ATM will **NOT** work with Strategy Analyzer. You **MUST DISABLE** the ENABLE ATM CHECK BOX and run the standard Profit and Loss targets.
- The timers are sequential and must be operated 1 then 2 then 3 anything else will cause an error.
- All logged data including P&L data will reset on new trading day, So if you are using a timer to run 5 PM to 7 AM, all your calculation data will reset at 12:00:01 AM when the system gets a new New-Trading-Day reset from NinjaTrader.
- Log/Alert audible sound occurs when a Cross-Over or Under has happened and does NOT mean an entry will take place, it is just a signal to the trader that a possible entry may occur due to the cross. Please review the dynamic filters that make up the probability.

Requirements

- **Platform:** NinjaTrader 8.
- **Chart Types:** Minute or tick-based charts (e.g., 5-minute, 2000-tick). Other chart types (e.g., daily, range) are not supported.
- **Indicators:** EMA, ADX, ATR, SMA (for volume), Bollinger Bands, RSI, DM.
- **Data:** At least 256 bars of historical data for reliable indicator calculations (configurable via `MaximumBarsLookBack`). Calculate on Price change **ONLY**.
- **ATM Templates:** Required for ATM-based trading; must be pre-configured in NinjaTrader.

Installation

1. Import the `BetEMACrossOver6ATM.ZIP` file into NinjaTrader via the Import File.
2. Compile the script to ensure no errors.

3. Add the strategy to a chart or the Strategy Analyzer from the Strategies menu.
4. Configure parameters as described below.

Configuration Parameters

The strategy offers extensive customization through its properties, grouped for clarity.

EMA Parameters

- **Fast EMA Period** (`FastEMAPeriodATM`, Default: 10): Period for the fast EMA.
- **Slow EMA Period** (`SlowEMAPeriodATM`, Default: 20): Period for the slow EMA.
- **EMA Fast Color** (`EMA_Fast_ColorATM`, Default: Blue): Color for the fast EMA plot.
- **EMA Slow Color** (`EMA_Slow_ColorATM`, Default: CornflowerBlue): Color for the slow EMA plot.

ATR Filters

- **ATR Period** (`AtrPeriodATM`, Default: 14): Period for ATR calculation.
- **ATR Plot Color** (`ATR_Plot_ColorATM`, Default: DarkCyan): Color for the ATR plot.
- **Minimum ATR Threshold** (`MinATRThresholdATM`, Default: 3): Minimum ATR value to confirm sufficient volatility.
- **Enable ATR on Chart** (`EnableATRATM`, Default: False): Display ATR on the chart.

ADX Filters

- **ADX Period** (`ADXPeriodATM`, Default: 14): Period for ADX calculation.
- **ADX Threshold Low** (`ADXThresholdATM`, Default: 10): Minimum ADX for a moderate trend.
- **ADX Threshold High** (`ADXThresholdHiATM`, Default: 65): Maximum ADX to avoid over-trending markets.
- **ADX Plot Color** (`ADX_Plot_ColorATM`, Default: DarkCyan): Color for the ADX plot.
- **ADX High Line Color** (`ADX_High_ColorATM`, Default: Gold): Color for the high ADX threshold line.
- **ADX Low Line Color** (`ADX_Low_ColorATM`, Default: Purple): Color for the low ADX threshold line.
- **Enable ADX on Chart** (`EnableADXATM`, Default: False): Display ADX on the chart.

Volume Filters

- **Volume Lookback** (`VolumeLookbackATM`, Default: 20): Lookback period for volume SMA.
- **Volume Multiplier** (`VolumeMultiplierATM`, Default: 1.05): Multiplier to confirm above-average volume.

