



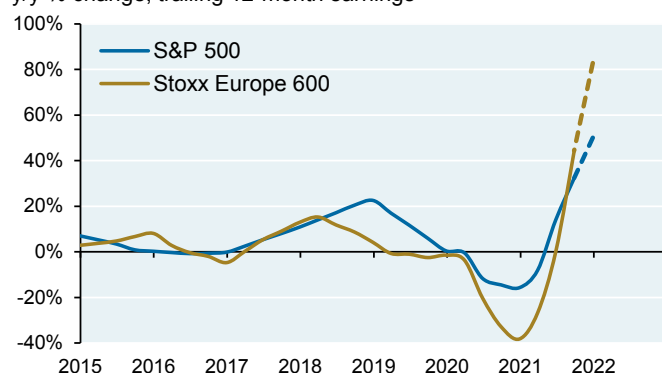
## 2021 Holiday Eye on the Market: The Middle Ages

*On equity markets, the Lombards, SPAC investors, Bone-setters, George Washington, COVID bots and Omicron*

We started out 2021 optimistic on equities given our outlook on economic growth, earnings growth, limited new equity supply, low interest rates and the arrival of mRNA vaccines. We underestimated just how *much* the reopening would boost earnings, which exceeded our expectations across the developed world. Earnings growth accounts for all of the developed world equity market gains in 2021 as P/E multiples fell markedly. By the way, that US-EM equity barbell vs Europe-Japan worked *again* this year; resistance to the barbell is futile. The selloff in China shows few signs of relenting as more Chinese companies prepare to delist, and as China has now expanded the regulatory powers and reach of antitrust regulators.

### S&P 500 and Stoxx Europe 600 earnings growth

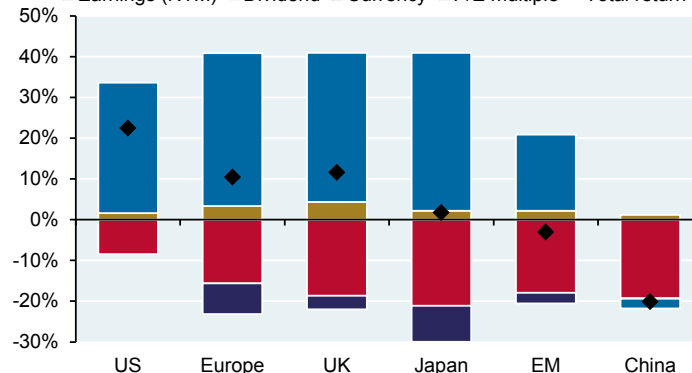
y/y % change, trailing 12-month earnings



Source: Factset. Q3 2021. Dots = 2021 estimates

### 2021 equity return decomposition

■ Earnings (NTM) ■ Dividend ■ Currency ■ P/E multiple ◆ Total return

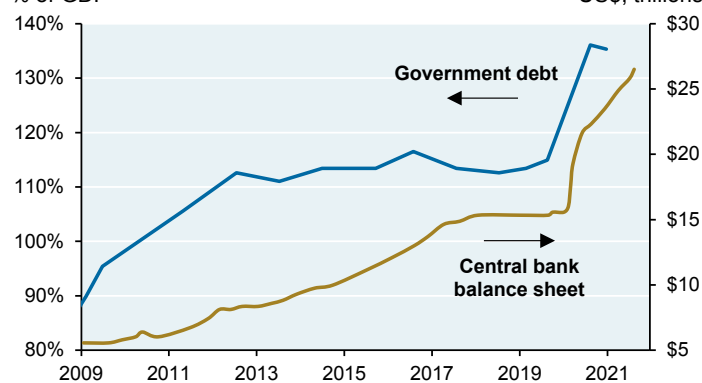


Source: Factset. December 3, 2021.

As always, developed world governments and central banks are doing their part to support this, prolonging the largest fiscal and monetary experiment since the Lombards created banking in the Middle Ages. I get asked a lot how Western gov't debt burdens are going to be resolved in the long run. I have some theories but intend to retire long before I see if they're correct or not. Hard to say for sure, the rise in cryptocurrency values from \$250 billion before COVID to \$2.5 trillion today has a lot to do in my view with the chart below on the left showing the destruction of the post-war compact between governments and savers.

