

October 8, 2020

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ACM Research (ACMR US)

Share Price in USD	\$71.88
Market Cap in USD (mln)	1370.3
Price/Revenue	3.35x
Historic P/E	77x

ACM Research (ACMR US) last share price in USD (blue, left) and volume (green, right, mln shares)



Source: S&P Capital IQ October 8, 2020

ACM Research (ACMR US)

Dirty business

We believe ACM Research (ACMR) is a fraud, over-reporting both revenue and profit. What real profit the company has is apparently being siphoned off to related parties.

ACMR faces a cash crunch even with a reported \$86 mln in the bank. ACMR is borrowing at high rates of interest, and the company is pushing to IPO substantially all the company assets in Shanghai in order to raise cash. This will significantly dilute U.S. investors.

We visited ACMR sites in China, Korea, and California, accessed credit reports on ACMR subsidiaries, reviewed ACMR's exchanges with Shanghai regulators, and conducted more than 40 interviews. This work brings us to conclude the following:

- ▶ ACMR reports industry-beating gross margins of 47%. We believe the real gross margins are half that at best. That would wipe out the company's net profit.
- ▶ We estimate that revenue is overstated by 15-20%.
- ▶ We have evidence that undisclosed related parties are diverting revenue and profit from the company
- ▶ Key means by which ACMR tunnels over-reported profit out of the company may be through about \$20 mln in overstated inventory costs and through cash that is inflated or just compromised. We think least \$11 mln in warranty and service costs are understated.
- ▶ ACMR appears to be strapped for cash in spite of the \$86 mln reported on the balance sheet. ACMR had \$25.77 mln in short-term borrowings in Q2 2020, up by \$21.88 mln QoQ and at aver-

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age annualized borrowing cost of 6.1% compared with annualized interest income of 1.3%. ACMR's CEO has personally guaranteed 11 of 13 short-term "lines of credit" issued on the mainland.



"ACMR's high tech" Korean investee, Ninebell, which supposedly makes the highest-value part of the machines--the robotic arms. The gray machine behind the soda dispenser is the robotic assembly. The high-tech part, on the palette, comes from the Japanese company Yaskawa.

Founded in Silicon Valley in 1998, ACMR never realized its ambition to make original electroplating equipment for the semiconductor industry and turned to cleaning equipment instead. Limping, with just \$27 mln in revenue and making losses in its 18th year of operations, the company found Roth Capital Partners and managed to list in 2017. Now Chinese in all but headquarters, ACMR pitches itself as a high-tech inventor that makes far more money than industry leaders like Screen and Tokyo Electron. Much of the evidence we have found indicates that is a lie. We estimate that ACMR makes much less profit, that revenue is 15-20% lower than claimed, that related parties are pulling money out of the company, and that at least \$40 mln in assets simply do not exist.

The team around ACMR is better known for stock promotion than for management. The former ACMR CFO, Xu Min, who left soon after the IPO to join China Online Education Group, was previously CFO of well-known fraud UTStarcom.¹ Before that, Xu was a research analyst at Roth covering cleantech. Lisa Yilu Feng, CFO of the China subsidiary, formerly worked

¹ <https://www.justice.gov/opa/pr/utstarcom-inc-agrees-pay-15-million-penalty-acts-foreign-bribery-china>

Month day, year

at Lumenis, an Israeli company at which two top executives were charged with revenue accounting fraud to inflate sales.²

The company's auditor is Daniel Ho of BDO Shu Lun Pan. He has audited other companies widely regarded as frauds such as Orient Paper, now a penny stock trading as IT Tech, and Origin Agritech (SEED).

Hyped

We think ACMR overstates the price of many of its machines by about 20%. The actual costs, revenue, and profit are hidden when the company diverts revenue from over 90% of sales to five on-paper-only companies. The company reports an average price of \$3.6 mln³ for its single-wafer cleaning machines, while we estimate \$2.8 mln per machine. One of the very few customers that did not go through a sales agency in 2019⁴ told us within a narrow range what the company had paid for two wafer-cleaning machines purchased in 2019. ACMR disclosures show prices 15-22% higher than this customer reported to us.

Table 1. Price Differential Reported by Direct Customer (mln USD)

	Machines purchased in 2019	Price of machines	Range of payments	Average price per machine (midpoint)	Reported average price per machine	Difference	Difference %
Customer A	2	\$2.1-\$3.4	\$5.2-\$5.8	\$2.8	\$3.6	\$0.80	22%

Source: J Capital interviews, calculation from June 1, 2020 8K

Grossly overstated margins

Not only is revenue overstated, but we have a mountain of evidence showing inflated profits.

We believe that Screen Holdings, which commands roughly 40% of the

2 <https://www.sec.gov/litigation/litreleases/2009/lr20876.htm>

3 See [page 135 ACMR 8K](#) June 1, 2020

4 Disclosure of sales agents for each customer are on pages 8-1-131-134 of Document 814 submitted by ACM Research Shanghai on August 11, 2020 to the Shanghai Stock Exchange in response to their further questions on the listing documents. This is a 215-page document. The Chinese-language documents are available from database services in China and from the Shanghai exchange at http://kcb.sse.com.cn/renewal/xmxc/index.shtml?auditId=505&anchor_type=0. This link is hard to access from the U.S. The documents have not been made available or translated in the U.S. J Capital has made them available for download here: <https://jcapitalresearch.box.com/s/rrecwxo7954wfr66z4ei7b6oukjow8y>

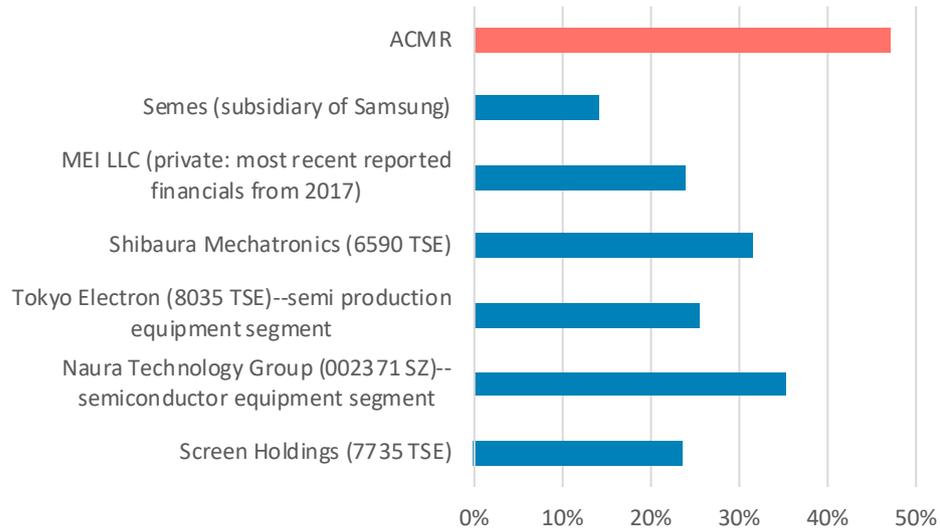
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Screen (DNS) is 26x the size of ACMR and has more equipment and technology. It also has 40% of the world market in the same product category. So why are ACMR's gross margins double?

How do you build high-tech machines with \$3.9 mln in manufacturing equipment at cost?

world market for wafer-cleaning equipment, is the company most directly comparable to ACMR. Screen owns more technology and more manufacturing equipment. Screen reports gross margins of 23.7%.

Chart 1. Comparable Gross Profit Margins 2019 (%)



Source: Company financial statements⁵

ACMR gets \$300,192 in revenue per employee. Meanwhile, Screen gets \$568,869. Those numbers make ACMR reported margins more or less impossible.

Building stuff without equipment

The true nature of ACMR's business is readily available for investors to see in the company's disclosures. ACMR has virtually no capital equipment. So-called "manufacturing equipment" at cost on the balance sheet in Q2 2020 amounted to \$3.9 mln. This equipment was actually reduced in 2019

⁵ ACMR claims higher margins based a different set of comparables: Amec, Kingsemi, HZCCTECH, and the whole business of Naura, not just its equipment business (the company does not separately disclose margin on wafer-cleaning machines). These companies are making equipment that is of much higher value and with higher tech content.

"Amec and ACMR are not in the same industry," an AMEC customer-service agent told us when interviewed in August. "Amec's products are totally different from theirs," said an engineer there. This sentiment was echoed in all our four interviews with Amec executives.

Kingsemi derives just 1% of revenue from cleaning equipment and 90% from photolithography process coating equipment. Hangzhou Changchuan, or HZCCTECH, makes testing equipment. Naura makes a much higher margin on electronic components—60%--than on equipment. We compare ACMR's margin with Naura's 35% margin on equipment. We chose a comparable group of companies that make similar equipment. The only large, direct comparable is Screen.

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when production was supposed to “ramp.” The value of office equipment added since the start of 2019 greatly exceeds the value of added manufacturing equipment.

The company opened a new factory in 2018, yet the amount spent on construction in progress during 2017 and 2018 is negligible, and the depreciated PPE machinery values clearly show older machinery, not brand new and still barely depreciated capital assets.

By far the most valuable piece of equipment in the factory is for testing, not production.

Table 2. Equipment at Original and Net Book Value (mln USD at 0.15 USD/RMB)

Equipment name	Original Value	Net Book Value
Double-beam system electron microscope	\$ 1.09	\$ 0.59
Wafer surface particle scanning device	\$ 0.45	\$ 0.26
Bench prototype Module 300mm Wet station (300mm tank automatic cleaning machine)	\$ 0.37	\$ 0.33
Semiconductor etching equipment	\$ 0.22	\$ 0.01
Silicon wafer stress and thickness measuring instrument FSM	\$ 0.19	\$ 0.11
Chemical mixer	\$ 0.12	\$ 0.01
Hitachi Ion Milling Equipment	\$ 0.11	\$ 0.09
POGD-0220 shape measuring instrument	\$ 0.10	\$ 0.09
Scanning electron microscope	\$ 0.10	\$ 0.00
ECI Qualilab QL-10EZ copper plating solution analyzer	\$ 0.09	\$ 0.06
Total Machinery	\$ 2.84	\$ 1.54

Source: June 1, 2020 8K⁶

6 Note: 10,000 RMB values have been converted at the current yuan exchange rate.

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ACMR is spending nearly 3x as much on "materials for trial production" in the new facility as on manufacturing equipment and software.

Sensible peer group comparisons show just how little PPE the company has.