Dynamic Parameters

- **DM Period** (`DmPeriodATM`, Default: 14): Period for Directional Movement indicator.
- **Bollinger Bands Period** (`BbPeriodATM`, Default: 14): Period for Bollinger Bands.
- **Bollinger Bands StdDev** (`BbStdDevATM`, Default: 2): Standard deviation for Bollinger Bands.
- **RSI Period** (`RsiPeriodATM`, Default: 14): Period for RSI.
- **DI Threshold** (`DiThresholdATM`, Default: 10): Base threshold for DI+ and DI- (dynamically adjusted).
- **BB Breakout Threshold** (`BbBreakoutThresholdATM`, Default: 0.1): Minimum breakout distance past Bollinger Bands.
- **RSI Bullish Threshold** (`RsiBullishThresholdATM`, Default: 55): RSI level for bullish confirmation.
- **RSI Bearish Threshold** (`RsiBearishThresholdATM`, Default: 45): RSI level for bearish confirmation.
- **Probability Threshold** (`ProbabilityThresholdATM`, Default: 0.50): Minimum probability for trade entry.
- **Lookback Period** (`LookbackPeriodATM`, Default: 200): Bars to analyze for probability calculations.
- **Display Probability Data** (`EnableShowDataATM`, `EnableShowDataTRATM`, `EnableShowDataTLATM`, `EnableShowDataBLATM`, Default: False): Show probability data at specified chart positions (only one can be enabled).

System Parameters

- **Max Profit \$** (`BetEMA6ATRMaxProfitATM`, Default: 500): Maximum profit to stop the strategy.
- **Max Loss \$** (`BetEMA6ATRMaxLossATM`, Default: -500): Maximum loss to stop the strategy.
- **End of Session Close All Entries** (`TimerEofSession`, Default: 15:45): Time to close all positions.
- **Enable End Of Session Time** (`EnableEofSession`, Default: False): Enable session-end closure.
- **Email Address** (`Bet6EMAaTREmailName`, Default: customer@winners.com): Email for notifications.
- **Enable Email on Entries & PnL** (`Bet6EMAEnableEmailEntries`, Default: False): Enable email notifications.

System Profit Loss

- **ATM Template Name Time 1** (`Bet6EMATMTemplateName_1`, Default: "ATM ES"): ATM template for Timer 1.
- **ATM Template Name Time 2** (`Bet6EMATMTemplateName_2`, Default: "ATM ES"): ATM template for Timer 2.
- **ATM Template Name Time 3** (`Bet6EMATMTemplateName_3`, Default: "ATM ES"): ATM template for Timer 3.
- **Enable ATM Profit & Loss** (`EnableATM` Default: True): Use ATM templates for trading.

- **Order Quantity Timer 1** (`Order_QuantityE1ATM`, Default: 1): Quantity for Timer 1 (non-ATM).
- **Profit Target Timer 1** (`Profit_TargetBet1ATM`, Default: 50): Profit target in ticks for Timer 1 (non-ATM).
- **Stop Loss Target Timer 1** (`Stop_Loss_TargetBet1ATM`, Default: 30): Stop loss in ticks for Timer 1 (non-ATM).
- **Order Quantity Timer 2** (`Order_QuantityE2ATM`, Default: 1): Quantity for Timer 2 (non-ATM).
- **Profit Target Timer 2** (`Profit_TargetBet2ATM`, Default: 55): Profit target in ticks for Timer 2 (non-ATM).
- **Stop Loss Target Timer 2** (`Stop_Loss_TargetBet2ATM`, Default: 35): Stop loss in ticks for Timer 2 (non-ATM).
- **Order Quantity Timer 3** (`Order_QuantityE3ATM`, Default: 1): Quantity for Timer 3 (non-ATM).
- **Profit Target Timer 3** (`Profit_TargetBet3ATM`, Default: 60): Profit target in ticks for Timer 3 (non-ATM).
- **Stop Loss Target Timer 3** (`Stop_Loss_TargetBet3ATM`, Default: 40): Stop loss in ticks for Timer 3 (non-ATM).

System Alert Parameters

- **Enable Crossover/Under Sound Alert** (`EnableAlert`, Default: True): Enable sound alerts for crossovers.
- **Alert Sound File** (`AlertSound`, Default: "\\sounds\\Alert1.wav"): Sound file for alerts.
- **Arrow Color Long** (`BetEMA6ATRFillBrushRevArrowLongATM`, Default: Green): Color for long entry arrows.
- **Arrow Color Short** (`BetEMA6ATRFillBrushRevArrowShortATM`, Default: Red): Color for short entry arrows.
- **Alert Background Color** (`AlertBackgroundColor`, Default: Blue): Background color for alerts.
- **Alert Text Color** (`AlertTextColor`, Default: White): Text color for alerts.

