

上海期货交易所服务实体经济系列年度报告
SHFE ANNUAL REPORT SERIES ON SERVING THE REAL ECONOMY

2026

上海原油期货和期权 市场发展报告

2026 DEVELOPMENT REPORT OF THE SHANGHAI
CRUDE OIL FUTURES AND OPTIONS MARKET



上海期货交易所
SHANGHAI FUTURES EXCHANGE

上海国际能源交易中心
SHANGHAI INTERNATIONAL ENERGY EXCHANGE

01 Milestones
上海原油期货大事记

02 2026 Development Report of
the Shanghai Crude Oil Futures
and Options Market
**2026年上海原油
期货和期权市场发展报告**

03 Rankings of Crude Oil Futures
Trading Volume
原油期货成交排名

01

Milestones

上海原油期货大事记

2018

- 2018.03.15 ○ 上期能源完成香港自动化交易服务（ATS）注册。
- 2018.03.26 ○ 原油期货作为中国首个国际化商品期货上市。
- 2018.06.20 ○ 国内首船期货原油卸至大连中石油国际储运有限公司指定交割库。
- 2018.11.15 ○ 获得新加坡金融管理局（MAS）批准，成为认可的市场经营者（RMO）。

2019

- 2019.03.26 ○ 发布原油价格指数。
- 2019.10.30 ○ 增加中石化海南原油期货交割存放点，核定库容 100 万立方米，启用 40 万立方米。

2020

- 2020.04.16 ○ 增加大连北方油品储运有限公司作为原油期货指定交割仓库，增加大连中石油国际储运有限公司国际储备库作为原油期货指定交割仓库存放点。
- 2020.04.17 ○ 增加中化弘润石油储运（潍坊）有限公司作为原油期货指定交割仓库。
- 2020.04.20 ○ 达上市以来最高持仓量 18.84 万手。
- 2020.04.24 ○ 增加中国石化集团石油商业储备有限公司广东省湛江市临港工业园兴港大道湛江商储分公司、河北省唐山市曹妃甸工业区曹妃甸商储分公司作为原油期货指定交割仓库存放点。
- 2020.06.03 ○ 上期所和上期能源被纳入欧洲证券及市场管理局（ESMA）的第三国交易所交易后透明度评估正面清单。
- 2020.08.01 ○ 达上市以来单月最大交割量 1385.9 万桶。
- 2020.09.07 ○ 增加大连中石油国际储运有限公司广西中石油国际储备库作为原油期货指定交割仓库存放点。
- 2020.10.12 ○ 推出原油期货结算价交易指令（TAS），发布日中交易参考价（Marker Price）。
- 2020.12.01 ○ 穆尔班原油被列入上海原油期货的可交割油种之中。自 2021 年 6 月 1 日起，穆尔班原油可入库生成标准仓单，并用于期货交割。

2021

- 2021.02.03 ○ 增加大鼎油储有限公司位于浙江省舟山市定海区临城街道岙山东路油库成为原油期货存放点。
- 2021.02.09 ○ 同意青岛海业摩科瑞仓储有限公司位于山东省青岛市黄岛区董家口港区港润大道油库成为原油期货存放点。
- 2021.06.21 ○ 原油期货在上期能源正式挂牌交易。

2022

- 2022.05.10 ○ 发布原油期货月均结算价。
- 2022.06.21 ○ 同意国投（洋浦）油气储运有限公司位于海南省洋浦经济开发区化学工业园区园一路北侧的油库成为我中心原油期货存放点。
- 2022.06.24 ○ 巴士拉中质原油和图皮原油被列为上海原油期货的可交割油种。自 2022 年 11 月 1 日起，巴士拉中质原油、图皮原油可生成标准仓单，并用于期货交割。
- 2022.09.02 ○ QFI 可参与原油期货、期权等品种交易。

2023

- 2023.04.24 ○ 推出原油期货结算价交易指令（Trade at Settlement, TAS）优化业务。
- 2023.06.02 ○ 同意中国石化集团石油商业储备有限公司位于广东省湛江市临港工业园兴港大道的原油期货指定交割仓库存放点启用库容由 40 万立方米增加至 60 万立方米。
- 2023.08.25 ○ 自然资源部 财政部发布《关于制定矿业权出让收益起始价标准的指导意见》。明确将油气矿产矿业权出让收益起始价标准改为上海原油期货价格。

2024

- 2024.06.01 ○ 同意山东省港口集团有限公司、日照港油品码头有限公司、青岛振华石油仓储有限公司成为上海国际能源交易中心原油期货集团交割中心、集团交割仓库。
- 2024.06.17 ○ 纽约商品交易所开始发布对应上海原油期货收盘时间的 WTI 上海日中参考价（Shanghai Marker）及 TAM。

2025

- 2025.06.24 ○ 达上市以来最高成交量 64.53 万手。
- 2025.10.20 ○ 同意大连北方油品储运有限公司调增位于大连市保税区新港大连港新港沙坨子的原油期货交割仓库启用库容的申请，启用库容由 10 万立方米增加至 20 万立方米。
- 2025.12.31 ○ 境外参与者涵盖 6 大洲（亚洲、非洲、欧洲、北美洲、大洋洲、南美洲）超 30 个国家和地区。

待续.....

2018

- 2018.03.15 ○ INE completed the registration for Hong Kong Automated Trading Services (ATS)
- 2018.03.26 ○ Shanghai crude oil futures debuted as China's first commodity futures product open to international investors.
- 2018.06.20 ○ The first ship of deliverable crude oil futures was unloaded into the designated delivery storage facility of Dalian PetroChina International Warehousing & Transportation Co., Ltd.
- 2018.11.15 ○ INE was approved by the Monetary Authority of Singapore (MAS) as a Recognized Market Operator (RMO).

2019

- 2019.03.26 ○ INE launched the crude oil price index.
- 2019.10.30 ○ Sinopec Hainan company became a storage site of crude oil futures delivery, with an approved capacity of 1,000,000 cubic meters and an active capacity of 400,000 cubic meters.

2020

- 2020.04.16 ○ INE approved Dalian North Oil Petroleum Logistics Co., Ltd. as a designated delivery storage facility, and expanded the storage site of Dalian PetroChina International Warehousing & Transportation Co., Ltd..
- 2020.04.17 ○ Sinochem-Hongrun Oil Staging (Weifang) Co., Ltd. was approved as a designated delivery storage facility for crude oil futures.
- 2020.04.20 ○ The open interest hit a new high of 188,400 lots.
- 2020.04.24 ○ Sinopec Petroleum Reserve Co., Ltd. Zhanjiang Branch at Lingang Industrial Zone, Xingang Avenue, Zhanjiang, Guangdong Province, and Sinopec Petroleum Reserve Co., Ltd. Caofeidian Branch at Caofeidian Industrial Zone, Tangshan, Hebei Province became the storage sites of designated delivery storage facility.
- 2020.06.03 ○ SHFE and INE were added to ESMA's positive list for post-trade transparency as third-country trading venues.
- 2020.08.01 ○ The monthly delivery quantity hit a new high of 13.859 million barrels.
- 2020.09.07 ○ Guangxi PetroChina International Reserve Depot of Dalian PetroChina International Warehousing & Transportation Co., Ltd. became a storage site for crude oil futures.
- 2020.10.12 ○ INE launched TAS (Trade at Settlement) order and released the Marker Price.
- 2020.12.01 ○ Murban crude oil was added as another deliverable crude oil, eligible to be loaded in for the issuance of standard warrants and futures delivery from June 1, 2021.

2021

- 2021.02.03 ○ The depot of Dading Petroleum Logistics Co., Ltd. at Aoshan East Road, Lincheng Sub-District, Dinghai District, Zhoushan, Zhejiang was approved as a storage site of crude oil futures.
- 2021.02.09 ○ The depot of Qingdao Haiye Mercuria Oil Terminal Co., Ltd. at Gangrun Avenue, Dongjiakou Port, Huangdao District, Qingdao, Shandong was approved as a storage site for crude oil futures.
- 2021.06.21 ○ Crude oil options were listed on INE.

