

The Rise of the Machines und aktives Asset Management



Date: 2019-04
Produced by: Dr. P. Gügi Consulting
www.drpgc.ch

Seite 1

Inhalt

1. Fortschritte der Technik (siehe auch Harvey)
2. Text Mining (siehe auch Young)
3. Robo Advisor (siehe auch Rudd)

Woher kommen wir?

Cray 2

- Schnellster Computer
1986-1990

- CPU 1.9 GFLOP

- 2.5 Tonnen

- Höhe 1.2 Meter

- 30 Mio (heutige Preise)

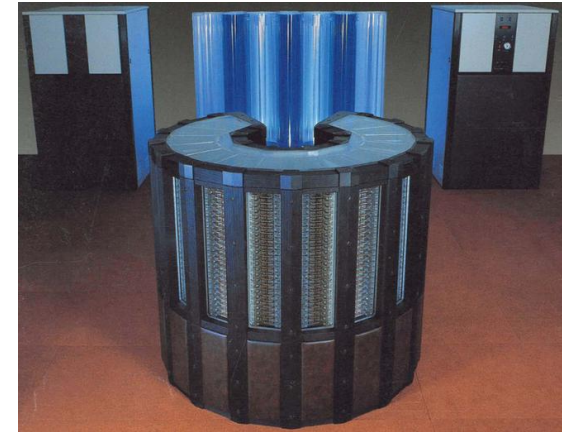
iPhone XS

- Handy

- ~600 GFLOP

- 177 Gramm

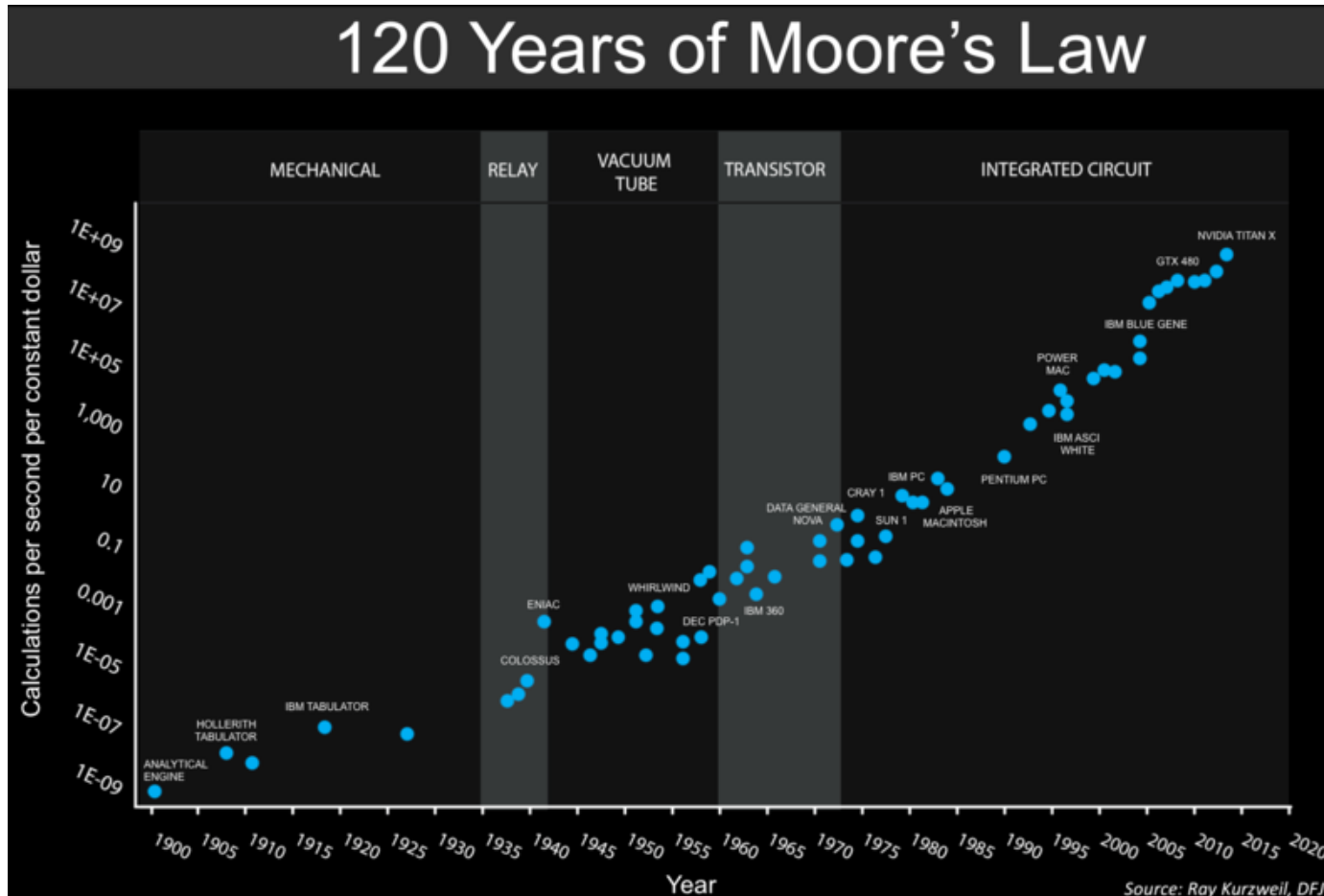
- 1000



FLOP: Gleitkomma-Operationen pro Sekunde, Rekordhalter 2019 Sunway Taihu Light mit 125 PetaFlops (10^{15} Flops)

Revolution 1

- Computer: immer schneller und billiger

