Topics: United States vs Google; Europe vs COVID; China vs US COVID aftermath; PCR vs Antigen testing

We’ve all been focused on the election recently, but there are other topics worth covering since they will affect markets regardless of the election’s outcome. They include antitrust movements in the US and Europe, the COVID resurgence in Europe, the sovereign debt aftermath from COVID in places like the US and China, and the error rate in COVID testing that sends “false negatives” back into the workplace.

The antitrust revival

Prospects for increased antitrust enforcement are clearer now¹, and may partially explain why the market cap-weighted S&P 500 and the big 4 tech and social media stocks have stopped outperforming the equal-weighted S&P 500². On page 3, we review issues cited in the House Judiciary Antitrust Report on Google, Amazon, Facebook and Apple, and how Democrats and the GOP see these issues differently. But first, let's take a look at the Justice Department lawsuit launched vs Google this week, which we discuss on page 2.

S&P 500 megacap outperformance

Outperformance of market cap vs equal weighted S&P 500, %

Antitrust target outperformance

Outperformance vs equal weighted S&P 500, %

Market share overview for US markets

<table>
<thead>
<tr>
<th>Category</th>
<th>Google</th>
<th>Apple</th>
<th>Facebook</th>
<th>Amazon</th>
<th>Subtotal</th>
<th>Microsoft</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone operating systems</td>
<td>52%</td>
<td>47%</td>
<td>0%</td>
<td>0%</td>
<td>99%</td>
<td>1%</td>
<td>100%</td>
</tr>
<tr>
<td>Video game streaming</td>
<td>21%</td>
<td>0%</td>
<td>3%</td>
<td>73%</td>
<td>97%</td>
<td>3%</td>
<td>100%</td>
</tr>
<tr>
<td>Internet search incl. images, maps, Youtube</td>
<td>91%</td>
<td>0%</td>
<td>1%</td>
<td>2%</td>
<td>95%</td>
<td>2%</td>
<td>97%</td>
</tr>
<tr>
<td>Navigation applications</td>
<td>80%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
<td>90%</td>
<td>0%</td>
<td>90%</td>
</tr>
<tr>
<td>eBooks</td>
<td>0%</td>
<td>20%</td>
<td>0%</td>
<td>70%</td>
<td>90%</td>
<td>0%</td>
<td>90%</td>
</tr>
<tr>
<td>Web browsers</td>
<td>51%</td>
<td>33%</td>
<td>0%</td>
<td>0%</td>
<td>84%</td>
<td>7%</td>
<td>91%</td>
</tr>
<tr>
<td>e-Readers</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>84%</td>
<td>84%</td>
<td>0%</td>
<td>84%</td>
</tr>
<tr>
<td>Email</td>
<td>29%</td>
<td>46%</td>
<td>0%</td>
<td>0%</td>
<td>75%</td>
<td>10%</td>
<td>85%</td>
</tr>
<tr>
<td>Internet search</td>
<td>62%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>62%</td>
<td>25%</td>
<td>87%</td>
</tr>
<tr>
<td>Digital advertising</td>
<td>39%</td>
<td>0%</td>
<td>20%</td>
<td>2%</td>
<td>61%</td>
<td>4%</td>
<td>65%</td>
</tr>
<tr>
<td>e-Commerce</td>
<td>0%</td>
<td>6%</td>
<td>0%</td>
<td>54%</td>
<td>60%</td>
<td>0%</td>
<td>60%</td>
</tr>
<tr>
<td>Social media</td>
<td>1%</td>
<td>0%</td>
<td>51%</td>
<td>0%</td>
<td>52%</td>
<td>1%</td>
<td>53%</td>
</tr>
<tr>
<td>Digital storage</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td>47%</td>
<td>51%</td>
<td>10%</td>
<td>61%</td>
</tr>
<tr>
<td>Social media digital photos</td>
<td>0%</td>
<td>0%</td>
<td>50%</td>
<td>0%</td>
<td>50%</td>
<td>0%</td>
<td>50%</td>
</tr>
<tr>
<td>Mobile video and music</td>
<td>34%</td>
<td>8%</td>
<td>0%</td>
<td>7%</td>
<td>49%</td>
<td>0%</td>
<td>49%</td>
</tr>
<tr>
<td>Internet video</td>
<td>29%</td>
<td>0%</td>
<td>11%</td>
<td>8%</td>
<td>48%</td>
<td>7%</td>
<td>55%</td>
</tr>
</tbody>
</table>


¹ Other antitrust clouds looming: State Attorney General filings against Google for reasons that differ from the Justice Department’s case; consumer rights advocate class action lawsuits for data privacy reasons; risks that Section 230 is revoked or amended (Section 230 provides indemnity against comments posted or censored); possible Facebook antitrust lawsuit by the DoJ in addition to the Google lawsuit just announced.