2022

- 2022.05.10 ○ INE released the Monthly Average Settlement Price (MASP) for crude oil futures.
- 2022.06.21 ○ The depot of SDIC Oil & Gas Terminal Yangpu Co., Ltd. located to the north of Park Road No. 1, Chemical Industry Park, Yangpu Economic Development Zone, Hainan Province, was approved as a storage site for crude oil futures.
- 2022.06.24 ○ Basrah Medium and Tupi were included as deliverable crudes for the Shanghai crude oil futures. They could be used for standard warrants issuance and futures delivery from November 1, 2022.
- 2022.09.02 ○ QFI was approved to trade crude oil futures and options products.

2023

- 2023.04.24 ○ INE improved TAS orders of crude oil futures.
- 2023.06.02 ○ INE approved an expansion of the active capacity of the storage site operated by Sinopec Petroleum Reserve Co., Ltd. at the Lingang Industrial Zone, Xingang Avenue, Zhanjiang, Guangdong Province, increasing from 400,000 cubic meters to 600,000 cubic meters.
- 2023.08.25 ○ The Ministry of Natural Resources and the Ministry of Finance issued the *Guiding Opinions on Setting Starting Price Standards for the Mining Rights Grant Fee*, setting the starting price standard for the grant fee of oil and gas mining rights based on the price of Shanghai crude oil futures.

2024

- 2024.06.01 ○ Shandong Port Group Co., Ltd., Rizhao Port Oil Terminal Co., Ltd., and Qingdao Zhen-Hua Oil Storage Co., Ltd. were variously approved as a Group Delivery Center and delivery warehouses for the INE crude oil futures.
- 2024.06.17 ○ NYMEX began to publish the WTI Shanghai Marker and the corresponding TAM at the closing time of the SC.

2025

- 2025.06.24 ○ The SC hit a record-high trading volume of 645,345 lots since its listing.
- 2025.10.20 ○ INE approved the application of Dalian North Oil Petroleum Logistics Co., Ltd. to increase the active storage capacity of its SC delivery warehouse located at Sha Tuozi, New Port, Dalian Bonded Zone, Dalian from 100,000 cubic meters to 200,000 cubic meters.
- 2025.12.31 ○ Overseas participants now come from more than 30 countries and regions across 6 continents (Asia, Africa, Europe, North America, Oceania, and South America).

To be continued.....

02

2026 Development Report of
the Shanghai Crude Oil Futures
and Options Market

2026年上海原油 期货和期权市场发展报告

2026 年上海原油期货和期权市场发展报告

2025 年,国际油价在 OPEC+ 增产、贸易争端及地缘政治事件扰动的背景下,呈现重心下移、宽幅震荡的走势。上海原油期货(品种代码:SC)价格有效地反映区域现货市场变化,并与境外原油期货价格保持高度联动。上海原油期货定价合理,与原油期货联动紧密,市场规模持续增长。

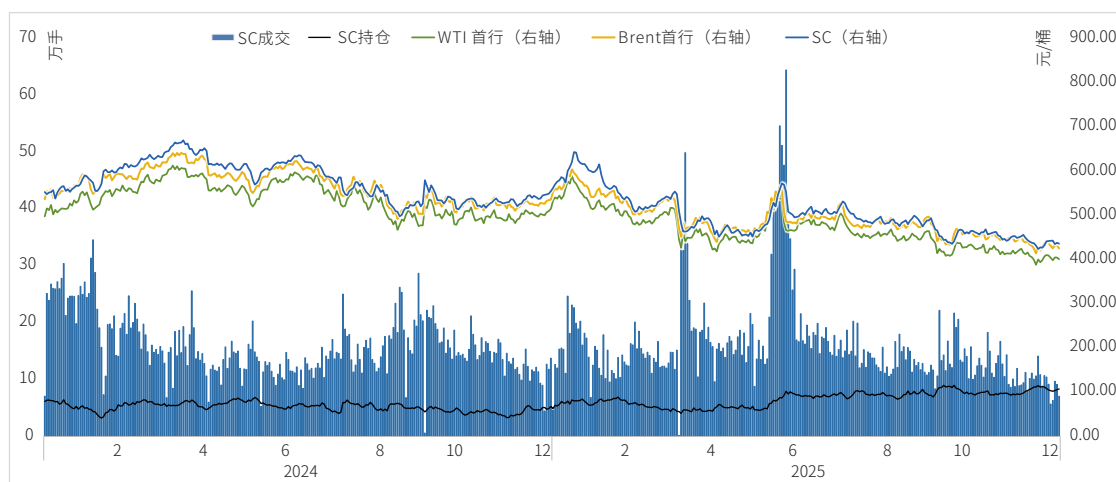
一、上海原油期货价格有效反映区域供需基本面变化,并与境外市场高度联动

(一) 国际油价总体呈现重心下移、宽幅震荡走势

2025 年,国际油价在 OPEC+ 增产、贸易争端及地缘政治事件扰动的背景下,呈现重心下移、宽幅震荡的走势。上半年,美对俄石油产业发起大规模制裁引发国际石油市场供应紧张,推动原油价格处于年初高位,随后在特朗普关税政策对宏观经济冲击下迅速回落。下半年,虽然伊朗和以色列冲突引发市场对于供应的担忧,原油价格短暂冲高,但 OPEC+4 月起快速推进减产回补计划,原油供需格局逐步转向宽松,油价震荡下跌。

截至 2025 年 12 月 31 日,上海原油期货主力合约结算价 436.5 元/桶(约合 62.45 美元/桶),年内下跌 21.37%。Brent 原油期货首行合约结算价 60.85 美元/桶,WTI 原油期货首行合约结算价 57.42 美元/桶,年内分别下跌 18.48% 和 19.94%。2025 年,上海原油期货与 Brent、WTI 原油期货相关系数均为 0.95 以上(图 1)。

图1 上海原油期货运行概况



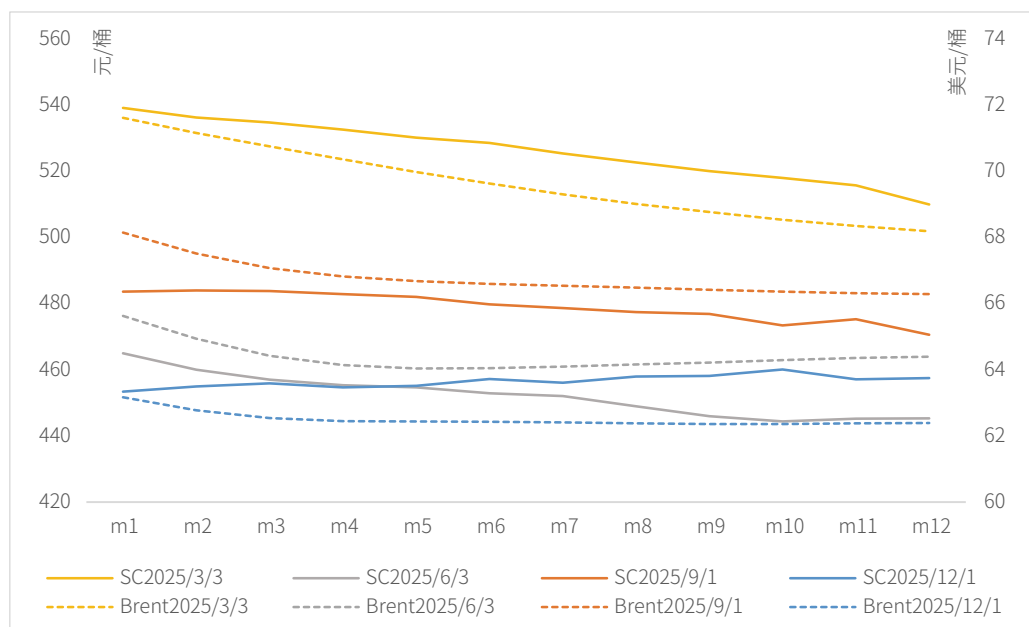
数据来源: 上海国际能源交易中心、路透

（二）上海原油期货价格走势反映区域供需基本面变化

2025年，在OPEC逐步退出减产的大背景下，叠加美对俄、伊石油产业施加制裁、“关税战”等地缘因素，亚太石油市场总体呈现先紧后松格局。我国原油需求仍延续增长格局，2025年全国原油表观消费量约为7.94亿吨，同比上涨3.62%；原油进口量5.78亿吨，同比上涨4.39%。但成品油消费继续回落，炼厂开工负荷总体下滑，2025年成品油消费总量3.78亿吨，同比减少2.9%；主营炼厂和独立炼厂平均产能利用率分别为79.22%、48.09%，同比分别上涨1.24个百分点、下跌5.57个百分点。