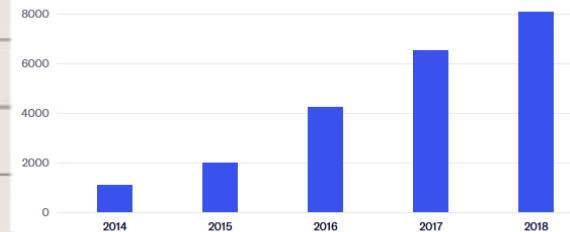


Revolution 2

– Kosten für Datenspeicherung per Gigabyte

Year	Disk Drives	DRAM	NAND flash
1965	n/a	\$2.64B	–
1966	\$1.05M	n/a	–
1970	\$185,000	\$734M	–
1975	\$180,000	\$180M	–
1980	\$202,000	\$6.48M	–
1985	\$40,000	\$477,500	–
1990	\$4,400	\$78,400	–
1995	\$277	\$31,633	–
2000	\$7.70	\$1,031	\$1,255
2005	\$0.79	\$158	\$42
2010	\$0.11	\$18.87	\$1.76
2015	\$0.05	\$5.22	\$0.38
2017	\$0.02	\$4.90	\$0.32

Datendownload pro Woche in TB



Quelle: Swisscom – Grafik: hat

COMPUTERWORLD



Revolution 3

- Kombination verschiedenster Disziplinen
- Bsp. Textanalyse für Alpha
 - Ökonomie
 - Linguistik
 - IT
 - Statistik
 - Maschinelles Lernen
 - Künstliche Intelligenz
 - ...