Timer Parameters

- **Timer 1 Start/End** (`Timer1StartATM`, `Timer1EndATM`, Default: 08:30–10:30): Trading window for Timer 1.
- **Timer 1 Brush/Opacity** (`Timer1BrushATM`, `Timer1OpacityATM`, Default: DodgerBlue, 10): Visual settings for Timer 1.
- **Timer 2 Start/End** (`Timer2StartATM`, `Timer2EndATM`, Default: 10:31–13:00): Trading window for Timer 2.
- **Enable Timer 2** (`EnableTM2ATM`, Default: True): Enable Timer 2.
- **Timer 2 Brush/Opacity** (`Timer2BrushATM`, `Timer2OpacityATM`, Default: ForestGreen, 10): Visual settings for Timer 2.
- **Timer 3 Start/End** (`Timer3StartATM`, `Timer3EndATM`, Default: 13:01–15:10): Trading window for Timer 3.
- **Enable Timer 3** (`EnableTM3ATM`, Default: True): Enable Timer 3.

- **Timer 3 Brush/Opacity** (`Timer3BrushATM`, `Timer3OpacityATM`, Default: Crimson, 10): Visual settings for Timer 3.

Strategy Logic

Entry Conditions

The strategy triggers long or short entries based on the following conditions:

- **EMA Crossover:** Bullish (fast EMA crosses above slow EMA within 3 bars, close above slow EMA) or bearish (fast EMA crosses below slow EMA, close below slow EMA).
- **Trend Confirmation:** Fast EMA above slow EMA and close above open (bullish) or vice versa (bearish).
- **Volatility Filter:** $ATR \geq \text{MinATRThreshold}$
- **Trend Strength:** ADX between `ADXThreshold` and `ADXThresholdHi`.
- **Volume Confirmation:** Volume in the current or prior two bars exceeds the SMA by `VolumeMultiplier` (waived for volume-based charts).
- **Probability:** Bullish or bearish probability $\geq \text{ProbabilityThreshold}$.
- **Market State:** Position is flat (or ATM strategy is flat if `EnableATM` is true).
- **Timing:** Within one of the active timer windows (Timer 1, 2, or 3).

Exit Conditions

- **Manual Exits (Non-ATM):**
 - Stop loss or profit target reached (configured per timer in ticks).
 - Unrealized P&L hits `BetEMA6ATRMaxProfitATM` or `BetEMA6ATRMaxLossATM`.
- **ATM Exits:**
 - ATM template's stop loss or profit target triggers.
 - Unrealized P&L hits `BetEMA6ATRMaxProfitATM` or `BetEMA6ATRMaxLossATM`.
- **Session End:** All positions close at `TimerEofSession` if `EnableEofSess` is true.

Probability Calculation

The strategy calculates probabilities using:

- **DI+ and DI-:** Normalized based on historical ranges, with a dynamic threshold.
- **Bollinger Bands:** Measures breakout distance from upper/lower bands.
- **RSI:** Assesses momentum relative to bullish/bearish thresholds.
- **Cycle and Trend Adjustments:** Incorporates crossover frequency and ATR-based trend strength.

The probabilities are weighted and normalized to $[0, 1]$, ensuring robust signal filtering.

Back-testing and Optimization

Back-testing Setup

1. **Data:** Use 1 week of historical minute or tick-based data.
2. **Tool:** NinjaTrader's Strategy Analyzer. *ATM enable must be disabled and you must use standard Profit and Loss targets OR you will NOT have any entries.*
3. **Parameters to Optimize:**
 - **Chart Time:** Adjust minute (e.g., 4, 5 minutes) or tick (e.g., 2000, 2500 ticks) intervals.
 - **Fast/Slow EMA Periods:** Tune for signal frequency.
 - **Min/Max ADX:** Adjust `ADXThresholdLow` and `ADXThresholdHi` for trend strength.
 - **Min ATR:** Set `MinATRThreshold` for volatility.
 - **Probability Threshold:** Optimize `ProbabilityThreshold` for trade confidence.
 - **Profit/Loss Targets:** Adjust per timer (`Profit_Target`, `Stop_Loss_Target`) or ATM templates.
4. **Performance Metrics:**
 - **Target:** Lowest drawdown, highest profit.
 - **Minimum Requirements:**
 - Percent profitable $\geq 45\%$.
 - Profit-to-loss ratio $\geq 1.5:1$.