上海原油期货价格走势和期限结构反映了亚太及我国石油供需及库存情况，绝对价格重心不断回落，与国际油价保持一致；期限结构由Backwardation结构转为Contango结构，境外期货Back结构也同步转弱，反映亚太地区供需从相对紧张逐步转向宽松（图2）。

图2 2025年上海原油期货远期曲线



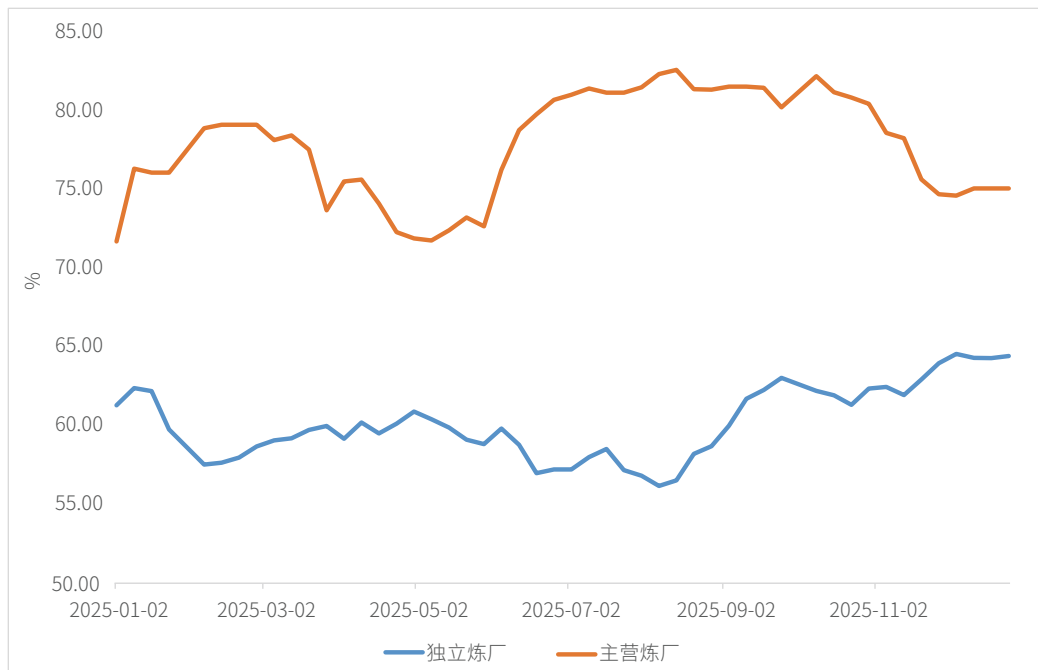
数据来源：上海国际能源交易中心、路透

具体来看：

一季度，美国加强对于俄罗斯、伊朗石油产业制裁，中东原油成为相关原油的主要替代品，亚太石油市场供应紧张，现货价格和运费价格高企。国内方面，年初炼厂开工率处于高位，成品油消费活跃。上海原油期货价格较欧美市场相对走强。

二、三季度，美国关税政策为全球宏观经济和石油需求蒙上阴影，虽然伊朗以色列冲突刺激油价短期上涨，但价格走势仍维持震荡下跌。地缘冲突引发的市场紧张情绪和运费快速上涨短期支撑上海原油期货价格，但 OPEC+ 减产计划 4 月起快速回补，亚太市场供需逐步宽裕。国内成品油市场需求回升不明显，旺季消费不达预期，炼厂开工负荷降至年内低位。上海原油价格走势弱于欧美市场，并逐步转为 Contango 结构。

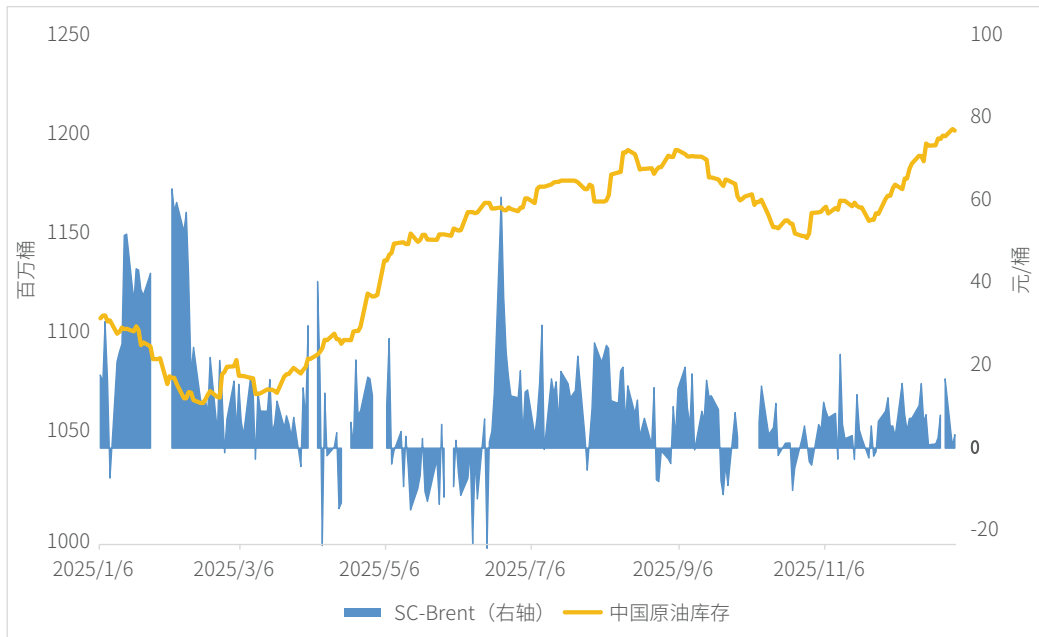
图3 2025年中国炼厂产能利用率走势



数据来源：隆众资讯

四季度，OPEC+ 年内累计增产原油 288.1 万桶 / 日，全球市场逐步呈现供过于求格局。中国原油库存大幅增长，陆上石油库存达到历史高位。成品油消费季节性回落，主营炼厂开工负荷有所下降（图 3、4）。上海原油价格持续的 Contango 结构反映了供大于求和库存增长的供需格局。此外，人民币较美元汇率走强也使人民币原油价格相对走弱。

图 4 2025 年原油期货境内外价差与中国原油库存变化



数据来源：上海国际能源交易中心、Kpler、路透

二、上海原油期货、期权联动发展

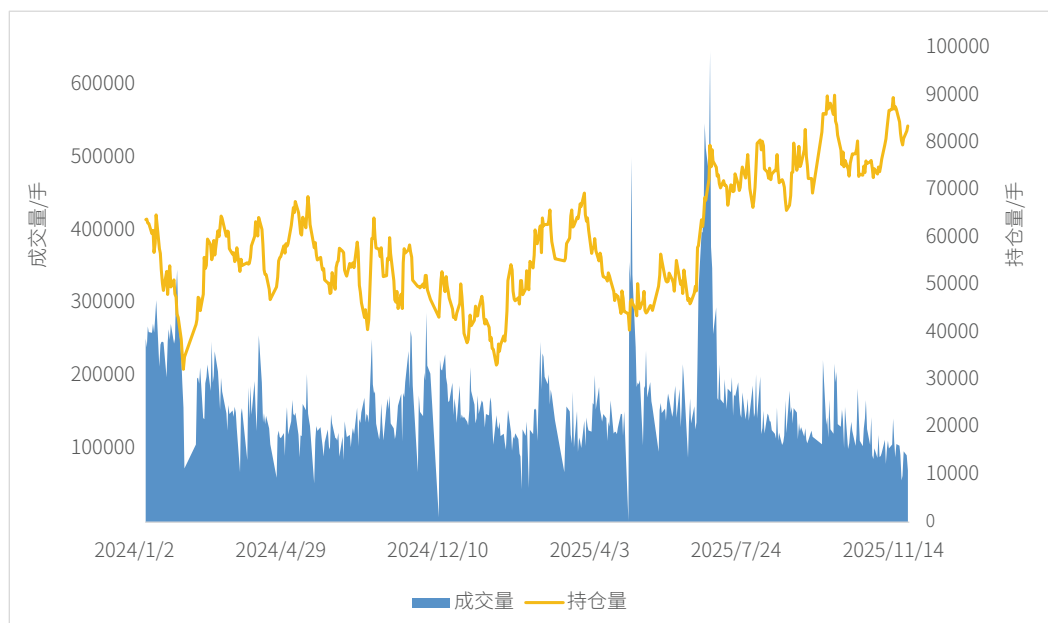
(一) 上海原油期货成交持仓规模稳步增长

2025 年，上海原油期货发展势头良好，平稳应对了地缘政治事件对于市场的冲击，成交持仓规模较 2024 年有所增长（图 5）。

交易量方面，2025 年，上海原油期货日均成交 16.00 万手（单边，下同），同比增加 0.41%。其中，6 月 24 日成交量达到 64.53 万手，创下迄今为止单日成交量新高。作为亚太地区流动性最好的原油期货品种，2025 年上海原油期货维持其稳固的领先地位。

