Exploiting the impact of news release surprise on FX markets

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1 Abstract

This study investigates whether macroeconomic announcement surprises generate persistent and exploitable patterns in foreign exchange markets. Using ten years of macroeconomic releases and M15 price data from 2016 to 2026, we examine the relationship between the difference between actual and forecast values and subsequent price dynamics in EUR/USD and USD/CAD. The results reveal two distinct effects. In EUR/USD, ISM manufacturing prices exhibit a persistent mean-reversion pattern following the initial market reaction, particularly when the magnitude of the surprise is moderate. In contrast, ISM non-manufacturing PMI on USD/CAD exhibits significant price continuation, with the exchange rate tending to move in the direction implied by the surprise for several hours after the release. A simple strategy entering after the first M15 candle and holding for 24 hours achieved a 64.2% win rate and a Profit Factor of 2.30 over the 2016–2026 sample. In general, the findings indicate that macroeconomic surprises do not produce a homogeneous response across FX markets. Rather, the empirical response appears to depend jointly on the type of announcement, the currency pair, and the post-release horizon.

2 Introduction

Our research started with a very simple question: "Do surprises in macroeconomic announcements impact the FX market according to the information it carry?". We know that the FX market and macroeconomics are correlated, with the latter being a catalyst for sharp moves and potentially interesting gains, but approaching news trading is not straightforward as it may look. The first problem is the high volatility that these events tend to fuel the market with: a wrong position can cost a lot to a trader in terms of equity, in a matter of seconds. The second problem is that, more than often, trading in the direction of the just released catalyst does not lead to a good outcome. This research aims to shed some light on this problem: is it really possible to trade the news? Do markets react accordingly to the information carried by the news?

3 Methodology and data gathering

In order to answer our questions, the first thing to do was gather enough data. For this specific study, EUR/USD and USD/CAD were chosen as currency pairs. On the macroeconomic release side, we have only examined US macro releases. The time span for the study was 10 years of historical prices, crossed with 10 years of macro releases. The data sources were Roboforex broker for the M15 dataset of EUR/USD and USD/CAD in CSV format, while for macro releases, we used the Investing.com economic calendar from 2016 to 2026 (till June). A Python script was used to gather each economic event release with date, previous value, forecast value, and the one released. For each macro event we then calculated the surprise value:

$$S_t = A_t - F_t, \tag{1}$$

where A_t denotes the actual value released at time t, F_t denotes the corresponding consensus forecast and S_t represents the resulting macroeconomic surprise.

The Efficient Market Hypothesis states that asset prices reflect available information (Fama 1970) at any given time, and if that is true, it implies that the forecast values of macroeconomic factors are also taken into account.

The surprise, on the other hand, gives us a precise metric of how much the actual value drifted from the expected one. We will look at the surprise (+ or -) sign in order to classify the surprise as "positive" or "negative". If the surprise value is positive (the actual macroeconomic release was higher than the forecast value) we should expect a positive impact on USD while a negative surprise should lead to a weaker USD and possible appreciations of EUR or CAD.

In order to quantify the market response, we entered a trade in the direction of the surprise on USD (and the opposite was done on EUR and the CAD) trying different entry models (waiting a finite amount of pips in the direction of the news, 1 minute after the release, end of day, etc.) and exits (after 24/48/72 hours, with fixed SL/TPs).

4 Research and findings

The results showed that surprise does not appear to be strongly correlated with short term movements of EUR/USD and USD/CAD, in most cases. In 330 macro releases (spanning 10 years), using surprise values to trade the direction of the EUR/USD specifically led to a hit rate of 51,8%, which is not enough to be considered as a statistical edge. But more interesting were the results for two specific macro events: "ISM Manufacturing Prices", which showed an average negative correlation with EUR/USD and "ISM Non-Manufacturing PMI (ISM Services PMI)" which showed a positive correlation with USD/CAD. In EUR/USD it was also found that the magnitude of the surprise value is correlated with the probability of success of the trade. Specifically, a value above 5 points showed to fade the contrarian effect and push EUR/USD in the direction it was intended to follow (the surprise direction), in 70% of observations. Once

these two good candidates were found, a systematic approach was used to build and optimize trading strategies, the mean reversion approach on EUR/USD and momentum following on USD/CAD, trying different entry and exit models, analyzing the MFE/MAE of each and so on. In this paper, for the sake of research and clarity, the results of a simple strategy for USD/CAD are shown.

