

The Fibonacci Ratios Carry No Privilege [F008]

Placing five Fibonacci ratios beside five fake ratios in the same band, the touch rates differ by **0.8870 points** and the bounce rates by **0.1292 points** — sorting all ten by distance from the middle interleaves the real and the fake, with a correlation of **-0.9083** — what decides is not the name of the ratio but where the level sits

Yuuki YAMAGISHI (山岸 勇輝) / Independent Researcher

ORCID 0009-0006-8587-3450

September 2026 / CC BY 4.0

Abstract

This paper asks whether the Fibonacci ratios are more special than other ratios — the answer is that they are not. It claims neither a new mathematical theorem nor a new law.

First, for the five Fibonacci ratios (0.236, 0.382, 0.500, 0.618, 0.786) and five fake ratios placed in the same band (0.150, 0.310, 0.440, 0.690, 0.860), **the median touch rates are 53.5887% and 52.7018%, a difference of 0.8870 points** (Section 3).

Second, and this is the core of the paper, sorting all ten ratios by **distance from the middle interleaves the real and the fake**. The correlation between distance and touch rate is **-0.9083**. **What decides is not the name of the ratio but where the level sits** (Section 4).

Third, the median bounce rate (the share retracing by half an ATR after a touch) is **81.1463%** for the real and **81.0171%** for the fake, a difference of **0.1292 points** (Section 3).

Fourth, the median directional information is **0.4755** for the real and **-0.4974 pips** for the fake, a difference of **0.9730 pips**. The daily t reaches 2 in absolute value in **2 of 20** real cells and **1 of 20** fake ones (chance gives about **0.9**) (Section 3).

Fifth,  the bounce rate of **81%** is not owed to the ratios. **The fake ratios also give 81%**. Retracing half an ATR after touching a level **happens often as ordinary price movement** (Section 3).

Sixth, the same measurement on synthetic random walks gives a touch rate for the real 0.618 of **54.5621% to 54.7001%**. **That all but overlaps the measured 53.8237% to 57.0917%** (Section 6).

Scope of this paper (scope note): No new mathematical theorem and no new law is claimed — levels split by a ratio, the true range and random walks are all known. **No particular product or proponent is discussed** — no real course, author, or vendor is the subject here, and none is named. What is treated is the public drawing method itself. **Trading is not discussed** — what is measured is touch rates, bounce rates and directional information, not trading performance including commissions, fills and money management. **The scope is intraday and a small number of instruments** — four series, six years, one-hour bars. This paper does not contradict results documented at longer holding periods, such as monthly time-series momentum. **One way of taking the high and the low is fixed** — the highest high and lowest low of the last n bars, which does **not reproduce the swing endpoints a person picks by eye**. That is the chief limitation of this paper (Section 8). **Extension ratios — those drawn beyond the move rather than back into it — are not treated. No forecast is claimed.** **Relation to earlier papers:** this series always reports, alongside a rate, what that rate would be by chance. F006 read a touch rate beside the position — this paper does the same with a different baseline, the fake ratios. Paper 423 showed that a wrong conclusion can come from correct parts. What is added here is **placing fake ratios in the same band, sorting all ten by position and reporting the correlation, and showing that the high bounce rate is not owed to the ratios.**

1. Notation and the question

A common practice draws levels between a recent high and low at these ratios.

Ratio	Usual name
0.236	23.6% retracement
0.382	38.2% retracement
0.500	half retracement
0.618	61.8% retracement
0.786	78.6% retracement

Observation 1.1: these ratios come from the ratios of successive terms in a certain sequence. **That the sequence appears in a market, however, has not been shown.**

Observation 1.2: ⚠ something must be watched here. **The observation "price stopped at this level" says nothing on its own.** Price stops somewhere, so drawing many levels guarantees that it stops at one of them.

Observation 1.3: the question settles by placing fake ratios alongside. Take ratios far enough from the Fibonacci ones, in the same band (not too near an edge), and make the same measurement. **If no difference appears, the ratios carry no privilege.**

Question: are the Fibonacci ratios more special than other ratios?