持仓量方面，2025 年，上海原油期货日均持仓量 6.64 万手，同比上升 27.26%。最高持仓量 90128 手，创下自 2023 年 3 月以来新高。市场深度持续改善，前 6 行合约持仓规模均在 1000 手以上，构建了更加完整、长期的远期曲线。

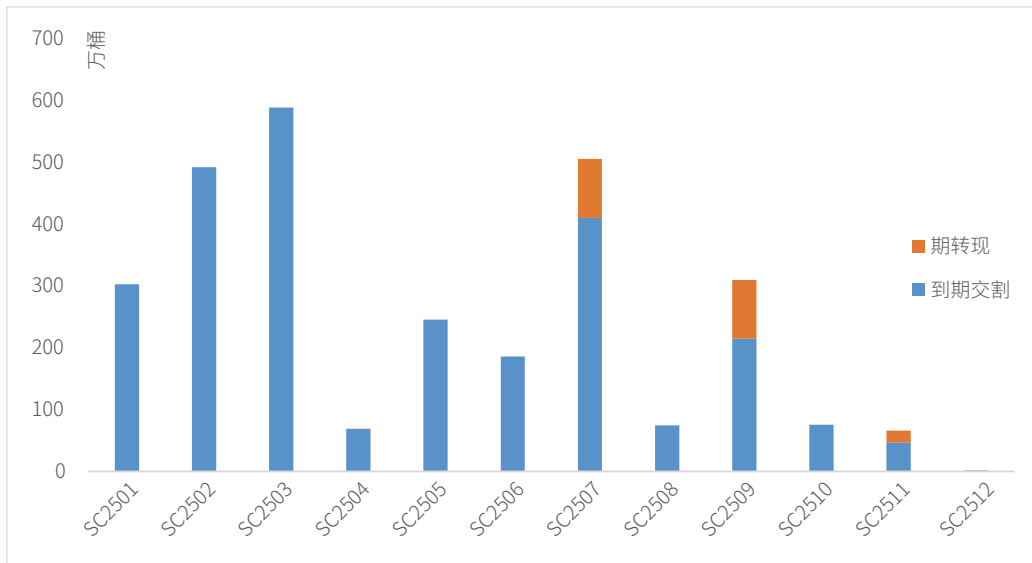
图5 2024-2025年上海原油期货成交、持仓情况



数据来源：上海国际能源交易中心

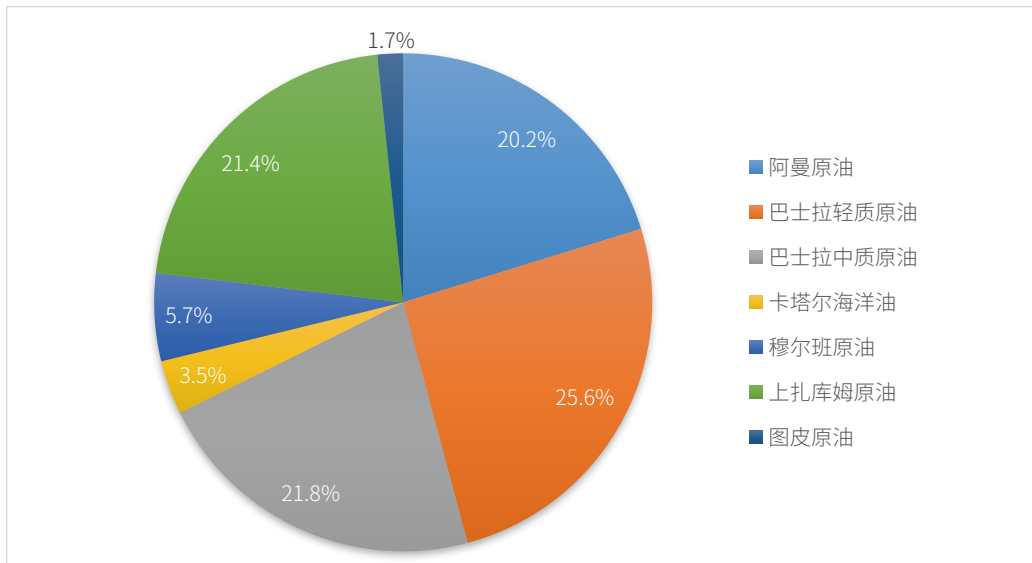
原油期货交割库布局持续优化，更好地满足市场交割需求。上期能源于 2025 年 10 月同意大连北方油品储运有限公司原油期货启用库容由 10 万立方米增加至 20 万立方米，于 12 月 29 日同意洋山申港国际石油储运有限公司取消交割仓库资格的申请。截至 2025 年底，上海原油期货共有 9 家交割仓库合计 18 个存放点。其中，山东省 6 个，浙江省 3 个，辽宁省 3 个，广东省 2 个，海南省 2 个，河北省 1 个，广西省 1 个，总核定库容 1889 万方，启用库容 1322 万方。从交割情况看，年内原油期货共交割 27056 手（合 2705.6 万桶），交割金额 147.94 亿元。其中，SC2503 合约是交割量最大的合约，交割量达 5886 手，交割金额 33.09 亿元；巴士拉轻质原油是交割量最大的油种，交割量为 6928 手，占全市场总交割量 25.6%。原油期货交割环节促进了保税原油市场发展，2025 年共注销出库原油 2242.3 万桶，约 9 成转为保税现货继续流通，其余为报关进口或转运出境，其中 184.8 万桶转运出境至周边国家（图 6、7）。

图 6 2025 年原油期货各合约交割量



数据来源：上海国际能源交易中心

图 7 2025 年原油期货各油种交割量占比



数据来源：上海国际能源交易中心

表1 原油期货指定交割仓库及库容				
序号	指定交割仓库	存放点	核定库容	启用库容
1	中国石化集团石油商业储备有限公司	中国石化曹妃甸	100	40
2		中国石化日照	120	100
3		中国石化舟山	80	70
4		中国石化湛江	90	60
5		中国石化海南	100	60
6	中石油燃料油有限责任公司	中油湛江	70	50
7	中化兴中石油转运（舟山）有限公司	中化兴中	100	35
8	大连中石油国际储运有限公司	中油大连保税库	145	145
9		中油大连国际储备库	180	180
10		中油广西国际储备库	20	20
11	山东省港口集团有限公司	青岛港实华	40	40
12		青岛港海业	100	40
13	大连北方油品储运有限公司	北方油品	40	20
14	中化弘润石油储运（潍坊）有限公司	弘润油储	500	300
15	大鼎油储有限公司	大鼎油储	44	22
16	国投（洋浦）油气储运有限公司	国投洋浦油储	40	20
17	山东省港口集团有限公司（集团交割）	山港日照	40	40
18		山港振华石油	80	80

