

July 13, 2020

MOLECULAR DATA INC. (NCM: MKD)

Founded in 2013, China-based Molecular Data operates an e-commerce platform that connects and serves participants of the Chinese chemicals industry across the value chain.

COMPANY HIGHLIGHTS

- * MKD: Connecting China's Chemical Industry Value Chain
- * In our view, Molecular Data has assembled a comprehensive network that can capture value across multiple previous pain points in China's fragmented chemicals industry.
- * After several years of organically building platform capabilities to include financial services, warehousing, logistics and software as a service (SaaS) offerings, Molecular Data should now be able to diversify its revenue stream beyond its core chemical direct e-commerce sales. This should lead to enhanced profit margins and, ultimately, sustainable profitability.
- * At the end of 2019, Molecular Data completed an initial public offering that yielded net proceeds of approximately \$55 million. As a result, we view the company as well positioned to invest in its integrated e-commerce platform with new higher-margin services, and to pursue the acquisition of new capabilities and services globally.
- * Although we expect near-term financial results to be impacted by the COVID-19 outbreak, which forced many customers and suppliers to halt operations throughout the first half of 2020, we are encouraged by continued robust traffic on the Molbase platform. We believe this signals stable demand and portends a rapid recovery across the second half of 2020.
- * Since the IPO, the MKD shares have traded at a steep discount to the 1X-2X price/sales multiple typically associated with chemical industry players and approximately 0.1X our revenue estimate for 2020. We expect this discount and disconnect from its underlying fundamentals will start to abate as Molecular Data progresses towards achieving revenue contribution from newer service offerings, competitive operating margins and, ultimately, profitability. Based on our price/sales valuation, we arrive at a fair value estimate of \$9 per ADS.

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KEY STATISTICS

Key Stock Statistics

Recent price (7/7/20)	\$2.40
52 week high/low	\$11.80/\$0.57
ADS Outstanding (M)	115
Market cap (M)	\$276.0
Dividend	Nil
Yield	Nil

Sector Overview

Sector	Materials
Sector % of S&P 500	2.5%

Financials (\$M)

Cash & Mkt Securities	8.3
Debt	2.0
Working Capital (\$M)	-27.0
Current Ratio	0.7
Total Debt/Equity (%)	NA
Payout ratio	NM
Revenue (M) TTM	1897.0
Net Income (M) TTM	NM
Net Margin	NM

Risk

Beta	NA
Inst. ownership	NA

Valuation

P/E forward EPS	NA
Price/Sales (TTM)	0.1
Price/Book (TTM)	NA

Top Holders

TB Alternative Assets Ltd

Management

Founder/Chairman	Dr. Dongliang Chang
CEO	Dr. Zheng Wang
CFO	Mr. Zhaolong Li
Company website	www.molbase.com



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INVESTMENT THESIS

Molecular Data operates a technology-driven e-commerce platform that serves China's chemical industry (a vital part of the global economy) by connecting participants along the chemical value chain and solving pain points associated with traditional chemical transactions. Its integrated platform has expanded organically in recent years beyond the high volume, but low-margin direct chemical sales model to include "software as a service" (SaaS) solutions, warehousing/logistics and financial services.

The global chemical industry had an estimated market size of \$2.3 trillion in 2018, according to Frost and Sullivan. Within this, China is one of the largest and fastest-growing markets, accounting for 42% of global chemical consumption value. Over the past five years, chemical industry growth in China has outpaced the global growth rate. This is expected to continue over the coming years due to robust industrial and consumer sector activity that has been fostered by fast economic growth, steady urbanization and favorable regulatory status from the Chinese government.

Since 2014, the size of China's chemical e-commerce market, measured by revenues, has increased at a CAGR of 67.1% to \$18.7 billion in 2018, according to Frost and Sullivan. Frost and Sullivan also project the market size of China's chemical e-commerce market will grow at a CAGR of 28.9% from 2018 to 2023, with online penetration continuing to gain a foothold, as chemical industry participants deploy more resources to digitize their supply chains and improve their operational efficacy.