Table 3. Net PPE Comps (Latest year, mln USD)

Company Name	LTM Total Revenue	FY Net Property, Plant & Equipment	PPE/Revenue
Shibaura Mechatronics Corporation (TSE:6590)	\$ 444.1	\$ 106.0	24%
SCREEN Holdings Co., Ltd. (TSE:7735)	\$ 3,167.5	\$ 581.1	18%
Tokyo Electron Limited (TSE:8035)	\$ 11,697.5	\$ 1,675.7	14%
NAURA Technology Group Co., Ltd. (SZSE:002371)	\$ 677.2	\$ 321.3	47%
ACM Research, Inc. (Nasdaq: ACMR)	\$ 121.4	\$3.62	3%

Source: Capital IQ S&P

ACMR is building a new, 1 mln square foot production and R&D base in the Lingang park in Shanghai. Only 11% of the roughly \$127 mln being invested is for "equipment and software investment," while a staggering 31%, or \$40.9 mln, is for "raw materials for trial production."⁷ We question why the company needs to capitalize such large amounts of otherwise inventory costs for "trial" production when it already has an apparently established production process.

Table 4. Planned Capital Expenditures (mln USD)

Project name	Amount	Proportion
Civil work and decoration	\$ 45.51	34.38%
Equipment and software investment	\$ 14.49	10.95%
Development or design costs	\$ 9.44	7.13%
Cost of raw materials for trial production	\$ 40.90	30.90%
Fuel power cost for trial production	\$ 2.99	2.26%
Fees for testing (or detection)	\$ 3.15	2.38%
Reserve fund	\$ 6.29	4.75%
Land acquisition	\$ 9.60	7.25%
	\$ 132.37	100.00%

Source: ACMR 8K June 1, 2020

⁷ 8K June 1, 2020 page 285

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How come the CEO has to personally guarantee lines of credit when there's \$86 mln in the bank to use or collateralize?

Wafer-cleaning technology is a mature and low-margin area, and ACMR has opted to be a provider of complete equipment sets rather than a technological innovator. Single-wafer cleaning technology: "is actually the simplest part of the industry and the equipment is so simple," an industry expert told us in a phone call. "And so low tech that Applied, Lam, Tokyo Electron don't bother with it because it's low tech. The technology really hasn't changed a hell of a lot in 40 years."

The plugs

When a company inflates its revenue and profit, it has to create fake assets to compensate for the missing cash. We have also found invented liabilities and mysterious costs in ACMR's accounts. Among these problematic accounts are inflated cash, inflated inventory, a mysterious liability, understated warranty costs, and R&D costs that should properly be booked as cost of sales.

All this massaging of the accounts has apparently created a cash crunch.

NOTE 6 - SHORT-TERM BORROWINGS

At June 30, 2020 and December 31, 2019, short-term borrowings consisted of the following:

	June 30, 2020	December 31, 2019
Line of credit up to RMB 50,000 from Bank of Shanghai Pudong Branch, due on January 23, 2020 with an annual interest rate of 5.22%, guaranteed by Dr. David Wang, the Chief Executive Officer and President of ACM (the "CEO") and CleanChip Technologies Limited. It was fully repaid on January 23, 2020.	-	5,057
Line of credit up to RMB 20,000 from Shanghai Rural Commercial Bank, due on February 21, 2020 with an annual interest rate of 5.66%, guaranteed by the CEO and pledged by accounts receivable. It was fully repaid on February 21, 2020.	-	1,433
Line of credit up to RMB 20,000 from Bank of Communications, due on January 18, 2020 with an annual interest rate of 5.66% and fully repaid on January 19, 2020.	-	1,433
Line of credit up to RMB 20,000 from Bank of Communications, due on January 22, 2020 with an annual interest rate of 5.66% and fully repaid on January 22, 2020.	-	717
Line of credit up to RMB 20,000 from Bank of Communications, due on February 14, 2020 with an annual interest rate of 5.66% and fully repaid on February 14, 2020.	-	717
Line of credit up to RMB 50,000 from China Everbright Bank, due on March 25, 2020 with an annual interest rate of 4.94%, guaranteed by the CEO and fully repaid on March 24, 2020.	-	3,250
Line of credit up to RMB 50,000 from China Everbright Bank, due on April 17, 2020 with an annual interest rate of 5.66%, guaranteed by the CEO and fully repaid on April 2, 2020.	-	1,146
Line of credit up to RMB 50,000 from China Everbright Bank, due on August 24, 2020 with an annual interest rate of 5.22%, guaranteed by the CEO.	2,685	-
Line of credit up to RMB 80,000 from China Everbright Bank, due on April 1, 2021 with an annual interest rate of 4.70%, guaranteed by the CEO.	4,239	-
Line of credit up to RMB 80,000 from China Everbright Bank, due on June 27, 2021 with an annual interest rate of 4.25%, guaranteed by the CEO.	1,272	-
Line of credit up to RMB 80,000 from China Everbright Bank, due on April 29, 2021 with an annual interest rate of 2.80%, guaranteed by the CEO.	820	-
Line of credit up to RMB 80,000 from China Everbright Bank, due on June 27, 2021 with an annual interest rate of 2.70%, guaranteed by the CEO.	2,081	-
Line of credit up to RMB 20,000 from Bank of Communications, due on April 12, 2021 with an annual interest rate of 4.65%.	1,413	-
Line of credit up to RMB 20,000 from Bank of Communications, due on May 24, 2021 with an annual interest rate of 3.65%.	1,413	-
Line of credit up to RMB 70,000 from Bank of Shanghai Pudong Branch, due on May 27, 2021 with an annual interest rate of 4.68%, guaranteed by the CEO and CleanChip Technologies Limited.	2,374	-
Line of credit up to RMB 70,000 from Bank of Shanghai Pudong Branch, due on June 27, 2021 with an annual interest rate of 4.68%, guaranteed by the CEO and CleanChip Technologies Limited.	1,272	-
Line of credit up to RMB 70,000 from Bank of Shanghai Pudong Branch, due on May 28, 2021 with an annual interest rate of 3.48%, guaranteed by the CEO and CleanChip Technologies Limited.	2,442	-
Line of credit up to RMB 70,000 from Bank of Shanghai Pudong Branch, due on June 7, 2021 with an annual interest rate of 3.50%, guaranteed by the CEO and CleanChip Technologies Limited.	1,521	-
Line of credit up to RMB 70,000 from Bank of Shanghai Pudong Branch, due on June 16, 2021 with an annual interest rate of 3.50%, guaranteed by the CEO and CleanChip Technologies Limited.	1,838	-
Line of credit up to RMB 30,000 from Bank of China Pudong Branch, due on December 17, 2020 with annual interest rate of 4.35%, guaranteed by the CEO.	2,402	-
Total	\$ 25,772	\$ 13,753

Source: 2019 10K page 88: <https://ir.acmrsh.com/node/7586/html>

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At the end of Q2 2020, the company reports 13 outstanding short-term loans from Chinese banks totaling \$25.8 mln. All but two of the loans are guaranteed by the CEO and six are guaranteed by the CEO alone. At end of Q2 2020, five of these loans, from the Bank of Shanghai Pudong Branch, were almost at maximum borrowing limit, as were two loans from Bank of Communications. The average annualized interest paid was just over 6% for Q2 2020, much higher than the interest ACMR receives on its cash and equivalents (an average of 0.5% in 2019 and 1.3% in Q2 2020). Although the maximum disclosed interest rate on borrowings was 4.7%, the higher average annualized rate may be a function of related fees and/or a different time weighted average debt.

We find this puzzling: why does ACMR require a guarantee from its CEO for some \$25 mln in loans, when the company in Q2 had \$86.4 mln in cash? If ACMR prefers not to use its cash, why not collateralize offshore dollars for Renminbi? Moreover, these loans are clearly labelled as lines of credit, not long-term loans for past capital expenditure, for example. With all that cash in the bank, why does the company need “lines of credit”, 13 of them?

Cash

Cash is missing in the STAR IPO company accounts vs the U.S. GAAP accounts.

Table 5. Current Assets US GAAP vs Chinese IPO Accounts

US GAAP accounts (,000 US dollars)	2019	2018	2017
Cash and cash equivalents	\$58,261	\$27,124	\$17,681
Restricted cash*	\$59,598	-	
Other current assets	\$0	\$0	\$46
Total cash and equivalents	\$117,859	\$96,028	\$62,914
STAR IPO Accounts (,000 USD equivalent)			
Cash and bank balances	\$62,861	\$13,690	\$6,450
Other current assets	\$27,510	\$531	\$141
Total cash and equivalents	\$90,371	\$81,119	\$41,380
Difference	-\$27,488	-\$14,909	-\$21,534

* No longer restricted as of Q2 2020

** 99% of 2019 current assets are fixed cash deposits/cash equivalents.

Source: ACMR filings, J Capital

That gap may be explained by cash in the Caymans company that belongs to the U.S.-listed entity. But we question why the cash is there when the

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company is taking out large short-term lines of credit on mainland China and whether the balance can be properly audited in the Caymans.

We suspect that a chunk of cash may be missing from the STAR IPO group. The IPO group includes in its account cash deposited overseas:

Table 6. STAR IPO group cash overseas (in mln USD)

	2019	2018	2017
Total amount deposited overseas	\$ 22.53	\$ 10.09	\$ 0.48
Total cash	\$ 64.91	\$ 14.15	\$ 6.66

Source: ACMR 8K June 1, 2020

The Shanghai company has most of the sales and COGS. The Hong Kong company exists as a convenience for processing payments in U.S. dollars; its net income should be moved promptly to the Shanghai accounts. But the Shanghai company shows negative operating cash flows, while the consolidated STAR IPO group shows big positive operating cash flows. That difference indicates that a lot of cash is circulating offshore with very little apparent COGS. If the cash is really there at all.