2. Writing the quantity and the design in advance

Design (declared before running and unchanged at run time)

Item	Decision
Level	the price splitting the highest high and lowest low of the last 48 bars at ratio r . Only highs and lows up to that bar are used
Real ratios	0.236, 0.382, 0.500, 0.618, 0.786
Fake ratios	0.150, 0.310, 0.440, 0.690, 0.860
Bars	one hour, mid price, completed bars only
Instruments	USDJPY, EURUSD, GBPUSD, XAUUSD
Period	2019–2024. Evaluation 2022–2024
Horizon	$h = 24$ (twenty-four hours)
Touch rate	the share touching the level within the next 24 bars
Bounce rate	the share retracing half an ATR in the opposite direction after a touch
Directional information	the price move in the bounce direction over 24 bars from the bar of the touch (pips)

Observation 2.1: ⚠️ **the directional signal is placed on the bar of the touch, not on the bar before it.** Conditioning on a touch and then measuring from before it puts "price moved toward the level" into the condition, so betting against that move loses by construction. **Measure from after the event used as the condition.**

Observation 2.2: ⚠️ the fake ratios are placed **far enough from the real ones and not too near an edge**. Near an edge, a separate effect — being hard to reach at all — enters.

The bar counts are **36,534** for USDJPY, **36,554** for EURUSD, **36,535** for GBPUSD and **34,892** for XAUUSD.

3. Placing the real ratios beside the fake — this is the separator

Calculation 3.1 The five Fibonacci ratios (evaluation period)

Instrument	Ratio	Valid	Touch rate	Bounce rate	D (pips)	Daily t
USDJPY	0.236	17,840	41.4406%	80.2786%	− 1.6122	0.40
USDJPY	0.382	17,840	47.2141%	78.9149%	1.2071	0.60
USDJPY	0.500	17,840	51.6424%	79.1924%	− 2.8926	− 2.50
USDJPY	0.618	17,840	54.2881%	81.0222%	− 0.5299	0.40
USDJPY	0.786	17,840	56.5135%	81.5513%	1.3984	0.59
EURUSD	0.236	17,866	53.8117%	80.8092%	0.8161	2.02
EURUSD	0.382	17,866	57.4163%	82.8524%	0.8744	0.52
EURUSD	0.500	17,866	57.5507%	82.0852%	1.3113	0.06
EURUSD	0.618	17,866	57.0917%	82.0098%	0.2896	− 0.39
EURUSD	0.786	17,866	49.6138%	79.3434%	0.9907	0.90
GBPUSD	0.236	17,849	53.3643%	82.5932%	− 0.6114	0.72
GBPUSD	0.382	17,849	57.1685%	79.8804%	1.0390	0.46
GBPUSD	0.500	17,849	57.8688%	81.6923%	0.8335	0.27
GBPUSD	0.618	17,849	56.8435%	81.8943%	1.1882	1.03
GBPUSD	0.786	17,849	51.3306%	81.2705%	0.4848	0.10
XAUUSD	0.236	17,470	50.2118%	81.8399%	− 4.5395	− 0.65
XAUUSD	0.382	17,470	53.1254%	78.7415%	0.4662	− 0.33

XAUUSD	0.500	17,470	53.3658%	79.4701%	− 5.1535	− 0.72
XAUUSD	0.618	17,470	53.8237%	80.5488%	− 11.2310	− 1.59
XAUUSD	0.786	17,470	52.9365%	81.7366%	− 7.0471	− 0.98

Calculation 3.2 The five fake ratios (same period, same procedure)