Despite solid growth fundamentals, e-commerce in the chemical industry remains in its early stages and the market remains fragmented. Molecular Data's integrated platform was ranked the largest chemical e-commerce platform in China in 2017 and 2018 in terms of gross merchandise (GMV). The platform aims to provide customers and suppliers with sufficient information on the quality and price of chemicals (given wide dispersal among many suppliers); streamline the complex industry supply chain; simplify the payment process; and provide financial services to aid small- to medium-sized companies that increasingly face limited financing resources.

In our view, the addition of directly sourced financial services holds the potential to expand the market to new entrants, as the capital-intensive but oversupplied chemical industry has been hampered by the Chinese government's policy to tighten credit (making bank loans harder to get, especially for small- to medium-sized companies). The industry-wide oversupply of chemicals has resulted in lower prices for certain chemicals, with chemical companies having difficulties making a profit. Although we think these trends could negatively impact customers' willingness to pay membership fees for use of Molecular Data's platform and services, we think that the platform could also help these companies to offset such challenges by expanding sales channels, cutting costs and improving operational efficiency. Importantly, Molecular Data has seen a steady inflow of new clients to its e-commerce platform and users of its value-added services, providing clients with tailor-made financing options to help them manage cost and mitigate the impacts of chemical oversupply and tightened environmental inspection and regulations in China.

Molecular Data's diversified business infrastructure includes a proprietary chemicals knowledge engine, referred to as the MOLBASE Encyclopedia. It provides the molecular structure and synthetic routes of over 10 million chemical compounds, together with a relevant industry supply chain roadmap, which could all trace back to the pricing and

suppliers of upstream and downstream products. The AI engine primarily consists of intelligent matching systems, Intelligent Chemical Industry Maps, and a comprehensive software as a service (SaaS) suite. A key feature of the platform is that it allows for the aggregation and analysis of collected transaction data and industrial insights, which yield industry insights that can help to enhance its pricing and service offerings to customers. As of December 31, 2019, the company had accumulated 116,291 customers and 35,456 suppliers on its online platform, representing 23% and 5% year-over-year growth, respectively, and had built a nationwide supplier network covering more than 380 cities in China.

To date, the company primarily has generated sales of chemicals under a direct sales model. Matching chemical trading under a marketplace model and collecting fees for online membership services have been modest revenue generators. Recently, Molecular Data launched warehousing and logistics and direct financial services initiatives, the latter of which began in July 2019. Net revenue growth has been robust, at a 68% compounded annual growth rate (CAGR) between 2016 and 2018. In 2019, Molecular Data's revenues increased 46%, year-over-year.

In addition, between 2016 and 2018, per-transaction gross merchandise value (GMV) has also increased at a CAGR of 33%. In 2019, Molecular Data's transaction GMV increased by 50%, year-over-year. Despite these positive volume trends, gross profit margins have lagged and hovered around 1%, given the commoditization of much of the sales under the direct sales model. We expect Molecular Data to leverage the data collected on its platform as well as the network's expanded user base to shift its product mix toward higher-margin offerings, while growing revenues from its nascent services to improve operating cash flows and profitability. In addition, we view Molecular Data as well positioned to leverage its expanding online platform by charging suppliers service fees and commissions for these value-added services over time.

Underlying the robust growth that Molecular Data has shown over the past five years is a favorable regulatory environment in China. In its "13th Five-Year Plan," which was enacted in March 2016 to cover the 2016-2020 period, China's government sought to stimulate the growth of China's manufacturing and consumer sectors (both of which rely heavily on raw materials provided by the chemical industry). As such, the growth of the e-commerce section of the market was impacted positively. As of February 2020, the next five-year plan for the 2021-2025 period was in development, and will be approved by the Chinese government in early 2021. Similarly, the Chinese government's "Made in China 2025" policy, which was enacted in 2015, prioritized high-tech industries for development aimed at transforming China into a "manufacturing superpower." Lastly, China recently announced a new infrastructure campaign under which the country will invest an estimated \$1.4 trillion by 2025, working with government and private companies to promote such areas as fifth-generation wireless networks, industrial internet, and artificial intelligence software that could enhance automation across multiple industries.

