Google : End Of The Online Advertising Bubble

Google's growth story is dead once its clients realize their ads are being displayed on worsening quality websites, and a growing proportion of the ads are not being seen at all. Yet, they're paying for all of them, and have no clue of what's really going on. Target price for GOOG: $200-250.

April 2016

Executive Summary

The online advertising market is saturated, and has no more room to grow. The traditional space for ads is overcrowded, and has started to shrink, as Internet users start to use ad blockers.

Ad placement companies have compensated by displaying ads on ever lower quality websites. Worse, they have led their clients into pay-per-display advertising instead of pay-per-click, much less efficient and difficult to track.

As a result, online advertising efficiency has been decreasing for years, and companies have to spend more ad dollars for the same result.

The process of ad placement has become ever more automated, obscure and complex, while intermediaries have multiplied, each taking a cut from the client's initial ad budget.

Controls and regulations are nonexistent, and a big chunk of ad spending is being stolen, plain and simple. Customers are growing aware of the phenomenon of ad fraud. Every new fraud scandal bears the risk of customers scaling back on online ad spending. The whole ecosystem is at risk of turning from growth to decline, overnight, in a rerun of what happened in 2000-2001.

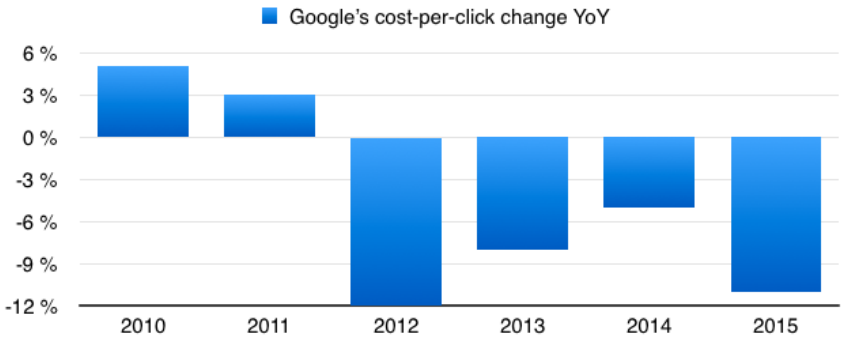
When this happens, the smaller players will be wiped out. Alphabet/Google, who has 90% of its revenue coming from online advertising, will see its business scale back to the levels of 2010-2011, while its share price will crash to the $200-$250 area. Facebook on the other hand, has a better control of who is actually seeing its ads, and will benefit from the turmoil by gaining market share.

Analysis

The online advertising market is saturated, and available ad space is in decline

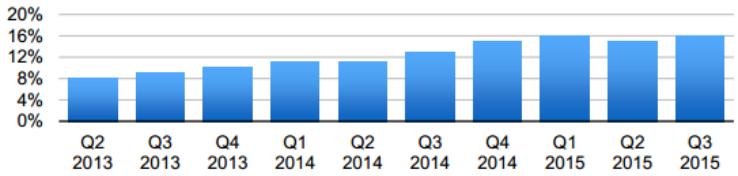
Since 2011, while Google's revenues continued to grow, the average ad cost has declined. Larry Page described this while discussing the company's Q4 2011 results as "a decline in ad quality" **(Chart 1)**. More and more ads are being displayed, each one earning the company less and less.

Chart 1: Google cost-per-click change YoY (source: 10-K filings 2010 through 2015)