Instrument	Ratio	Valid	Touch rate	Bounce rate	D (pips)	Daily t
USDJPY	0.150	17,840	37.5056%	80.5111%	− 3.4858	0.71
USDJPY	0.310	17,840	44.1536%	78.7229%	− 2.1045	− 0.73
USDJPY	0.440	17,840	48.9013%	78.4846%	− 0.8732	− 1.09
USDJPY	0.690	17,840	55.2074%	81.6733%	− 1.5159	0.22
USDJPY	0.860	17,840	55.0000%	80.5544%	2.4762	1.26
EURUSD	0.150	17,866	49.1604%	80.1548%	0.9283	2.20
EURUSD	0.310	17,866	55.8659%	82.5569%	0.2428	0.39
EURUSD	0.440	17,866	57.7801%	82.6795%	− 0.1217	− 0.36
EURUSD	0.690	17,866	54.9815%	80.2199%	0.9362	0.08
EURUSD	0.860	17,866	45.5726%	78.7399%	− 1.3145	− 0.15
GBPUSD	0.150	17,849	50.6303%	80.9671%	− 0.0052	1.56
GBPUSD	0.310	17,849	55.4429%	82.0432%	2.4804	0.45
GBPUSD	0.440	17,849	58.3506%	82.7172%	2.1408	0.82
GBPUSD	0.690	17,849	54.7706%	81.6080%	1.3147	0.86
GBPUSD	0.860	17,849	47.6721%	81.0671%	0.0307	1.24
XAUUSD	0.150	17,470	46.7945%	82.2997%	− 3.0445	1.48
XAUUSD	0.310	17,470	52.3469%	80.6998%	− 3.7227	− 0.78
XAUUSD	0.440	17,470	53.0567%	79.8468%	− 7.3910	− 1.67
XAUUSD	0.690	17,470	53.6062%	81.2707%	− 4.2224	− 1.08

XAUUSD	0.860	17,470	50.9502%	81.1145%	− 3.8489	− 0.51
--------	-------	--------	----------	----------	----------	--------

Observation 3.3: the median touch rates are 53.5887% for the real and 52.7018% for the fake, a difference of 0.8870 points.

Observation 3.4: the median bounce rates are 81.1463% and 81.0171%, a difference of 0.1292 points.

Observation 3.5: ⚠ note the bounce rate of 81%. It invites the reading "it bounces eight times in ten". But the fake ratios also give 81%. Retracing half an ATR after touching a level happens often as ordinary price movement. It is not owed to the ratios.

Observation 3.6: the median directional information is 0.4755 for the real and −0.4974 pips for the fake, a difference of 0.9730 pips. The daily t reaches 2 in absolute value in 2 of 20 real cells and 1 of 20 fake ones. Chance gives about 0.9, so neither can be told apart from chance.

Observation 3.7: ⚠ XAUUSD's 0.618 looks large at −11.2310 pips, but its t is −1.59. The same instrument's fake 0.440 gives −7.3910 with t −1.67 — a larger t for the fake. The size comes from the size of gold's moves.