In our view, Molecular Data has gained valuable insights and an established "first-mover advantage" in its development of a platform that captures value across the full chemicals industry value chain. We expect this will enable the company to attract and maintain new customers and suppliers. Through its financial services vertical, the company should be

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PEER COMPARISON

Company	Ticker	Recent Price (\$)	52-Week High (\$)	52-Week Low (\$)	Mkt. Cap (\$MIL)	1-yr Price Change (%)	1-yr Rev Growth (%)	1 YR EPS Growth (%)	P/E Ratio	Beta	Yield (%)
Molecular Data Inc.	MKD	2.40	11.80	0.57	276	NA	46	NA	NA	NA	NA
Daqo New Energy Corp	DQ	88.7	98.01	35.73	1233	116	-14%	NA	22.0	0.88	NA
Sinopec Shanghai Petrochemical Co. Ltd	SHI	25.62	38.1	21.25	4811	-32	21%	NA	8.3	0.75	0.2
Alibaba Group Holding Ltd	BABA	236.5	241.3	151.4	6434	42	51%	36%	28.3	1.56	NA

able to help smaller customers participate in the market and grow into established partners, further enhancing the “stickiness” of the customer-centric platform.

Armed with these insights and the required resources gained from its initial public offering in December 2019, Molecular Data plans to expand into new international markets and build a global brand/market presence. Although the United States and China represent the largest chemical markets in the world, Molecular Data sees opportunity to enter emerging markets with strong chemical import demand, and developed markets with strong export and import demand. Lastly, we have a favorable view of Molecular Data’s global intellectual property portfolio. As of December 31, 2019, it consisted of four patents, 13 patent applications, 123 registered computer software copyrights, 76 registered domain names, and 132 registered trademarks.

RECENT DEVELOPMENTS

Shares of Molecular Data started trading on December 30, 2019, following an initial public offering of 11.5 million ADS (one ADS represents three Class A common shares) at \$5.38 per ADS. The offering yielded \$55.4 million in net proceeds. Year-to-date, the stock has decreased 50%, versus a 3% decline for the S&P 500. The ADS’s have been under pressure since the IPO, which we attribute to the outbreak of the coronavirus, which originated in China before spreading globally. The virus has disrupted activity in the China chemicals industry, as well as the broader economy since the end of calendar 2019.

In June 2020, Molecular Data disclosed financial results for the full-year 2019, during which it recorded a \$0.09 loss per share (\$0.27 per ADS). During the period, revenues increased 46% to \$1.9 billion.

In May 2020, Molecular Data announced the formation of a strategy advisory committee and the appointment of Junling Li, former vice president of Alibaba Group, as the committee’s president. The group will aim to leverage the company’s technological advantages in big data and artificial intelligence to enhance its operating efficiency across the chemical industry.

In July 2019, Molecular Data began separately charging for providing financial solutions services, including direct lending. Since launching financial services in 2014, the company had assisted customers by both negotiating with financing providers and serving as information intermediaries between customers, suppliers and financing providers. As of December 31, 2019, more than 2,400 customers had used its financial solutions, with default rates declining from 0.14% in 2017 to 0.02% in 2019.

In June 2019, the company launched operations optimization services that are designed to empower other companies in the chemical industry to manage and obtain access to specific industry updates and price fluctuation trends; analyze market movements; and provide real-time market rankings based on certain filters.

EARNINGS & GROWTH ANALYSIS

We forecast revenues of approximately \$2.0 billion in 2020 and \$2.6 billion in 2021, representing growth of 5% and 30%, respectively. We expect former-period results to be negatively impacted by the COVID-19 pandemic, which originated in China and caused many customers and suppliers to halt operations throughout the first quarter of 2020. However, we think that continued traffic on the MOLBASE platform during the crisis, as well as enhanced opportunity for Molecular Data to provide financial services to many small- and mid-sized customers and suppliers, could represent a tailwind to recovery in the second half of the year and into 2021. Although we expect direct chemical sales to continue to account for a majority of Molecular Data’s top-line performance over the coming years, we are encouraged by prospects for new vertical markets, including online membership services fees from its SaaS offering, warehouse/logistics solutions and financial solutions -- all of which should help to diversify the product mix.