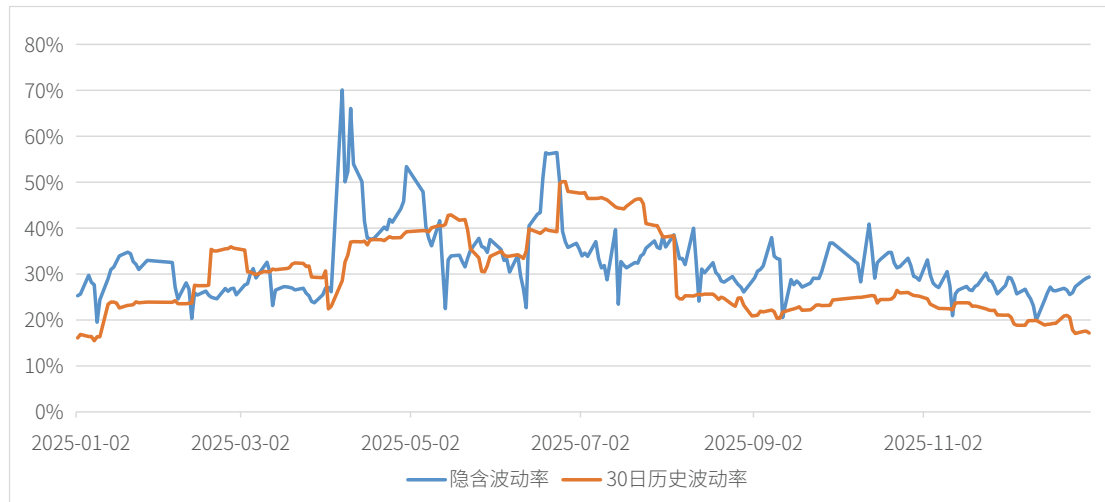
数据来源：上海国际能源交易中心,单位（万立方米）

原油期货市场参与者结构日益完善，境外交易者积极参与。原油期货目前已形成以机构投资者为主的市场结构，其中法人客户日均成交占比超过四成，日均持仓占比约七成，机构交易者的交易、持仓和套期保值比例位居境内已上市期货品种前列。境外交易者参与程度进一步提升。2025年，境外交易者日均成交占比约两成，日均持仓占比超三成。跨国石油公司、贸易商、投资银行、基金和资产管理公司中的标杆性企业参与了上海原油期货交易。截至2025年底，境外交易者覆盖了六大洲30多个国家和地区。境外特殊参与者1家，备案的境外中介机构达88家。

（二）原油期权运行平稳，定价合理有效

2025 年，原油期权市场运行平稳，期权定价总体合理，主力系列期权隐含波动率基本处于 20%~50%，走势总体与标的期货的历史波动率一致，反映出原油期权市场投资者预期的波动与实际波动较为一致（图 8）。

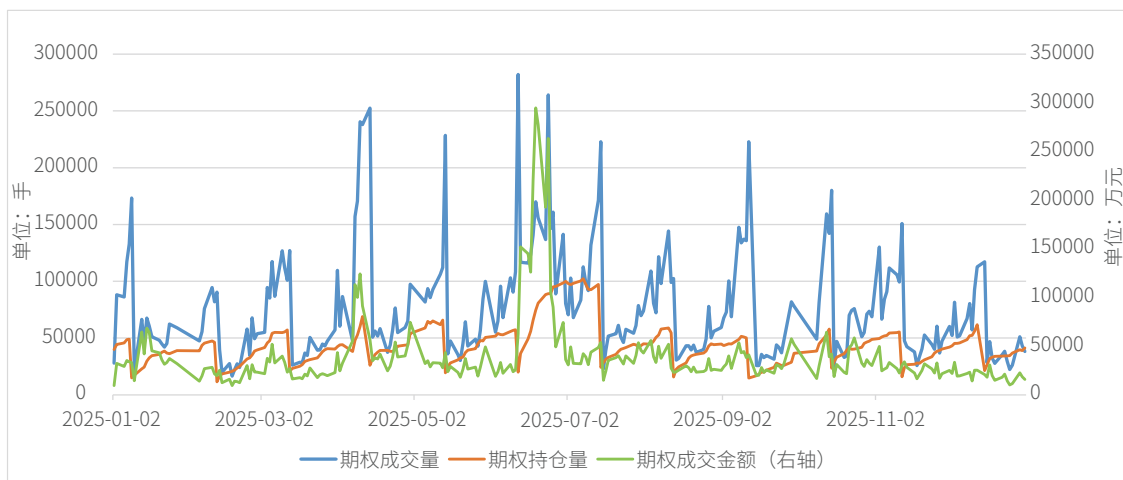
图8 2025年原油期权隐含波动率和历史波动率情况



数据来源：上海国际能源交易中心、路透

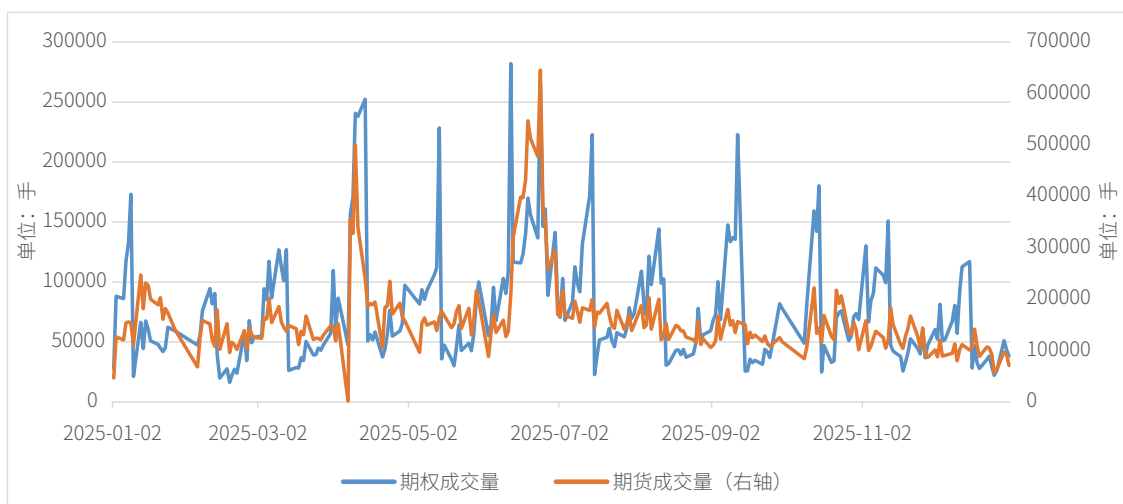
原油期权成交规模持续增长，与期货市场联动紧密。2025 年，原油期权日均成交量为 7.62 万手，同比增长 23.61%，日均成交金额为 3.89 亿元，同比增长 22.74%，日均持仓量为 4.34 万手，同比增长 32.71%（图 9）。原油期权市场规模占期货市场规模的比例有明显提升，2025 年原油期权日均成交量与标的期货日均成交量的比例为 47.61%，日均持仓量与标的期货日均持仓量的比例为 65.35%，分别较 2024 年增长近 9 个、4 个百分点，反映我国原油期货交易者运用期权开展风险管理程度不断提升（图 10）。原油期权与标的期货联动紧密，当原油期货价格波动率增加、成交量大幅变化时，期权成交量也相应变化，期权、期货共同管理价格风险的特征明显。

图9 2025年原油期权成交持仓情况



数据来源：上海国际能源交易中心

图10 2025年原油期权和标的期货成交量情况



数据来源：上海国际能源交易中心

期权行权方面，行权总体为到期日实值期权行权转为标的期货，未发生深度虚值行权等情况。

三、上海原油期货市场对国内外石油市场提供更高质量的价格发现和风险管理服务

(一) 塑造更加稳定积极的市场生态

上海国际能源交易中心持续优化原油期货相关制度，修订风控细则第六十六条第二款，修订后的制度更贴近现货贸易实际，有助于增加临近交割期可交割资源，维护市场平稳运行和价格公允性。同时，我们顺应全球大宗商品衍生品市场监管趋势，优化临近交割月份合约套期保值交易持仓额度审批机制，聚焦合规性，彰显公平性，适应低期货库存环境下市场平稳运行的需要，促进原油期货价格发现功能的发挥。另外，我们将原油期货合约挂盘对应标的期货合约的持仓量阈值由 10000 手调整至 5000 手，增加可交易原油期货合约数量。

(二) 持续提升国内外石化产业参与度

国内外石化产业上下游参与程度持续提升。贸易商方面，通过优化采购策略，将油种和船期匹配上海原油期货交割机制，提升了参与实物交割和贸易套利能力。炼厂方面，亚太区域炼厂更加关注上海原油期货价格及库存情况，利用原油期货仓单资源池优化采购成本、扩展采购渠道。用油企业方面，油品销售公司、物流企业等更多类型企业通过原油期货对成品油进行套期保值、创新浮动价销售新模式，稳定企业经营利润。

