

S&P 500 Exceeds 6 Standard Deviations Above Its Non-Linear Regression Normalized Return

©Dan Salamie Feb. 2025 All Rights Reserved

After the retrenchment of the Covid-19 stimulus strategy, the rapid growth in the S&P 500 Index (the Index) has resulted in the current closing range exceeding 6 Standard Deviations¹ above its Non-Linear Regression Normalized Return (NLNR). On the Charts, the NLNR is in green, the 5-6 STD Above the NLNR is in purple, and 5-6 STD Below the NLNR is in black. The pink line is the NLNR Forecast. This Forecast extends the NLNR calculation into the future so as to make the Magnificent 7 Bubble easier to see. This article demonstrates that most recently, reaching 6 STD has resulted in retrenchment (or market correction if you prefer) back to the NLNR Line.

For the four charts presented herein, the ending trough date of the NLNR calculation is identified in the Legend of the Chart. Although the NLNR calculation ends on the specified trough date, the results are allowed to continue through the 2/12/2025 final date. The data set starts on 1/3/1950. By retaining the entire data set on each Chart, all Bubble markers retain continuity for this presentation. Bubble marker history starts with Black Monday (the moniker “Bubble” was not in use then). Selecting the trough date as the last date of the NLNR calculation helps emphasize two important points: A. Three Bubble events retrench to the NLNR Line; and, B. The use of the NLNR is very stable from the peak to the trough so it is not necessary to recalculate and present a peak chart and a trough chart.

The four Charts are as follows:

1. The Chart NLNR calculation ending date 10/14/1987 shows that the Black Monday “Bubble” exceeding 5 STD just before the retrenching to the NLNR Line on that date.
2. The Chart NLNR calculation ending date 10/9/2002 shows that the Dot Com Bubble strikes 5 STD just before retrenching to the NLNR Line on that date.
3. The Chart NLNR calculation ending on 7/14/2022 shows that the Covid Over-Stimulus Bubble exceeding 6 STD just before retrenching to the NLNR.
4. The current Chart NLNR calculation ending on 2/12/2025 shows that the Magnificent 7 Bubble has exceeded 6 STD.

Based upon the demonstration of the past three high STD events, the current 6 STD event could result in a retrenchment of the S&P 500 back to the NLNR Line. But as we all know, history is no guarantee of future results. On the other hand, past data is all we have to perform Non-Linear Regressions.

It is important to note that these results do not use any sampled data (such as weekly, monthly, quarterly, etc.). The data represents the “population” of the Index (as opposed to a sample). Therefore, this is not a statistical study.² The reported facts herein can simply stand on their own as experiential observations. Daily closes used to calculate the Non-Linear Regression include the March 4, 1957, inception of the Index, up to February 12, 2025³.

After the Black Monday event, the NLNR calculated Annual Percentage Return (APR) for the S&P 500 has been consistently around 7%. See the included Summary Table for additional performance information.

¹ Plus, or minus 6 STD is widely regarded as a sufficiently large range that 100.000000% of all subsequent observed values will fall within the +/- range limit. It is such a high level of accuracy that many Z tables do not include values for 6 STD.

² A statistical study is implied when taking a random sample of transactions within an account to determine the sample average value of transaction within the account. A confidence interval is used to determine if the average is acceptable to rely upon the accounts value as a fair representation of the account’s value.

³ The author has been in the habit of making this calculation since at least 2005 when Yahoo Finance had downloadable history files. The S&P 500 Index included computed back dated values to January 3, 1950. The author has been adding to the original data base to keep it up to date. Due to changes in Yahoo Finance’s website, the large range of data has been unavailable since April 2008. More recent update data has been coming from the Nasdaq website.

