

A Different Kind Of Risk Assessment

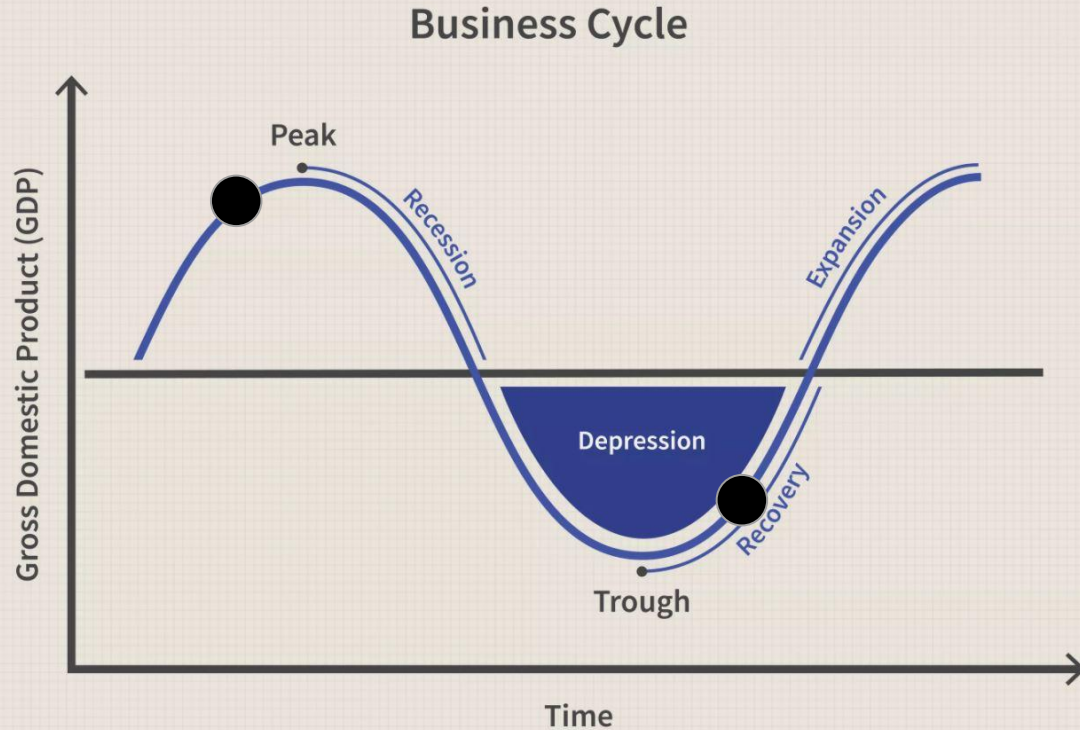
By: Nathan Seither



Risk is a matter of measurement.

1. If I stop to get fuel, will I make it to work on time?
2. If I ask, will this person want to go out with me?
3. If I save 10% of my money, will I have enough to retire when I am 65?
4. Will my business survive in the next 5-10 years?
 1. 35%
 2. 50%
 3. 85%
 4. 50-75%

The Business Cycle



The Problem Statement

How can data help entrepreneurs assess their risk of failure?

