



Hyperinflation -- A Kaleidoscope Of Uses And Abuses

Steve Hanke

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The word “hyperinflation” is sprinkled throughout the press each day. We read that Iran is hyperinflating. The same is written about Zimbabwe and Venezuela, as well as a potpourri of other countries that are experiencing inflation flare ups. While Iran came close to a hyperinflation in the fall of 2012, it has never experienced an episode of hyperinflation. And, while Zimbabwe experienced hyperinflation episodes in 2007-2008 and 2017, it is not hyperinflating now. At present, Venezuela is the only country experiencing a hyperinflation. It’s clear that journalists and those they interview tend to play fast and loose with the word “hyperinflation.”

To clean up the hyperinflation landscape, we must heed the words of the great Eugen von Böhm-Bawerk, one of the founders of the Austrian School of Economics, who, in 1891, wrote “...We too must bring into our science a strict order and discipline, which we are still far from having...by a disorderly and ambiguous terminology we are led into the most palpable mistakes and misunderstandings – all these failings are of so frequent occurrence in our science that they almost seem to be characteristic of its style.”

Yes. Nothing cleans up ambiguity and disorder better than clear definitions. So, just what is the definition of the oft-misused word “hyperinflation?” The convention adopted in the scientific literature is to classify an inflation as a hyperinflation if the monthly inflation rate exceeds 50%. This definition was adopted in 1956, after Phillip Cagan published his seminal analysis of hyperinflation, which appeared in a book edited by Milton Friedman, *Studies in the Quantity Theory of Money*.

Since I use high-frequency data to measure inflation in countries where inflation is elevated, I have been able to refine Cagan’s 50% per month hyperinflation hurdle. With improved measurement techniques, I now define a hyperinflation as an inflation in which the inflation rate exceeds 50% per month for at least thirty consecutive days.

After years of research with the help of many assistants, I have documented, with primary data, 58 episodes of hyperinflation. Those episodes are listed in the “Hanke-Krus World Hyperinflation Table” (2013, Amended 2017) below.

Hungary holds down the top spot. Its peak hyperinflation occurred in July 1946, when prices were doubling every 15 hours. Zimbabwe's November 2008 hyperinflation peak is second highest, but way behind Hungary's. Indeed, at their peaks, the daily inflation rates were 207% in Hungary and 98% in Zimbabwe. The most memorable hyperinflation was Germany's. But, it only ranks as the fifth highest, with a peak daily rate of inflation of 20.9%—way lower than the top four rates.

Now, let's turn to the world's only current hyperinflation: Venezuela. It ranks as the 23rd most severe. Today, the annual rate of inflation is 120,810%/yr. While this rate is modest by hyperinflation standards,

The Hanke-Krus World Hyperinflation Table
(2013, Amended 10/2017)

Location	Month with Highest Inflation Rate	Highest Monthly Inflation Rate	Time Required for Prices to Double
Hungary	Jul. 1946	4.19 x 10 ¹⁶ %	15.0 hours
Zimbabwe	Mid-Nov. 2008	7.96 x 10 ¹⁶ %	24.7 hours
Yugoslavia	Jan. 1994	313000000%	1.41 days
Republika Srpska	Jan. 1994	297000000%	1.41 days
Germany	Oct. 1923	29500%	3.70 days
Greece	Oct. 1944	13800%	4.27 days
China	Apr. 1949	5070%	5.34 days
Free City of Danzig	Sep-23	2440%	6.52 days
Armenia	Nov. 1993	438%	12.5 days
Turkmenistan	Nov. 1993	429%	12.7 days
Taiwan	Aug. 1945	399%	13.1 days
Peru	Aug. 1990	397%	13.1 days
Bosnia and Herzegovina	Jun. 1992	322%	14.6 days
France	Mid-Aug 1796	304%	15.1 days
China	Jun. 1945	302%	15.2 days
Ukraine	Jan. 1992	285%	15.6 days
Poland	Oct. 1923	275%	16.0 days
Nicaragua	Mar. 1991	261%	16.4 days
Congo (Zaire)	Nov. 1993	250%	16.8 days
Russia	Jan. 1992	245%	17.0 days
Bulgaria	Feb. 1997	242%	17.1 days
Moldova	Jan. 1992	240%	17.2 days
Venezuela	Nov. 2016	219%	17.9 days
Russia / USSR	Feb. 1924	212%	18.5 days
Georgia	Sep. 1994	211%	18.6 days
Tajikistan	Jan. 1992	201%	19.1 days
Georgia	Mar. 1992	198%	19.3 days
Argentina	Jul. 1989	197%	19.4 days
Zimbabwe	Oct. 2017	185%	20.1 days
Bolivia	Feb. 1985	183%	20.3 days
Belarus	Jan. 1992	159%	22.2 days
Kyrgyzstan	Jan. 1992	157%	22.3 days
Kazakhstan	Jan. 1992	141%	24.0 days
Austria	Aug. 1922	129%	25.5 days
Bulgaria	Feb. 1991	123%	26.3 days
Uzbekistan	Jan. 1992	118%	27.0 days
Azerbaijan	Jan. 1992	118%	27.0 days
Congo (Zaire)	Nov. 1991	114%	27.7 days
Peru	Sep. 1988	114%	27.7 days
Taiwan	Oct. 1948	108%	28.9 days
Hungary	Jul. 1923	97.90%	30.9 days
Chile	Oct. 1973	87.60%	33.5 days
Estonia	Jan. 1992	87.20%	33.6 days
Angola	May-96	84.10%	34.5 days
Brazil	Mar. 1990	82.40%	35.1 days
Democratic Republic of Congo	Aug. 1998	78.50%	36.4 days
Poland	Jan. 1990	77.30%	36.8 days
Armenia	Jan. 1992	73.10%	38.4 days
Tajikistan	Nov. 1995	65.20%	42.0 days
Latvia	Jan. 1992	64.40%	42.4 days
Turkmenistan	Jan. 1996	62.50%	43.4 days
Philippines	Jan. 1944	60.00%	44.9 days
Yugoslavia	Dec. 1989	59.70%	45.1 days
Germany	Jan. 1920	56.90%	46.8 days
Kazakhstan	Nov. 1993	55.50%	47.8 days
Lithuania	Jan. 1992	54.00%	48.8 days
Belarus	Aug. 1994	53.40%	49.3 days
Taiwan	Feb. 1947	50.80%	51.4 days

