

Mobileye: Just Follow the Money

Citron Sets Short-Term Target of \$25 and Long Term Target Below \$10

Citron Drops the on Insider Selling

Just 11 weeks ago, Citron Research published commentary on the overdone run-up in Ambarella's stock, pointing out how far investor enthusiasm had detached from reality. In the last six weeks, while the Nasdaq Composite shed 8.7%, Ambarella plunged **38.6%**.

What happened? Yes, the market has experienced a sentiment-shift, but more importantly, after Ambarella reported quarterly results, Wall Street realized that “drone dreams” couldn’t support a fantasy valuation for a chip company that faces a competitive future.

Citron has seen this scenario play out many times in its 14 years of publication. **Nobody** on Wall Street has a longer and more consistent track record of exposing stories where enormous risk of the investment premise is being ignored in the face of massive hype.

Does anyone remember the big 3D-Printing insanity of 2013-2014? ([DDD](#), [XONE](#), [VJET](#))

The play book looks like this: Wall Street finds a story that the public will feed on, the media fuels the story, and the analysts promote the story, while management gets rich selling freshly minted stock into the story.

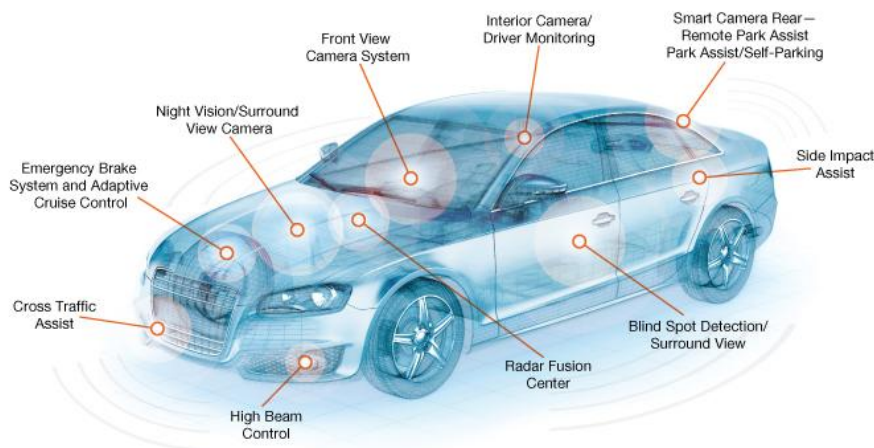
Lather, Rinse, Repeat ... **Introducing Mobileye** (NASDAQ:MBLY)

Citron offers an unassailable thesis why Mobileye is on its way to \$25 near term:
Follow the Money.

What is Mobileye's Actual Business?

Mobileye is a pioneer and a market leader in Advanced Driver Assistance Systems. For those of you unfamiliar with (ADAS) here's a [Wikipedia primer](#) to get you up to speed:

Advanced Driver Assistance System Applications



The ADAS feature set

Note that while Mobileye is a pioneer in ADAS, they did not invent nor have any broad proprietary claim over ADAS functionalities. Mobileye has been a leader in supplying ADAS technology on a chip to the auto industry and deserves credit for being an early mover in the space. **And that is where the story should have ended.**

There is **NOTHING** in the past or present financials, business performance or realistic future prospects of Mobileye that would get it within miles of justifying its current \$12 billion market cap. They do not own a bar-the-competition patent portfolio on ADAS, nor do they have locked-in decades-long supply commitments. There are no barriers to entry for competitors other than legitimate R&D, and they do not have superior technology. They just got there first.

Investing in this company is a "Hail-Mary bet" on a blue-sky future that just does not exist. This is not merely the opinion of Citron-- it is the actions of management who have spoken with their dollars -- **loud and clear** -- selling stock more aggressively than Citron has ever witnessed -- as documented in this report.

Mobileye's Current Valuation is Unfathomable

There is no arguing that compared to other semiconductor companies Mobileye's valuation is absurd. Even if the most optimistic revenue scenarios possible are extended through 2017...it's still absurd:

Company	Price/Sales Ratio
MBLY	66
MBLY in 2017	18.6 That's <u>IF</u> their stock maintains \$51 a share ... <u>and</u> ... the Company achieves 2017 high-end revenue estimates of 50% - 60% YoY revenue growth.
BRCM	3.57
NVDA	2.20
QCOM	3.67
INTC	2.44
MRVL	1.83
CRUS	2.61
XLNX	4.47
MLNX	3.60
AVGO	5.30
NXPI	3.78

Even a stock price of \$25 cannot be justified without requiring investors to believe that Mobileye will face zero near term competition as management and analysts "spin" in the story. Citron finds these claims to be ignorant, negligent, fraudulent, and oblivious to the facts.