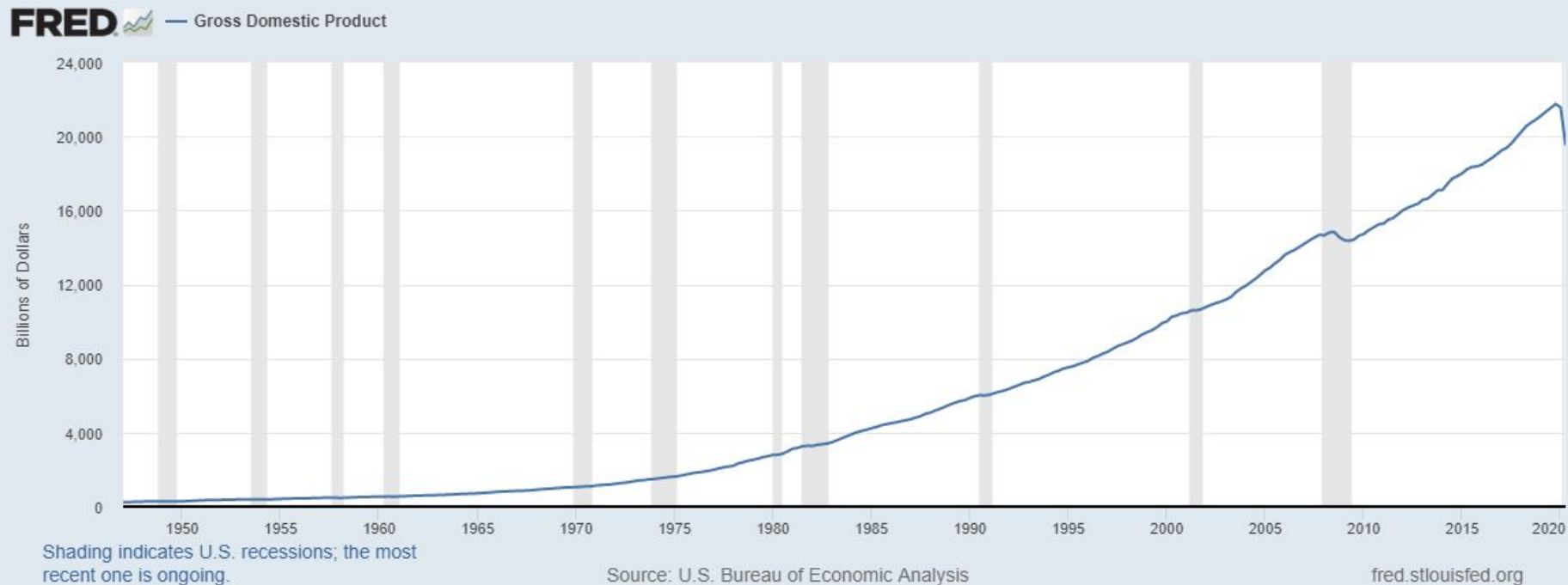
Lagging signals.

Example: Seeing the