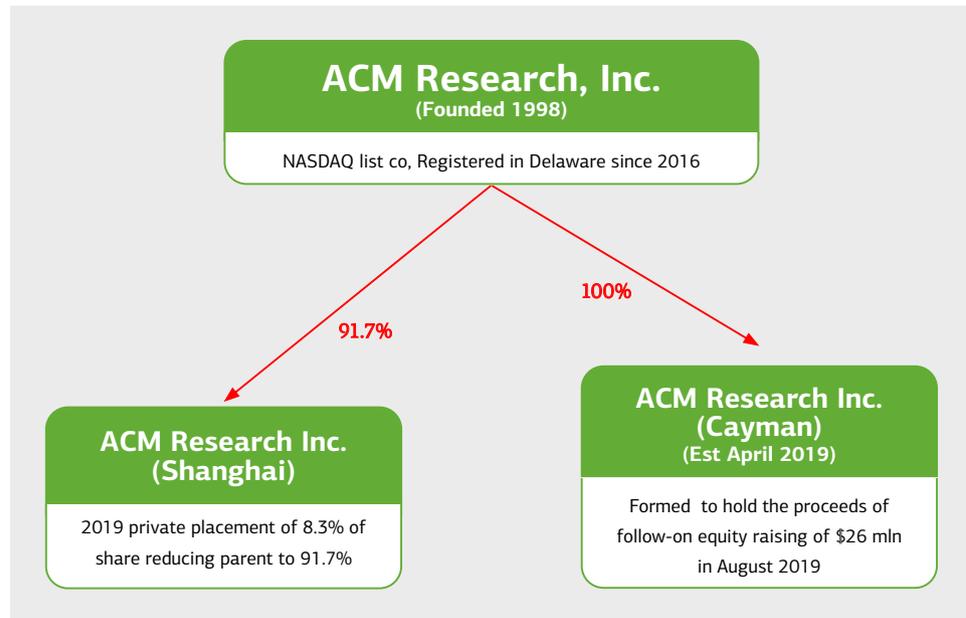
Table 7. STAR IPO Group Parent Company Operating Cash Flow

Cash flows from operating activities	2019	2018	2017
Cash received from sales of goods or rendering of services	¥ 603,269,258	¥ 461,257,054	¥ 179,707,777
Refunds of taxes received	¥ 51,415,158	¥ 31,616,949	¥ 22,944,850
Cash received relating to other operating activities	¥ 31,998,312	¥ 4,284,153	¥ 19,868,533
Subtotal of cash inflows from operating activities	¥ 686,682,728	¥ 497,158,156	¥ 222,521,161
Cash paid for goods and services	¥ 544,449,905	¥ 399,376,147	¥ 138,707,966
Cash paid to and on behalf of employees	¥ 74,857,900	¥ 52,924,907	¥ 35,032,161
Cash paid for all types of taxes	¥ 8,584,497	¥ 294,768	¥ 215,864
Cash paid relating to other operating activities	¥ 104,829,026	¥ 72,855,435	¥ 60,933,091
Subtotal of cash outflows from operating activities	¥ 732,721,328	¥ 525,451,258	¥ 234,889,082
Net cash flows from operating activities	¥ 46,038,601	¥ 28,293,102	¥ 12,367,921

Source: June 1, 2020 8K page 203

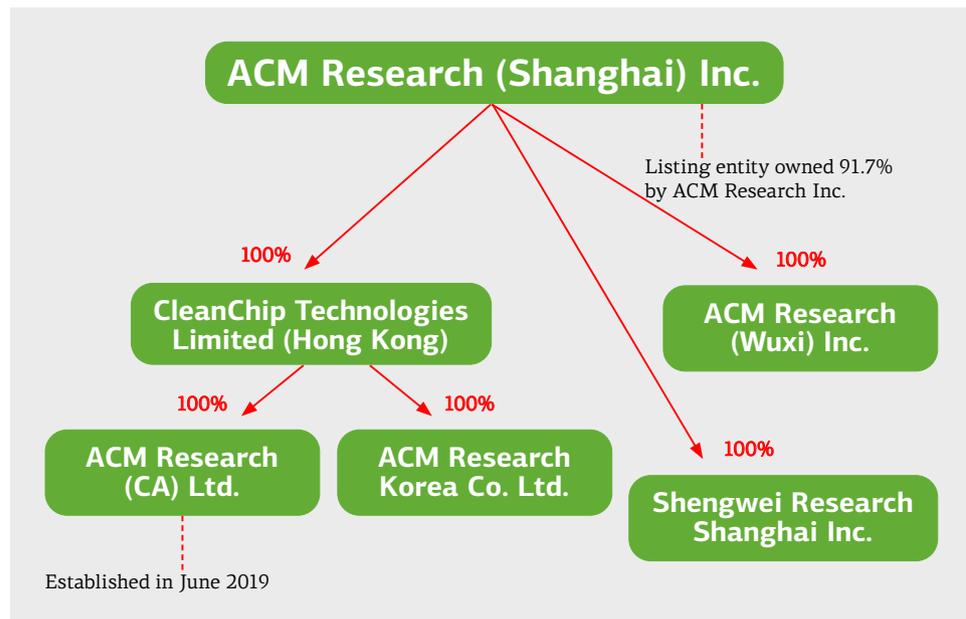
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Chart 2. NASDAQ-Listed company



Source: J Capital

Chart 3. Shanghai IPO vehicle



Source: J Capital

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“Inventory”

There is a large mismatch between what clients have told us and what ACMR reports. ACMR claims nearly \$20 mln in inventory of delivered machines—meaning completed machines that have not been paid for and are sitting on customer premises. This is an astonishing 45% of total inventory. But most clients say they pay for 90% of their orders by the time of delivery and the balance within 30 days of receiving the machine. ACMR employees tell us they ship machines as soon as they are assembled. There is no room for inventory of completed goods. We believe that the \$19.6 mln in finished-goods inventory reported by the company is an invention.

One might note that any finished and delivered inventory would be at client premises and therefore very difficult for the auditor to check.

Table 8. Inventory

Mln RMB	2019		2018		2017	
Item	Book Value	Proportion %	Book Value	Proportion %	Book Value	Proportion %
Raw material	¥ 91.39	30%	¥ 78.74	30%	¥ 3,328.05	25%
Work in process	¥ 75.24	24%	¥ 60.68	23%	¥ 2,517.43	19%
Finished goods	¥ 3.02	1%	¥ -	0%	¥ -	0%
Delivered goods	¥ 137.62	45%	¥ 124.75	47%	¥ 7,707.71	57%
Total	¥ 307.27	100%	¥ 264.16	100%	¥ 135.53	100%

Mln USD	2019		2018		2017	
Item	Book Value	Book Value	Book Value	Book Value	Book Value	Book Value
Raw materials	\$13.06	\$11.25	\$11.25	\$47.54	\$47.54	\$47.54
Work in process	\$10.75	\$8.67	\$8.67	\$3.6	\$3.6	\$3.6
Finished goods	\$0.43	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Delivered goods	\$19.66	\$17.82	\$17.82	\$11.01	\$11.01	\$11.01
Total	\$43.9	\$37.74	\$37.74	\$19.36	\$19.36	\$19.36

Source: Company STAR IPO filings, J Capital

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Every time we have chased down the reality behind an ACMR disclosure, we've found that the company overstated the cost--wages, benefits for workers, rents, you name it.

Warranty

We estimate the gap between cash outflow for parts and inflow under “other” income at roughly \$11 mln. This may be under-reported warranty or out-of-warranty service repair expense.

There are two types of warranty: a standard product warranty and an extra warranty, which is sold to the customer. The accrued warranty liability was only \$3.2 mln as of Q2 2020. The company recognizes income from the extra warranty, but for all warranties and out-of-warranty repairs, there is also a cost for spare parts and repairs. In the company’s STAR IPO document, it defines “Other Operating Income” as mainly from the sales of spare parts and after-sales services, which could be related to repairs either in or outside warranties.

Yet in the STAR IPO document’s direct-method operating cash flow statement, the cash paid relating to other operating activities appears significantly higher than the associated “other” operating income. The costs are much higher than associated cash received and associated “other operating income.” This would lead to a gross-margin boost.

Unreported customer deposits

The company claims that delivered machines at client premises can be unpaid for up to six months for established customers with repeat orders and an incredible 24 months or more--if at all--for “first tool” delivery that may not even have a purchase order. This freebie business model of “pay if you want to” is not an encouraging growth strategy.

As stated by the company:

“We often incur significant research and development costs for products that are purchased by our customers only after much, or all, of the cost has been incurred or that may never be purchased. We allow some new customers, or existing customers considering new products, to evaluate products without any payment becoming due unless the product is ultimately accepted, which means we may invest a significant amount in manufacturing a tool that may never be accepted and purchased or may be purchased months or even years after production.”

“When we deliver evaluation equipment, or a “first tool,” we may not recognize revenue or receive payment for the tool for 24 months or longer. Even returning customers may take as long as six months to make any payments. If our sales efforts are unsuccessful after

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expending significant resources, or if we experience delays in completing sales, our future cash flow, revenue and profitability may fluctuate or be materially adversely affected.”

We have found disparities between the company’s disclosures and our interview evidence of customer deposits. Only one customer, SK Hynix, reported the same terms as the company reported. All small customers reported paying 30-40% on ordering.

Payment Terms

	Interviews	Reported
Yangtze Memory	30-40% on ordering, 40-50% on shipment, balance on acceptance	90%-100% on acceptance
Huahong Group	30% on ordering, 60% on shipment, 10% on acceptance	70-90% on shipment, balance on acceptance
Hynix	100% within 30 days of shipment	100% within 30 days of shipment
Zing Semi	30% on ordering, 50% on shipment, 20% on acceptance	
Jiangsu Xinhua	30% on ordering, 30% on shipment, 30% on installation, 10% on acceptance	

Source: J Capital interviews, [Document 814](#), page 8-1-170

Major payment terms

Customer Name	客户集团	主要结算政策	
Yangtze Memory	长江存储	安装验收后 30 天内支付 100%	Yangtze: Pay 100% within 30 days of testing and accepting equipment
Huahong Group	华虹集团	收到发票后 30 天支付 90%，安装验收后支付剩余 10%	Pay 90% within 30 days of receiving the invoice and 10% after installing.
Hynix	海力士	发货后支付 90%，安装验收后支付剩余 10%	Huahong: 90% on shipment, 10% on acceptance
Changdian	长电科技	发货后 30 天支付 70%，安装验收后 30 天支付 30%	70% within 30 days of shipment, 30% within 30 days of acceptance
SMIC	中芯国际	出口报关单日期的 30 天或 28 天内支付 100%	Hynix: 100% within 28 or 30 days of acceptance
		发货后支付 80%，安装验收后支付 20%	Changdian: 80% on shipment, 20% on acceptance
		签订订单后支付 30%，发货后支付 60%，安装验收后支付 10%	SMIC: 30% on signing, 60% on shipment, 10% on acceptance
		安装验收并试运行 6 个月后支付 100%	100% within 6 months of acceptance

[Document 814](#), page 8-1-170

According to the company, some of these machines are “demo” models, also customized which reduces the potential for resale. But every customer we spoke with except one reported the same payment terms: 30% down-payment on placing the order, 60% when the order is shipped, and 10% when the client tests and accepts the equipment.

Advances from customers were \$8.42 mln at end 2018 when full year revenue was \$74.64 mln. By end Q2 2020, advances from customers were \$8.78 mln, yet annualized Q2 2020 revenue was \$156.2 mln (4 x \$39.05 mln).

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Revenue has basically doubled, while advances from customers have stayed flat. Customer deposits should at least match the momentum in business activity.

Magically appearing liability

In Q2 2020, ACMR reported a financial liability of \$15.1 mln, which essentially appeared out of nowhere. Creating a new liability helps the company work off fake assets.

The liability had arisen out of a complicated series of back-and-forth transactions between AMCR in the U.S. and ACMR Shanghai. The Shanghai company had received \$2.98 mln for warrants issued to an employee-owned company—and had lent that company the money to buy the warrants. ACMR Shanghai passed the obligation to U.S. shareholders then up-valued it to \$15.1 mln. Presto, U.S. shareholders lose \$15.1 mln in assets.⁸

Skimming

We think ACMR management is using five on-paper-only companies to divert money. In September, we learned more about this process. We obtained ACMR's responses to questions from Chinese regulators⁹ about its IPO application, and in those documents, ACMR discloses that almost all its sales run through "agents."