² Another possible reason that the Big 4 have stopped outperforming: market expectations for a vaccine that intermittently revive the fortunes of underperforming travel-related stocks and financial stocks.
United States vs Google key issues³:

- The Justice Department case is not focused on Google’s search engine or advertising revenue dominance, in contrast to the centrality of such issues in European antitrust investigations. Instead, the DoJ case focuses on Google’s exclusivity arrangements with its distributors. Google pays billions of dollars each year to device manufacturers (Apple, Motorola, LG, Samsung), wireless carriers (AT&T, T-Mobile, Verizon) and browser developers (Mozilla, Opera, UC Web) to secure default status for its search engine. In the case of Apple, the DoJ claims that 15%-20% of Apple’s worldwide annual income is derived from Google payments for search engine default status. In some cases, Google prohibits counterparties from dealing with its competitors, and requires placement of Google Apps in prime positions on devices (see box below)

- A key concept from a speech by Assistant Attorney General Delrahim in 2019: “even if a company achieves monopoly position through legitimate means, it cannot take actions that do not advance plausible business goals but rather are designed to make it harder for competitors to catch up”

- Google has responded to such arguments by comparing its payments to distributors to cereal companies paying supermarkets to stock its goods on the best eye-level shelving. However, cereal consumption does not result in self-reinforcing market dominance. Google employs complex algorithms that learn which results and ads best correspond to user searches, and the more they do this, they better they get at it

- Some DoJ allegations about Google rhyme with antitrust arguments levied against Microsoft 20 years ago, such as restrictions Microsoft placed on equipment manufacturers to ensure installation of Internet Explorer and to suppress alternative operating systems. Currently, some antitrust analysts believe that Google and Apple impose restrictions on device manufacturers and App developers that have nothing to do with technical limitations or consumer security, and are instead designed to preserve market dominance

- There’s a complicating factor: the online world involves duopolies instead of conventional monopolies. For example, Google/Facebook dominate digital advertising, Microsoft/Amazon dominate the cloud, Amazon/Google dominate shopping searches, and Microsoft/Google dominate productivity applications. As a result, the companies involved can mount vigorous defenses against monopolistic practice charges

- How any given judge will rule on the case is unknown, but the DoJ case increases the risks for the big 4 tech and social media stocks that account for a growing share of market returns

---

³ Sources include the University of Connecticut Law School (“A topology of multi-sided digital platforms”, June 2020), University of Pennsylvania Carey Law School (“Antitrust and Platform Monopoly”, September 2020) and Stratechery.com (October 21, 2020)
House Judiciary Report on anti-competitive tech behavior

Facebook, Google, Amazon and Apple were cited in a House Judiciary Report released on October 6th for making acquisitions that stifle competition (“killer acquisitions”4), using market power to raise prices, misappropriating third-party data, stealing intellectual property and acting as market gatekeepers (i.e., controlling and serving a marketplace at the same time). The report’s conclusions discard the “consumer welfare” standard that has guided antitrust enforcement over the past 40 years. Some firm-specific conclusions in the report:

- Facebook: social networking monopoly power that results from Facebook using superior market intelligence to identify nascent competitive threats and then acquire, copy, or kill them
- Google: online search and search advertising monopoly that is the product of anticompetitive behavior which includes undermining competition, misappropriating third-party data, and establishing their software as the default on most of the world’s devices and browsers
- Amazon: durable market power in US online retail which results from acquiring competitors and abusing relationships with third party sellers beholden to Amazon, and from using control over the marketplace to find where its third party partners are doing well and copying their products to drive them out of business
- Apple: significant and durable market power in mobile operating system market resulting from its control of all software distribution to iOS devices