Competition Is Here and Now!!

While working on the Mobileye story, Citron Research was beaten to the punch on some of the important points of the Mobileye story, when Suhail Capital published an in-depth piece on Seeking Alpha, here:

<http://seekingalpha.com/article/3445726-mobileye-a-very-compelling-short-thesis>

The Suhail research report documents in significant detail Mobileye's actual competitive landscape in ADAS. For brevity, Citron summarize the ADAS strategies for the 5 largest Tier-1 auto suppliers. **Contrary to what the analyst community is spewing out, Mobileye is facing years of intensifying competition.**

Top 5 Tier 1 ADAS Suppliers	Comments and Links
Bosch	Over 2,000 engineers working on ADAS technologies
Continental	Continental acquires ASL Vision Continental acquires Elektrobit Continental OEM's new ADAS to Toyota (camera plus LIDAR)
Delphi	Delphi acquires Ottomatika Delphi acquires stake in Quanergy
Denso	Formerly a Mobileye partner. Now shipping its own units. Toyota still affiliated, but will offer its ADAS line to all auto manufacturers in 2016.
Autoliv	Own monocular camera units shipping 2015 Autoliv Acquires M/A COM Formerly partnered with Mobileye for ADAS.

Ominously, their main competitors are their own customers. Four of the top five Tier-1 auto industry suppliers now ship camera systems that compete directly with Mobileye's product. Particular concern to Mobileye should be Denso and Continental, which were formerly Mobileye customers -- they've now gone on to compete against Mobileye with their own units, most using competing technology approaches.

Note: These are not just any competitors. Mobileye's sales channel is utterly dependent upon Tier-1 suppliers. They are Mobileye's gateway to selling to nearly all auto makers.

We're not intending to repeat all the details documented by Suhail, Citron encourages serious investors to read it for yourself. But it is obvious that there is **not just a single ADAS solution** -- there are a **half dozen or more viable technologies**, including monocular camera / image analysis, stereo cameras (significantly different from a technology perspective), radar, LIDAR (lasers) and hybrid blends of multiple sensors, all of which are supporting competitive ADAS product suites.

Mobileye's technology advantage is in **just one** of these technologies: monocular camera/image analysis, with some early steps to integrate radar. Thus, there is a wide open field for multiple approaches to innovate ADAS and march it down the cost curve as specified by Moore's Law.

Competition in this space is inevitable, and there's plenty of information out there, as reflected by Suhail, that the competitive landscape is crowding up right now. We credit the Pacific Crest analyst for articulating this thought best in a May 15 report:

“The auto supply chain structure may ultimately turn from being a positive to a negative for Mobileye. We believe these supplier partners have ample time to invest in similar technologies to bridge technology gaps. Further, given that these systems are often being provided by suppliers with massive incumbent footprints in the vehicle, competitors could certainly become more price aggressive. Finally, OEMs do not like to sole-source, which could limit Mobileye’s pricing leverage.”

-- Pacific Crest Analyst Note: May 15, 2015

What is the near term financial result of this increased competition?

Let's assume that every one of these deep-pocket competitors implements their systems slower than expected and fails to dent Mobileye's penetration into ADAS market for the next 2 years. Mobileye's revenue growth rate would then be expand even further -- from 54% to 60% in 2017.

The industry standard sales multiple for semi companies is 2.5x revenue, but Citron will be overly generous and afford Mobileye 5x revenue. That scenario gives Mobileye a 2016 market cap of \$2.0 billion ... that pegs the stock at **\$13.73...** or **\$12.10** if you want to use the fully diluted share count. And this is on a fully optimistic scenario with the both auto manufactures and tier one suppliers having slower implementation. Anyone who believes Mobileye can maintain "dominance", as in virtual monopoly, in the hotly competitive ADAS space beyond 2018 is naïve to the workings of the auto industry.