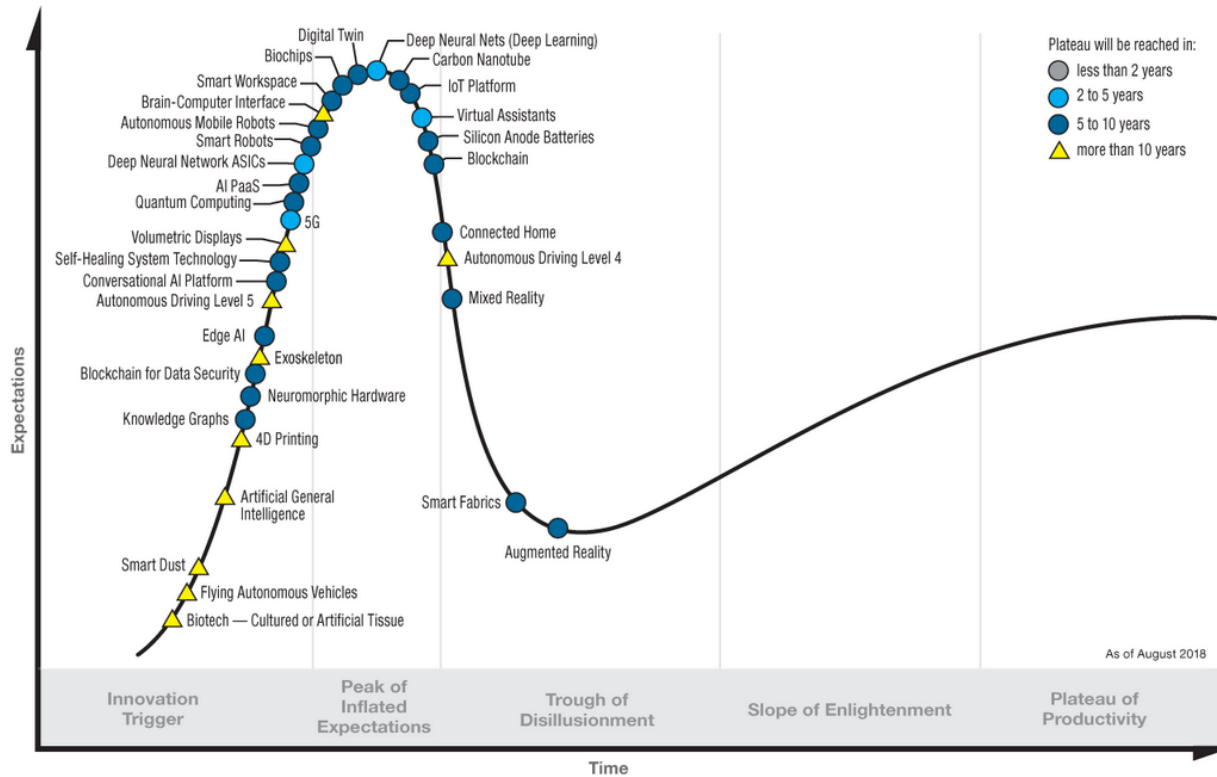
Revolution 4

- Code bzw. Lösungen als Open-Source

- Bspw. Text Mining
 - R
 - Python
 - SAS
 - ...

Maximum Hype

Hype Cycle for Emerging Technologies, 2018



gartner.com/SmarterWithGartner

Source: Gartner (August 2018)
 © 2018 Gartner, Inc. and/or its affiliates. All rights reserved.



Date: 2019-04
 Produced by: Dr. P. Gügi Consulting
www.drpgc.ch

Beispiel 1: Harvey

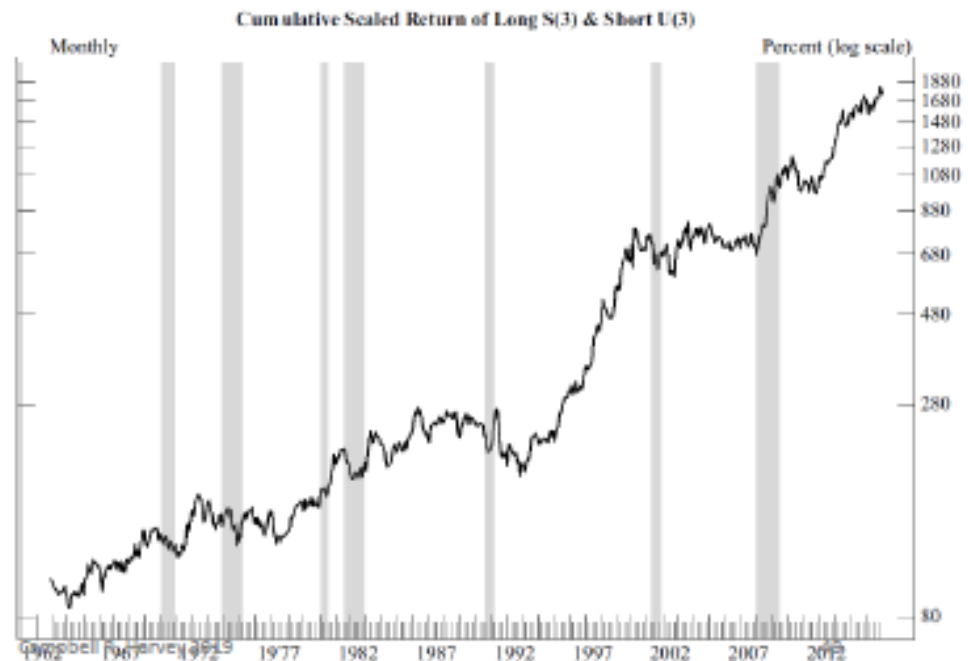
Daten + Computerpower + Publication Bias

Exhibit A

EXHIBIT 1

Long-Short Market-Neutral Strategy Based on NYSE Stocks, January 1963 to December 2015

- Real data
- Impressive Sharpe (highly “significant”)
- Consistent method
- Good performance in GFC
- No significant correlation with known factors
- Turnover less than 10% per year



Beispiel 1: Harvey

- Heute sehr einfach „tolle Strategien“ zu designen

THE JOURNAL OF FINANCE • VOL. LXXII, NO. 4 • AUGUST 2017

Presidential Address: The Scientific Outlook in Financial Economics

CAMPBELL R. HARVEY*

Exhibit A

Long S(3) and short U(3)

- Long equally weighted portfolio of stocks with S as the third letter of their ticker symbol
- Short equally weighted portfolio of stocks with U as the third letter of their ticker symbols
- I tried thousands of combinations to get the best one
- No economic foundation!