Optimization Approach

- Adjust one parameter at a time, starting with EMA periods and chart timing.
- Test incrementally (e.g., change 5 minutes to 4 minutes, or 2000 ticks to 2500 ticks).
- Monitor for market cycle consistency between back-test and live trading.
- If consecutive losses occur in live trading, suspect a market cycle shift and adjust chart timing (e.g., 5 to 4 minutes or 2000 to 2500 ticks).

Usage

1. **Apply Strategy:**
 - Add to a minute or tick chart via NinjaTrader's Strategies menu.
 - Configure parameters in the strategy dialog.
2. **ATM Setup** (if `Enable ATM Profit and Loss` is true):
 - Ensure ATM templates (`Bet6EMATMTemplateName_1, _2, _3`) are defined in NinjaTrader.
 - Verify template names match exactly to avoid errors.

3. **Monitor:**
 - Watch for entry arrows (green for long, red for short).
 - Check probability data display (if enabled) for bullish/bearish probabilities, ADX, and ATR.
 - Respond to alerts (sound or email) for crossovers and P&L events.
4. **Adjust:**
 - If performance degrades (e.g., multiple losses), re-run back-testing with updated chart timing.
 - Update ATM templates or manual targets as needed.

Risk Management

- **Max Profit/Loss:** The strategy halts trading if total P&L reaches `BetEMA6ATRMaxProfitATM` or `BetEMA6ATRMaxLossATM`.
- **Session Closure:** Positions close at End of Session Time Disabled to avoid overnight risk (if enabled). Only use this if the broker does not use TIF.
- **Position Limits:** Only one entry per direction is allowed (`EntriesPerDirection = 1`).
- **Error Handling:** Timer overlaps or multiple display selections trigger resets and chart warnings.

Troubleshooting

- **No Entries:**
 - Verify chart type (minute/tick) and sufficient historical data (`BarsRequiredToTrade`).
 - Check timer settings and ensure current time is within a trading window.
 - Confirm ATM template names are correct if using ATM.
- **Timer Overlap Errors:**
 - Ensure `Timer1EndATM ≤ Timer2StartATM` and `Timer2EndATM ≤ Timer3StartATM`.
 - Reset to defaults (08:30–10:30, 10:31–13:00, 13:01–15:10) if errors persist.
- **Display Errors:**
 - Only one probability display option (`EnableShowDataATM`, `EnableShowDataTRATM`, etc.) can be enabled.
- **ATM Failures:**
 - Check ATM template spelling and NinjaTrader configuration.
 - Review chart messages for error codes.

Notes

- The strategy assumes market cycles (recurring patterns) remain consistent between back-testing and live trading. Significant market changes may require re-optimization.
- Use the Strategy Analyzer to validate performance before live trading.
- Email notifications require a valid email setup in NinjaTrader.

Disclaimer

Trading involves significant risk and may result in losses. The `BetEMACrossOver6ATM` strategy is provided as-is, and users are responsible for testing and validating its performance. Consult a financial advisor before using this strategy in live markets. Always **back test** and validate the strategy's performance before using it in live trading. Trading involves significant risk, and past performance is not indicative of future results.

Here are some basic settings to help you get started, we suggest always back testing!

BET EMA Cross ATR 6 setup
guide

Data Series Type

ES-MES

NQ-MNQ

GC-MGC

Data Series Value

MIN

MIN

MIN

5 min

5 min

3 min

In strategy analyzer adjust the yellow bands first

Fast EMA Period

7

7

7

Slow EMA Period

14

14

14

ATR Period

14

14

14

Minimum ATR Threshold

3

3

0.75

ADX Period

14

14

14

ADX Threshold High

65

65

65

ADX Threshold Low

10

10

10

ATR Profit Loss

Leave all current settings for standards
adjust on Strategy Analyzer testing

DM Period

14

14

14

Bollinger Bands Period

14

14

14

Bollinger Bands StdDev

2

2

2

RSI Period

14

14

14

DI Threshold

10

10

10

BB Breakout Threshold

0.1

0.1

0.1

RSI Bullish Threshold

55

55

55

RSI Bearish Threshold

45

45

45

Probability Threshold

0.5

0.5

0.5

Lookback Period

200

200

200