This is Why Mobileye cannot stay dominant past the next 2 years:

The Future Costs Money \$\$\$\$\$\$\$

It is not a point of dispute that several major automobile companies, along with Mobileye's former Tier 1 partners are working on their own proprietary ADAS solutions that are direct competitors to Mobileye. **The only way Mobileye has a competitive future would be to continuously release more sophisticated technology than their competitors -- and at lower price points. (Remember, most ADAS features are currently sold to consumers as options, not part of base-model cars.) It is ludicrous to project that it can sustain "monopoly" margins. No fabless semiconductor company ever has.**

You cannot cheat Research & Development -- this is not a social network, it is science. Mobileye's R&D budget is miniscule, and completely outclassed in the auto industry. Think about this: [6 of the top 20 companies](#) in the world in R&D investment are automotive companies, and another one being [Google](#). There is no way that Mobileye can keep any technological edge more than the few year lead they enjoyed without spending the big money.

And instead of trying, their actions are those of a management team that has already thrown their hands up in defeat.

MBLY market valuation relative to R&D looks most ludicrous when compared against other semiconductor companies that either sell or are preparing to sell products with ADAS applicability.

Mobileye R&D to E/V is 0.33% - that is not even on the charts compared to the competition. In the past 18 months, Mobileye has spent a total of only \$56 million on Research and Development. Here's the 2014 R&D spend of a few selected fabless semi companies and other potential competitors in Mobileye's space:

Comparative Company Analysis				
Ticker	Name	EV (US\$)	R&D 2014A	2014A R&D / EV
AMBA	Ambarella Inc	\$2,081	\$49	2.3%
NVDA	Nvidia Corp	\$9,152	\$1,360	14.9%
OVTI	Omnivision Technologies Inc	\$962	\$131	13.6%
FSL	Freescale Semiconductor Ltd	\$16,356	\$846	5.2%
TXN	Texas Instruments Inc	\$51,430	\$1,358	2.6%
6502	Toshiba Corp	\$27,919	329,500	10.0%
6723	Renesas Electronics Corp	\$8,102	115,310	12.2%
6902	Denso Corp	\$33,665	368,732	8.9%
INTC	Intel Corp	\$132,209	\$11,537	8.7%
QCOM	Qualcomm Inc	\$62,293	\$5,477	8.8%
Average				8.7%

MBLY	Mobileye Nv	\$11,081	\$36.9	0.3%
------	-------------	----------	--------	------

**Forecast period information is based on Bloomberg consensus estimates
 **Sales & EBITDA figures have been calendarized for comparability purposes;
 in absence of 2018E being available, 2017E has been used*

How Did Mobileye Ever Get to this Absurd Valuation??

Behind every bubble, there must be a willing analyst. In this case we turn to the curious case of Morgan Stanley who has been the most aggressive defender of MBLV stock. In November 2013, [Morgan Stanley published a 109 page report](#) on the future of "Autonomous Cars". This report was written by the same team that now covers Mobileye. **In all 109 pages, there are merely two passing references to Mobileye, although it had been in business since 1999. Nowhere in the report does Morgan Stanley even consider Mobileye to be the future of the ADAS or autonomous vehicles.**

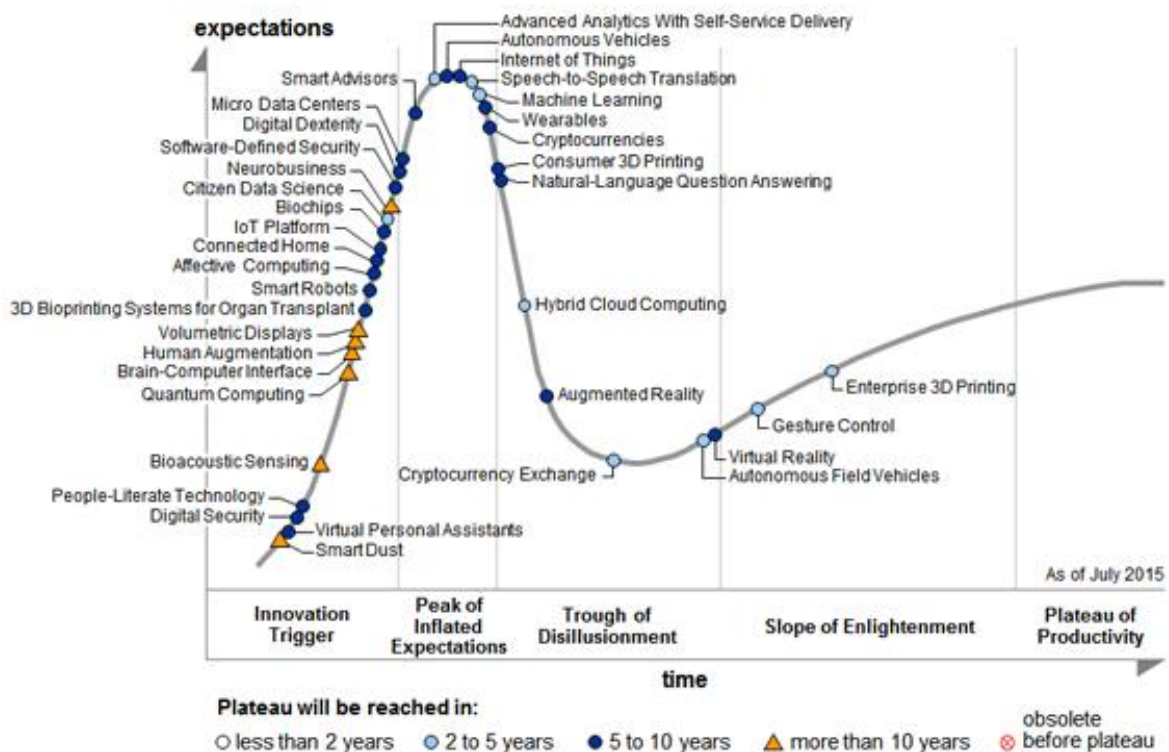
Fast-forward 9 months and Morgan Stanley underwrites Mobileye's IPO plus its secondary. Magically, with only \$40 million spent on R&D since IPO, Morgan Stanley has anointed Mobileye as **The Dominant Player** in ADAS -- now and as far as the eye can see: no competitive threats on the horizon for years....discounted cash flow models to 2029 ... complete nonsense and in complete contradiction to their own blue paper.