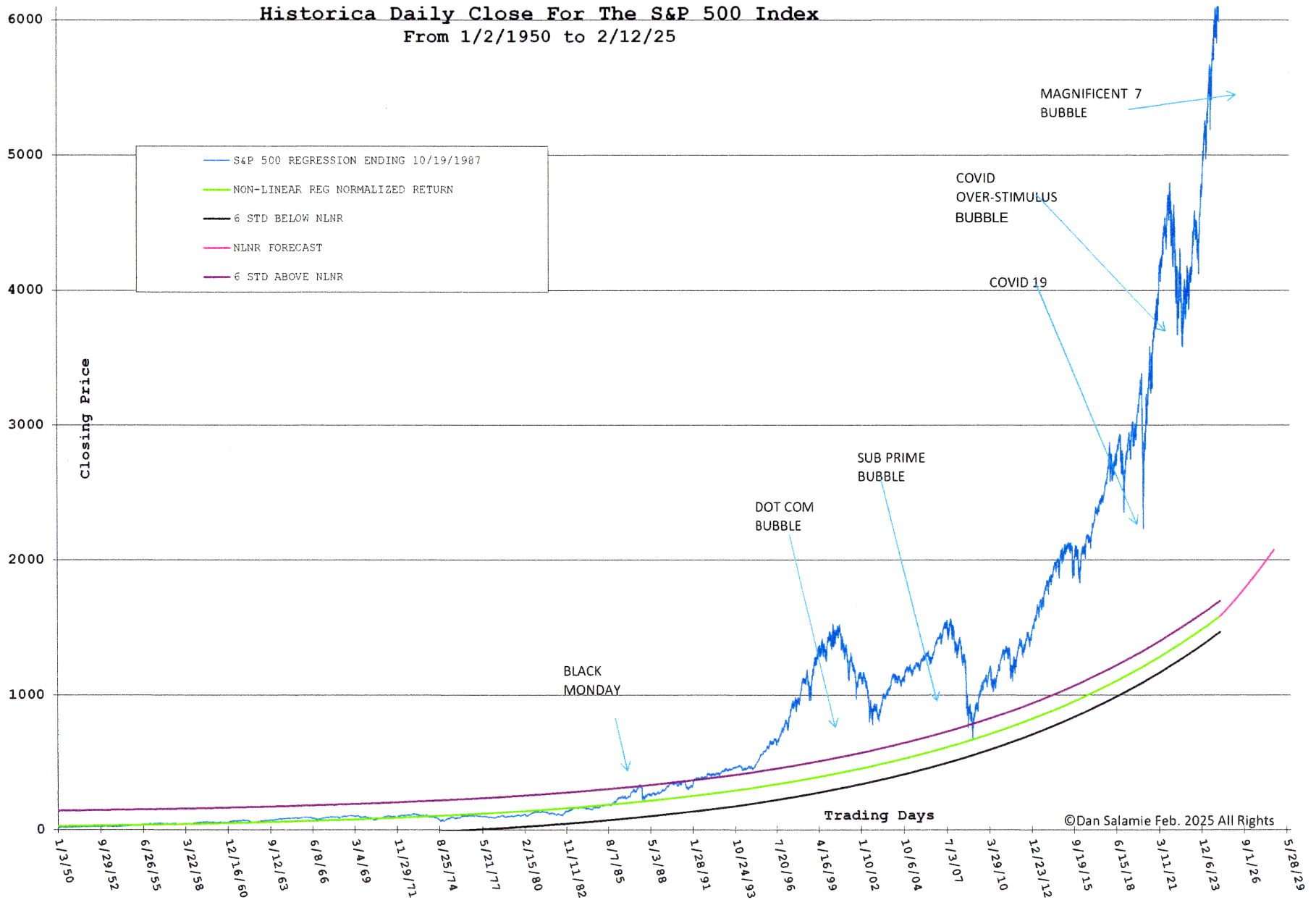
SUMMARY TABLE

TROUGH DATE	BUBBLE MONIKER	APR	STD	STD MULTIPLE (z x STD)	LOSS FROM PEAK
10/19/1987	BLACK MONDAY	5.5%	23	5	-31%
10/09/2002	DOT COM	7.3%	162	5	-48%
07/14/2022	COVID OVER-STIMULUS	7.2%	238	6	-21%
02/12/2025	MAGNIFICENT 7	7.3%	292	6*	NA