### Dev world government debt & central bank balance sheet

% of GDP



Source: JP Morgan Economic Research. November 2021.

### Cryptocurrency market cap

US\$, trillions



Source: TradingView, JPMAM. November 29, 2021.

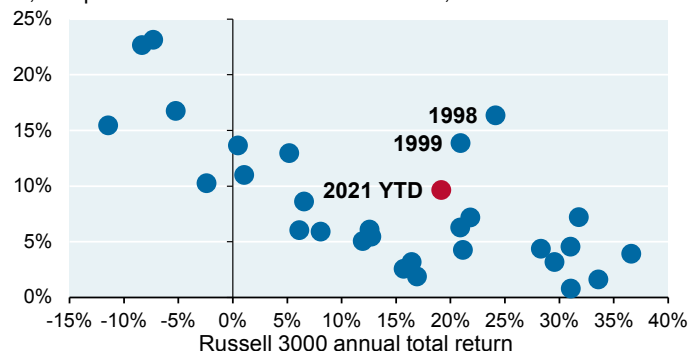




**For a year of high returns on US stock markets, there was still plenty of pain to go around.** As shown in the chart, a fairly large share of stocks fell at least 35% from their highs in 2021. The last time this kind of thing happened (rising markets and a large share of stocks losing 35% or more): 1998 and 1999. These repriced stocks are a broader warning regarding ultra-high valuations, and the risk of holding stocks that rely excessively on liquidity, momentum and crowded trades.

### Share of poorly performing stocks vs overall market return

% of companies with returns of -35% or worse, annual data since 1990



Source: Factset, Bloomberg, December 1, 2021. Includes top 50% market cap companies of the CRSP Index of US large, mid and small cap stocks.

### NASDAQ, S&P 500 and Russell 3000 stocks with >\$10 billion market cap declining 35% or more from their highs in 2021

| Name                             | Ticker          | Decline vs 2021 peak | Name                              | Ticker         | Decline vs 2021 peak |
|----------------------------------|-----------------|----------------------|-----------------------------------|----------------|----------------------|
| 1 American Well Corp             | AMWL UN Equity  | -84%                 | 21 Gap Inc/The                    | GPS UN Equity  | -55%                 |
| 2 StoneCo Ltd                    | STNE UN Equity  | -83%                 | 22 Amedisys Inc                   | AMED UN Equity | -55%                 |
| 3 Chegg Inc                      | CHGG UN Equity  | -72%                 | 23 RingCentral Inc                | RNG UN Equity  | -54%                 |
| 4 Virgin Galactic Holdings Inc   | SPCE UN Equity  | -72%                 | 24 Oak Street Health Inc          | OSH UN Equity  | -52%                 |
| 5 Lemonade Inc                   | LMND UN Equity  | -72%                 | 25 Coupa Software Inc             | COUP UN Equity | -51%                 |
| 6 Zillow Group Inc               | Z UN Equity     | -71%                 | 26 Zynga Inc                      | ZNGA UN Equity | -51%                 |
| 7 Peloton Interactive Inc        | PTON UN Equity  | -70%                 | 27 Anaplan Inc                    | PLAN UN Equity | -48%                 |
| 8 ViacomCBS Inc                  | VIAC UN Equity  | -69%                 | 28 Exact Sciences Corp            | EXAS UN Equity | -47%                 |
| 9 Discovery Inc                  | DISCA UN Equity | -66%                 | 29 Biogen Inc                     | BIIB UN Equity | -46%                 |
| 10 Fastly Inc                    | FSLY UN Equity  | -65%                 | 30 Las Vegas Sands Corp           | LVS UN Equity  | -46%                 |
| 11 Boston Beer Co Inc/The        | SAM UN Equity   | -65%                 | 31 Sarepta Therapeutics Inc       | SRPT UN Equity | -46%                 |
| 12 Beyond Meat Inc               | BYND UN Equity  | -65%                 | 32 Guardant Health Inc            | GH UN Equity   | -46%                 |
| 13 Altice USA Inc                | ATUS UN Equity  | -64%                 | 33 Global Payments Inc            | GPN UN Equity  | -45%                 |
| 14 Teladoc Health Inc            | TDOC UN Equity  | -64%                 | 34 Scotts Miracle-Gro Co/The      | SMG UN Equity  | -45%                 |
| 15 Rocket Cos Inc                | RKT UN Equity   | -62%                 | 35 Twitter Inc                    | TWTR UN Equity | -45%                 |
| 16 Novocure Ltd                  | NVCR UN Equity  | -59%                 | 36 Activision Blizzard Inc        | ATVI UN Equity | -44%                 |
| 17 Pinduoduo Inc                 | PDD UN Equity   | -58%                 | 37 Baidu Inc                      | BIDU UN Equity | -44%                 |
| 18 Pinterest Inc                 | PINS UN Equity  | -56%                 | 38 Universal Display Corp         | OLED UN Equity | -44%                 |
| 19 Zoom Video Communications Inc | ZM UN Equity    | -56%                 | 39 Citrix Systems Inc             | CTXS UN Equity | -44%                 |
| 20 Roku Inc                      | ROKU UN Equity  | -55%                 | 40 Norwegian Cruise Line Holdings | NCLH UN Equity | -43%                 |