⁸ See Note 11 to Q2 2020 report, "Financial Liability Carried at Fair Value," page 17

⁹ For information about the related parties and "sales agencies," see ACM Shanghai response to questions from the Chinese regulator, Document 814 page 8-1-116 here: <https://jcapitalresearch.box.com/s/rrecwxo7954wrf66z4ei7b6oukjow8y>.

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Undisclosed: ACMR Shanghai Response to Questions from Shanghai Stock Exchange



盛美半导体设备（上海）股份有限公司

ACM Research (Shanghai), Inc.

（中国（上海）自由贸易试验区蔡伦路 1690 号第 4 幢）

关于盛美半导体设备（上海）股份有限公司

首次公开发行股票并在科创板上市申请文件的

审核问询函的回复

保荐人（主承销商）



（上海市广东路 689 号）

Document 814 submitted by ACM Research Shanghai on August 11, 2020 to the Shanghai Stock Exchange in response to regulators’ further questions on the listing documents. The 215-page document is available only in Chinese. It focuses on related-party sales agents and suppliers.

We have gotten detailed pricing and invoicing information from six of ACMR’s top clients. Five of them had paid more for equipment than ACMR disclosed. We think that extra payment was diverted, possibly to management via an “agent” or possibly back to the SOE customer.

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Chart 4. The agents: No “dependency”? Give us a break

Not a single customer we spoke with had heard of the agents who supposedly make 90% of company sales.

Agent/Import-Export Service Co	Agent/Import-Export Service Co Year of Service	Agent Service Fee as % Of total Agent Income	Is the agent dependent on ACMR	
代理商/进出口服务商	代理/出口代理业务发生期间	占其当年代理收入/营业收入的比例	是否存在重大依赖	
TJM PARTNERS LTD.	2017年、2018年、2019年	50%、44%、50.5%	否	No
LIDA TECHNOLOGY CO.,LIMITED	2017年、2018年、2019年	33%、35%、45%	否	No
MOTION ELECTRONICS CO.,LTD	2018年、2019年	45%、58%	否	No
ZAIN TECHNOLOGY CO.,LTD	2019年	12.38%	否	No
HANWOOL SCIENTIFIC CO.,LTD	2017年至2019年6月	100%、100%、100%	已停止通过其代理销售	ACMR has terminated sales agency relationship
乾景国际	2017年	8.99%	否	No

Charter Base
(A Hong Kong company replaced in July 2018 by ACMR sub Cleanchip)

Screenshot from Document 814 response to Shanghai regulators. Translation by J Capital Research

Note that Hanwool—which was started and continues to be operated by the director of ACM Korea, according to his LinkedIn profile--made 100% of its sales for ACMR and yet is labeled as “not dependent” on ACMR.

We went back to procurement managers at the largest customers, and three agreed to detailed interviews. None of the three had heard of the agents that ACMR reported were responsible for their sales. The customers we spoke with are some of the largest and together represent the majority of disclosed sales.

ACMR discloses that 91% of its sales are made through the five sales agents.

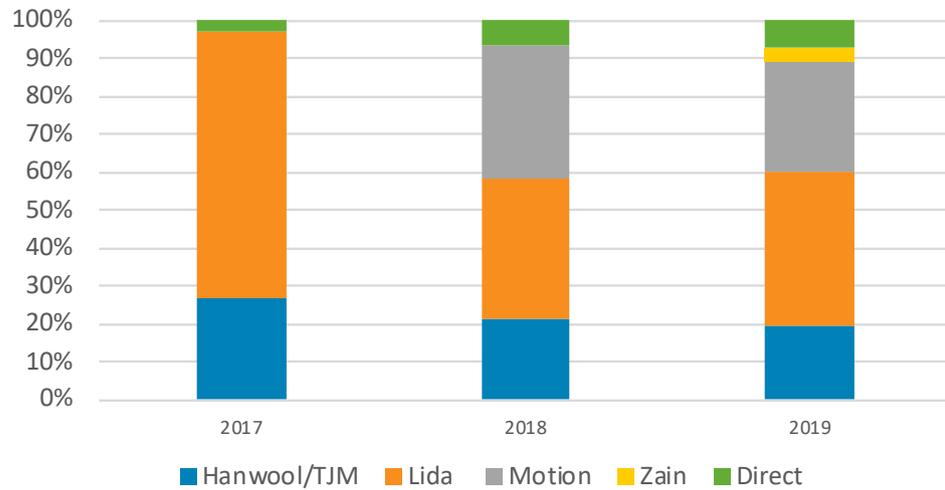
Table 9. Business Done Through Sales Agents

in 10,000 RMB	2019	2018	2017
Sales value realized through agents	¥69,002	¥ 50,365	¥24,088
Total sales	¥ 75,673	¥ 55,027	¥ 25,359
Proportion	91.18%	91.53%	94.99%

Source: ACMR (Chinese IPO vehicle) response to CSRC August 11, 2020 questions, Haitong Securities

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Chart 5. ACMR Agency Sales 2017-19



Source: ACMR responses to Chinese regulator, document 814, page 8-1-115

At least three of these agents are related parties whose relationship has not been disclosed to U.S. investors.

Related party A: Lida Technology

Lida is responsible for 41% of ACMR 2019 sales and is owned by an undisclosed related party. The ¥15.26 mln commission that ACMR reported paying to Lida in 2019 represented 45% of Lida’s income.¹⁰ These facts are disclosed to the Chinese regulator in response to questions about the draft registration document. But the English-language 8K fails to mention these things.

¹⁰ See ACMR responses to Chinese regulator, document 814, page 8-1-117

Lida owner Wang Beiyi is also a supplier to ACMR, owner of an agency selling on behalf of ACMR, and a shareholder of both the Chinese IPO vehicle and U.S.-traded company. ACMR owns 15% the company that Wang uses to sell “filters etc.” to ACMR. ACMR makes the ridiculous claim that Wang’s company, Shengyi Semiconductor Technology (Wuxi) Co., Ltd., sells them filters—a commodity product that is super abundant in China—for 62% less than competitors.

Chart 6. Wang Beiyi Related-Party Relationships

问题7 (2) 自然人王贝易与发行人及其关联方是否存在关联关系、业务往来及潜在的利益安排;

自然人王贝易除持有发行人参股企业盛奕科技85%股权外, 还持有发行人股东芯维咨询14.56%合伙份额, 持有美国ACMR原股东盛芯上海2.32%合伙份额; 同时, 王贝易持有发行人代理商LIDA TECHNOLOGY CO., LIMITED 100%股份。报告期内, 发行人与盛奕科技、LIDA TECHNOLOGY CO., LIMITED的业务

Translation

8-1-80

Question 7 (2) Does the natural person Wang Beiyi receive any benefits from any business relationships with the issuer [ACMR Shanghai] or its’ related parties?

The natural person Wang Beiyi , apart from holding 85% of the equity of Shengyi Technology [subsidiary supplier of ACMR Shanghai], he owns shares in the issuer via 14.56% partnership share of the issuer shareholder Xinwei Consulting, and 2.32% of the partnership share of Shengxin Shanghai, which is a shareholder of ACMR. At the same time, Wang Beiyi owns 100% of the issuer’s sales agent Lida Technology Co., Limited.

Source: [Document 814](#) page 8-1-80

Table 10. ACMR purchases from Shengyi

Raw Material	Average Price Index from Shengyi Technology	Average Price Index from Other Providers	Difference in average price
Filter	51.00	38.21	-61.79%
Wafer handling table	8.00	80.23	-19.77%
Cooler	3.00	51.57	-48.43%
CO2 mixing generator	1.00	73.07	-26.93%

Source: Second response to Chinese regulators, September 3, 2020, page 8-1-24

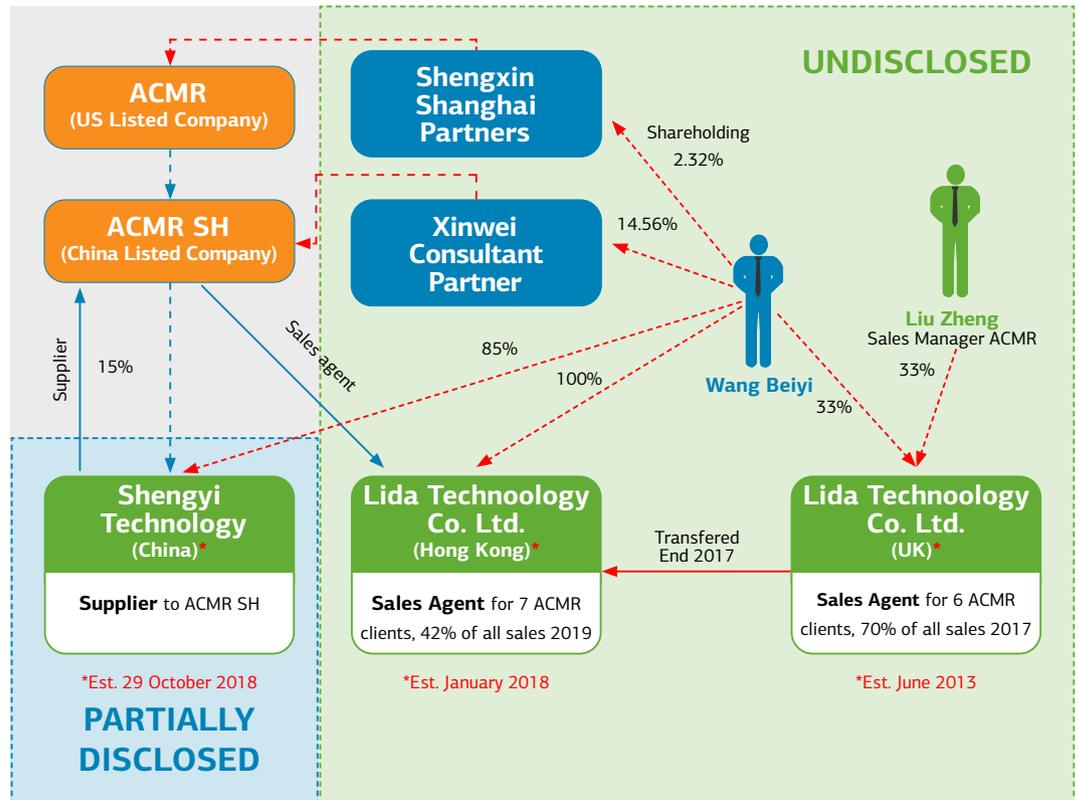
Lida is currently a Hong Kong-registered company. Prior to 2018, the company was registered in the U.K. Wang Beiyi owned one-thirds of the equity, and the other third belonged to someone with the same name as

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ACMR's sales director, Liu Zheng.