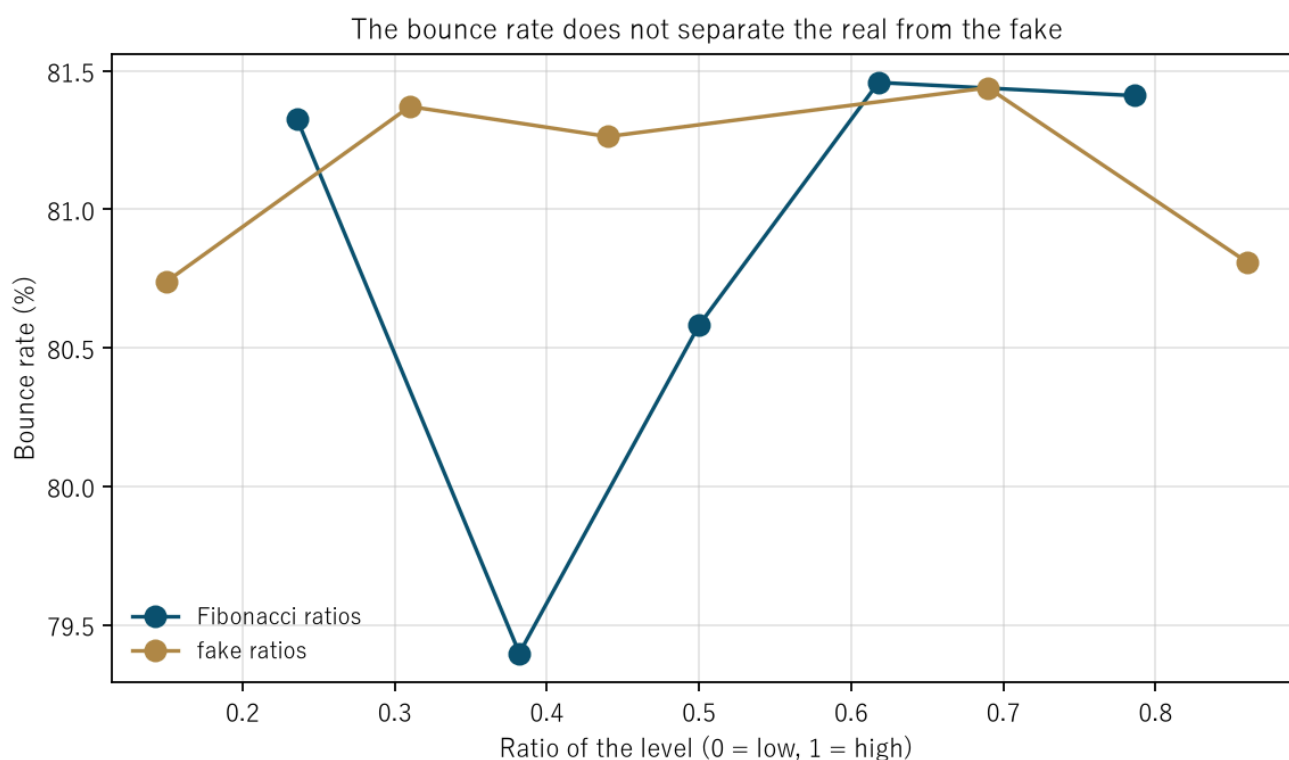


Figure 2: bounce rate by ratio (median of four series). **The real and fake points sit at the same height.**

4. Sorting all ten ratios by position

Calculation 4.1 Sorted by distance from the middle (0.5); touch rate is the median of four series

Ratio	Kind	Distance from middle	Median touch rate
0.150	fake	0.350	47.9775%
0.236	real	0.264	51.7881%
0.310	fake	0.190	53.8949%
0.382	real	0.118	55.1469%
0.440	fake	0.060	55.4184%
0.500	real	0.000	55.4582%
0.618	real	0.118	55.5658%
0.690	fake	0.190	54.8761%
0.786	real	0.286	52.1335%
0.860	fake	0.360	49.3112%

Observation 4.2: the real and the fake alternate almost exactly. They do not separate by kind; they order by distance.

Observation 4.3: the correlation between distance from the middle and touch rate is **−0.9083**. **What sets the touch rate is not the name of the ratio but where the level is.**

Observation 4.4: ⚠️ this is unremarkable in itself. A level nearer the middle is more easily reached.

What this paper shows is that **the Fibonacci ratios do not depart from that unremarkable fact.**

Observation 4.5: anything that did depart would stand off this ordering. **None of the ten stands off.**