| Name                        | Ticker         | Decline vs 2021 peak |
|-----------------------------|----------------|----------------------|
| 41 WEX Inc                  | WEX UN Equity  | -43%                 |
| 42 Quidel Corp              | QDEL UN Equity | -43%                 |
| 43 Carnival Corp            | CCL UN Equity  | -42%                 |
| 44 MercadoLibre Inc         | MELI UN Equity | -42%                 |
| 45 Wynn Resorts Ltd         | WYNN UN Equity | -41%                 |
| 46 MarketAxess Holdings Inc | MKTX UN Equity | -39%                 |
| 47 PayPal Holdings Inc      | PYPL UN Equity | -39%                 |
| 48 Lamb Weston Holdings Inc | LW UN Equity   | -38%                 |
| 49 Moderna Inc              | MRNA UN Equity | -37%                 |
| 50 IPG Photonics Corp       | IPGP UN Equity | -37%                 |
| 51 Spotify Technology SA    | SPOT UN Equity | -37%                 |
| 52 Lyft Inc                 | LYFT UN Equity | -37%                 |
| 53 Uber Technologies Inc    | UBER UN Equity | -37%                 |
| 54 Western Union Co/The     | WU UN Equity   | -36%                 |
| 55 Elastic NV               | ESTC UN Equity | -36%                 |
| 56 Viatris Inc              | VTRS UN Equity | -35%                 |
| 57 Zendesk Inc              | ZEN UN Equity  | -35%                 |

Source: Bloomberg, JPMAM, December 2, 2021.

**Past performance is no guarantee of future results. It is not possible to invest directly in an index.**



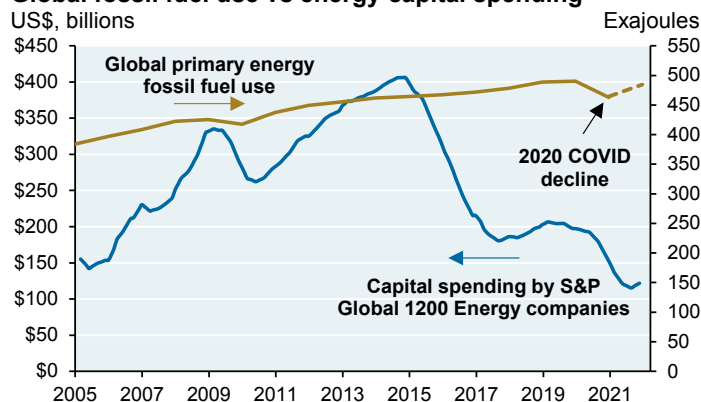
**Along the way in 2021, we made some pit stops in this piece<sup>1</sup>.** A few related exhibits appear below.

- January: the 12<sup>th</sup> Amendment and the Electoral Count Act in the context of the Joint Session of Congress
- February: a thorough trashing of the SPAC market for institutional and retail investors
- March: an update of our concentrated stock research, a project first launched in 2004
- May: our 11<sup>th</sup> annual energy paper which focused on the four main challenges to decarbonization
- June: our 4<sup>th</sup> deep dive analysis of private equity and venture capital returns
- September: an analysis of goods and labor supply chain delays and how long they would take to resolve
- October: update on the US states with the most underfunded pension and retiree healthcare plans
- November: the commodity price shock and the imbalance between supply and demand policies