Wang's company Shengyi sold ¥5.9 mln of miscellaneous goods to ACMR in 2019.¹¹ Given all these connections, Wang Beiyi has the motive and the ability to engage in fraud.

Chart 7. Wang Beiyi Related-Party Relationships



*We cannot confirm that Liu Zheng is the same person as the ACMR sales manager of the same name. Graphic by J Capital Research

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Chart 8. Lida Sales

(一) 公司通过代理商实现销售的情况 Company Sales Via Agents
报告期内，公司通过代理商实现销售的情况如下

2019年度			Revenue 收入金额 (万元)	代理费 (万元)
代理商	终端客户	产品类型		
TJM PARTNERS LTD. HANWOOL SCIENTIFIC	海力士	单片清洗设备	14,392.27	514.96

8-1-115

问题14.1 (2) 报告期各期上述代理商/进出口服务商从发行人获得的代理佣金占其当年代理收入的比例，是否对发行人存在重大依赖：

报告期内，公司代理商/进出口服务从发行人获得的代理佣金/出口代理费用占其当年代理收入/营业收入的比例，及其是否对发行人存在重大依赖的情况如下：

代理商/进出口服务商	代理/出口代理业务发生期间	占其当年代理收入/营业收入的比例	是否存在重大依赖
TJM PARTNERS LTD.	2017年、2018年、2019年	50%、44%、50.5%	否
LIDA TECHNOLOGY CO.,LIMITED	2017年、2018年、2019年	33%、35%、45%	否

CO.,LTD				
LIDA TECHNOLOGY CO.,LIMITED	华虹集团、长电科技、金瑞泓、厦门通富、通富微电、中芯国际、中芯集成电路(宁波)有限公司	半导体电镀设备、槽式清洗设备、单片槽式组合清洗设备、单片清洗设备、先进封装湿法设备	30,527.21	1,526.36
MOTION ELECTRONICS CO.,LTD	长江存储	单片清洗设备	21,668.22	650.05
ZAIN TECHNOLOGY CO.,LTD	福建省晋华集成电路有限公司	单片清洗设备	2,414.48	70.36

ACMR Shanghai reported that agent Lida was responsible for RMB 305.27 mln in revenue in 2019 [40% of ACMR sales] and received commission of RMB 15.26 mln which accounted for 45% of Lida's revenue.

Source: Document 814 page 8-1-115 and 8-1-117

A little on the side

We think Lida Technology is skimming money from ACMR by booking some of the sales on its own account instead of giving the revenue to ACMR.

We interviewed several people involved with building and selling ACMR's electroplating devices, which are all sold by Lida.¹² The interviewees gave us a clear count of how many the company had produced in 2015-2019. ACMR reported making far fewer electroplating machines indicated in interviews with two former executives with direct knowledge of the electroplating operation.

Table 11. Manufacture and Sales of Electroplating Machines (units)

		2019	2018	2017
Semiconductor electroplating equipment	Output reported	4	0	1
	Output from interviews	>22	20	2
	Difference	18	20	1

Source: ACMR 8K page 134

12 See ACMR responses to Chinese regulator, document 814, page 8-1-135

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During the reporting period, the Company’s output and sales were as follows:

Unit: piece

Product Category	Item	2019	2018	2017
Semiconductor cleaning equipment	Output	28	22	11
	Sales	26	21	11
	Output/sale ratio	92.86%	95.45%	100.00%
Semiconductor electroplating equipment	Output	4	-	1
	Sales	4	1	-
	Output/sale ratio	100.00%	-	-
Advanced packaging wet process equipment	Output	9	13	7
	Sales	7	6	7
	Output/sale ratio	77.78%	46.15%	100.00%

Source: 8K page 134

Executives are cagey about the electroplating equipment. When asked whether ACMR builds electroplating equipment, one executive told us that was a “trade secret” and hung up the phone. Several others claimed the company was not making the machines at all. We speculate that is because the machines are being sold by a related party and not by ACMR.

ACMR shoulders a portion of the costs of electroplating by putting costs onto the R&D budget. We have interviewed ACMR executives in charge of making electroplating equipment. They are on the R&D staff. The company receives about \$3 mln in government subsidies for electroplating technology, but ACMR executives told us that their electroplating “R&D” activity consists of designing and building custom machines for customers.

Related party B: Hanwool

The head of Hanwool Scientific, agent for sales to SK Hynix, has simultaneously headed ACM Korea since 2017, according to his LinkedIn profile. ACMR discloses that its Korean subsidiary has hired all the Hanwool staff—but the Hanwool account remain separate. On page 8-1-118 of its “first response” to the Chinese regulator, on August 11, 2020, the company

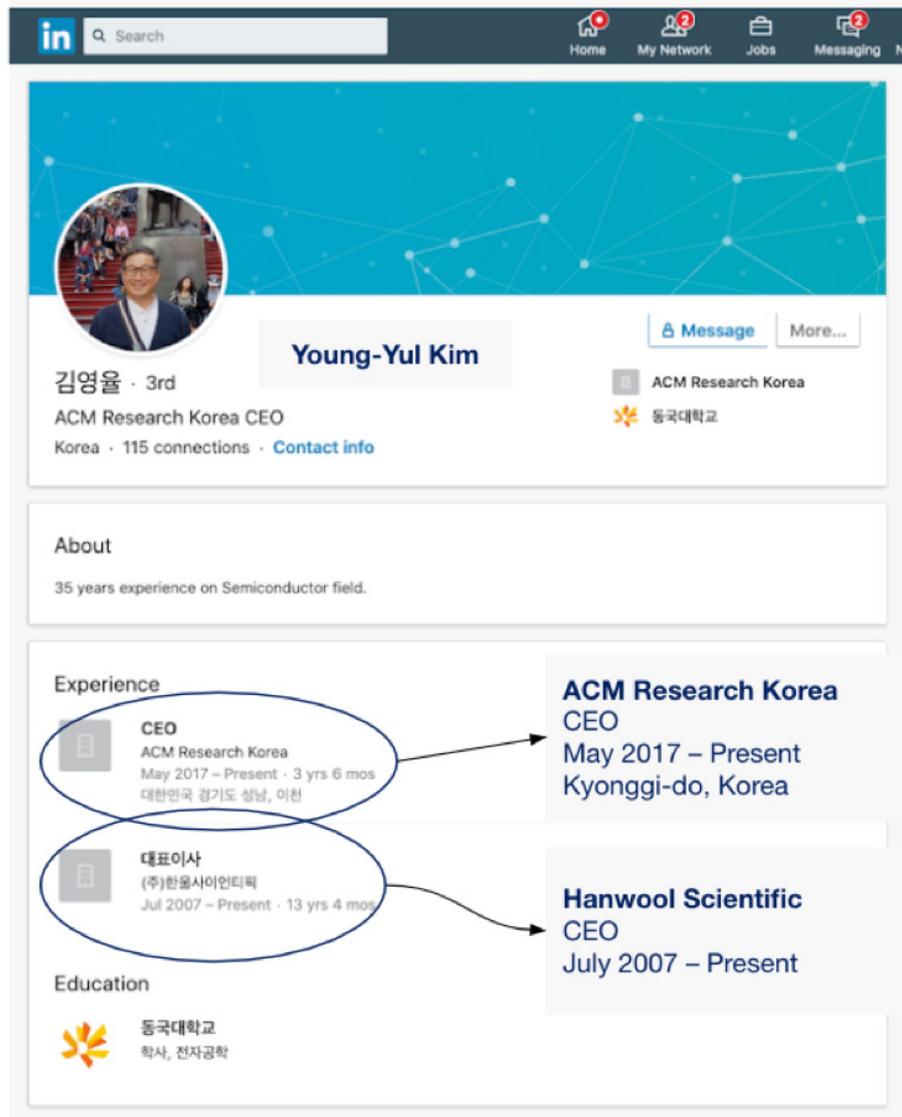
目前，HANWOOL SCIENTIFIC CO.,LTD.团队已加入盛美韩国。

says: “Currently, the Hanwool Scientific Co. Ltd. team has already joined ACM Korea.”

Hanwool is always paired in the company’s sales disclosures with TJM Partners Ltd., which we think is also a related party.

The CEO of ACM Korea reports on his LinkedIn that he also founded and simultaneously runs a sales agency, Hanwool, which ACMR claims is “not dependent” on the company. Hanwool is undisclosed in the U.S.

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Source: Kim Young-Yul LinkedIn profile

We believe that Hanwool and TJM are also diverting income for ACMR products.

We have interviewed several current and former executives of SK Hynix. They told us that the company inventory lists three more machines than ACMR has disclosed selling.

ACMR's key supplier in Korea, Ninebell Co. Ltd. stores finished inventory for ACMR. When our investigator visited Ninebell, on premises were ACMR machines bearing the Ultra trademark. Ninebell is disclosed as a supplier to ACMR, not a sales agent; the fact that machines are on premises at Ninebell indicates that they are being sold by a third party.

Month day, year



Photo from Choi's Facebook profile

Kickback how-to

The agents represent a pass-through that is common in China, where buyers at state-owned companies often demand kickbacks in order to place orders. Companies that want to distance themselves from the kickbacks direct the companies to make payments to “distributors” that are willing to issue an inflated invoice to the company then pay the kickback out of the over-billed portion. The SOE buyer is the goat. No one pays much attention to a state-owned company’s expenditures, and it’s common for company managers to skim.

But at ACMR, the company, not the agent, issues the invoice. Given the large disparity between reported payments and ACMR’s reported average prices, we believe ACMR must be actively facilitating payment either to

Table 12. Customer-Reported Sales vs Company-Reported Sales 2019 (mln USD)

	Units purchased from interviews	Unit Price from interviews	Reported Revenue ACMR 10K, 8K, or STAR IPO Document 814	Calculated Difference Low	Calculated Difference High
Yangtze Memory	7	\$6-7	\$32.8	\$10.6	\$17.9
Huahong	10	\$4	\$31.1	\$10.3	\$10.3
SK Hynix	9	\$4-4.5	\$22.8	\$14.5	\$19.1
SMIC South	2	\$2.5-3	\$3.9	(\$1.1)	(\$2.1)
Jiangying Changdian*	1	\$2.9-\$4.1	\$7.8	\$4.9	\$3.7
Zing Semiconductor* **	1	\$2.9	\$1.9	1.05	1.05

*Changdian and Zing "revenue" is from the contract value reported in the 8K and may include more than the machine we were told the company purchased.