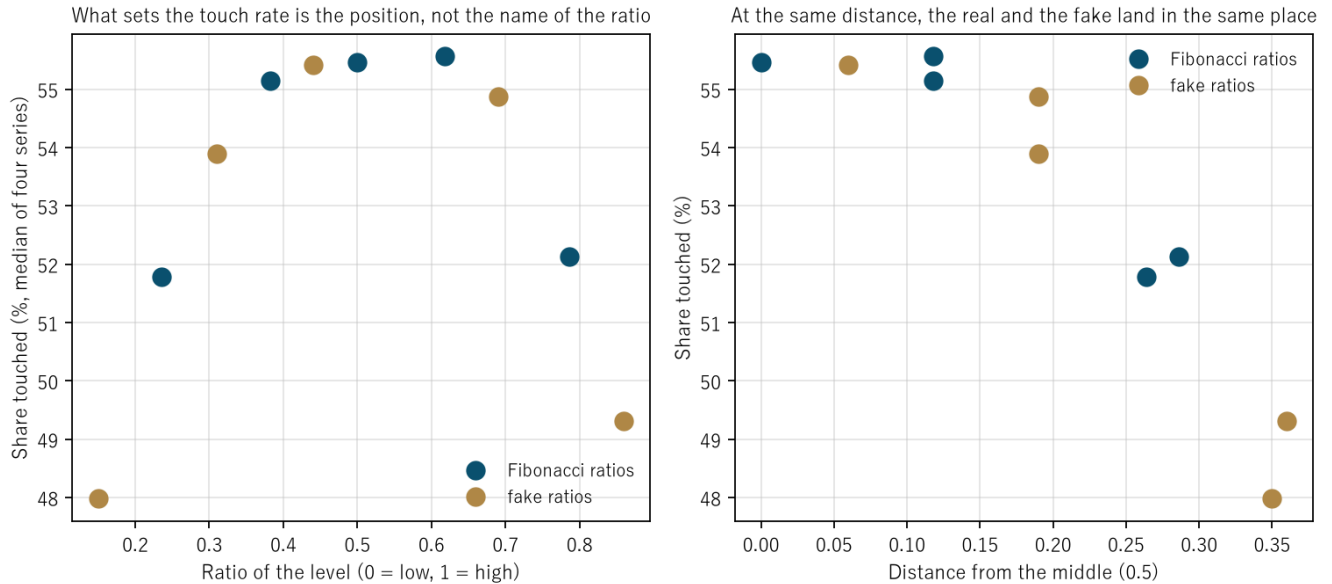


Figure 1: on the left, ratio against touch rate; on the right, distance from the middle against touch rate.

On the right the real (dark) and fake (light) points fall on the same curve.

5. Changing the window

Calculation 5.1 Changing how many bars the high and low come from (evaluation period, 0.618 against 0.690)

Instrument	n=24 real 0.618	n=24 fake 0.690	n=48 real 0.618	n=48 fake 0.690	n=96
USDJPY	65.5325%	65.9249%	54.2881%	55.2074%	
EURUSD	66.0416%	64.6479%	57.0917%	54.9815%	
GBPUSD	66.8049%	65.7628%	56.8435%	54.7706%	
XAUUSD	66.6400%	65.8042%	53.8237%	53.6062%	



Observation 5.2: widening the window from 24 to 96 lowers the touch rate from **65.5325%** to **41.2052%** for USDJPY. **A wider window puts the level further away and makes it harder to reach.**

Observation 5.3: ⚠️ **in no window does the ordering of real against fake hold.** USDJPY has the fake higher at all three windows; EURUSD and GBPUSD have the real higher at all three. **The sign is set by the instrument, not by the kind of ratio.**

6. The baseline — a random walk has no ratios and no levels

Calculation 6.1 Synthetic series whose within-bar movement is also random (10 realisations, evaluation period)

Instrument	Measured real 0.618	Measured fake 0.690	Random real 0.618	Random fake
USDJPY	54.2881%	55.2074%	54.7001%	54.
EURUSD	57.0917%	54.9815%	54.6933%	54.
GBPUSD	56.8435%	54.7706%	54.6977%	54.
XAUUSD	53.8237%	53.6062%	54.5621%	54.

Observation 6.2: the random-walk touch rates fall between 54.1172% and 54.7001%. The measured ones run from 53.6062% to 57.0917%. They all but overlap.

Observation 6.3: ⚠ a synthetic random walk has no Fibonacci sequence, no pullbacks and no support. The same rates appear anyway. The touch rate therefore says nothing about the market.

Observation 6.4: ⚠ even on the random walk the real 0.618 comes out slightly above the fake 0.690 (54.7001% against 54.1172%, and so in all four series). That is because 0.618 is nearer the middle (distance 0.118 against 0.190). It agrees with the conclusion of Section 4.

7. Splitting by session

Design: five non-overlapping bins in Coordinated Universal Time. The signal is the bounce at the real 0.618.

Calculation 7.1 Directional information in each of the five bins (evaluation period)

Instrument	Tokyo 0–7	London 7–12	Overlap 12–16	NY late 16–21	Night 21–24
USDJPY	1.17 (t – 0.17)	– 5.40 (t – 0.56)	– 4.25 (t – 0.74)	4.29 (t 1.22)	8.14 (t 0.78)
EURUSD	2.18 (t 0.13)	– 1.21 (t – 0.03)	0.55 (t – 0.50)	– 1.05 (t – 0.11)	4.13 (t 0.51)
GBPUSD	– 0.04 (t 1.47)	0.63 (t 0.65)	0.54 (t – 0.18)	3.66 (t 0.77)	2.93 (t 0.87)
XAUUSD	– 10.90 (t – 1.39)	– 16.83 (t – 1.45)	– 4.00 (t 0.37)	– 12.18 (t – 0.92)	– 29.14 (t – 1.79)

Observation 7.2: the daily t reaches 2 in absolute value in **0 of the 20** cells. By chance about **0.9** would be expected, so the measured figure is below it.