(三) 链接中国与全球石油市场

随着原油价格震荡下行和国际形势愈发复杂，运费、汇率等因素对油价影响更加明显，2025 年中东原油至中国运输成本最高占到原油价格的 7% 以上。上海原油期货作为人民币计价的消费地和集散地价格，价格含义包含运费、汇率等因素，其反映东北亚地区原油采购综合成本的优势愈发显著。境内外市场参与者通过上海原油期货市场能够更直接了解中国供需，并综合对冲油价、运费、汇率变化的风险。

历经 8 年发展，上海原油期货和期权市场运行平稳，跨市场联动日趋紧密，市场深度有效提升，价格反映了中国及亚太供需，已成为国际原油市场的重要组成部分。展望未来，上期能源将紧跟市场变化，降低交易成本，创新交易机制，努力提高中远月合约流动性，不断提升原油期货运行质量，向全球交易者传递最大原油进口国的供需情况，并提供更丰富的产品和更优质的服务。

境内外研究成果

Yang 和 Lepone (2025) 针对上海国际能源交易中心 (INE) 的上海原油期货 (SC) 和期权上市后的前 8 个月的高频数据, 以 5 秒频率整合价格序列, 采用 IS、CS、ILS 三种方法研究其价格发现能力。研究显示, 期货市场凭借更高的流动性在价格发现中占据主导地位, 期权市场也发挥了显著作用, 且在夜间交易时段成为价格发现的主导力量。此外, SC 期货市场投机活动的活跃程度与期权市场的价格发现作用呈负相关性, 投机活动越活跃, 期权市场在价格发现中的效能越弱; 市场对 SC 看涨期权后续价格波动的预期越强, 期权市场反映真实价格、传递市场信息的能力也会相应减弱, 而期权与期货之间的报价价差比例, 对提升期权市场价格发现作用具有积极促进效果。

参 考 文 献: Yang, Z., & Lepone, A. (2025). Price Discovery in China's Crude Oil Derivatives Market. *Journal of Futures Markets*, <https://doi.org/10.1002/fut.22578>

Zou、Han 和 Yang (2024) 对 SC 期货和期权的日内交易及报价数据, 通过 1 秒、5 秒和 30 秒频率采样价格进行分析, 对其价格发现能力展开研究。研究显示, 在价格发现方面, INE SC 占据主导地位, 期权市场为辅助。研究人员进一步发现, 期权信息份额在一天内的分布呈现“W”形, 这与期货市场日内交易量的变化趋势相契合, 意味着两者在日内的交易活跃程度变化具有一致性。在影响价格发现过程的因素方面, INE SC 交易量在一天内呈现出有规律的变化, 对价格发现有着重要影响。此外, 研究人员推断, 国际投资者对 INE SC 的影响程度相较于期权市场更高。

参 考 文 献: Zou, M., Han, L., & Yang, Z. (2024). Price discovery of the Chinese crude oil options and futures markets. *Finance Research Letters*, 60, 104809. <https://doi.org/10.1016/j.frl.2023.104809>

He 等 (2024) 采用双重差分法研究 (DID) 发现, SC 的推出显著降低了能源依赖型企业的特质经营风险 (idiosyncratic risk)。主要通过两点, 一是 SC 为企业提供了套期保值工具, 稳定了企业现金流, 减少了原油价格波动对企业的冲击; 二是 SC 市场的价格发现功能, 使得企业能够更及时、准确地获取原油市场信息, 进而增强其风险预判能力。此外, 异质性分析 (heterogeneity test) 显示, SC 对企业特质经营风险的抑制作用在大型企业和竞争压力较高的企业中更为显著。对于大型企业, 其资源和风险管理能力更强, 能更好利用 SC 进行风险管理; 竞争压力较高的企业, 更有动力借助 SC 降低风险, 提升自身竞争力。

参 考 文 献: He, F., Chen, L., Hao, J., & Wu, J. (2024). Financial market development and corporate risk management: Evidence from Shanghai crude oil futures launched in China. *Energy Economics*, 129, 107250. <https://www.sciencedirect.com/science/article/abs/pii/S014098832300748X>

Yang 等 (2023) 通过将日内数据合并为 1 秒钟间隔 (5 秒钟、30 秒钟作为稳定性检验), 并采用三种价格发现衡量标准来比较 SC (上海原油期货)、WTI 与 Brent 的价格发现与市场流动性各项指标。研究结果表明 INE 上海原油期货市场 (以下简称 SC) 在日间交易时段相较于 WTI 和 Brent, 主导了价格发现; 同时在市场流动性方面几乎赶上了 Brent; 在 COVID-19 期间, SC 也显示出了巨大的韧性。

参考文献: Yang, Z., & Zou, M. (2023). Price leadership in China's oil futures market: take two. *Applied Economics Letters*, 1-9.

<https://doi.org/10.1080/13504851.2023.2208821>

Naqvi 和 Mirza 等 (2023) 运用 GARCH 模型和信息冲击曲线对 2021 年 4 月至 2023 年 3 月的每日数据进行分析。研究表明, INE SC 的回报率在一定程度上独立于全球其他原油市场走势, 且 INE SC 相比与其他原油期货, 回报率显示出了更高的稳定性和对负面信息冲击的抵御能力。

参 考 文 献: Naqvi,B.,Mirza,N.,Umar,M.,&AbbasRizvi,S.(2023). Shanghai crude oil futures: Returns Independence, volatility asymmetry, and hedging potential. *Energy Economics*,128,107110.

<https://www.sciencedirect.com/science/article/abs/pii/S0140988323006084#preview-section-snippets>

Shao 等 (2023) 通过多重分形分析 (Multifractal Analysis) 研究了新冠疫情对 SC 的短期影响。结果显示, 新冠疫情爆发后, SC 的市场效率以及与其他资产的交叉相关性显著增加。这些结果可能对资产配置、投资策略和风险监测具有重要意义。

参 考 文 献: Shao, Y. H., Liu, Y. L., & Yang, Y. H. (2023). The short-term effect of COVID-19 pandemic on China's crude oil futures market: A study based on multifractal analysis. *Fluctuation and Noise Letters*, 22(04), 2340001.

https://xueshu.baidu.com/usercenter/paper/show?paperid=1j500pw04r5d0tb0y50c0t30bw786193&site=xueshu_se

Ling 等 (2023) 通过模型分析研究了原油市场 (SC、WTI 和布伦特) 与金融市场 (中国期货、债券、基金、股票和外汇市场) 之间的波动溢出效应和非对称交叉相关性。相比于 WTI 和布伦特, INE 原油期货市场对股票市场的影响最大。此外, 除了债券市场外, 当 SC 和布伦特市场上涨时, 对金融市场的风险敞口更为显著。在金融市场中, SC- 债券市场的不对称性比 WTI- 债券市场的不对称性强, 但在市场有大幅波动的情况下, SC- 债券市场的不对称性弱于布伦特 - 债券市场。

参考文献：Ling, M., & Cao, G. (2023). Analysis of Risk Spillover and Asymmetry Between Three Crude Oil Markets and Chinese Financial Markets. *Fluctuation and Noise Letters*, 2350017.
https://xueshu.baidu.com/usercenter/paper/show?paperid=166w0r00mf4w0m80fh1h0td0mp755195&site=xueshu_se

Yu, Yang 和 Webb (2022) 用量化方法检验了 2018 年 3 月 -2022 年 3 月期间 INE SC 对 19 种亚洲原油现货价格的价格发现情况。研究表明，INE SC 对可交割和一些非可交割油种都具有价格发现能力；INE SC 对沙特的阿拉伯中质原油、科威特的科威特原油和伊朗的富鲁赞原油三种非可交割油种也具有类似于可交割油种的价格发现功能。

参考文献：Yu,Z.,Yang,J.,&Webb,R.(2022). Price Discovery in China's Crude Oil futures Markets: An Emerging Asian Benchmark? *Journal of Futures Markets*.
<https://onlinelibrary.wiley.com/doi/full/10.1002/fut.22384>

Yang 等 (2021) 从风险溢出角度出发，通过数个 GARCH 模型获得风险值 (VaR) 的连接网络。文章发现，2018 年 3 月至 2020 年 4 月期间，国际原油期货市场高度互联互通，并且 INE SC 一直是 Brent 和 WTI 原油期货的净风险接受者，尤其是在 Covid-19 爆发之后。