This is an eerily similar moment to **one year ago this week**: Morgan Stanley put a \$135 price target on 3D-Printing company Stratysys. One year later the stock is down 75% at \$29.

[http://www.streetinsider.com/Analyst+Comments/UPDATE%3A+Morgan+Stanley+Bullish+on+3D+Printing%3B+Starts+Stratysys+at+Over+eight+\(SSYS\)+\(DDD\)/9805651.html](http://www.streetinsider.com/Analyst+Comments/UPDATE%3A+Morgan+Stanley+Bullish+on+3D+Printing%3B+Starts+Stratysys+at+Over+eight+(SSYS)+(DDD)/9805651.html)

Isn't Mobileye on the forefront of a Self Driving Car??

It is Citron's opinion that much of the run in Mobileye's stock is due to the hype surrounding (autonomously) self-driving cars. Similar to when 3D-Printing stocks were peaking, the autonomous car is at the top of the hype cycle.



"Hype-Cycle-General" by NeedCokeNow - Own work. Licensed under CC BY-SA 3.0 via Commons - <https://commons.wikimedia.org/wiki/File:Hype-Cycle-General.png#/media/File:Hype-Cycle-General.png>

As of last month, Gartner now deems the "self-driving car" story to be at [the peak of the Hype Cycle](#).

Citron Research will refrain from lengthy arguments about the realistic chances of mass market autonomous drive vehicles in the next decade or two. It is an overanalyzed topic that garners far too much press already.

But, we will say one thing: The notion that Mobileye has a future in autonomous vehicles because they were a pioneer in ADAS systems is completely ridiculous.

Here's how Mobileye describes / promotes itself in its own investment prospectus, explicitly suggesting its current niche business is a stepping stone to "a Life-Changing Megatrend" :

Mobileye's Growing Market Opportunity

Today

Leading *Advanced Driver Assistance Systems* Technology



One of the fastest growing segments within the automotive electronics industry
Mobileye's products include all applications in one system

Near Future

Safety Rating Changes Promoting Standard Fit



Highest safety rating in Europe will require a camera-based ADAS system
Other key geographies expected to follow

Future

Autonomous Driving - a Life-Changing Megatrend



Mobileye's Autonomous Driving technology will help revolutionize the driving experience

True Enough...

Undisclosed Competition!

Not a Chance!

The self-driving car is one of the most complex technology challenges of our age. If it ever becomes practical, it will inevitably include cameras and sensors like we see in advanced ADAS implementations, but will depend on breakthroughs in numerous complex technology disciplines, including high-throughput GPU computing, intensely detailed mapping technologies that will make today's

Google Maps look like the "model T", machine learning/AI, and failsafe network connectivity at levels far beyond our current mobile phones and computers. It goes without saying that lives would be hanging in the balance of all these technologies playing together seamlessly.

Needless to say, safety regulators, national and state legislators, and the insurance industry would all have to sign off before any of this technology goes mainstream...even if it ever proves its technological potential.