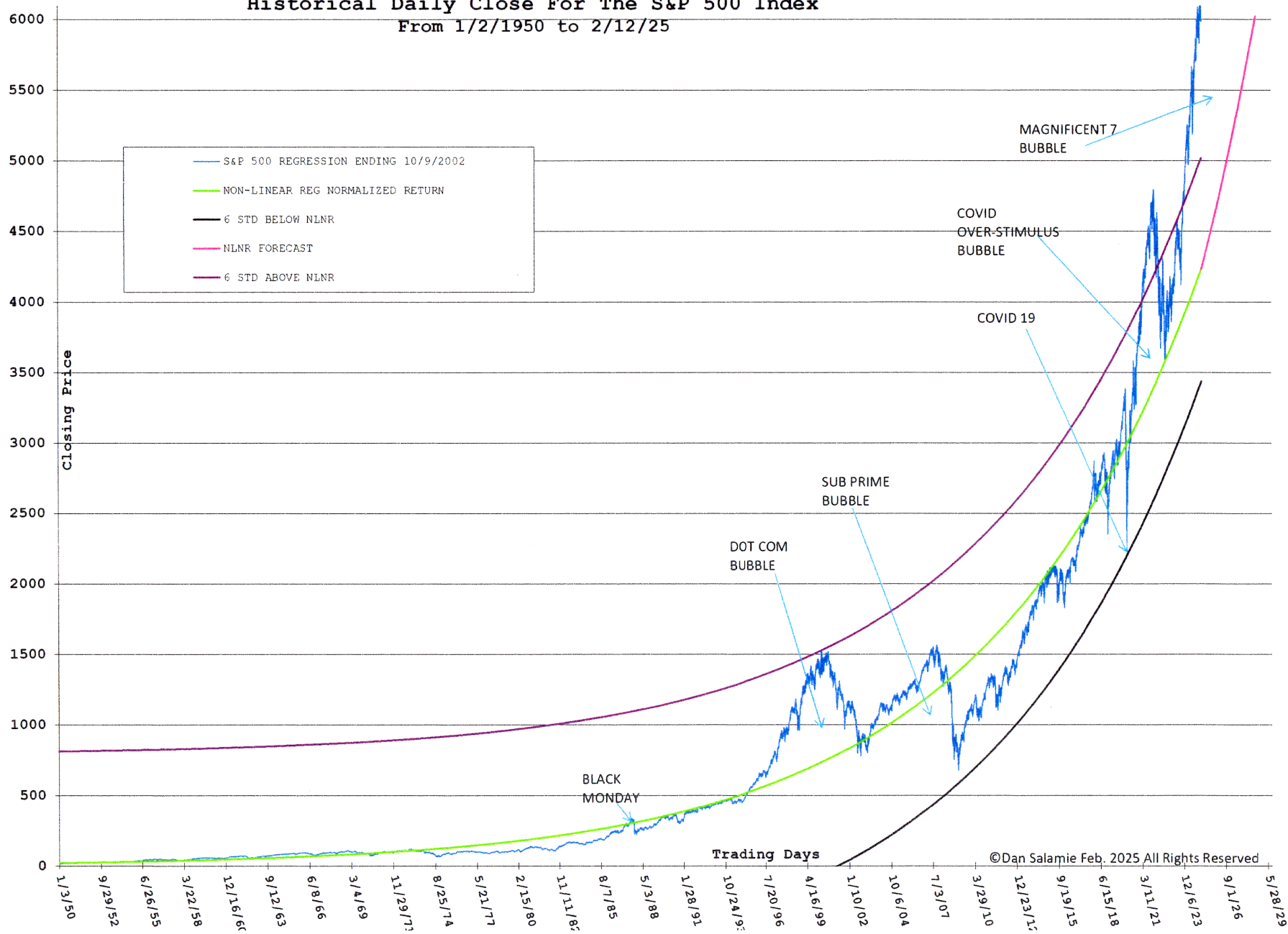
* As of 2/12/2025

©Dan Salamie Feb. 2025 All Rights Reserved

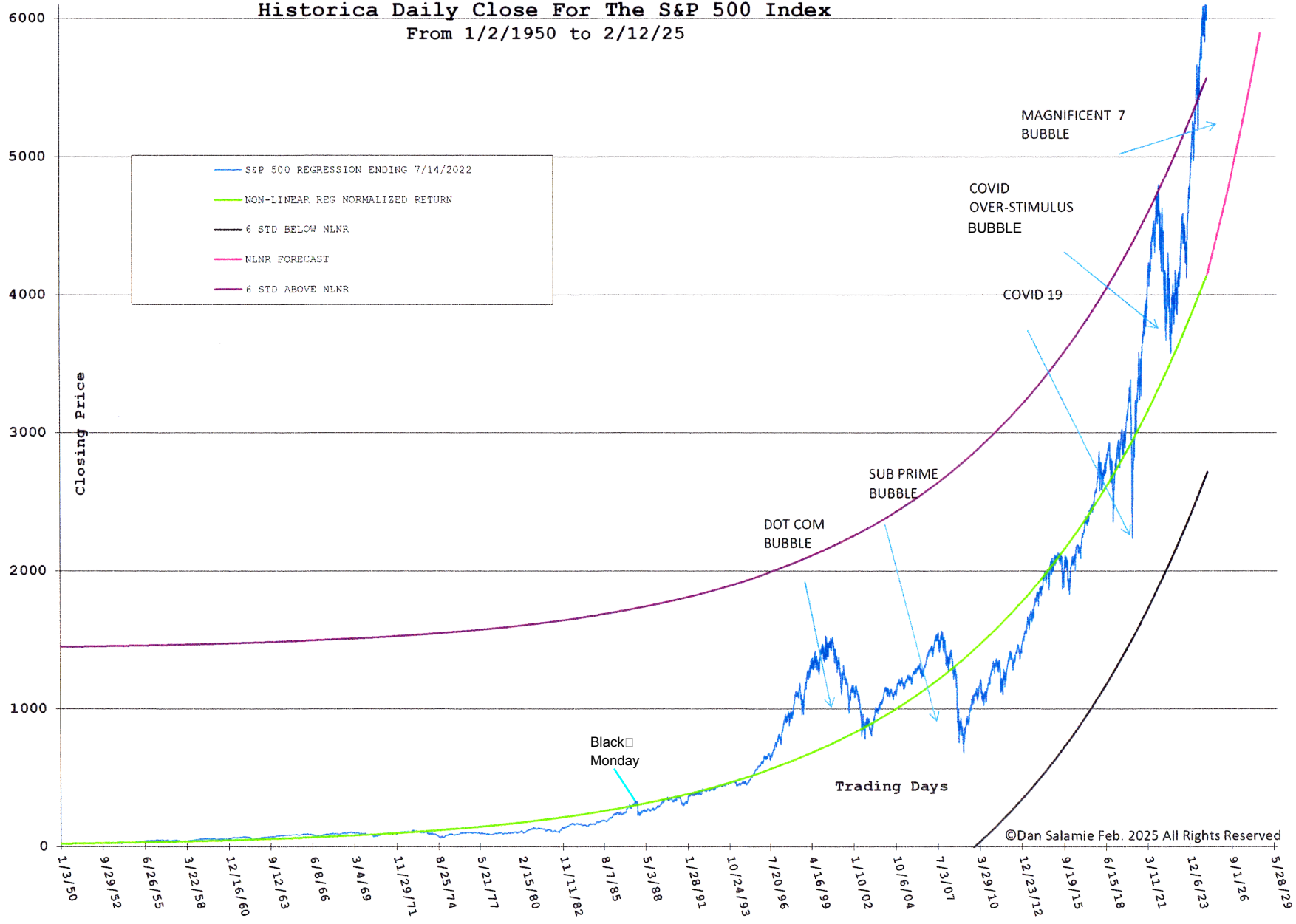
Historical Daily Close For The S&P 500 Index From 1/2/1950 to 2/12/25



Historical Daily Close For The S&P 500 Index From 1/2/1950 to 2/12/25



Historical Daily Close For The S&P 500 Index From 1/2/1950 to 2/12/25



©Dan Salamie Feb. 2025 All Rights Reserved

Historical Daily Close For The S&P 500 Index From 1/2/1950 to 2/12/25