We anticipate these initiatives will enhance gross margins, which have hovered in the 1% range in recent years due to the commoditized nature of much of the chemical inventory. We project that realizing 2% gross margins on a \$3 billion revenue base would position the company to achieve profitability, which we think could occur around 2022.

We anticipate operating expenses of approximately \$53 million in 2020 and \$54 million in 2021.

We forecast net losses of \$0.30 per ADS in 2020 and \$0.06 in 2021.

FINANCIAL STRENGTH & DIVIDEND

Our financial strength rating for Molecular Data is Medium. The December 2019 initial public offering yielded net proceeds of \$55.4 million, which, on a pro-forma basis, reversed a negative net tangible book value as of December 31, 2019. We expect the primary use of proceeds to include investing in logistics and warehouse capabilities, making strategic acquisitions and cross-border investments, and enhancing the technology platform.

Net cash used in operating activities in 2019 was \$13.8 million and net cash used by investing activities was approximately \$0.3 million. Net cash generated by financing activities totaled \$21.5 million, excluding the proceeds from the initial public offering.

As of December 31, 2019, Molecular Data had a current ratio of 0.7X and a liability/asset ratio of 144%. However, because of the initial public offering at the end of 2019, and new credit facility agreements to improve liquidity amid the COVID-19 outbreak, we view the company as being sufficiently capitalized for the foreseeable future.

Molecular Data does not pay a dividend, and we do not expect one to be initiated in the near term, as the new public company focuses on enhancing its infrastructure and executing on its corporate strategy.

MANAGEMENT & RISKS

Dr. Dongliang Chang is the founder of Molecular Data and has served as chairman since its inception. Dr. Chang is a renowned expert in bio-chemistry, has more than 15 years of experience in the chemical and pharmaceutical industries. His research focuses on organic synthesis, bio-informatics, heterocyclic intermediates and bio-catalysis. He has published more than 30 articles and has received 11 patents. Dr. Chang received his doctorate degree in biotechnology from Swiss Federal Institute of Technology in 2004.

Dr. Zheng Wang has served as Molecular Data’s chief executive officer since 2018 and a director since October 2019. Dr. Wang has compiled more than 20 years of chemical industry experience, focused on operation management. He previously served as the chief executive officer of XinQi Biotechnology Inc. and as supervisor of China Investment Group, a South Korean company. Dr. Wang received his bachelor’s degree, master’s degree and doctorate degree from Shanghai Second Medical University in 1991, 1998 and 2001, respectively.

Molecular Data’s board has five members, including three independent directors. We note that an independent director chairs the company’s audit committee. While Board Chairman Dr. Dongliang Chang chairs the compensation and nominating/corporate governance committees, the rest of each committee is comprised of independent directors.

Risks to the company include its status as a “controlled company,” as Founder & Chairman Dr. Dongliang Chang owns a 15.9% equity interest or 65.3% voting power of the total issued and outstanding share capital.

Other risks include the potential for a worsening of an industry-wide oversupply of chemicals in China, which could negatively impact prices of certain chemicals and raw materials and, in turn, sales at an acceptable margin under Molecular Data’s direct sales model and other platform services. In addition, we think Molecular Data’s expansion plans could be negatively impacted if members across its network fail to become profitable and, therefore, able to absorb charges for additional value-added services on Molecular Data’s platform.

In addition, we think that economic challenges facing China and other regions could negatively impact Molecular Data's global expansion plans. Lastly, although the global economic impact of the coronavirus outbreak that originated in China will not be known for some time, near-term operations to the chemicals industry, among many others, may be disrupted.

COMPANY DESCRIPTION

Molecular Data Inc., through its subsidiaries, operates in the chemical e-commerce business in the People's Republic of China. The company operates a technology-driven platform that connects participants along the chemical value chain through integrated solutions. It delivers e-commerce solutions, financial solutions, warehousing and logistics solutions, and a SaaS suite intended to solve pain points for participants in the traditional chemical industry. The company was founded in 2013 and is headquartered in Shanghai, the People's Republic of China.