House Democrats favor a wide range of policies to combat these practices, listed below. The GOP does not agree with most of these remedies, and only favors a small number of them (highlighted in red). If Biden wins and if the filibuster is jettisoned, these proposals would face a lower 51-seat hurdle in the Senate to pass. If so, the honeymoon phase of defeating Trump may turn into hotly debated interparty battles on policy issues in the new year. Even if these proposals aren’t enacted, antitrust heat on tech may increase given greater Congressional scrutiny and a rejuvenated Department of Justice that is less at odds with its Attorney General, and which is no longer asked to defend a sitting President on personal charges unrelated to the Presidency.

- **Restoring competition**: Glass-Steagall legislation for the tech sector (break up lines of business), rules to prevent discrimination and self-preferencing, merger prohibition (see below for history), safe harbor for new publishers, prohibition on abuse of bargaining power and **rules on data portability/interoperability**
- **Strengthening antitrust law**: Reassert anti-monopoly goals of antitrust law, **strengthen Section 2 of the Clayton Act (price discrimination)**, strengthen Section 7 of the Clayton Act (acquisitions that foster monopolies), **restore enforcement Agencies to full strength**, increase private enforcement

---

4 The phrase “**Killer Acquisitions**” was coined by Cunningham (LSE) and Ederer (Yale SOM) in a paper published in 2018. They use the pharmaceutical industry to illustrate how incumbent firms sometimes acquire innovative targets solely to discontinue the target’s innovation projects and preempt future competition.
Europe vs COVID

The spike in European infections has been very steep as school, bars and restaurants reopen; the latest measures put current infection rates well above the US. European mortality rates are still much lower than during the summer, as they are in the US. In my view, this is due to the lower age of more recently infected persons, less overcrowded hospitals, and more informed standards of patient care (less unnecessary ventilation when oxygenation will suffice, and the use of steroids and blood thinners).

Even so, this European spike is concerning as winter approaches. I’ve seen commentary suggesting that this spike is simply the byproduct of increased testing. We can assess this argument by looking at positive testing rates. If positive testing rates are flat (as in Spain and Germany), then increased testing is the primary driver of rising infections. But in France, Italy, Belgium and the Netherlands, positive testing rates are rising quickly, an indication of an outbreak as well. Note: the UK is somewhere in between both groups.
China vs US COVID aftermath: the spike in government debt

One of the earliest COVID misinformation campaigns alleged that China created COVID as a “bioweapon” to use against the US, possibly due to the negative impact the pandemic might have on US public finances. Let’s ignore the debunked bioweapon theory and look at what happened to debt levels, since that’s important to long term investors focused on sovereign ratings, reserve currency status, exchange rate risks, etc. Using the lens of government debt alone, the pandemic was a disaster for the US relative to China.

However, as my colleague Alex Wolf in Hong Kong notes, the division between public and private debt in China is blurred, and even more so in recent years. Debt of state-owned enterprises can be considered corporate debt and/or a liability of the government, particularly since SOEs may invest in projects at the direct or indirect behest of government entities, or with a push from government-influenced banks. As a result, a crude comparison of government plus corporate debt levels is the better (albeit imperfect) lens of the two. And as you can see, on that front the differences between the US and China are not that large, either before the pandemic or after.

PCR vs Antigen testing

We have gotten questions on this, so here’s a brief primer.

- Testing accuracy is typically measured by looking at error rates: false positives (people who aren’t sick but who are TOLD they are) and false negatives (people who ARE sick who are told they are fine). False positives are a productivity problem: people told to stay home when they could come to work. False negatives are worse: these individuals spread the virus since they don’t know they are ill.
- Neither PCR nor antigen tests have substantial false positive rates. That’s the good news. However, there’s a public health cost to rapid antigen tests since they have a much higher false negative rate than PCR tests.
- The table shows the false positive and false negative rates for both PCR and antigen tests. Ranges differ by manufacturer, and over time; more recent tests are reportedly more accurate.
- As a reminder, PCR and antigen tests have not been certified for accuracy by the FDA. They have been granted emergency use authorization due to the pandemic, but anyone tested should understand the risks of false positives and false negatives.