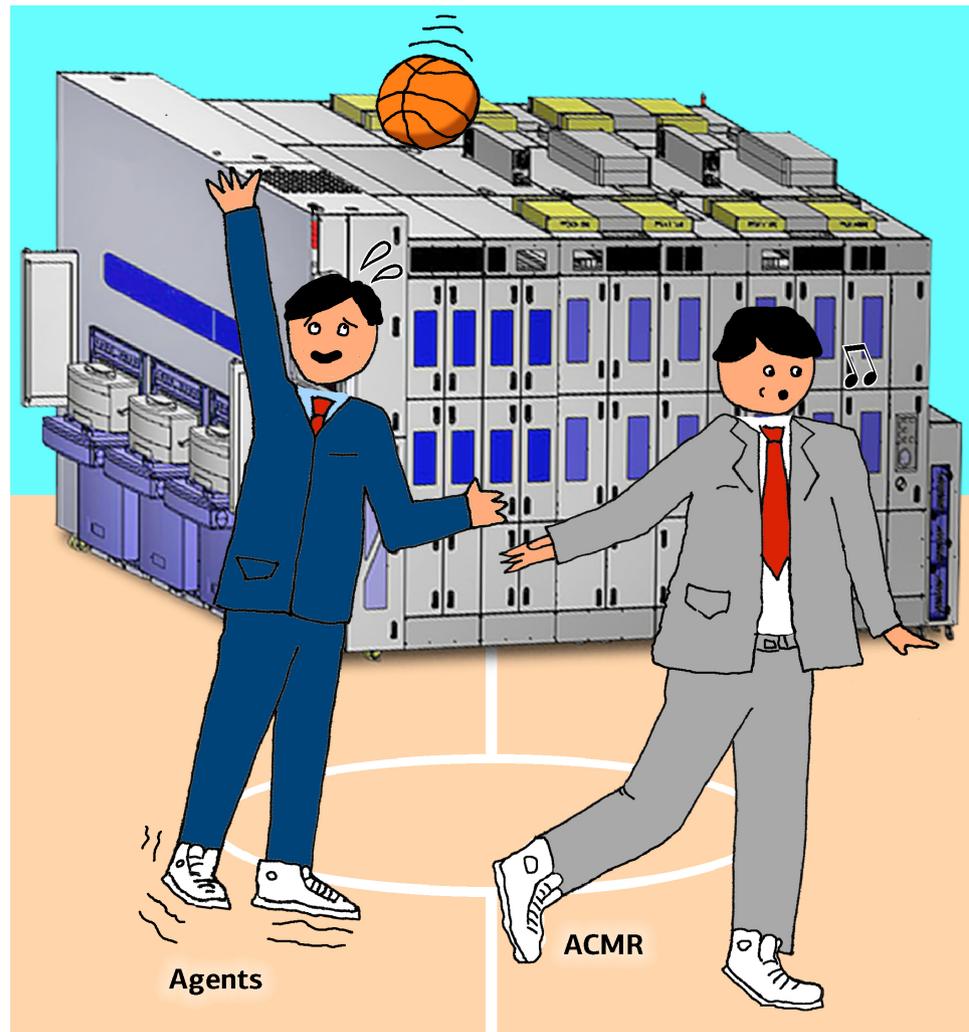
**Zing told us they ordered two but received one machine in 2019.

Source: J Cap Interviews, Company 2019 10K and Document 814 page 8-1-130 to 8-1-137

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customers or to third parties.

The only company which reported paying *less* than ACMR reported is SMIC South, which is also the only customer among the six *not* using a sales agent.



Cartoon by J Capital Research October 2020

Month day, year

Table 13. Sales Agents

Name	Description	Customer	Commission rate
HANWOOL SCIENTIFIC CO.,LTD.	The founder of Hanwool, Young Youl Kim, in 2017 became the CEO of ACM Korea, a position that overlapped with his job as sales agent. ¹³ Hanwool was founded in 2006 by a Hynix former. The Hanwool team has now joined ACMR Korea. Hanwool owns 26,666 shares in ACMR, and Young Youl Kim owns 76,667 shares. The company has 230,769 shares in ACMSH, the IPO vehicle.	SK Hynix	3-5%
LIDA TECHNOLOGY CO.,LIMITED	Founded in Hong Kong in January 2018 as a successor to Lida Technology UK. Owns equity in ACMSH through two holding companies, Shengxin Technology and Xinwei Consulting, and has equity in ACMR US. Owner Wang Beiyi is an equity holder in ACM Shanghai and holds a 15% stake in the ACMR subsidiary ACM Wuxi.	Huahong, Changdian, QL Electronics, Xiamen Tongfu, Tongfu Microelectronics, SMIC, SMIC Circuits Ningbo	2.5-5%
MOTION ELECTRONICS CO.,LTD	Hong Kong company established in 2010.	Yangtze Memory	3%
ZAIN TECHNOLOGY CO.,LTD	Taiwanese company established 2008	Fujian Jinhua Group	3%
TJM PARTNERS LTD.	A Korean company established in 2004 by Mok Jung Lai, who is also a principal of HJS Eng, ¹⁴ a co-patent holder for many of the ACMR and Nomura patents. The company always works with Hanwool and does not appear to have separate operations. ¹⁵	SK Hynix	0.5-3.5%

Source: ACMR response to Chinese regulator, J Capital Research

A lot of money has disappeared in the sales agencies. Our interviews with five customers, representing the majority of ACMR revenue, indicate that they pay significantly more than the company discloses receiving—the difference may be kicked back to customers or may be diverted to management, or both.

The sales agents are certainly not motivated by sales commissions. The commissions are low, and ACMR takes a very long time to pay them. According to the STAR IPO document company filings, sales commission expense for 2019 was \$3.9 mln while accrued commission rose from \$2.9

13 See Kim’s LinkedIn In profile: <https://www.linkedin.com/in/young-youl-kim-9a7b80a7/>

14 The company’s website: <http://www.hjseng.com/>

15 ACMR discloses to the Chinese regulator that “The company sells to SK Hynix and at the same time pays a commission to TJM Partners and Hanwool Scientific.” Note on page 8-1-116 of Document 814.

mln at end 2018 to \$4.1 mln at end 2019.

Acting as own “agent”

Prior to 2019, when ACMR was preparing to list in Shanghai, the kickbacks were not even disguised. In its registration statement, ACMR reported one set of payments to “customers” and another to “final customers.” Yangtze Memory and Huahong were both customers and end customers. In other words, Yangtze Memory and Huahong were collecting hefty commissions on selling to themselves.

Table 14. 2018 Gap between sales to customers and to the same “final” customers (mln USD)

Yangtze Memory	(\$6,082)
Huahong Group	(\$2,647)

Source: ACMR 8K, pages 136-137

Sales to top five customers (2018)

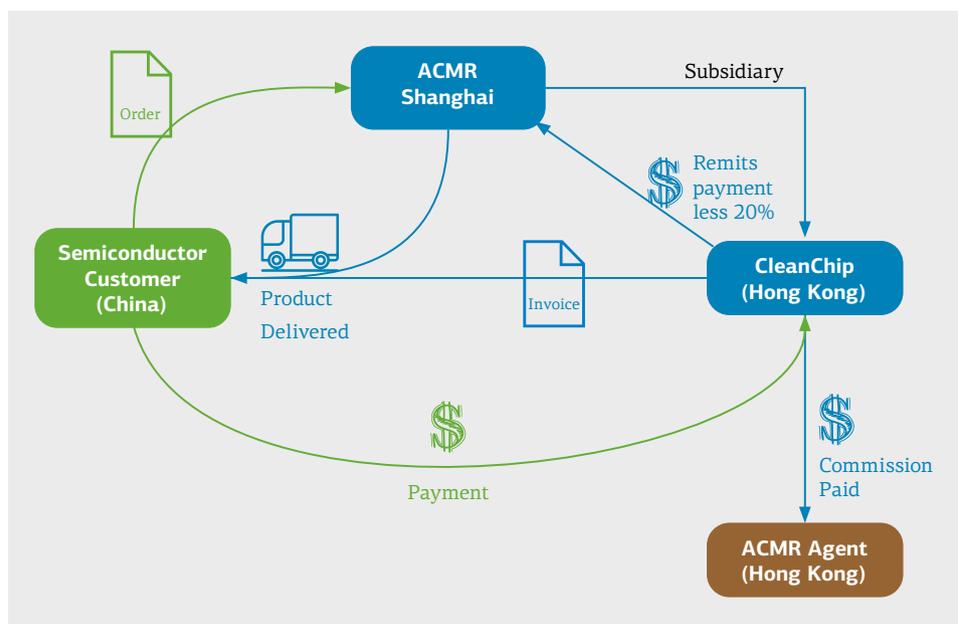
2018			
SN	Name	Amount	Proportion
1	Huahong Group	12,667.23	23.02%
2	Yangtze Memory	12,653.88	23.00%
3	Hynix	12,117.32	22.02%
4	Qianjing International	6,935.04	12.60%
5	ACMR	6,081.94	11.05%
Total		50,455.41	91.69%

Sales to top 5 final customers (2018)

2018			
SN	Name	Amount	Proportion
1	Yangtze Memory	18,735.81	34.05%
2	Huahong Group	15,314.19	27.83%
3	Hynix	12,117.32	22.02%
4	JCET	2,536.22	4.61%
5	SMIC	2,188.16	3.98%
Total		50,891.71	92.49%

Source: 8K pages 135-136

Chart 9. Ordering and Payment Process



Source: J Capital interviews

How do auditors fail to see the diverted payments? Probably because ACMR obscures the transactions via its Hong Kong subsidiary, CleanChip. We know from disclosures that clients sign big framework agreements spanning several years. On page 320 of the June 1, 2020 8K, ACMR provides a table of “material sales contracts.” That table includes a contract with SK Hynix for \$41.76 mln, for delivery “Subject to the contract/order.” It includes a contract with Shanghai Huali, also to be delivered “Subject to the contract/order,” for \$37.28 mln. These contract amounts exceed the amounts that each customer paid in any one year.

Table 15. Contract List

Seller	Final Customer	Subject Matter of Contract	Contract (mln USD) Price	Specified Delivery Date	2019 reported sales to the customer (mln USD)
Issuer	SK Hynix Semiconductor (China) Ltd.	Cleaning equipment	\$ 41.76	Subject to the contract/order	\$22.38
CleanChip HK	Huahong Semiconductor (Wuxi) Co., Ltd.	Cleaning equipment	\$ 13.72	Last consignment 2019/7/1	\$ 30.53
ACMR, CleanChip HK	Yangtze Memory	Cleaning equipment	\$ 64.28	Subject to the contract/order	\$ 32.23

June 1, 2020 8K pages 136 and 320

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ACMR reports a lot of subsidy income, but its Chinese disclosures show that the subsidies go to a third party.

单位: 万元 Unit: 10,000 RMB 2019

Customer	Amount	2019年度Proportion	Equipment Name
1. Yangtze Memory	21,888.34	28.92%	单片清洗设备
2. Huahong Group	20,734.59	27.40%	单片清洗设备、槽式清洗设备、单片槽式组合清洗设备、半导体电镀设备
3. Hynix	15,193.35	20.08%	单片清洗设备
4. Changdian	5,620.56	7.43%	半导体电镀设备、先进封装湿法设备
5. SMIC	2,649.74	3.50%	单片清洗设备、先进封装湿法设备
Total	66,086.58	87.33%	-

Amounts in mln USD
 1. \$32.23
 2. \$30.54
 3. \$22.37
 4. \$8.28
 5. \$3.9
 \$97.32

Source: [Document 814](#), pages 8-1-1-128-129

In other words, contracts cover several years, and when customers make payments, auditors would not necessarily be able to match the payments to specific purchases.