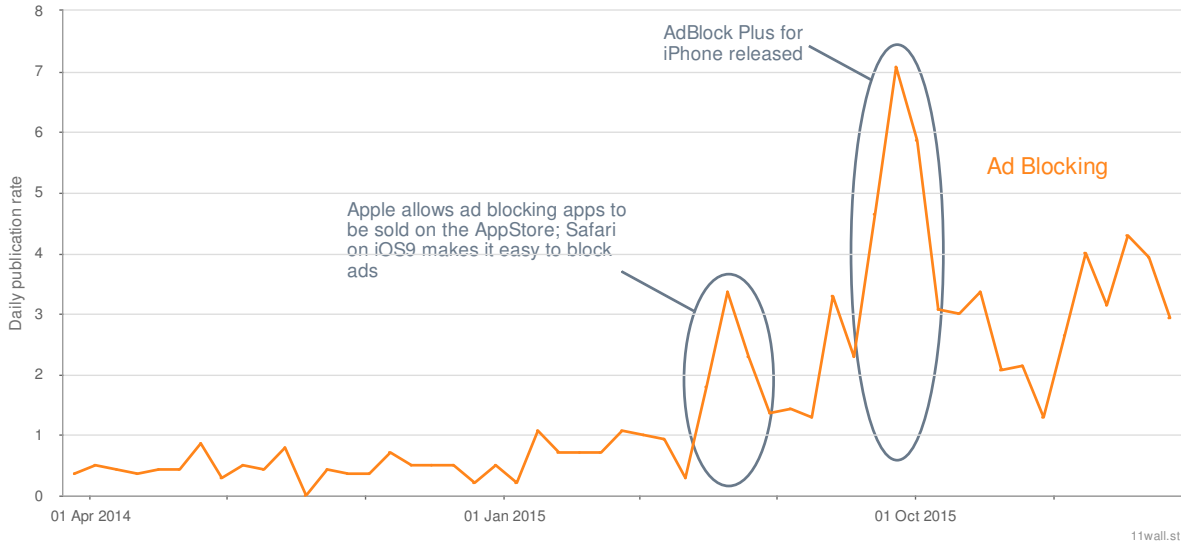
Websites have been invaded by click ads, display ads, and forced video ad views. Naturally, Internet users have grown sick and tired of this ad pollution, and have started installing ad blocking software **(Chart 2)**.

Chart 2: Ad blocking penetration in the US (source: PageFair)



What makes this trend worse is that users who install ad blockers first, tend to be the more sophisticated and the more affluent ones. This phenomenon has been exacerbated by Apple joining the party, and allowing third-party developers to sell ad blocking apps on its AppStore. This event has been widely covered by the media, publicizing the ad blocking movement **(Chart 3)**.

Chart 3: News flow trend for Ad Blocking



The growth of online advertising has happened on subprime ad space, and customers have no choice but to take the industry's word that it's worth their money

Ad placement has become extremely automated. The growth of ad exchanges, demand-side platforms, and programmatic buying **(Charts 4 & 5)**, has removed much of the need of human intervention in the process. User tracking enables advertisers to identify in real-time who is visiting any given website, and to match the visitor with an ad, instead of relying on the website's content to draw an approximate profile of who might be viewing the webpage.

Chart 4: News flow for Ad Exchanges and Demand Side Platforms

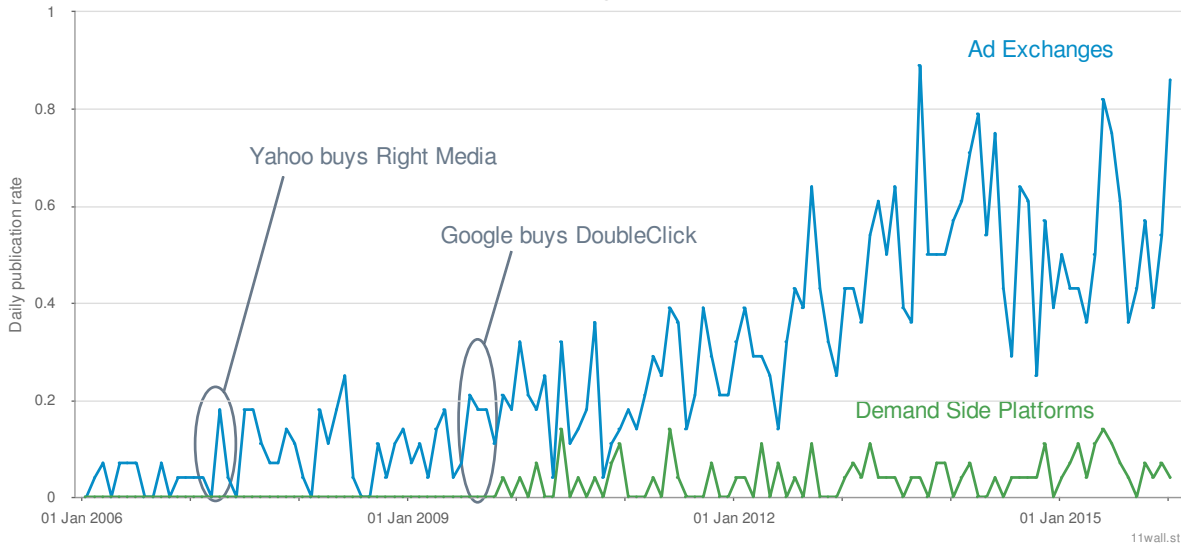
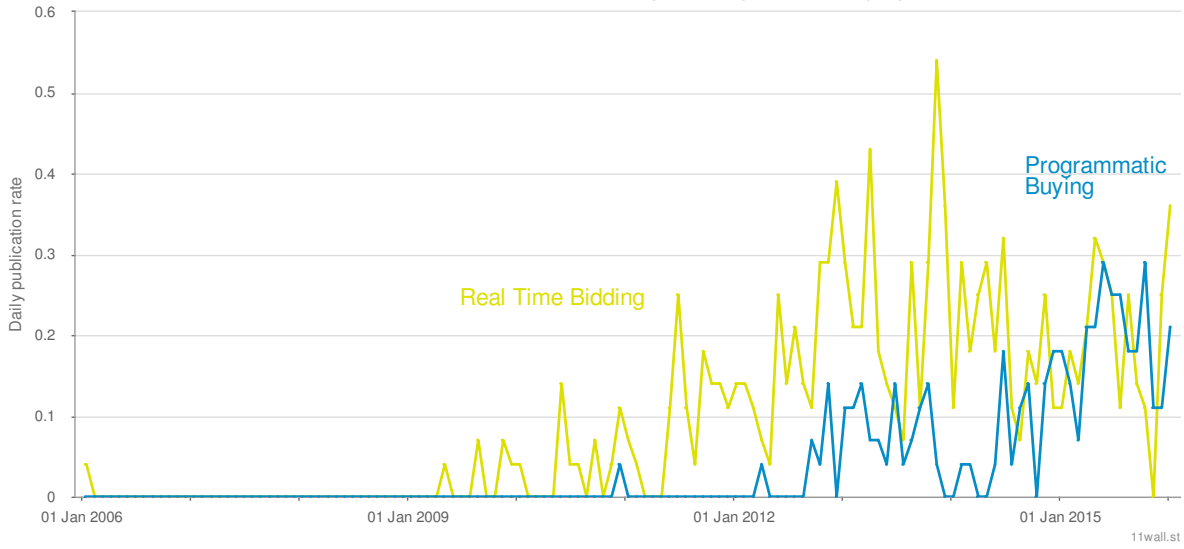


