

The Digital Transformation of Our Society

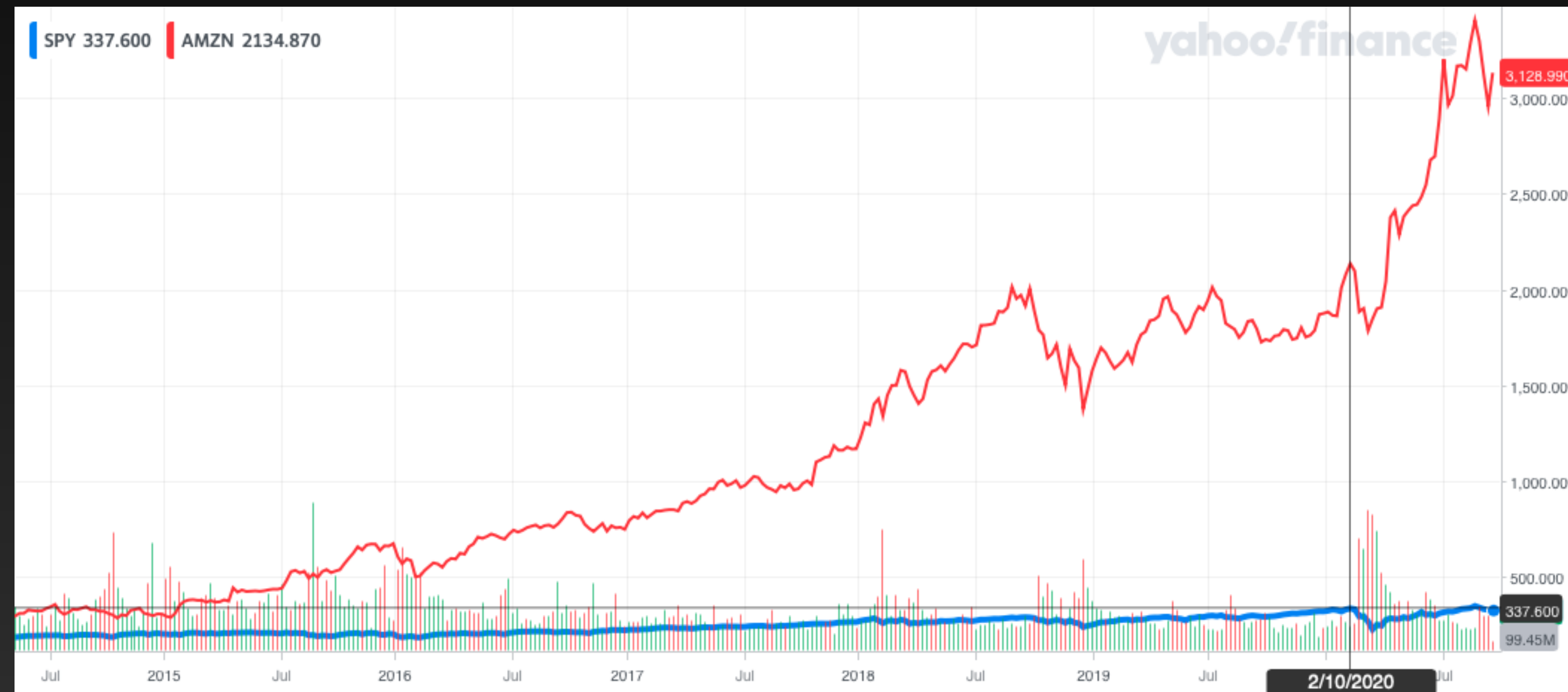
スタヤノ
Frank Stajano

Head, Academic Centre of Excellence in Cyber Security Research
Professor of Security and Privacy, Department of Computer Science and Technology
Fellow, Trinity College