the duration of Venezuela's hyperinflation episode, as of today, is long: 27 months. Only four episodes of hyperinflation have been more long-lived.

So, how do we accurately measure hyperinflations? Well, let's take a look at Venezuela's case. There is only one reliable way to measure. The most important price in an economy is the exchange rate between the local currency—in this case, the bolivar—and the world's reserve currency, the U.S. dollar. As long as there is an active black market (read: free market) for currency and the data are available, changes in the black-market exchange rate can be reliably transformed into accurate measurements of countrywide inflation rates. The economic principle of purchasing power parity (PPP) allows for this transformation. And, the application of PPP to measure elevated inflation rates is rather simple.

Evidence from Germany's 1920–1923 hyperinflation episode—as reported by Jacob Frenkel in the July 1976 issue of the *Scandinavian Journal of Economics*—confirms the accuracy of PPP during hyperinflations. Frenkel plotted the Deutschmark/U.S. dollar exchange rate against both the German wholesale price index and the consumer price index (CPI). The correlations between Germany's exchange rate and the two price indices were very close to unity throughout the period, with the correlations moving to unity as the inflation rate increased.

Beyond the theory of PPP, the intuition of why PPP represents the 'gold standard' for measuring inflation during hyperinflation episodes is clear. All items in an economy that is hyperinflating are either priced in a stable foreign currency (the U.S. dollar) or a local currency (the bolivar). If goods are priced in terms of bolivars, those prices are determined by referring to the dollar prices of goods, and then converting them to local bolivar prices after checking with the spot black-market exchange rate. Indeed, when the price level is increasing rapidly and erratically on a day-by-day, hour-by-hour, or even minute by-minute basis, exchange rate quotations are the only source of information on how fast inflation is actually proceeding. That is why PPP holds, and why we can use high-frequency (daily) data to calculate Venezuela's inflation rate, even during episodes of hyperinflation.

Even though we can measure hyperinflation very accurately using PPP, no one has ever been able to forecast the magnitude or direction of hyperinflations. But, that hasn't stopped the International Monetary Fund (IMF) from producing forecasts for hyperinflation in Venezuela. Even though the IMF does not measure Venezuela's hyperinflation, something that can be reliably done, the IMF does forecast hyperinflation, something that cannot be reliably done. Indeed, forecasts for hyperinflation can't be found in the scientific literature.

That impossibility hasn't stopped the IMF from throwing economic science to the winds. Yes, the IMF has regularly been reporting what are, in fact, absurd inflation forecasts for Venezuela. These forecasts have been issued under the watchful eye of Alejandro Werner, the head of the IMF's Western Hemisphere Department. The chart below presents the IMF's finger-in-the-wind forecasts (read: nonsensical folly).

The IMF's 2018 Year-End Inflation Projections for Venezuela

Date of Projection	IMF Inflation Projection ¹
October, 2018	2,500,000%
July, 2018 ²	1,000,000%
April, 2018	12,874.6%
October, 2017	2,529.6%
April, 2017	2,529.6%

¹ These are the International Monetary Fund's year-end inflation projections for 2018 found in the biannual World Economic Outlook reports for 2017 and 2018.

² On July 23, 2018, in the IMF Blog, "Outlook for the Americas: A Tougher Recovery," Alejandro Werner, Director of the Western Hemisphere Department of the IMF, revised Venezuela's projection.

Surprisingly, the press dutifully reported the IMF's forecasts that Venezuela's annual inflation rate would hit a whopping 2,500,000% by the end of 2018. In some cases, this figure was reported as a forecast, which it was. By some, it was even reported as an actual measurement, which it was not. In any case, the IMF's 'guestimation' was a bit off. I measured Venezuela's annual inflation rate on December 31, 2018, and it was 80,000%/yr. When it comes to hyperinflation and its abuses, there is no one more guilty of malfeasance than the IMF. It repeatedly produces what no one can produce: reliable forecasts of hyperinflation.

Steve H. Hanke is a Professor of Applied Economics and Co-Director of the Institute for Applied Economics, Global Health, and the Study of Business Enterprise at The Johns Hopkins University in Baltimore. He is a Senior Fellow and Director of the Troubled Currencies Project at the Cato Institute in Washington, D.C., a Senior Advisor at the Renmin University of China's International Monetary Research Institute in Beijing, a Special Counselor to the Center for Financial Stability in New York, a contributing editor at Central Banking in London, and a contributor at Forbes.