<table>
<thead>
<tr>
<th>Diagnostic test</th>
<th>Method</th>
<th>“Sensitivity”: ability to detect virus in infected people (failures = false negatives)</th>
<th>“Specificity”: ability to confirm lack of infection in uninfected people (failures = false positives)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCR</td>
<td>Detect virus genetic material</td>
<td>98.9% (87.5%-100%)</td>
<td>99.4% (92.3%-100%)</td>
</tr>
<tr>
<td>Antigen</td>
<td>Detect specific proteins on virus surface</td>
<td>90.4% (80%-97.6%)</td>
<td>99.2% (96.6%-100%)</td>
</tr>
</tbody>
</table>


---

5 A Cornell study analyzed 38 million English language news articles from January through May and concluded that President Trump was the largest driver of the COVID misinformation infodemic. "Coronavirus misinformation: quantifying sources and themes in the COVID-19 infodemic", Evanega et al, Cornell Alliance for Science, September 2020
GENERAL RISKS & CONSIDERATIONS

Any views, strategies or products discussed in this material may not be appropriate for all individuals and are subject to risks. Investors may get back less than they invested, and past performance is not a reliable indicator of future results. Asset allocation / diversification does not guarantee a profit or protect against loss. Nothing in this material should be relied upon in isolation for the purpose of making an investment decision. You are urged to consider carefully whether the services, products, asset classes (e.g. equities, fixed income, alternative investments, commodities, etc.) or strategies discussed are suitable to your needs. You must also consider the objectives, risks, charges, and expenses associated with an investment service, product or strategy prior to making an investment decision. For this and more complete information, including discussion of your goals/situation, contact your J.P. Morgan team.

NON-RELIANCE

Certain information contained in this material is believed to be reliable; however, JPM does not represent or warrant its accuracy, reliability or completeness, or accept any liability for any loss or damage (whether direct or indirect) arising out of the use of all or any part of this material. No representation or warranty should be made with regard to any computations, graphs, tables, diagrams or commentary in this material, which are provided for illustration/reference purposes only. The views, opinions, estimates and strategies expressed in this material constitute our judgment based on current market conditions and are subject to change without notice. JPM assumes no duty to update any information in this material in the event that such information changes. Views, opinions, estimates and strategies expressed herein may differ from those expressed by other areas of JPM, views expressed for other purposes or in other contexts, and this material should not be regarded as a research report. Any projected results and risks are based solely on hypothetical examples cited, and actual results and risks will vary depending on specific circumstances. Forward-looking statements should not be considered as guarantees or predictions of future events.

Nothing in this document shall be construed as giving rise to any duty of care owed to, or advisory relationship with, you or any third party. Nothing in this document shall be regarded as an offer, solicitation, recommendation or advice (whether financial, accounting, legal, tax or other) given by J.P. Morgan and/or its officers or employees, irrespective of whether or not such communication was given at your request.

J.P. Morgan and its affiliates and employees do not provide tax, legal or accounting advice. You should consult your own tax, legal and accounting advisors before engaging in any financial transactions.

LEGAL ENTITY, BRAND & REGULATORY INFORMATION

In the United States, bank deposit accounts and related services, such as checking, savings and bank lending, are offered by JPMorgan Chase Bank, N.A. Member FDIC. JPMorgan Chase Bank, N.A. and its affiliates (collectively "JPMCB") offer investment products, which may include bank managed investment accounts and custody, as part of its trust and fiduciary services. Other investment products and services, such as brokerage and advisory accounts, are offered through J.P. Morgan Securities LLC ("JPMIS"), a member of FINRA and SIPC. Annuities are made available through Chase Insurance Agency, Inc. (CIA), a licensed insurance agency, doing business as Chase Insurance Agency Services, Inc. in Florida. JPMCB, JPMIS and CIA are affiliated companies under the common control of JPM. Products not available in all states.