5 Trading strategy example (USD/CAD)

The USD/CAD strategy is based on the market reaction to the ISM Non-Manufacturing (Services) PMI announcement. When the actual value exceeds the forecast (positive surprise), the strategy opens a long USD/CAD position; when the actual value falls below the forecast (negative surprise), it opens a short USD/CAD position.

Rather than entering immediately at the announcement, the strategy waits for the first M15 candle following the release to close, entering 15 minutes after the announcement. The position is then held for 24 hours and closed at the market price. The baseline implementation uses neither a fixed stop-loss nor a take-profit.

A 1 minute OHLC MT5 backtest covering January 2016 to July 2026 produced 123 trades, of which 64.23% were profitable. The strategy achieved a Profit Factor of 2.30, with a maximum relative drawdown of 11%. In this strategy, a simple fixed position size (0.14 lots) was used, better overall gains could be achieved with dynamic position sizing.

Results

History Quality:	100%				
Bars:	260717	Ticks:	14953662	Symbols:	1
Total Net Profit:	2 226.33	Balance Drawdown Absolute:	47.76	Equity Drawdown Absolute:	83.64
Gross Profit:	3 943.71	Balance Drawdown Maximal:	251.15 (11.09%)	Equity Drawdown Maximal:	267.42 (11.78%)
Gross Loss:	-1 717.38	Balance Drawdown Relative:	11.18% (159.09)	Equity Drawdown Relative:	15.47% (223.51)
Profit Factor:	2.30	Expected Payoff:	18.10	Margin Level:	654.54%
Recovery Factor:	8.33	Sharpe Ratio:	4.11	Z-Score:	0.59 (44.48%)
AHPR:	1.0103 (1.03%)	LR Correlation:	0.97	OnTester result:	0
GHPR:	1.0096 (0.96%)	LR Standard Error:	147.26		
Total Trades:	123	Short Trades (won %):	54 (70.37%)	Long Trades (won %):	69 (59.42%)
Total Deals:	246	Profit Trades (% of total):	79 (64.23%)	Loss Trades (% of total):	44 (35.77%)
		Largest profit trade:	245.01	Largest loss trade:	-133.59
		Average profit trade:	49.92	Average loss trade:	-38.25
		Maximum consecutive wins ($):	9 (292.85)	Maximum consecutive losses ($):	4 (-120.71)
		Maximal consecutive profit (count):	744.26 (6)	Maximal consecutive loss (count):	-182.95 (2)
		Average consecutive wins:	3	Average consecutive losses:	1

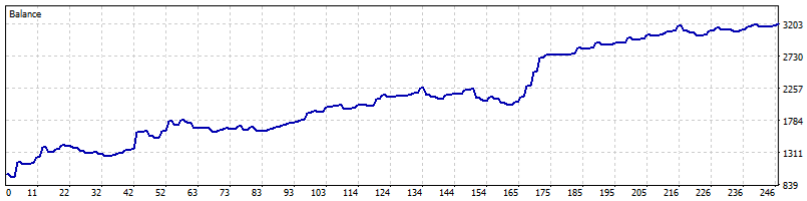

Figure 1: The backtest

These results support the presence of a persistent post-announcement continuation effect in USD/CAD following ISM Services PMI surprises. Future research should include a proper Monte Carlo simulation in order to effectively scale the strategy.

References

Fama, Eugene F. (1970). "Efficient Capital Markets: A Review of Theory and Empirical Work". In: *The Journal of Finance* 25.2, pp. 383–417. DOI: 10.2307/2325486.