| Analysis: SPACs brought public or liquidated 1/1/2019-3/5/2021    |                 |
|---|-----------------|
| Investor scenario and cumulative returns                          | Median          |
|   | As of August 17 |
| SPAC Arb investor returns   | 16%             |
| SPAC investor buy-and-hold gross return                           | 4%              |
| vs Russell 2000 Growth Index                                      | -48%            |
| Private Investment in Public Equity (PIPE) investor gross returns | -3%             |
| vs Russell 2000 Growth Index                                      | -45%            |
| PIPE investor + sponsor concessions gross returns                 | 3%              |
| vs Russell 2000 Growth Index                                      | -36%            |
| Post-merger buy-and-hold investor gross returns                   | -15%            |
| vs Russell 2000 Growth Index                                      | -51%            |
| SPAC sponsor returns  | 507%            |
| SPAC sponsor returns less concessions, forfeiture and vesting     | 284%            |

Source: JPMAM, Bloomberg, Dealogic, JP Morgan Securities. 8/17/2021.

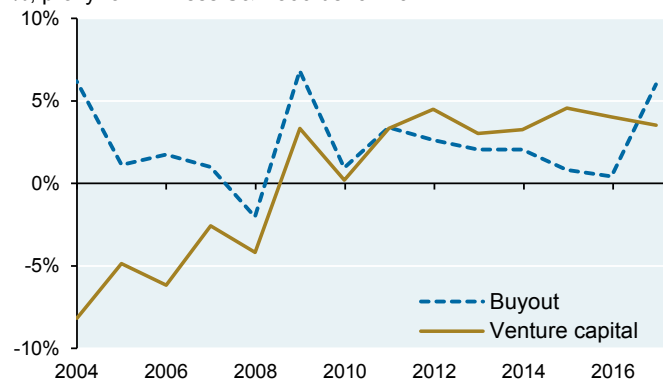
#### Global fossil fuel use vs energy capital spending



Source: BP, Bloomberg, IEA, JPMAM. Nov 2021. Dotted lines = estimates.

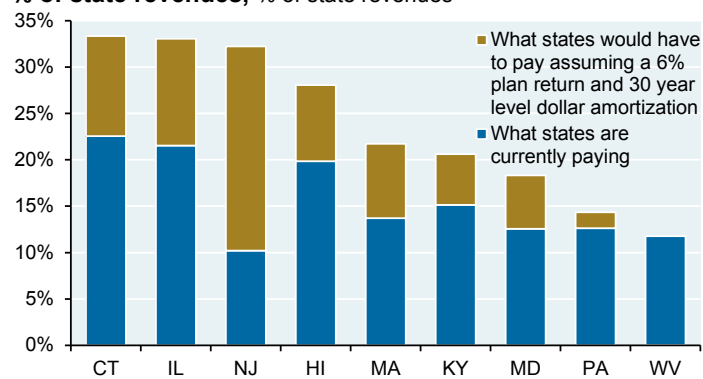
#### US buyout vs VC median direct alphas by vintage year

%, proxy for IRR less S&P 500 benchmark



Source: Steve Kaplan (Chicago Booth) and Burgiss. 2020.

#### The cost of unfunded pensions and retiree healthcare as a % of state revenues, % of state revenues



Source: JPMAM, State Annual Financial Reports, Moody's. FY 2020.

This month, I'm working on the **2022 Eye on the Market Outlook which comes out Jan 1**. In addition to the global market section, we will cover:

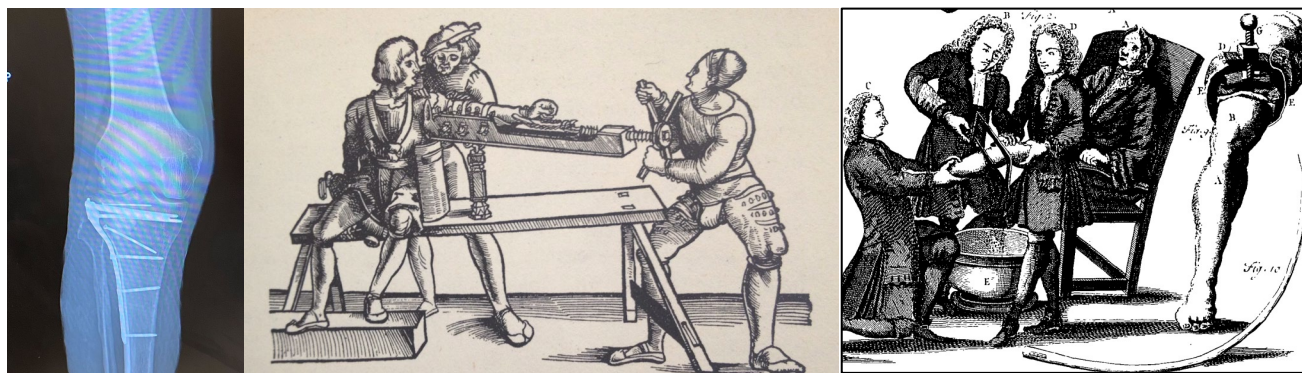
- the landscape for dividends and yield-oriented investors
- China's investment prospects after the regulatory purge
- US office market fundamentals which are already improving despite COVID and low office utilization rates
- potential upside for timber investors in a world searching for real sequestration benefits
- Brexit and the high price of national sovereignty
- the latest evidence on ESG investing and portfolio impacts
- infrastructure investing in regulated electricity distribution, solar power generation and liquid bulk storage
- some underwhelming news on fintech lending behavior during COVID
- cybersecurity investing, where the presence of malignant forces increases potential returns for investors

<sup>1</sup> You can find all of these pieces on the [Eye on the Market landing page](#).



**More on the Middle Ages.** I'm writing the 2022 Outlook from a basement apartment where I have been for the last 6 weeks, recovering from an accident which resulted in the x-ray below of my reconstructed leg. I was engaging in activity typically associated with younger people. The outcome was not unusual; middle-aged people have similar lifestyles and injury patterns to younger people but have higher/longer hospital charges, injury complications and ICU stays that are more similar to the elderly<sup>2</sup>.

While this has been a regrettable incident, I'm fortunate to have access to 21<sup>st</sup> century medicine. In the Middle Ages, surgical techniques were different. Bone-setters would use devices to realign fractured limbs, which were then covered with bandages dipped in egg whites, milk or mulled wine, and then inserted into large wooden splints made of tree branches. Subsequent growth deformities would sometimes occur and in case of infection, limbs might have to be amputated. Pain medication: ice (when available), alcohol (usually gin) and laudanum (opium). Ether was not widely used until the 1800's.

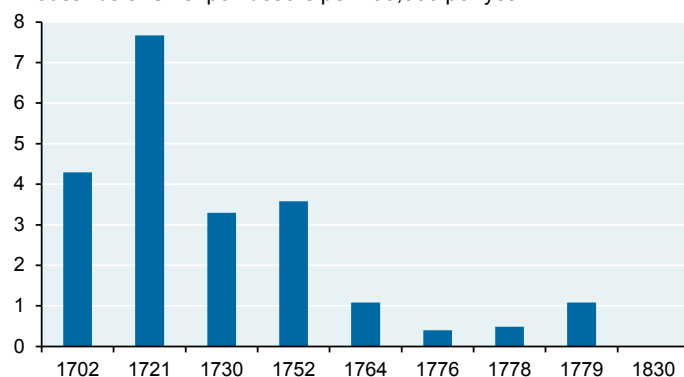


Sources: Hospital for Special Surgery (x-ray); *"Armamentarium Chirurgiae"*, Ioannis Sculteti, 1693; and *"A General System of Surgery in Three Parts, Containing the Doctrine and Management of Wounds, Fractures, Luxations, Tumors, and Ulcers of All Kinds"*, Lorenz Heister (University of Altdorf), 1768

**Medical knowledge improved during the 18<sup>th</sup> century.** George Washington mandated that all Continental Army troops be inoculated against smallpox in 1777 and 1778 using a crude process called variolation, without which the outcome of the war might have been different. Smallpox effectively disappeared in Boston once a vaccine was developed in 1800. It wasn't until the 1940's that life expectancy began to rise more rapidly, largely due to mass production of antibiotics discovered a decade earlier.