参考文献：Yang, Y., Ma, Y.-R., Hu, M., Zhang, D., & Ji, Q. (2021). Extreme risk spillover between Chinese and global crude oil futures. *Finance Research Letters*, 40, 101743–101743.
<https://doi.org/10.1016/j.frl.2020.101743>

Li, Huang 和 Li (2021) 研究了 INE SC 与 Oman 原油和 OPEC 参考的一揽子原油现货之间的价格相关性，以及 INE SC 的对冲效果。采用 GO-GARCH 模型分析 2018 年 3 月至 2019 年 6 月期间的每日价格，研究发现，相较于 WTI 和 Brent 原油期货，INE SC 与现货市场之间的价格相关性更高，且 INE 对现货的对冲有效性也更高。

参考文献：LI, J., HUANG, L., & LI, P. (2021). Are Chinese crude oil futures good hedging tools? *Finance Research Letters*, 38, 101514.
<https://doi.org/10.1016/j.frl.2020.101514>

Yi, Yang 和 Li (2021) 重点研究了 2018 年 3 月至 2020 年 6 月期间宏观经济不确定性对 INE SC 的解释和预测能力。作者使用 CARCH-MIDAS 模型解决数据频率差异的问题,发现在主要原油消费国——美国、中国和日本,以及主要原油出口国——英国、加拿大和俄罗斯的地缘政治风险、经济政策不确定性和传染病大流行等因素中,英国和日本的因素在预测 INE 原油期货波动中发挥的作用更大。

参 考 文 献: Yi, A., Yang, M., & Li, Y. (2021). Macroeconomic Uncertainty and Crude Oil Futures Volatility—Evidence from China Crude Oil Futures Market. *Frontiers in Environmental Science*, 9. <https://doi.org/10.3389/fenvs.2021.636903>

Lv, Yang 和 Fang (2020) 研究 INE SC 与 Brent 和 WTI 原油期货相比,是否可以更好地帮助投资者对冲中国石油化工相关股票的风险。采用 2018 年至 2019 年数据以及 DCC、DECO 和 Block DECO 模型,研究发现,INE SC 在对冲风险和分散投资组合方面比 WTI 原油期货表现更好,但与 Brent 原油期货相比则不然。

参 考 文 献: Lv, F., Yang, C., & Fang, L. (2020). Do the crude oil futures of the Shanghai International Energy Exchange improve asset allocation of Chinese petrochemical-related stocks? *International Review of Financial Analysis*, 71, 101537–. <https://doi.org/10.1016/j.irfa.2020.101537>

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上海原油期货年度之“最”

表1. 价格表现（主力合约）

开盘价	最高价	最低价	收盘价	30日平均波动率%	期现价差（元/桶）		
					最高	最低	平均
563.0	639.5	419.6	432.2	2.03	36.17	-54.72	-20.11

表2. 交易情况

交易						持仓	
累计成交 (万手)	累计成交额 (万亿)	日均成交 (万手)	日均成交额 (亿)	最高成交 (万手)	日盘占比 (%)	日均持仓 (万手)	最高持仓 (万手)
3888.22	19.60	16.00	806.41	64.53	33.07	6.64	9.01

表3. 交割

累计交割 (万桶,含 期转现)	累计 交割额 (亿元)	交割量 最大 合约	单月最大 交割量 (万桶)	交割量 最大 油种	最大油种 交割量 (万桶)	交割量 最大 油库	最大油库 交割量 (万桶)	期转现 (万桶)
2705.6	147.94	SC2503	588.6	巴士 拉轻	692.8	中油大连 保税	660.1	210.5

2026 Development Report of the Shanghai Crude Oil Futures and Options Market

In 2025, international oil prices trended down with wide fluctuations against the backdrop of OPEC+ production hikes, trade disputes, and geopolitical disturbances. In China, the price of the Shanghai crude oil futures (product code “SC”) served as an effective indicator of the regional spot market while closely mirroring overseas futures prices. The Shanghai crude oil options were traded at reasonable prices that had a strong correlation with the futures price, as the market continued to expand.

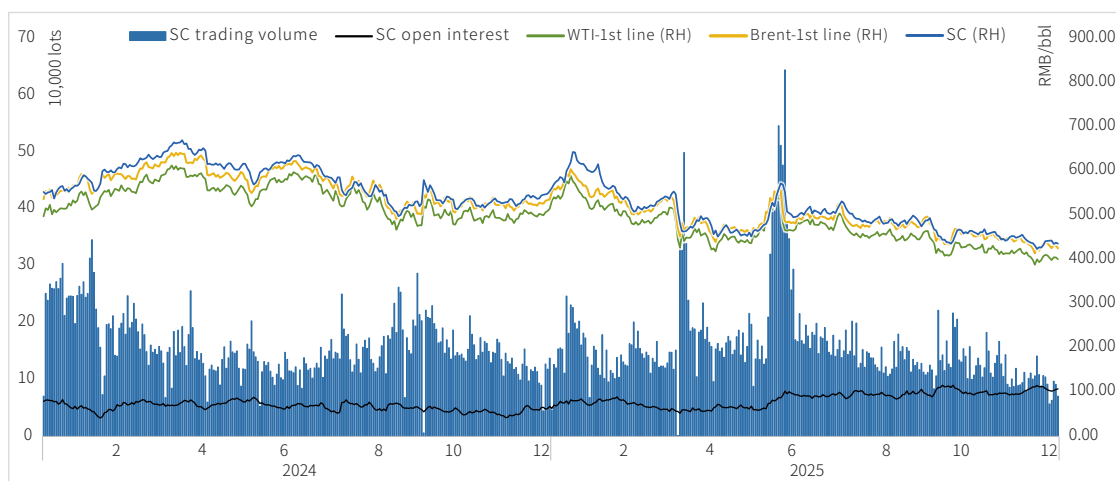
I. SC : An Accurate Indicator of Regional Supply and Demand with Close Tie to Overseas Markets

(I) International Oil Prices Trended Down with Wide Fluctuations

In 2025, international oil prices trended down with wide fluctuations against the backdrop of OPEC+ production hikes, trade disputes, and geopolitical disturbances. In the first half of the year, sweeping U.S. sanctions on Russia’s oil industry tightened supply in the global oil market, pushing crude prices to highs. Prices then plummeted amid the macroeconomic shock from Trump’s tariff policies. In the second half of the year, the Iran-Israel conflict sparked supply concerns and briefly sent prices higher. However, OPEC+, which had swiftly advanced plans to unwind production cuts starting in April, gradually loosened the supply-demand balance, and oil prices fluctuated downward.

As of December 31, 2025, the settlement price of the most active SC contract closed at 436.5 RMB or 62.45 USD/barrel, down 21.37% over the year. In comparison, the settlement prices of the most active Brent and WTI contracts closed at 60.85 USD/barrel and 57.42 USD/barrel, losing 18.48% and 19.94%, respectively. In 2025, the SC-Brent and SC-WTI correlation coefficients both exceeded 0.95(Figure 1).

Figure 1: SC Overview



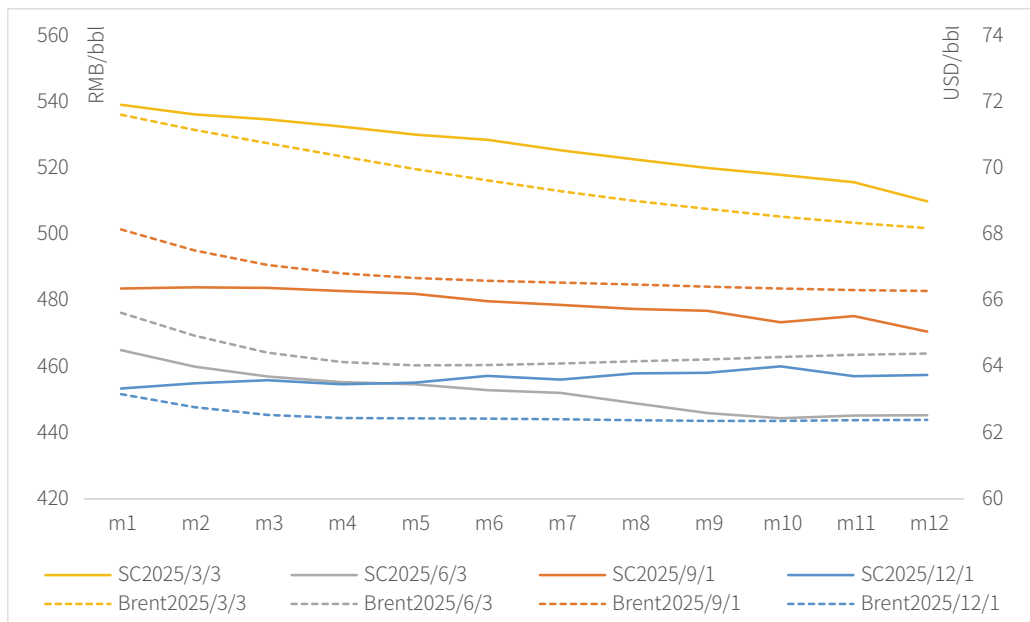
Source: Shanghai International Energy Exchange (INE) and Reuters