Observation 7.3: ⚠ XAUUSD is negative in all five bins, yet no t exceeds **–1.79**. **Signs agreeing and being distinguishable from noise are two different things.**

8. Limitations

1. ★ **One way of taking the high and the low is fixed.** Levels are drawn from the highest high and lowest low of the last n bars, which **does not reproduce the "swing endpoints" a person picks by eye.** In practice a person decides which swing to take. **What this paper denies is the claim that the ratios themselves carry a privilege, not a practice that includes choosing the swing. This is the chief limitation.**
2. **Extension ratios — those drawn beyond the move rather than back into it — are not treated.** Only retracements.

3. **The fake ratios are placed one way.** Another choice would give slightly different figures. The ordering of Section 4, however, is set by distance rather than by the choice.
 4. **The bounce is judged at half an ATR.** Another width changes the bounce rate. ⚠ The same width is used for real and fake, so the comparison stands.
 5. **Only one lattice is used.** Bars are fixed at one hour.
 6. **The synthetic baseline uses independent normal increments.** Volatility clustering is not included.
 7. **Four instruments over six years.** Nothing is said about other markets or other periods.
-

Conclusion

Drawing levels at the five Fibonacci ratios, price touches them **53.5887%** of the time and, having touched, retraces **81.1463%** of the time. **Numbers that read as "it bounces eight times in ten".**

But the five fake ratios placed in the same band gave a touch rate of **52.7018%** and a bounce rate of **81.0171%**. **The differences are 0.8870 points and 0.1292 points.**

And sorting all ten by distance from the middle **interleaves the real and the fake, with a correlation of -0.9083.** A synthetic random walk gives the same rates.

One thing separates the cases — where the level sits. Not what it is called.

And what this paper could measure is the case where the recent high and low are taken mechanically.

About a practice in which a person chooses which swing to use, nothing is answered here.

Data and reproduction

Data	Currency ticks from Dukascopy (agreement to the millisecond, bid and ask, verified from 2019 onward). Gold from Dukascopy
Period	2019–2024 (six years). Evaluation 2022–2024
Instruments	USDJPY, EURUSD, GBPUSD, XAUUSD
Bars	One hour, mid price, closing value of completed bars only. Bars with no ticks are not created
Verification	<code>検算/F008.py</code> (with <code>--zu</code> it also writes the figures). Every number in the text is taken from <code>検算/F008_output.txt</code>
Figures	<code>図/F008_zu1</code> , <code>図/F008_zu2</code> (png, svg, English versions)
Random seeds	Fixed at 0–9. Re-running gives the same values
Audit of the foundation	<code>_ツール/audit_bars.py</code> (look-ahead in the bars, daylight saving, the day boundary). The record is <code>_土台の検査.txt</code>

References

- Yamagishi, Y. (2026). Inside One Phenomenon Live a Number That Moves with the Lattice and a Number That Does Not [Paper 264]. Zenodo. 10.5281/zenodo.22169720
- Yamagishi, Y. (2026). The Table Is Right and the Trade Still Loses [Paper 423]. Zenodo. 10.5281/zenodo.22700114
- Yamagishi, Y. (2026). The Period a Moving-Average Crossover Finds Is Made by the Ratio of the Two Periods [F001]. Zenodo. 10.5281/zenodo.22880428
- Yamagishi, Y. (2026). The Ichimoku Cloud Is a Past Drawn Twenty-Six Bars Ahead [F002]. Zenodo. 10.5281/zenodo.22880552

- Yamagishi, Y. (2026). The Multiplier of a Bollinger Band Changes How Often Price Leaves It, Not Which Way Price Goes [F003]. Zenodo. 10.5281/zenodo.22881085
- Yamagishi, Y. (2026). The "Overbought 70" of RSI Belongs to the Bar Size You Chose [F004]. Zenodo. 10.5281/zenodo.22881156
- Yamagishi, Y. (2026). The Zero Cross of MACD Is the Same Thing as a Moving-Average Cross [F005]. Zenodo. 10.5281/zenodo.22881227
- Yamagishi, Y. (2026). The %K of Stochastics Is the Position in the Range Itself [F006]. Zenodo. 10.5281/zenodo.22881505
- Yamagishi, Y. (2026). ADX Carries No Direction, So It Cannot Tell You Which Way [F007]. Zenodo. 10.5281/zenodo.22881623