Chart 5: News flow for Real Time Bidding and Programmatic Buying



Automation has brought down the cost of deciding whether it's worthwhile to place an ad, and user tracking has made websites' content less relevant. It has become economical to place ads on low-end websites for cheap, because the marginal cost of placing an ad has become so low.

This means that the growth of online advertising has happened on subprime ad space. The industry's argument is that it's still worth their customers money, thanks to their algorithms who check everything about the user, from his browsing history, to the cookies on his browser, to his hardware data. This is a compelling case, because the prime as space on the Internet (websites such as The Economist, the New York Times) are very expensive. However, customers paying for their ads to be displayed have practically no way of making sure their ads are being displayed to the right people.

Moreover, the industry has been pushing for more advertising budgets to be allocated to "display ads", particularly on mobile, where Internet users click on ads much less than on desktops. The huge red flag with this practice is that customers have no means of knowing if their ad dollars are being spent efficiently. With pay-per-click, at least someone is coming to their website. With display ads, they are merely paying for exposure and such vague concepts as "brand awareness".

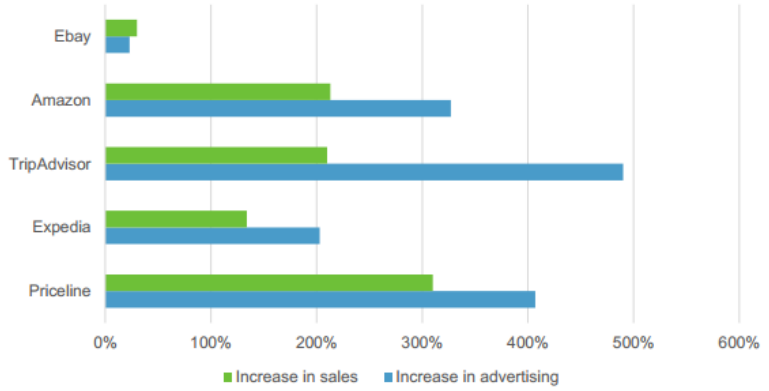
It’s not even clear if a visitor actually sees a "display" ad, and the industry is trying to set up a "viewability" standard for this type of ads. Currently, it is assumed that an ad has had a "reasonable chance of having been viewed by the visitor, if at least 50% of its pixels were displayed on the visitor’s browser for at least one continuous second". This definition alone lets you understand how murky this type of advertising actually is.