drop in sales, BOH

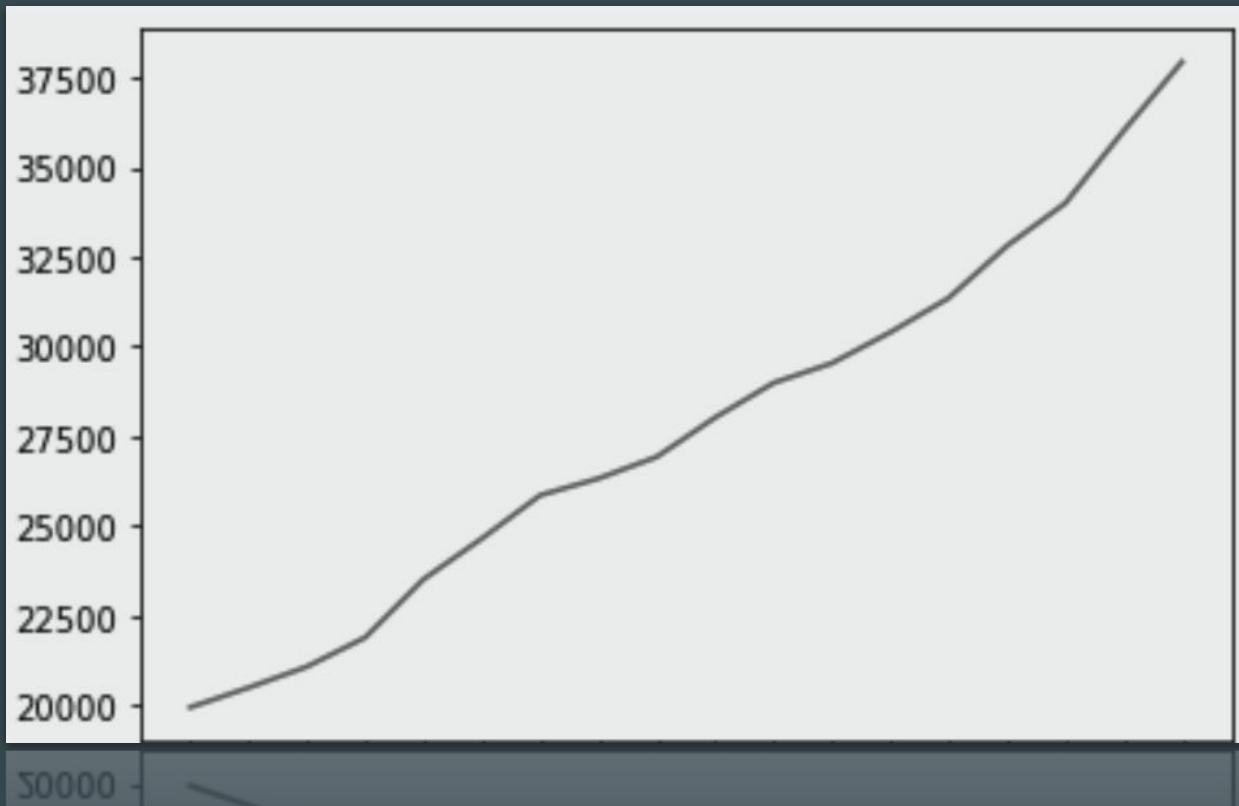
Leading signals.