#### Inoculation and the Smallpox decline in Boston

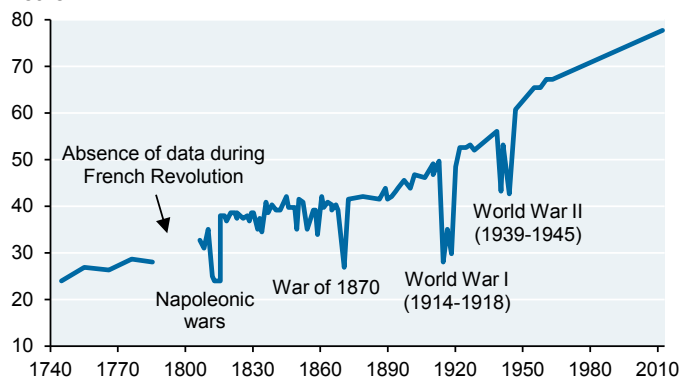
Thousands of Smallpox deaths per 100,000 per year



Source: Harvard Medical School Department of Systems Biology. 2014.

#### Male life expectancy in France since 1740

Years



Source: French Institute for Demographic Studies (INED). 2018.

<sup>2</sup> "Injury patterns and outcomes in late middle age", Stephen Gale et al, East Texas Medical Center, March 2018



**Fast forward to 2021 and the COVID pandemic.** Dr. Atul Nakhasi, physician and policy advisor to the Los Angeles Health Department, wrote a post on LinkedIn in October. He talked about caring for unvaccinated COVID patients in their 20's and 30's who were on ventilators, and how they regretted not getting the vaccine. I used to think LinkedIn was less prone to this, but Dr Nakhasi's post attracted a flurry of critical responses. **The barrage included** comments about creeping socialism, how CDC treatment protocols are killing people, how drug companies prefer more sick people since they make more money that way, how doctors are being "held at gunpoint" and arrested if they say anything negative about the vaccine, that vaccines are more dangerous than the disease itself, that vaccines don't work, that they cause fertility problems, that more people die of the flu than from COVID, that most deaths are vaccinated people and that deaths are being miscategorized since doctors have a financial incentive to inflate COVID deaths since they make more money that way.

**Maybe some of these responses were from bot accounts designed to sow dissension in the West;** according to a 2021 report from the EU External Action Service, that's exactly what state-sponsored operatives have been doing via social media<sup>3</sup>. Furthermore, a May 2021 piece in the Journal of Medical Internet Research found that two thirds of all bots were discussing COVID in some way<sup>4</sup>.

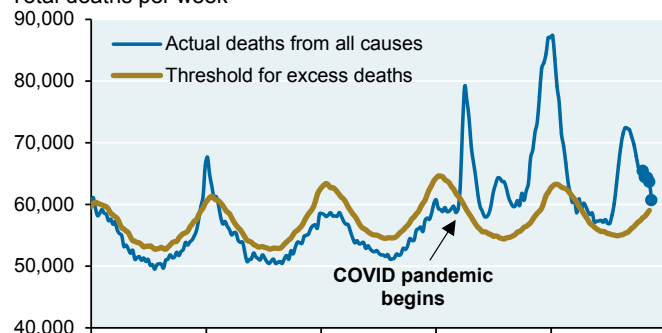
**I understand those who started out skeptical in the Greek sense of the word ("skepsis" = investigation), since COVID is the first disease for which mRNA vaccines are being widely used. But for the record...**

[A] Overall death rates in the US have been much higher than normal, and COVID is the only rational explanation for that. You can ignore people who ramble on about miscategorized death certificates.

[B] Estimates for COVID's infection fatality rate (the chances of dying if you get it) vary but no matter which one you use, they're all much higher than the infection fatality rate for the flu. The range: 18x-84x higher.

#### Excess US deaths from all causes

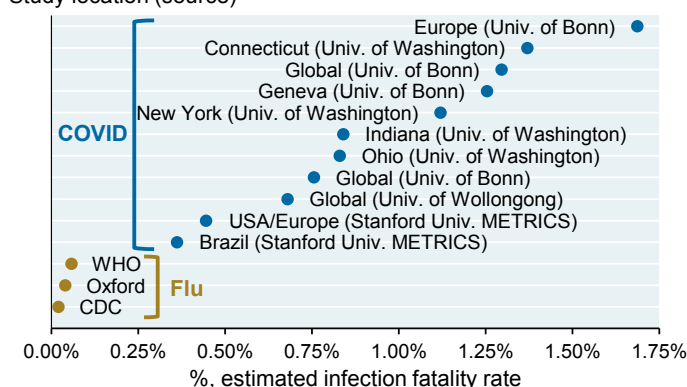
Total deaths per week



Source: CDC, JHU, JPMAM. November 27, 2021. Dots are estimated using most recent JHU data.