"Display" caught up with pay-per-click in 2015, and is projected to reach $32.2 billion in the US in 2016, vs $29.3 billion for PPC.

The efficiency of online advertising has been in decline for years

We have found five companies who provide some details about their online advertising budget: Ebay, Amazon, TripAdvisor, Expedia and Priceline. Combined, they have spent over $10 billion on online marketing in FY2015, mainly on digital ads. Their ROI of online advertising is declining: businesses need to spend more for every additional dollar of sale **(Chart 6)**.

Chart 6: Change in advertising and sales, from 2010 to 2015 (source: SEC 10-K filings)



Since 2010, their online ad spending outgrew their online B2C sales. This is a general trend in e-commerce: Google's revenues are up 156% from 2010 to 2015, while online B2C sales roughly doubled. This is clearly not sustainable.

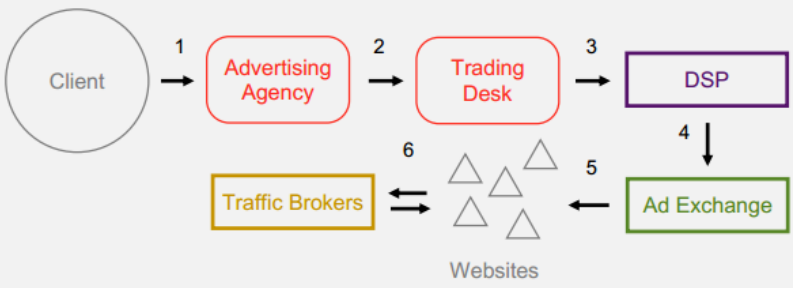
The marketing departments of these online businesses are well versed in online ads, true insiders to the market, and even their advertising efficiency is declining. One can only imagine the dreadful returns for outsiders, companies like Verizon or Walmart. Very few companies are transparent in their ad spending, so it's impossible to really know what's going on in their marketing departments.

The decline in bang for every ad dollar spent is proof that the expansion of online advertising is being done to the detriment of customers, in ever less productive campaigns.

The ecosystem has become obscure, complex, and intermediaries are taking an ever bigger cut

The automatization of ad placement has led to a complexification of the industry, with much more intermediaries. From a simple Client - Advertising Agency - Publisher relationship, we ended up with something like this **(Figure 1)**:

Figure 1: Industry value chain



1. The Client demands the Advertising Agency to run an ad campaign.
2. The Agency tells its Trading Desk what kind of ad space to buy, according to the Client's requirements regarding its target consumer.
3. The Trading Desk establishes a set of guidelines, and asks a Demand-Side Platform (DSP) to buy ad space according to these guidelines. DSPs are buying specialists, they run intelligent algorithms to pick the cheapest ad space relative to its quality.
4. The DSP keeps tracking all the ad spots that come up for sale on Ad Exchanges, establishes the value of every one of them, and bids for the most relevant ones. It uses data from various data providers to come up with its valuations.
5. The Ad Exchange is an open platform that enables websites to place their available ad space for anyone to buy in an auction.
6. The websites themselves try to attract traffic. They receive traffic naturally, from ingoing links, search engine results, and returning visitors. However, they can also buy traffic from Traffic Brokers (for ex. Taboola and Outbrain, two « content discovery platforms »).

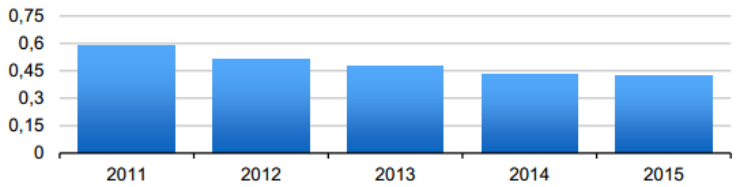
N.B.: we have very much simplified the way things work. Advertising Agencies can still go directly to publishers, or use Ad Networks for various degrees of customization. We are dealing there with the ad placement system that has witnessed the highest rate of growth over the last years.

Twenty years ago, the client could see his ads being displayed in the latest print edition of the New York Times, and know that his ads have been seen by the specific demographic of that particular newspaper. Today, its ads will be displayed on an alphabet soup of websites, and will be seen by a wide array of visitors.

The Rubicon Project, an ad tech company, sums this up in its 10-K filing for FY2015: "Due to the size and complexity of the advertising ecosystem and purchasing process, manual processes can no longer effectively optimize or manage digital advertising. […] This has created a need to automate the digital advertising industry and to simplify the process of buying and selling advertising."