Example: Customer reviews. FOH

US GDP

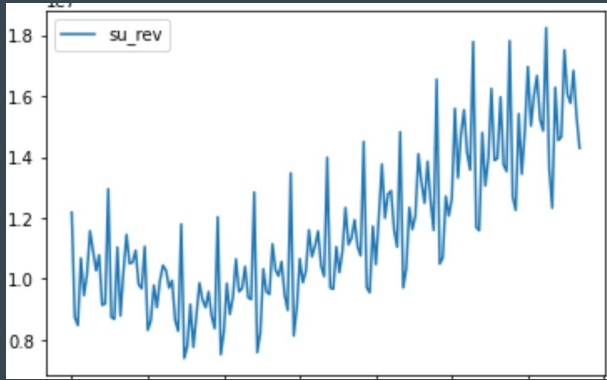


Colorado GDP

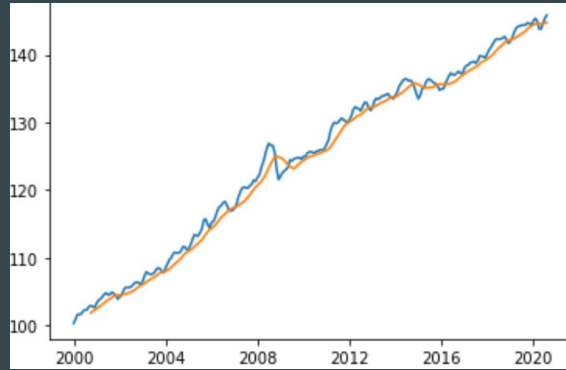


Colorado Springs

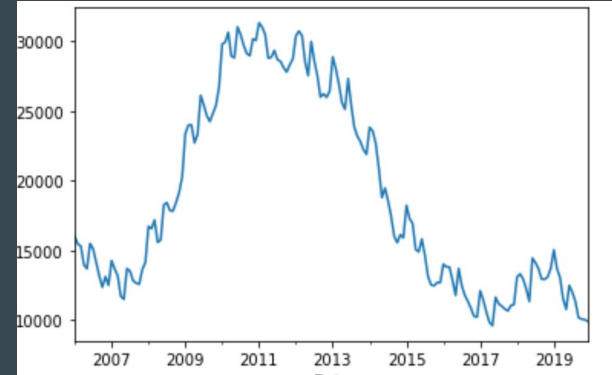