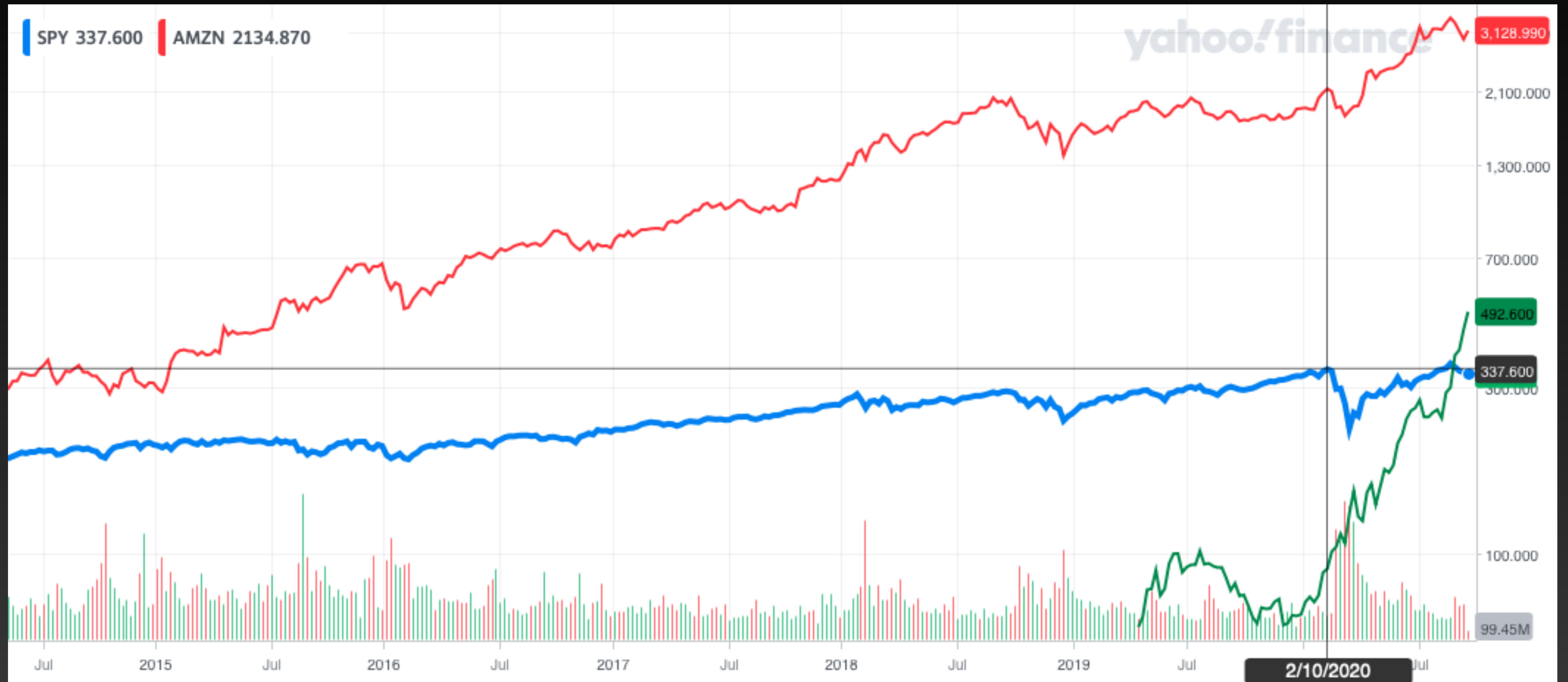
COVID-19 crisis



COVID-19 crisis?



COVID-19 opportunity?



From atoms to bits

- Decades-long vision of a digital society
 - Working from home
 - Online shopping
 - Teleconferencing replacing airline travel
 - Online education
- Then it suddenly happened



Techies have been quick to embrace

Cook said he doesn't believe Apple will "return to the way we were because we've found that there are some things that actually work really well virtually."

Tim Cook, Apple CEO, at the Atlantic Festival, 2020-09-21

**Is this so for everyone?
Or is this widening the digital divide?**

Particularly for the elderly?

More online fraud

- More vulnerable people online
- Online transactions become “the new normal”
- Fraudsters adapt quickly
- We must protect all the citizens of the digital society

HOME > NEWSROOM > NEWS

Coronavirus-related fraud reports increase by 400% in

ALERT / 20-03-2020

contributed articles

Effective countermeasures depend on first understanding how users naturally fall victim to fraudsters.

BY FRANK STAJANO AND PAUL WILSON

Understanding Scam Victims: Seven Principles for Systems Security

FROM A HOLISTIC security engineering point of view, real-world systems are often vulnerable to attack despite being protected by elaborate technical safeguards. The weakest point in any security-strengthened system is usually its human element: attack is possible because the designers thought only about their strategy for responding to threats, without anticipating how real users would react. We need to understand how users behave and what traits of that behavior make them vulnerable, then design systems security around them. To gain this

knowledge, we examine a variety of scams, distilling some general principles of human behavior that explain why the scams work; we then show how they also apply to broader attacks on computer systems insofar as they involve humans. Awareness of the aspects of human psychology exploited by con artists helps not only the public avoid these particular scams but also security engineers build more robust systems.

Over nine series of the BBC TV documentary *The Real Hustle* (<http://www.bbc.co.uk/realhustle/>) Paul Wilson and Alexis Conran researched the scams most commonly carried out in Britain and, with Jessica-Jane Clement, replicated hundreds of them on unsuspecting victims while filming the action with hidden cameras. The victims were later debriefed, given their money back, and asked for their consent to publish the footage so others would learn not to fall for the same scams (see the sidebar “Representative Scams” to which we refer throughout the main text.)