What R&D?

We think most of the \$12.9 mln spent on R&D is actually a cost of goods sold. Our interviews indicate that a big chunk of R&D activity consists of customizing and building machines for sale.

One of the company's response documents to the Shanghai exchange indicates that ACMR does not even receive the subsidy funding for its R&D projects. Funding for research into electroplating technology, by far the largest piece of funding, goes to the Shanghai Integrated Circuit Research Center Co. Ltd.

Issuing organization	Special Implementation Management Office for Very Large Scale Integrated Circuit Manufacturing Equipment and Complete Processes
Subsidy type	《极大规模集成电路制造装备及成套工艺》专项实施管理办公室
Organization directly receiving the subsidy	财政拨款
Amount of subsidy	上海集成电路研发中心有限公司
Issued and received time	9,167.84
	发放及收到时间
	2015年、2016年、2017年、2019年

Financial subsidy
 Shanghai Integrated Circuit Research Center Co. Ltd.
 ¥91.68 mln
 2015, 2016, 2017, 2019

Response 911 to Shanghai regulator, September 3, 2020. Page 8-1-13-14

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Subsidy Program		Special project for R&D and application of 20-14nm copper interconnect copper plating equipment	单位: 万元	Unit: 10,000 RMB
Verified subsidy amount in the report period	补助项目	20-14nm 铜互连镀铜设备研发与应用专项		
	报告期内结转确认政府补助收入	2017 年度	1,313.97	¥13.14 mln
		2018 年度	1,802.77	¥18.03 mln
		2019 年度	2,088.34	¥20.88 mln
Reason for subsidy	补助事由	就公司承担的“20-14nm 铜互连镀铜设备研发与应用”子课题之“45-14nm 铜互连镀铜设备研发与应用”项目提供研发经费补助		
Detailed documents	具体依据	《国家科技重大专项项目任务合同书》及《关于 02 专项 2014 年度项目立项批复及落实地方配套经费的通知》等相关政府批复文件		

Provide R&D funding subsidies for the “Research and Application of 45-14nm Copper Interconnect Copper Plating Equipment” sub-project of the “20-14nm Copper Interconnect Copper Plating Equipment R&D and Application” undertaken by the company

Relevant government approval documents such as “National Science and Technology Major Special Project Task Contract” and “02 Special 2014 Project Approval and Implementation of Local Supporting Funds Notice”

Response 911 to Shanghai regulator, September 3, 2020. Page 8-1-13-14

We also believe that “R&D” activity is used to enable tax-free imports. China exempts domestic equipment from taxes under certain condition if it is produced for R&D.¹⁶ In the itemized tax-payable table of ACMR’s disclosures, there is no disclosed Value-Added Tax (VAT) payable: this is highly unusual and in fact almost impossible for an equipment maker.

We think the company improperly claims tax exemptions by reporting that parts are imported as part of its capital investment and for R&D when really these are raw materials for operational production. A supplier told us he believes the CEO, David Wang, may hand-carry some of the components to China. This would seem too petty a means for evading taxes, but there is evidence from the disclosures that it is true. ACMR had to pay a fine on October 9, 2019 for a false declaration at the Shanghai Pudong International Airport, where ACMR staff apparently carried parts “used for power of silicon chip cleaning machine.”¹⁷ Procuring inventory via staff air luggage is not sustainable for a publicly listed company that claims to be expanding operations.

16 See the Ministry of Finance/State Administration of Taxation Notice 91 2019, extending the tax-free status established in 2009: <http://www.chinatax.gov.cn/chinatax/n810341/n810755/c5140112/content.html>

17 Page 174 ACMR 8K June 1, 2020



ACMR has been charged with making false declarations of goods imported through the Pudong Airport. Cartoon by J Capital Research

2、上海浦东国际机场海关处罚

2019年10月9日，上海浦东国际机场海关向盛美有限出具《行政处罚决定书》（沪浦机关简违字[2019]2546号）。根据该处罚决定书，盛美有限持报关单向海关申报以一般贸易的贸易方式进口货物，经调查发现申报不实，上海浦东国际机场海关根据《海关法》第八十六条第三项、《海关行政处罚实施条例》第十五条第（一）项之规定，对盛美有限科处罚款人民币1,000元。

Customs penalty at Shanghai Pudong International Airport

On October 9, 2019, Shanghai Pudong International Airport Customs issued an "Administrative Penalty Decision" to ACM Shanghai Co., Ltd. (Simplified violation of Shanghai Pudong government [2019] No. 2546). According to the decision, it was found that the ACM Customs declaration was false at the Shanghai Pudong International Airport. According to Article 86 Paragraph 3 of the "Customs Law" and Article 15 Article 15 of the "Regulations on the Implementation of Customs Administrative Penalties" (1) A fine of RMB 1,000 was imposed on ACM Shanghai.

Source: [Document 814](#), page 8-1-98

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Budget for the new plant in Shanghai betrays mis-categorization of R&D costs.

The Shanghai construction project includes a budget of \$41.1 mln for “R&D materials,” nearly four times the investment in hardware and 64% of the budgeted costs. This is separately itemized from “hardware investment” and budgeted far lower, at \$11.7 mln. Yet the reported “material consumption for R&D” in 2019 amounted to \$3.8 mln. We get it that R&D projects can last for years, but to budget the equivalent of over 10 years of R&D “materials” is a stretch. Depreciation of fixed assets for R&D alone is virtually identical to the depreciation and amortization for the STAR IPO listed entity overall. This strongly suggests that virtually all PPE must be related to R&D rather than manufacturing processes.

In total, the \$41.1 mln for R&D materials and \$40.9 mln for trial production materials amount to an astonishing \$82 mln, equating to some 1.4 times the \$56.9 mln 2019 cost of goods sold, or 1.8 times an already bloated end-2019 inventory amount. Redirecting inventory to project construction and R&D costs also comes with dubious tax benefits.

A former longtime R&D employee of ACMR told us that when he joined the company, “I felt there was no technological content in their product. A components supplier who has known ACMR for a decade told us: “They don’t have much in way of R&D, a lab, manufacturing. It’s an assembly operation.”

Some assembly required

We have spoken with a half dozen production workers at ACMR’s Shanghai plant, with more than a dozen suppliers, and with customers. We have concluded that ACMR purchases valuable parts from third parties and performs a low-value assembly operation that principally entails connecting tubes (the machine “plumbing”) and electrical circuits and then testing the machines. That is contrary to the bull case on ACMR: company presentations constantly stress “differentiated megasonic technology” and “proprietary technology.”¹⁸

18 See for example company presentation January 14, 2020: <https://ir.acmrcsh.com/static-files/ba7377f4-b838-4e8a-9764-bf95e0245cde>

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Mission Statement: To Become a Leading Global Provider of Semiconductor Capital Equipment

- **Best-in-class semiconductor wafer cleaning tools** providing higher yields and better efficiency at advanced fabs than conventional wafer cleaning tools
- **Differentiated megasonic technology** delivers highly effective single-wafer wet cleaning for flat and patterned wafer surfaces (SAPS) and damage-free cleaning for 2D and advanced 3D patterned wafers (TEBO)
- **~\$3B single-wafer wet cleaning TAMTM**, an estimated 50% of which is addressed by current products with future expansion from new products
- **More than 220 patents** issued in the U.S., China, Japan, Korea, Singapore and Taiwan as of 9/30/19
- **86,000 sq. ft. across two production facilities in Shanghai** offers significant capacity for growth
- **Headquartered in Fremont, CA** with more than 270 employees globally

(*) Source: Gartner - 2018 Auto Wet Stations, Single-Wafer Processors and Other Clean Process markets.



Clean

SAPS TEBO Ultra - C Tahoe





Advanced Packaging

Ultra Electrochemical Plating AP



Plating

Ultra Electrochemical Plating MAP



3

ACMR sales told us they have no product catalogue: they just search "ACMR equipment" on Baidu.

A longtime ACMR sales executive told us customers identify products by searching images online. The company does not have a Chinese-language website, and he told us that to find products, we should search Baidu. "That's what I do. I search with the term 'ACM Research semiconductor.'" Clients provide ACMR with specifications, and ACMR builds the machine to order, with assembly taking about two weeks and testing taking another two weeks.

By speaking with the suppliers, we learned that most of them sell to small factories that pre-assemble portions of the machines. The ACMR staff then connect up the plumbing and electrical circuits at the company's factory in Shanghai and on customer premises.

ACMR U.S.: ACMR in California is the company's largest supplier, purchasing "valves, contacts, etc." in the United States and shipping them to China. This channel is rife with opportunity for hiding costs.

Before 2019, ACMR was both a supplier and a "customer" for ACMR in China. That simply obscures the transaction chain for auditors.

We visited the ACMR office in California. The company reports five staff there. No one was on premises between 3:30 and 5 in the afternoon on a Wednesday. The company reports it pays \$3,600 per month for the space; neighbors with similar spaces told us they paid from \$1,400-\$1,700. The amount, if overstated, is immaterial. But over months of looking at this company, we have come to feel that every number it publishes is inflated.

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Back of ACMR office, Fremont, California. Photo by J Capital investigator September 2020



Front of ACMR office, Fremont, California. Photo by J Capital investigator September 2020

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Ninebell: We have evidence that Ninebell is buying the robotic arms it sells to ACMR from a Japanese supplier.

ACMR owns just a 20% stake in Ninebell but provides all or almost all of that company’s revenue. Based on a credit report we purchased and on ACMR’s disclosures, in 2019, Ninebell had \$8.9 mln in revenue and ACMR made \$8.9 mln in purchases from Ninebell. The number presumably includes taxes and duties. ACMR has substantial influence and control over Ninebell, and as a result there is a strong case that it should be fully consolidated into ACMR’s financial statements, including Ninebell’s liabilities, and any inventory it may hold on behalf of ACMR.

Curiously, with \$8.9 mln in purchases, ACMR could not have obtained even half of its robotic arm assemblies from Ninebell. We learned in a lengthy interview that the assemblies cost about \$650,000. At this price, the 2019 value of procurement would have paid for 14 robotic arms at most, while the company used at least 32.

On page 6 of the June 2020 8K, ACMR discloses: “NINEBELL is the main supplier of robot arms used in the transport system of our wafer cleaning equipment.” But our investigator visited Ninebell in the Seongnam suburb of Seoul and found that the company was buying robotic arms from the Japanese company Yaskawa.



Yaskawa part on the Ninebell loading dock. Photo by J Capital investigator September 2020.