Sales and Use Tax



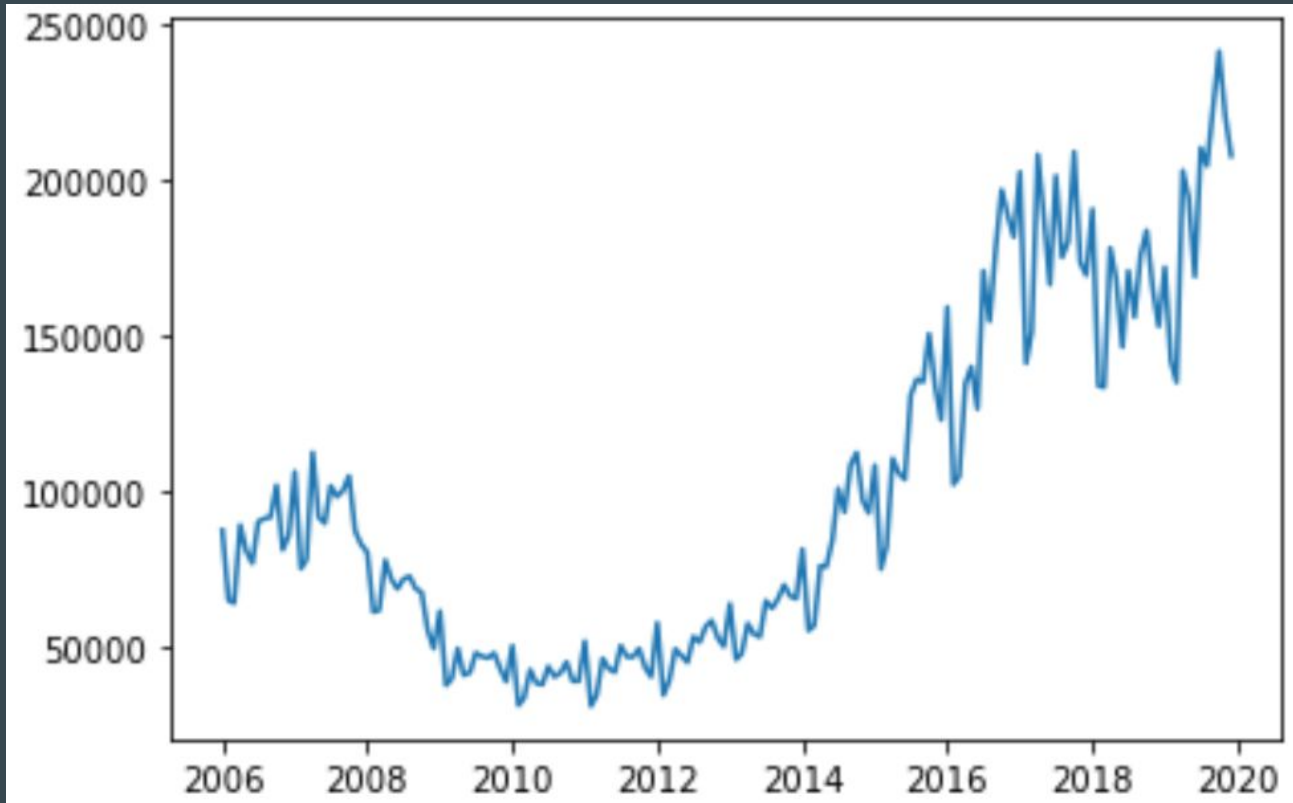
CPI



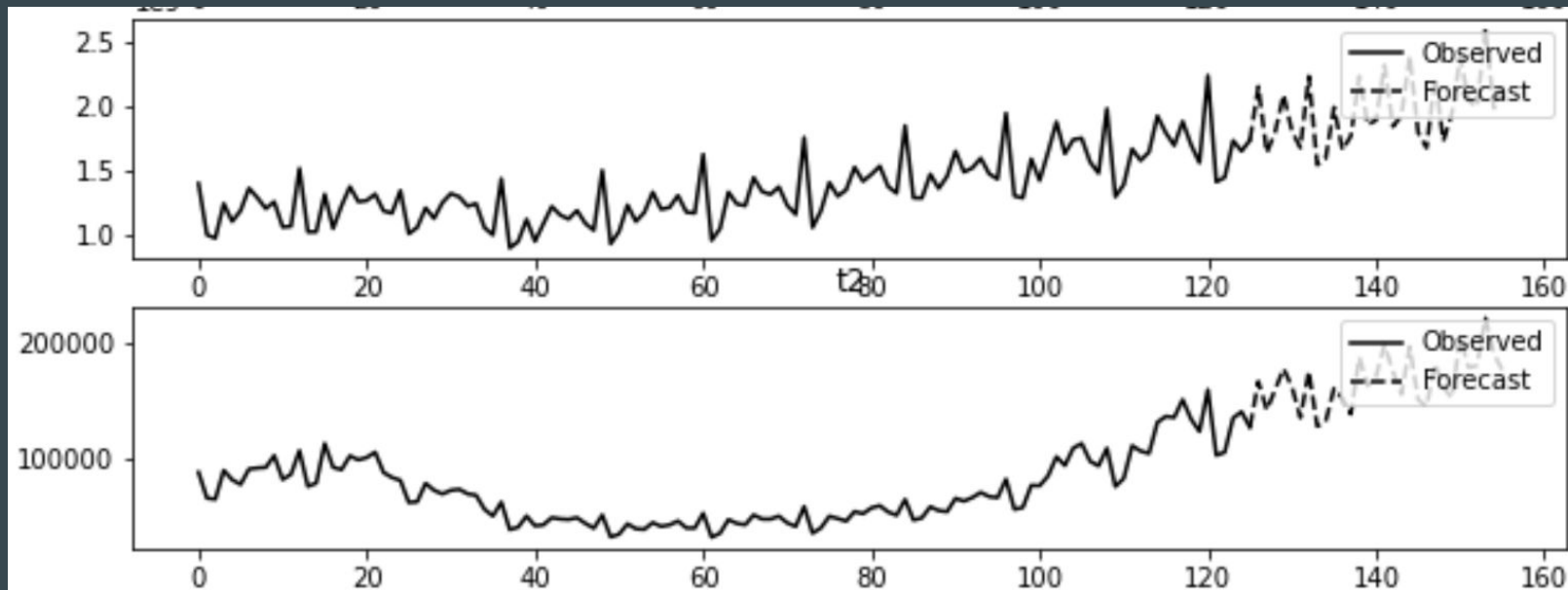
Unemployment



Feature Engineered Data.



Leading Signals.