The objective of the TV show was to help viewers avoid being tipped off by similar scams. Can security researchers do more? By carefully researching dozens of scams, we extracted seven recurring behavioral patterns and related principles exhibited by victims and exploited by hustlers. They are not merely small-scale opportunistic scams (known as “short cons”) but in-

Key insights

- We observed and documented hundreds of frauds, but almost all of them can be reduced to a handful of general principles that explain what victims fall for.
- These principles cause vulnerabilities in computer systems but were exploited by fraudsters for centuries before computers were invented and are rooted in human nature.
- Users fall prey to these principles not because they are gullible but because they are human. Instead of blaming users, understand that these inherent vulnerabilities exist, then make your system robust despite them.

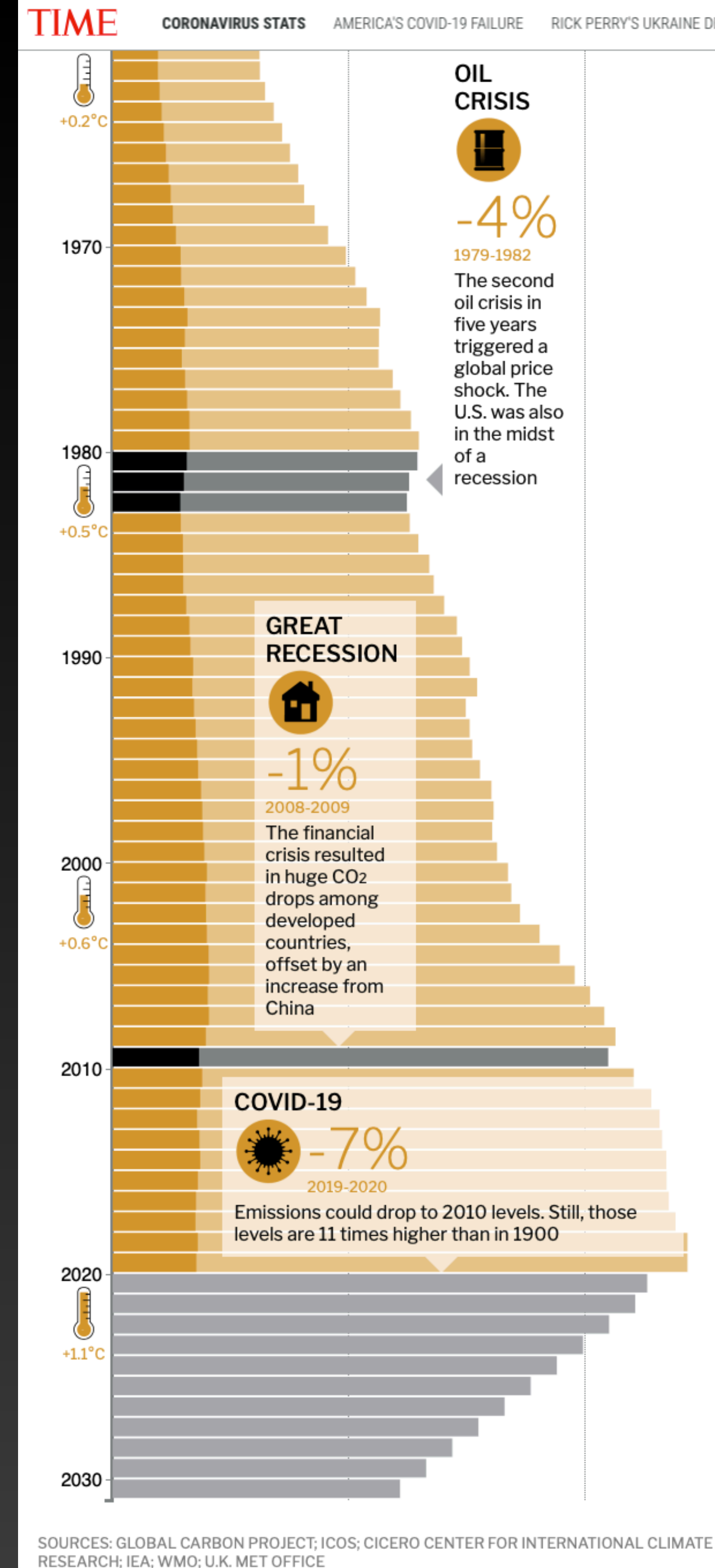
on 105 reports to Action Fraud since 1 February 2020.



Will this at least save our planet?

At the start of the lockdown Britain recorded a 90% collapse in **carbon emissions from the aviation sector**, a 60% fall in emissions from passenger vehicles and a 30% decline in emissions from Britain's energy system. [...but in July...] the emissions savings from road use shrank from 60% to 30% [and energy ones] from 30% to 15%. (Guardian, 19 July 2020)

when a crisis causes a drop in carbon emissions, it's unlikely to be sustainable (Time, 9 July 2020)



The Digital Transformation of Our Society

Embrace the good

Prevent the bad

Make the most of this (and every) opportunity

スタヤノ

© Frank Stajano 2020