In Luxembourg, this material is issued by J.P. Morgan Bank Luxembourg S.A. (JPMLB), with registered office at 6 route de Treves, L-2633, Senningerberg, Luxembourg. R.C.S. Luxembourg B810.958. Authorised and regulated by Commission de Surveillance du Secteur Financier (CSSF) and jointly supervised by the European Central Bank (ECB) and the CSSF. J.P. Morgan Bank Luxembourg S.A. is authorized as a credit institution in accordance with the Law of 5th April 1993. In the United Kingdom, this material is issued by J.P. Morgan Bank Luxembourg S.A.– London Branch. Prior to Brexit,(Brexit meaning that the UK leaves the European Union under Article 50 of the Treaty on European Union, or, if later, loses its ability to passport financial services between the UK and the remainder of the EEA), J.P. Morgan Bank Luxembourg S.A.– London Branch is subject to limited regulation by the Financial Conduct Authority and the Prudential Regulation Authority. Details about the extent of our regulation by the Financial Conduct Authority and the Prudential Regulation Authority are available from us on request. In the event of Brexit, in the UK, J.P. Morgan Bank Luxembourg S.A.– London Branch is authorised by the Prudential Regulation Authority, subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Details about the extent of our regulation by the Prudential Regulation Authority are available from us on request. In Spain, this material is distributed by J.P. Morgan Bank Luxembourg S.A., Sucursal en España, with registered office at Paseo de la Castellana, 31, 28046 Madrid, Spain. J.P. Morgan Bank Luxembourg S.A., Sucursal en España is registered under number 1516 within the administrative registry of the Bank of Spain and supervised by the Spanish Securities Market Commission (CNMV). In Germany, this material is distributed by J.P. Morgan Bank Luxembourg S.A., Frankfurt Branch, registered office at Taunustor 1 (TaunusTurm), 60310 Frankfurt, Germany, jointly supervised by the Commission de Surveillance du Secteur Financier (CSSF) and the European Central Bank (ECB), and in certain areas also supervised by the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin). In Italy, this material is distributed by J.P. Morgan Bank Luxembourg S.A.– Milan Branch, registered office at Via Catena Adalberto 4, Milan 20121, Italy and regulated by Bank of Italy and the Commissione Nazionale per le Società e la Borsa (CONSOB). In the Netherlands, this material is distributed by J.P. Morgan Bank Luxembourg S.A., Amsterdam Branch, with registered office at World Trade Centre, Tower B, Stravinskylaan 1135, 1077 XX, Amsterdam, The Netherlands. J.P. Morgan Bank Luxembourg S.A., Amsterdam Branch is authorised and regulated by the Commission de Surveillance du Secteur Financier (CSSF) and jointly supervised by the European Central Bank (ECB) and the CSSF in Luxembourg; J.P. Morgan Bank Luxembourg S.A., Amsterdam Branch is also authorised and supervised by De Nederlandsche Bank (DNB) and the Autoriteit Financiële Markten (AFM) in the Netherlands. Registered with the Kamer van Koophandel as a branch of J.P. Morgan Bank Luxembourg S.A. under number 71651845. In Denmark, this material is distributed by J.P. Morgan Bank Luxembourg, Copenhagen Br, filial af J.P. Morgan Bank Luxembourg S.A. with registered office at Kalvebod Brygge 39-41, 1560 København V, Denmark. J.P. Morgan Bank Luxembourg, Copenhagen Br, filial af J.P. Morgan Bank Luxembourg S.A.is authorised and regulated by Commission de Surveillance du Secteur Financier (CSSF) and jointly supervised by the European Central Bank (ECB) and the CSSF. J.P. Morgan Bank Luxembourg, Copenhagen Br, filial af J.P. Morgan Bank Luxembourg S.A. is also subject to the supervision of Finanstilsynet (Danish FSA) and registered with Finanstilsynet as a branch of J.P. Morgan Bank Luxembourg S.A. under code 29009. In Sweden, this material is distributed by J.P. Morgan Bank Luxembourg S.A. - Stockholm Bankfilial, with registered office at Hamngatan 15, Stockholm, 11147, Sweden. J.P. Morgan Bank Luxembourg S.A. - Stockholm Bankfilial is authorised and regulated by Commission de Surveillance du Secteur Financier (CSSF) and jointly supervised by the European Central Bank (ECB) and the CSSF. J.P. Morgan Bank Luxembourg S.A., Stockholm Branch is also subject to the supervision of Finansinspektionen (Swedish FSA). Registered with Finansinspektionen as a branch of J.P. Morgan Bank Luxembourg S.A. In France, this material is