Leading Signal

$$\%K = \left(\frac{C - L14}{H14 - L14} \right) \times 100$$

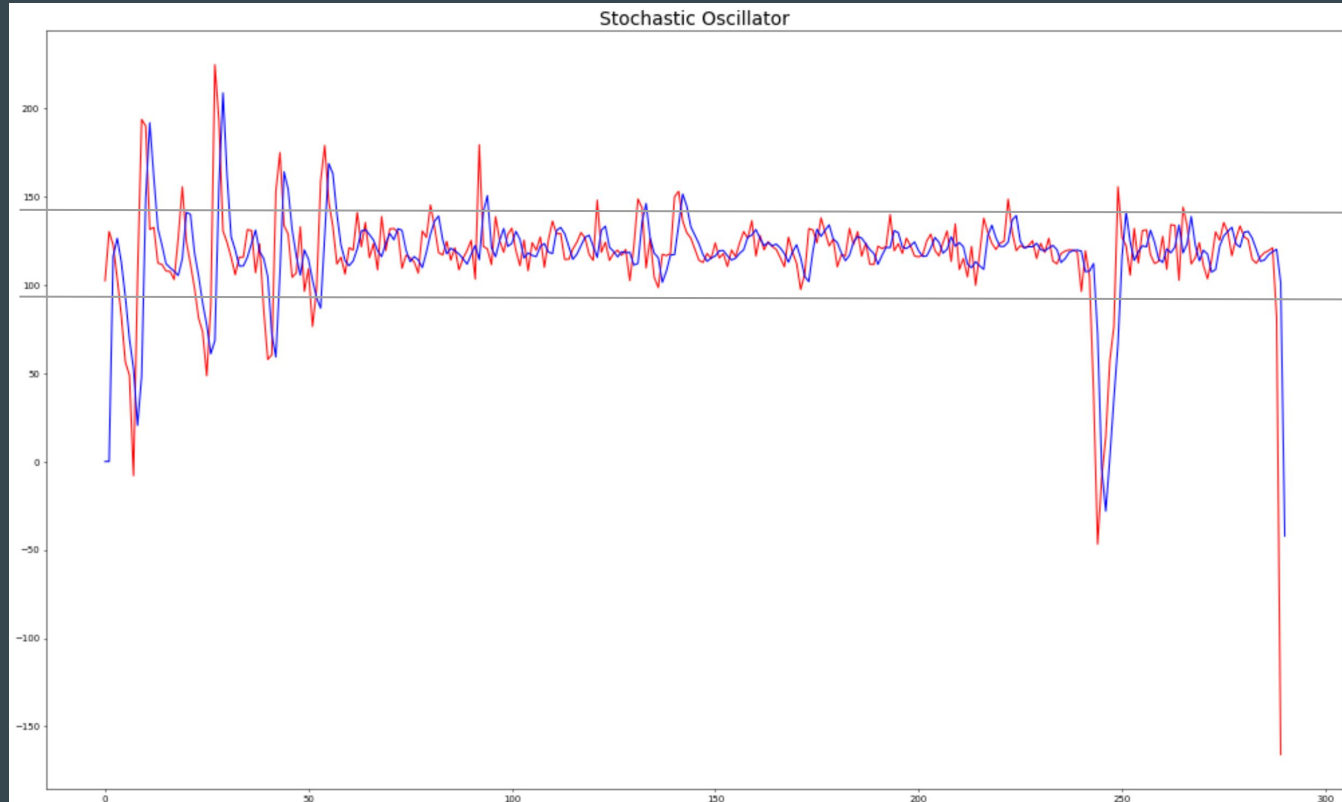
Leading Signals



Data Engineering continued

	open	close	High	Low
DATE				
1947-01-01	0.000	243.164	0.000	0.000
1947-04-01	0.000	245.968	243.164	243.164
1947-07-01	0.000	249.585	245.968	243.164
1947-10-01	243.164	259.745	249.585	245.968
1948-01-01	245.968	265.742	259.745	249.585
...
2019-04-01	20742.723	21329.877	21115.309	20909.853
2019-07-01	20909.853	21540.325	21329.877	21115.309
2019-10-01	21115.309	21747.394	21540.325	21329.877
2020-01-01	21329.877	21561.139	21747.394	21540.325
2020-04-01	21540.325	19520.114	21747.394	21561.139

GDP



An example of when to enter the market

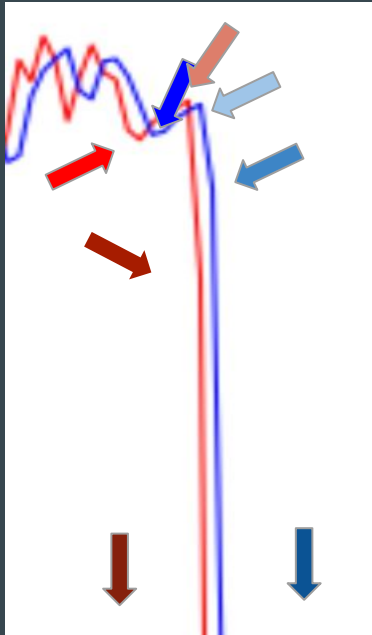
July
2019

Oct
2019

Dec
2019

April
2020

Kvalue the last four fiscal quarters [119.34865794704608, 120.96536097003862, 81.4610952242076, -165.9308618921342]
Dvalue the last four fiscal quarters [118.78668846682422, 120.15700945854235, 101.2132280971231, -42.2348833339633]



Further applications

Industry specific metrics

Complementary method to assess risk for loan officers.

Create incentives for better data collection at the local level.

Refinements

Web Application for mass marketing.

Have visuals generated in Tableau

Modify application for semi custom user interface..

Q&A

Resources.

API-<https://db.nomics.world/BEA/GDPbyIndustry-208?dimensions=%7B%22FREQ%22%3A%5B%22Q%22%5D%2C%22industry%22%3A%5B%22II%22%5D%7D>

Formula- <https://www.investopedia.com/terms/s/stochasticoscillator.asp>

Other:

<https://fred.stlouisfed.org/series/CPIAUCSL>

<https://fred.stlouisfed.org/series/GDP>