While Mobileye's database of monocular camera processing is nice to have today, management is using it to hype a false promise that they can lead in self-driving car technology. They know this is false, their true intentions are tipped by simply following the money.

With their total R&D budget of \$40 million a year compared to the dominant spend throughout the rest of the industry, Mobileye is bringing a slingshot to a gun fight. For those of you who live in a cave, here are a few small players who are now aggressively putting serious R&D funding into autonomous vehicles: **Apple, Google, Toyota, Uber, Daimler**, and now [Toyota, through MIT and Stanford](#)..... in addition to all the Tier 1 players identified above.

Which companies will win? Which technologies will win? Does anyone win? None of that makes a difference to Mobileye, who is just an outsider looking in at the autonomous vehicle space. **If you don't spend dollars -- you can't make sense.**



Insider Selling ~~Dumping~~ Thrashing

We are well aware that insider selling is a normal part of the IPO business. Yet what we have seen at Mobileye is something we have never witnessed. It all started with the IPO and continued in the secondary.

This pair of massive stock offerings netted over **1.6 Billion** for selling shareholders, while raising **only 200 Million** for the company. This leaves Citron speechless.

Funding Event	Date	Shares	Proceeds	Price	Amount Sold
IPO	August 1, 2014	32,602,000 (incl greenshoe)	Selling Shareholders	25.00	815,050,000
		8,325,000	Company	25.00	208,125,000
Secondary	March 18, 2015	19,696,000 (incl greenshoe)	Selling Shareholders	41.75	822,308,000

Let Citron drop a few bombs on you:

- 🧨 Shareholders of Mobileye have sold over \$1.6 Billion in company stock since IPO. This is roughly equivalent to 14% of MBLY's market cap
- 🧨 \$1.6 Billion of insider cash-out is **13.7x** the total R&D spend by Mobileye from 2011 to current
- 🧨 The average insider sale price is \$33.14, which is a hefty 37% discount to MBLY's current share price



Mobileye's Chart of Doom: ALL YOU HAVE TO KNOW

Insider Share Sale Proceeds as a % of Gross Revenues (Since Inception)

Mobileye	396%
GoPro	39%
Twitter	15%
Ambarella	10%
Tesla	4%
Netflix	1%

Insiders and early stage investors have sold more in stock than the company has generated in gross revenues, plus every dollar of their lifetime R&D spend!

Money talks ... and Mobileye insiders are fluent!

Apologies to Tesla and Elon Musk

Adding to the hype factor fluffing Mobileye is the fact that they are a direct supplier to Tesla. Not wishing to insult readers' intelligence with a rant about the tiny unit sales represented by Tesla as a customer, Citron has previously offered opinions that Tesla is an overvalued stock.

We must at least acknowledge Mr. Musk, who has personally participated in both Tesla's secondary offerings, and not helped himself to every opportunity to sell stock to the unsuspecting public. His restraint stands in stark contrast to the excesses of Mobileye's management and insiders.



Late breaking news!

Citron is so excited! Zvi Aviram was just now on CNBC hyping ... Self-Driving Cars! Watching the fluff piece, we were stunned that he didn't even bring along Mobileye's own video simulation. CNBC ran video clips of **Mercedes and Google prototypes!** **Neither company is even a customer of Mobileye.**

Meanwhile, Aviram has sold 5.59 million shares of Mobileye, nearly 30% of his stake, at the IPO and secondary.

He's personally pocketed appx \$220 million, which is 2x the entire R&D spend of Mobileye since 2011 -- as far back as the company discloses.

Conclusion

The story here is not complicated; it is a simple trail of "follow the money". Mobileye created early ADAS systems and has enjoyed success. As soon as they began to earn broad market traction, the company went public (Goldman Sachs got 18% of the deal for \$100 million and is now a seller.) They sold as many shares on the market as they could, and then raced right back to the well as soon as the lockup expired with a secondary to sell **even more** shares -- **not** to build an R&D war chest, but so company founders and early stage investors **could run to the bank** ... again. (Not one dollar of the secondary went to the company.)

In stark relief, while insiders and early investors pocketed over \$1.6 billion in stock sales, all these geniuses raised a mere \$200 million for the company. Hence, the company is funded with only pocket change to spend on Research & Development -- most of which will inevitably be allocated to defend its market share in ADAS.

As for the self-driving car -- why fight a war you cannot win?

As reality sets in Citron expects Mobileye to trade down to \$25 in the short term and single digits within the next 24 months. It is 2015's DDD.



Cautious Investing to All.