VALUATION

We believe that Molecular Data's current valuation is compelling, as its recent market capitalization of approximately \$276 million reflects a

multiple of approximately 0.1X our 2020 revenue estimate of \$2.0 billion. That is well below the 1X-2X multiple typically seen with chemical sector companies. We attribute this discount and disconnect to the company's lack of profitability and poor gross margin and operating cash flow history, recently exacerbated by the COVID-19 pandemic.

Still, we believe that the impressive revenue growth and gross merchandise value (GMV) from its direct sales efforts has positioned the company to establish a robust user base from which it can meaningfully expand its service offering as conditions begin to normalize in China. This could include recurring membership fees from its software as a solution (SaaS) and direct offering of financial services to customers, which we think has the potential to enhance the margin profile. We also think the proceeds from the December 2019 initial public offering will enable the company to invest in infrastructure and service/geographic expansion initiatives.

Given these competitive strengths, we believe the current valuation does not fairly reflect Molecular Data's forward growth position. Applying a multiple of 0.5X to our 2020 revenue estimate, we arrive at a fair value market capitalization of \$1.0 billion, or \$9 per ADS. (Steve Silver, Argus Analyst)

INCOME STATEMENT

Growth Analysis (\$MIL)	2015	2016	2017	2018	2019	1Q20E	2Q20E	3Q20E	4Q20E	2020E	2021E
Revenue	NA	NA	NA	1,267.0	1,897.0	280.0	480.0	600.0	640.0	2,000.0	2,600.0
Gross Profit	NA	NA	NA	0.0	0.0					0.0	0.0
SG&A	NA	NA	NA	38.8	30.6					38.0	43.0
R&D	NA	NA	NA	5.2	6.5					6.0	6.2
Operating Income	NA	NA	NA	-33.0	-27.6					-34.1	-7.5
Interest Expense	NA	NA	NA	-2.7	-0.6					-0.6	-0.6
Pretax Income	NA	NA	NA	NA	NA					NA	NA
Tax Rate (%)	NA	NA	NA	NA	NA					NA	NA
Net income	NA	NA	NA	-35.6	-27.8					-34.4	-8.1
Diluted ADS	NA	NA	NA	103.5	103.7					115.3	115.3
Earnings Per ADS	NA	NA	NA	-0.34	-0.27	-0.09	-0.09	-0.06	-0.06	-0.30	-0.06
Dividend	NA	NA	NA	NA	NA					NA	NA
Growth Rates (%)											
Revenue	NA	NA	NA	NA	46.0					5.0	30.0
Operating Income	NA	NA	NA	NA	NA					NA	NA
Net Income	NA	NA	NA	NA	NA					NA	NA
EPS	NA	NA	NA	NA	NA					NA	NA
Valuation Analysis											
Price (\$): High	NA	NA	NA	NA	NA					NA	NA
Price (\$):Low	NA	NA	NA	NA	NA					NA	NA
PE: High	NA	NA	NA	NA	NA					NA	NA
PE: Low	NA	NA	NA	NA	NA					NA	NA
PS: High	NA	NA	NA	NA	NA					NA	NA
PS: Low	NA	NA	NA	NA	NA					NA	NA
Yield: High	NA	NA	NA	NA	NA					NA	NA
Yield: Low	NA	NA	NA	NA	NA					NA	NA
Financial & Risk Analysis (\$MIL)											
Cash	NA	NA	16.3	0.9	NA					NA	NA
Working Capital	NA	NA	11.8	-8.6	NA					NA	NA
Current Ratio	NA	NA	1.4	NA	NA					NA	NA
LTDebt/Equity (%)	NA	NA	NA	NA	NA					NA	NA
Total Debt/Equity (%)	NA	NA	NA	NA	NA					NA	NA
Ratio Analysis											
Gross Profit Margin	NA	NA	1.0	1.0	1.0					1.0	2.0
Operating Margin	NA	NA	NA	NA	NA					NA	NA
Net Margin	NA	NA	NA	NA	NA					NA	NA
Return on Assets (%)	NA	NA	NA	NA	NA					NA	NA
Return on Equity (%)	NA	NA	NA	NA	NA					NA	NA
Op Inc/Int Exp	NA	NA	NA	NA	NA					NA	NA
Div Payout	NA	NA	NA	NA	NA					NA	NA

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