The customer has very little way to control and check if his advertising campaign is being done properly. He has to take the insiders' word for it. This obviously creates a perverse incentive for insiders to place the customer's ads on lower quality websites, and to show them to lower quality visitor profiles. Once again, the industry claims that its super-smart algorithms are making sure the customer's money is well spent. However, something seems very wrong in this system, and here's some insight. Look at what it costs Rocket Fuel, a DSP specialist, to buy ad space that it resells for $1 to the advertisers **(Chart 7).**

Chart 7: Rocket Fuel cost of ad space per $ of revenue, dollars (source: SEC 10-K filings)



This is just crazy. Rocket Fuel's revenue rose from $17 million in 2010 to $409 million in 2015, while its operating margin expanded, with fierce competition in the market. Are their algorithms that smart, or are they just placing ads on lesser quality, i.e. cheaper, i.e. subprime ad space, while reassuring clients that everything's fine?

The automation of the process, and its complexification, has gradually removed transparency. The client who pays for his ads to be displayed, is hiring more and more intermediaries. Intermediaries are raising their margins, without the client really knowing. Moreover, the client is less and less aware of who is actually seeing the ads. Unless he specifically asks to have detailed reports on who has seen his ads, the intermediaries are free to show these ads to whoever they want, wherever they want.

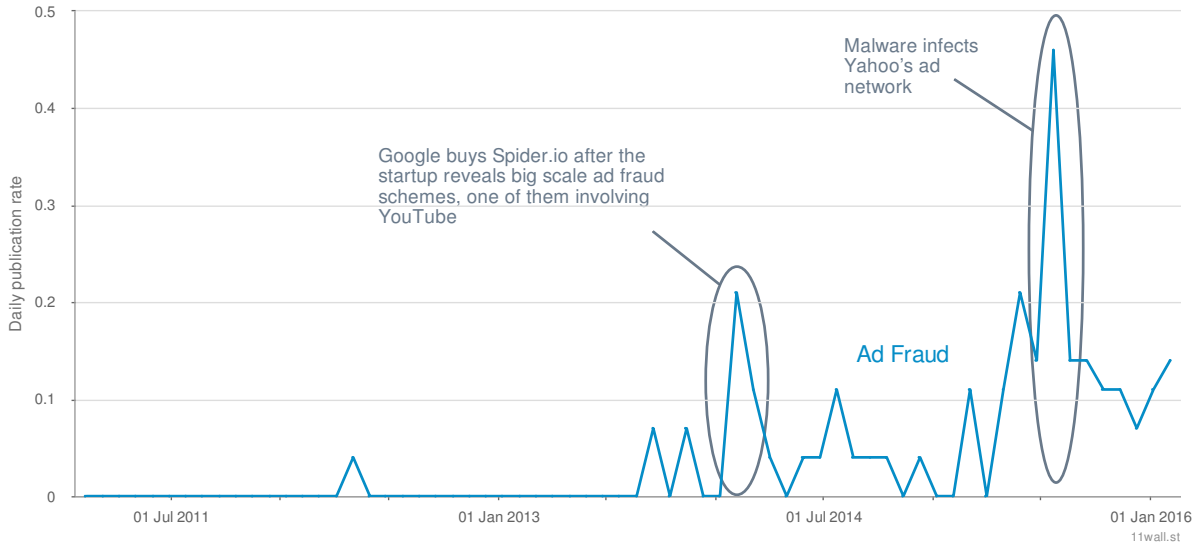
The websites themselves, by resorting to traffic brokers, are less aware of who their own visitors are. Content discovery platforms, such as Outbrain and Taboola, redirect traffic in new and unpredictable ways, and it's not really clear who or how is checking the traffic's quality. Traffic brokers' incentive is to generate as much traffic as possible, while the websites don't have the know-how to verify if this traffic is genuine. The big publishers themselves (Bloomberg, the Huffington Post) admit to buying traffic, although for « small percentages of their overall traffic ». As long as nobody complains, everyone has an incentive not to question the system.

There's a great deal of fraud, controls are non-existing, and customers are growing aware of it

Technology makes it easy to buy ever cheaper ad space, with the rationalization that "we're buying cheap stuff, but we're making sure it's worth the price, with artificial intelligence, machine learning and big data". Without controls, we're bound to end up buying worthless things while pretending that they're valuable. Think of the subprime bubble: when everyone who could qualify for a mortgage got one, mortgage lenders started making loans to people who should never have qualified.

Lesser incentives to control and account for the buying of ad space are leading to fraud, and the media is starting to report on the phenomenon **(Chart 8)**.