ABSTRACT

Given the competition for top journal space, there is an incentive to produce “significant” results. With the combination of unreported tests, lack of adjustment for multiple tests, and direct and indirect *p*-hacking, many of the results being published will fail to hold up in the future. In addition, there are basic issues with the interpre-



Beispiel 2: Zhang

- Effiziente Märkte: 85% der 447 publizierten Anomalien nicht signifikant

Replicating Anomalies

Kewei Hou*
The Ohio State University
and CAFR

Chen Xue†
University of Cincinnati

Lu Zhang‡
The Ohio State University
and NBER

June 2017 §

Abstract

The anomalies literature is infested with widespread p-hacking. We replicate this literature by compiling a large data library with 447 anomalies. With microcaps alleviated via NYSE breakpoints and value-weighted returns, 286 anomalies (64%) including 95 out of 102 liquidity variables (93%) are insignificant at the 5% level. Imposing the t -cutoff of three raises the number of insignificance to 380 (85%). Even for the 161 significant anomalies, their magnitudes are often much lower than originally reported. Among the 161, the q -factor model leaves 115 alphas insignificant (150 with $t < 3$). In all, capital markets are more efficient than previously recognized.

Beispiel 3: Goyal

- 2.1 Mio Strategien „Smart Beta oder Smart Marketing?“
p-hacking:

Evidence from two million trading strategies

Tarun Chordia

Amit Goyal

Alessio Saretto*

August 2017

Abstract

We implement a data mining approach to generate about 2.1 million trading strategies. This large set of strategies serves as a laboratory to evaluate the seriousness of



Date: 2019-04
Produced by: Dr. P. Gügi Consulting
www.drpgc.ch

Beispiel 4: Kahn

- Idee Faktormodell ist alt: Bspw. CAPM 1972, APT 1976

Financial Analysts Journal
Volume 72 • Number 1
©2016 CFA Institute



PERSPECTIVES

The Asset Manager's Dilemma: How Smart Beta Is Disrupting the Investment Management Industry

Ronald N. Kahn and Michael Lemmon

- ▶ Funny to call this an innovation when the ideas have been around for decades. But this isn't an investment innovation, it is a product innovation.

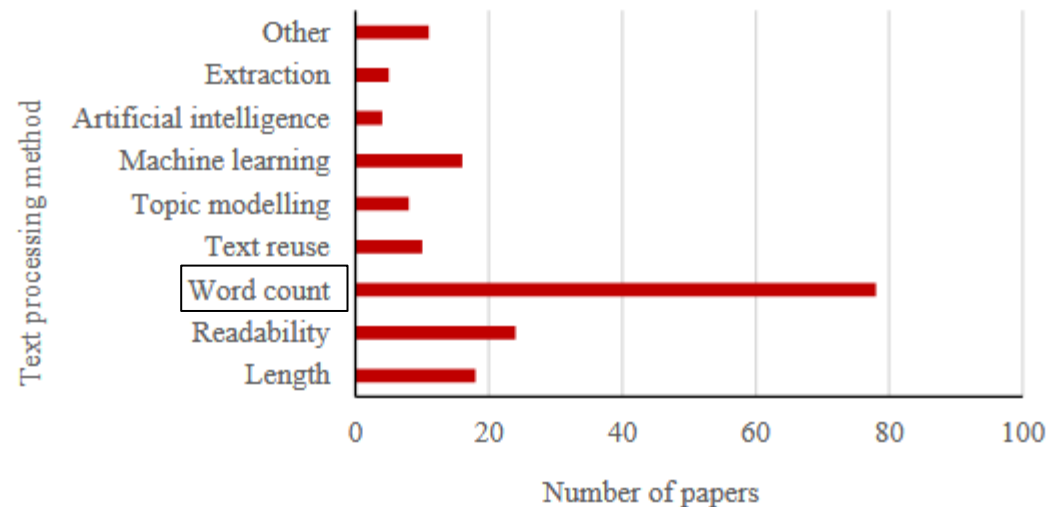


Date: 2019-04
Produced by: Dr. P. Gügi Consulting
www.drpgc.ch

Beispiel 5: El-Haj

- Text Mining: Einfach umzusetzen, aber sinnvoll?

Figure 1: Distribution of accounting and finance papers using computational linguistics methods.
Panel A: Distribution of papers by computational linguistics method



Quelle: El_Haj/Rayson/Walker/Young/Simaki 2019

Wo stehen wir?

- Tools sind gratis erhältlich und grosse Datenmengen
- Hype wie 1990 mit neuronalen Netzwerken in Finance?
- Was ist der comparative Vorteil?
- Low hanging Fruits sind gepflückt
- Entweder schneller oder wo niemand hinschaut
- Heisst Big Data nur mehr Heu um die berühmte Nadel zu finden?

Problemstellung

- Viele Methoden aus anderen Disziplinen wo sehr grosse stabile Datenmengen
- Stabilität grosse Diskussion in Physik seit 1938, aber kein Vergleich zu Finanz
 - 1 Mio Jahre notwendig, aber nur 25 Jahre
 - Unabhängigkeit, Stabilität der Daten?
- Tools gratis erhältlich und einfach einsetzbar
- Nadel anstatt in 1 Heuhaufen in 50 Heuhaufen?
- Ökonomisch sinnvoll und komparativer Vorteil?