#### Flu vs COVID-19 infection fatality rates

Study location (source)



Source: JPMAM. 2021.

[C] How many unvaccinated people are actually dying of COVID vs those dying from the flu? We can estimate this for the 20 states reporting such data. In these states, unvaccinated COVID deaths per day have been ~18x higher than the number of unvaccinated flu deaths per day, and the year isn't over yet. The details: just for the period from April 4 to October 2, around 7 people per mm unvaccinated against COVID died every day in these states, compared to 0.4 daily deaths per mm people that were unvaccinated for the flu. For the flu, we are using the three years before COVID as a baseline.

<sup>3</sup> "EEAS Special Report Update: Short Assessment of Narratives and Disinformation around the COVID Pandemic", European Union External Action Service April 28, 2021

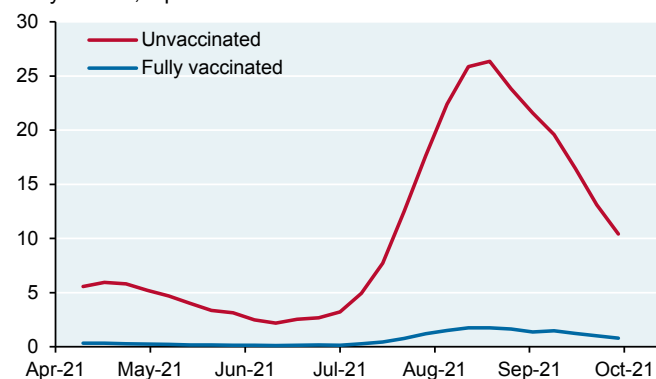
<sup>4</sup> "Bots and Misinformation Spread on Social Media: Implications for COVID-19", Journal for Medical Internet Research, Brenda Curtis (National Institute on Drug Abuse/NIH) et al, May 2021



[D] While there are signs of fading mRNA efficacy vs infection, efficacy remains high vs hospitalization, ICU admission and death, particularly with a booster. You're taking much greater chances by being unvaccinated, and that's before incorporating risks of long COVID conditions. The chart below is through October and does not include the November COVID wave. **New risks for the unvaccinated:** based on data from South Africa, **Omicron** looks to be much more contagious than the Delta variant, and has resulted in greater reinfection rates among unvaccinated COVID survivors. There are preliminary signs of less disease severity, particularly among vaccinated people but the data is still very recent. See our COVID web portal for more on the Omicron variant.

#### Age adjusted mortality: 20 US states

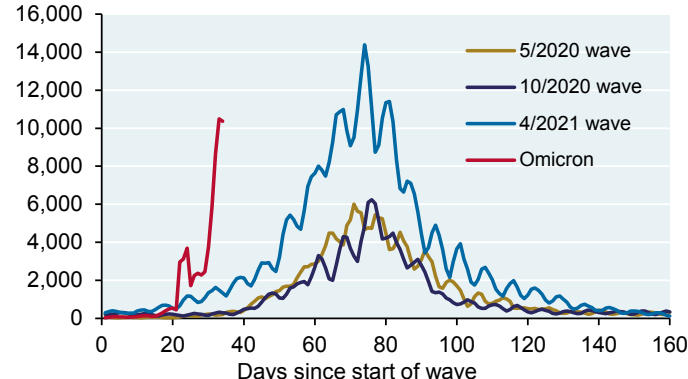
Daily deaths, # per mm



Source: CDC, October 2, 2021.

#### Infection wave comparison: Gauteng South Africa

Infection levels, 3 day average



Source: JHU, NICD, IMF, JPMAM. Dec 5, 2021.

[E] mRNA vaccines prevent negative COVID outcomes far more often than they cause myocarditis. See COVID portal Section 1 for information on the massive number of infections, hospitalizations, ICU admissions and deaths prevented by mRNA vaccines compared to cases of myocarditis that they cause.

**If you are going to ignore all of this, you might as well transport yourself back to the Middle Ages and take your chances there with a cocktail of leeches, hydroxychloroquine and zinc. To all of our clients, vaccinated or not, I wish you all a safe and happy holiday season.**



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