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Robotic arms are the most technologically advanced portion of the cleaning machines, as an article¹⁹ in Sohu explains.



Semiconductor wafer transfer robot

Photo of a robotic arms used for semiconductor wafers. Screenshot from Yaskawa website September 2020.



Robotic assembly at Ninebell. Photo by J Capital investigator September 2020.

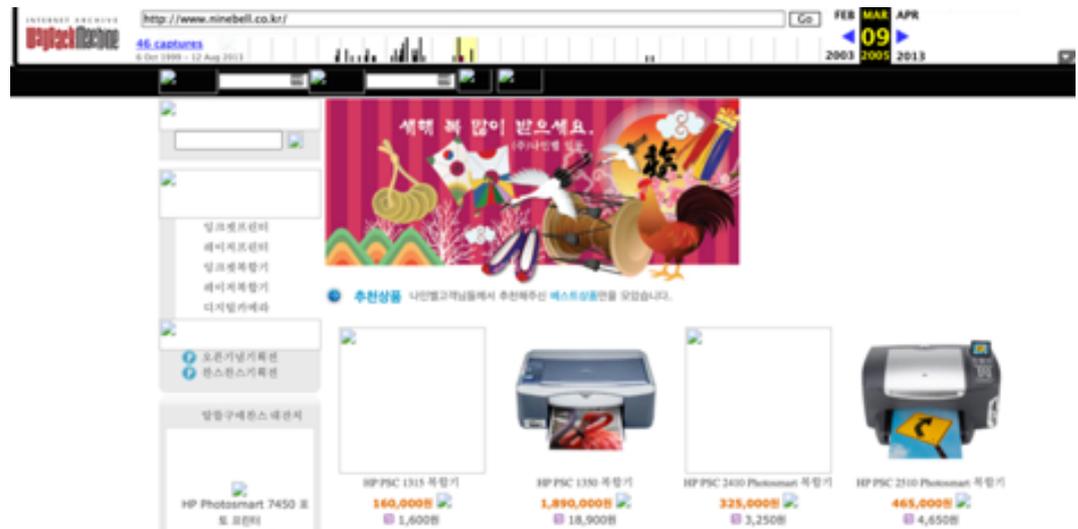
19 Chinese-language article can be found here: https://www.sohu.com/a/270983379_100288188

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Ninebell is a mysteriously low-tech company. It originally provided office printers to business clients then developed a second business line in robotics. We spoke with two robotics associations in Korea, and neither had heard of Ninebell.



Above: current screenshot from 9bell.co.kr. Below: archived screenshot from ninebell.co.kr.



The archived site shows a business registration number for Ninebell the printing company that is the same as that for Ninebell robotics. According to the archived website, Moon-soo Choi is the founder of the business printer company. Choi is head of the robotics company.

Month day, year

Our interviews with suppliers show a disparity with company representations.

Table 16.

Name of Supplier	Source of Supplier Information	Reported value of contracts with ACMR in USD	Summary
Ninebell Co., Ltd.	8K	\$8.9 mln in 2019	ACMR owns 20%. Original company rents out office printers to businesses. Current business appears to do software integration for robotic parts. A longtime ACMR executive told us that Ninebell is simply a pass-through for ACMR. We believe Ninebell has no original technology.
ACMR (US)	8K	\$10.7 mln in 2019	ACMR discloses that the U.S. company purchases parts and ships them to China. However, U.S. bills of lading show no exports by ACMR. Because the volume of manufacturing is small—about 25 machines per year—and the most valuable parts relatively small, the parts could be carried into China, thus avoiding import tariffs.
MKS Instruments	8K	\$0 in 2019. 2018: \$2.6 mln	We spoke with eight company representatives. Seven said ACMR was not a client. One named all the company's clients and insisted "I can confirm that ACMR is not a direct client." The eighth said that ACMR is a client but that he could not say anything further.
GPM-Goodwill Precision Machinery (Suzhou) Co., Ltd.	8K	\$2.5 mln in 2019	We made four calls to this company. One, to the company's switchboard, was an automatic hang-up. One employee said that the company "sells some low-end stuff" to ACMR. Another said that ACMR is a customer for pre-assembled product.
C&U	Interview with ACMR employee		We spoke with four executives of this company, and none had heard of ACMR.
Product Systems Inc. (ProSys)	8K	2019: undisclosed. 2018: \$3.68 mln, 2017: \$1.78 mln	A sales rep told us that ACMR makes purchases in California. ProSys sources commented that ACMR is an assembler and integrator but not an originator of technology. The ProSys sales agent in China, Leadin Way, does not make any sales to ACMR.
Nomura Micro Science Ltd.	8K	Special equipment products, value not disclosed	Nomura Micro Science is not represented in China. ACMR jointly owns a patent with Nomura.
DOUBLE MERITS HOLDINGS LIMITED	8K	Gas equipment, value not disclosed	The only company we can find called "Double Merits" is identified by Bloomberg as an asset management company.
SAS Technology Limited	8K	Gas circuit products, value not disclosed	A representative of the company said that ACMR was a customer.

Month day, year

Name of Supplier	Source of Supplier Information	Reported value of contracts with ACMR in USD	Summary
Tokyo Keiso (Beijing) Instrument Co., Ltd.	8K	Gas circuit products, value not disclosed	A representative of the company said that ACMR is a client and that sales volume to them grew 30-50% in 2019.
Fujikin of China Incorporated	8K	Gas circuit products, value not disclosed	We spoke with three executives of this company. Two said that ACMR is not a client, and one of them checked an internal client list to confirm.
Shanghai Molan Electromechanical Equipment Co., Ltd.	8K	Electrical products, value not disclosed	An executive said that ACMR is a client.
Wuxi Paisi Technology Co., Ltd	8K	Machinery products, value not disclosed	An employee of this company said that Wuxi Paisi has provided PVC welding services to ACMR for cabinet shells.
Advance Electric America Co., Inc	8K	Valves, flowmeters, \$3.49 mln	ACMR purchases components from Advance in the United States. But it would be easy to buy components in China: Advance's agent in China in Lush Mount (http://www.lush-mount.com/). We spoke with three Lush Mount representatives. They acknowledged that ACMR was a client but a small one: "We sell very little to ACMR, not even the value of a car."
Harrington Industrial Plastics	8K	In 2019, company reported \$2.05 mln in purchases of contacts etc from this company.	Harrington sells to ACMR in the U.S. The company does not sell products in China or have an agent there.

Source: J Capital interviews

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Top: Truck at the Chuanhong location, Middle: Loading area at the ACMR Chuanhong factory in Shanghai, Bottom: ACM HQ, 1690 Cailun Lu | Photos by J Capital investigator August 2020

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Dilution everywhere

At \$71.88 per share, some 5.3 times higher than the share price of \$13.49 a year ago, the company's P/E is now a stratospheric 77 times on a historic EPS basis. This compares to a trailing P/E of some 25 for NASDAQ, and far in excess of many reputable companies. This company is trading as if it were a high-tech company with great corporate governance; it is not.

The sale of subsidiary shares to pre-IPO investors already reduced U.S. NASDAQ shareholders' ownership of the company's primary operations by 8.33%, to 91.67%, and the proposed STAR IPO will further dilute ownership down to 82.5% with a very questionable use of proceeds. The company's last 10K also warns ACM Shanghai from the STAR IPO may issue options, and other forms of share-based compensation to its directors, leading to even more US shareholder owner dilution.

From the end of 2018 to end Q2 2020, the NASDAQ listed Class A and Class B basic share count increased from 16.009 mln to 18.053 mln, a dilution of 13%.

There is also further risk of a huge increase in share count from the potential exercise of a gigantic number of stock options, which the company does not include in its diluted EPS calculation on the basis that their impact would be anti-dilutive.

Diluted net income per common share reflects the potential dilution from securities that could share in ACM's earnings. Certain potential dilutive securities were excluded from the net income per share calculation because the impact would be anti-dilutive. The potentially dilutive securities that were not included in the calculation of diluted net income per share in the periods presented where their inclusion would be anti-dilutive are as follows:

	Year Ended December 31,	
	2019	2018
Stock Options	4,095,676	3,715,779
Warrant	77,810	80,000
	4,173,486	3,795,779

Up until and including the end of December 2018, the company explained potential dilutive securities were excluded from the diluted EPS calculation "due to our net loss for those periods", even though for 2018 it in fact reported a small positive net income and earnings per share. These excluded securities can potentially expand the share count by a further 23% based off the end December 2019 number of shares.

In addition to shares issued in a follow on offering and stock option exercises already taken place, the last 10K disclosed the company issued 1,344,764 Class A unregistered shares during 2019 pursuant to stock option conversion at exercise prices between \$0.75 and \$3.00 per share, a tiny fraction of the current share price. We believe a subsequent registration for

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these shares was later withdrawn but can reappear at a later date. It is not clear whether the related stock options were counted as dilutive or anti-dilutive. Knowing what stock options are dilutive or not is important.

U.S. Class A shareholders deserve a more thorough explanation about what “iron cast” dual class anti-dilutive provisions exist to protect them from continuous withering dilution on a stock with a P/E multiple of 77 times.

Share sales

On September 3 and 4, CEO David Wang disclosed his plan to sell \$11.4 mln in ACMR shares, about 12% of his holdings. This is not the action of someone who has confidence in his company’s future. These sales of U.S. NASDAQ-listed shares make a mockery of Wang’s agreement to lock up and not sell shares of ACM Shanghai for a three-year period after the completion of the STAR IPO.

The vice president of sales, Chen Fuping, exercised 17,946 options at \$3 last September.²⁰

Customers on the U.S. blacklist

On September 8, shares of ACMR fell by 30% based on a rumor that the U.S. Department of Commerce would blacklist a key customer, Semiconductor Manufacturing International (SMIC). Shares in SMIC had closed down 23% in Hong Kong on September 4, following reports that the U.S. might blacklist the company.²¹ Being added to the U.S. “entity list” would mean that U.S. companies would need a special license to do business with SMIC. SMIC is currently on a S&P BBB- rating, just above junk bond level. Shares have come back, but we believe based on conversations with U.S. government sources that SMIC will ultimately be blacklisted. We think there is a possibility that all of ACMR’s Chinese customers—about 80% of sales, if SK Hynix is reclassified as Korean—will come under U.S. sanctions. Selling low-quality equipment for discount prices, ACMR is able to penetrate independent Chinese fabs that earn government subsidies for buying “domestic.” But ACMR will not penetrate companies like Intel and TSMC, which require reliability and a track record. That means that the ACMR market is much more vulnerable to U.S. sanctions than are peers.

²⁰ <https://docoh.com/filing/1729184/0001654954-19-011374/4A>

²¹ See Reuters article here: <https://www.reuters.com/article/us-usa-china-smic-exclusive/exclusive-trump-administration-weighs-blacklisting-for-chinas-smic-idUSKBN25V2VR>

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