Chart 8: News-flow dynamic analysis of Ad Fraud



TechCrunch reported in January 2016 that ad fraud could reach $8.2 billion in 2016. Clients are being deceived on the quality of people who are seeing their ads.

- ads are placed on ineligible websites (porn sites, illegal video streaming, fake or stolen content, pop-ups and zero-sized images).
- ads are being clicked and seen by fake visitors. Groups of professional ad clickers ("click farms") in countries with low labor costs (India, Pakistan, Egypt) make it look like a lot of people are engaging the ads. Bots are simulating visitors, emulating browsers populated with high-quality cookies and human-like behavior (mouse movement, page scrolling).

Independent studies have revealed that ad campaigns are polluted by fake clicks and bots. An experiment by the traffic quality verification startup Oxford BioChronometrics has shown that under certain circumstances, bot traffic generated by ads on Google, LinkedIn and Facebook may be as high as 90%. Bots can be highly evolved, emulating a human-like behavior, and virtually impossible to detect, rendering ad campaigns useless. "Traffic arbitrage", where an intermediary buys cheap (fake) traffic and resells it to traffic brokers or publishers, is virtually risk-free to the perpetrator. At worse, his account will be shut down.

Google doesn't mention "fraud" even once in its SEC filings, but the smaller players, such as Rocket Fuel and Millennial Media, refer to it more than 15 times on average in their 10-K, as a risk factor. Google's operational stance is that its own customers should check the quality of the visitors its advertising platform is bringing in. Google has setup a form to claim a reimbursement for fraudulent traffic (if ever its customers were able to identify it, and prove that it was fraudulent), but makes no assurances as to how much it will actually pay back.

The industry has a huge incentive to downplay and hide the extent of ad fraud, as it's very lucrative. There are only so many high-quality visitors on the Internet, and to really filter out low quality viewers would annihilate the market for subprime ad space.

We've seen this before, at the end of the DotCom bubble

We are living through the latest stages of the online advertising bubble, as available high-quality ad space is shrinking, leading to a

decline ad space quality, and a decline of ad efficiency. Awareness for fraud is growing, and soon, clients will cut their online ad spending, and demand higher accountability. This will destroy the high-margin market of automated reselling worthless ad space, and will force advertisers to focus only on prime publishers, with expensive ad space.

This is a re-run of the online advertising crash of the early 2000s, when the proliferation of banners and pop-ups destroyed any value these ads had (and led people to install pop-up killers, just like with ad blockers today). It took one Google to come up with contextual advertising to bring the market back to life.

Roadmap & Playbook

We estimate that the online advertising market has been artificially inflated since the end of 2013, and is much more mature than its pundits are claiming. 90% of Google's revenues come from advertising. We expect Alphabet's share price to go down by 75%. We get this number by revising its earnings down by 30%, stripping its 30x PE off its "growth premium" down to 15x, and factoring in the reputational damage. Other, nimbler "ad tech" players will be wiped out (Rocket Fuel, Millennial Media, Tremor Video, The Rubicon Project).

A larger number of companies will be impacted, as a growing number of third-party tech giants are involved in the advertising play (Oracle, Amazon, Salesforce), and we expect the whole tech sector to be hard hit by the unwinding of the bubble. A special case must be made of Facebook, as we believe that their platform is harder to crack, and they have a better ability to track their users, and fight ad fraud. They will be the stepping stone for investing in online advertising, once the dust settles.

Currently, January 2018 Alphabet puts with a strike of $400 are trading at around $8, for a 20x return should our scenario materialize.

Probability	Event	Early signs
60%	Awareness for fraud and the inefficiency of online ads grows past the point of no return over the next 2 years. The whole sector crashes as clients reduce spending and demand better reporting and transparency.	• Big companies cut their online ad spending without giving reasons. • New scandals about ads being seen by robots. • Growing penetration of ad blockers.
30%	Google & al. manage to somehow improve reporting and accountability without hurting their market share. They manage to convince clients that there's no reason to worry about the decline in ad quality and ROI.	• PR campaigns by the big players to explain how they are fighting fraud. • Traffic quality verification startups are discredited (PR again). • Apple reverses its stance on ad blocking.
10%	The bubble goes on, as the decline in advertising ROI leads clients to spend ever more in a struggle for an elusive presence online.	• News flow on ad fraud dies out.

By:

Sarunas Barauskas, s.barauskas@kalkis-tech.com

Philippe Gondard, p.gondard@kalkis-tech.com

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