(II) SC Prices Reflect Regional Supply and Demand

In 2025, the Asia-Pacific oil market experienced a transition from tightness to oversupply, due to OPEC's gradual exit from production cuts, as well as geopolitical factors including U.S. sanctions on Russian and Iranian oil and the tariff war. China's crude oil demand continued to grow in the year. Its apparent crude oil consumption reached approximately 794 million metric tons, up 3.62% year-on-year (YoY); crude oil imports increased by 4.39% to 578 million metric tons. However, refined oil consumption declined further, and overall refinery utilization rates also decreased. In 2025, total refined oil consumption was 378 million metric tons, down 2.9% YoY. The average capacity utilization of major and independent refineries stood at 79.22% (+1.24 percentage points YoY) and 48.09% (-5.57 percentage points YoY), respectively.

The price trends and term structure of SC contracts reflected the oil supply, demand, and inventory levels in the Asia-Pacific region and China. The absolute prices continued to trend lower, moving in tandem with overseas oil prices. The term structure shifted from backwardation to contango, while backwardation in overseas futures markets also weakened simultaneously. This signaled a gradual shift in the Asia-Pacific market from relative tightness to ample supply (Figure 2).

Figure 2: SC Forward Curve in 2025



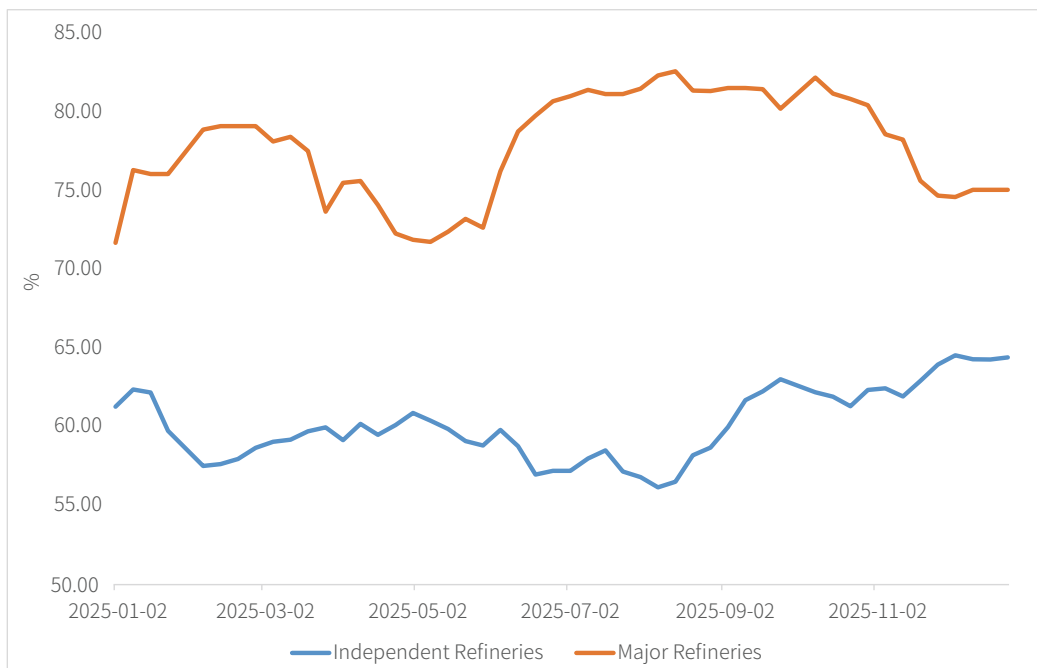
Source: INE and Reuters

Specifically:

In Q1, the U.S. stepped up sanctions on the Russian and Iranian energy sectors, making Middle Eastern crude the primary substitute for the affected supplies. Supply in the Asia-Pacific oil market tightened, with spot prices and freight rates remaining elevated. Domestically, refinery utilization rates were high early in the year, and refined oil consumption was robust. SC prices rose more sharply than those in European and US oil markets.

In Q2 and Q3, the U.S. tariff policies cast a shadow over the global economy and oil demand. Although the Iran-Israel conflict briefly boosted oil prices, the overall trend remained in volatile decline. Market tensions stemming from geopolitical conflicts, along with soaring freight rates, drove up SC prices. However, with OPEC+ quickly unwinding its production cuts from April, the supply-demand balance in the Asia-Pacific market gradually loosened. Domestic demand for refined oil showed no significant recovery, with peak-season consumption falling short of expectations, causing refinery utilization rates to drop to yearly lows. SC prices decline rapidly than those in European and US markets, with the curve structure gradually shifting into Contango.

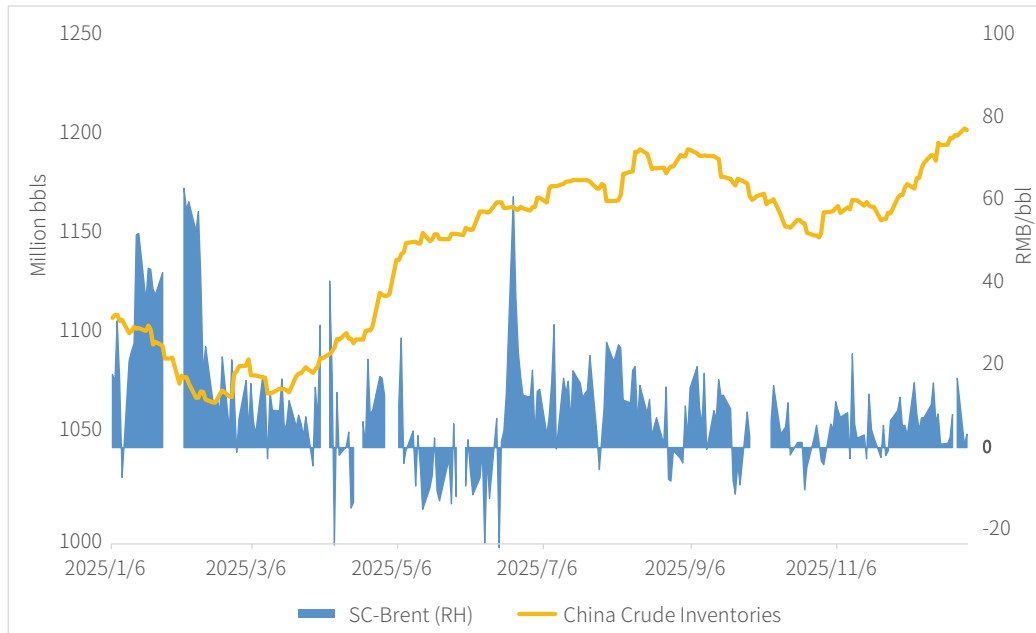
Figure 3: Capacity Utilization Rates of China’s Refineries in 2025



Source: oilchem.net

In Q4, OPEC+ cumulatively increased crude oil production by 2.881 million barrels/day over the year, leading to a gradual surplus in global supply. China’s crude oil inventories rose substantially, with onshore stocks reaching record highs. Refined oil consumption saw a seasonal decline, leading to lower utilization rates at major domestic state-owned refineries (Figures 3 and 4). The persistent Contango structure of SC prices reflected market oversupply and rising inventories. Additionally, the appreciation of the RMB against the USD also weighed on the RMB-denominated SC prices.

Figure 4: Domestic-Overseas Crude Oil Futures Spread and China Crude Inventories Changes in 2025



Source: INE, Kpler, and Reuters

II. SC Futures and Options Markets Develop in Synergy

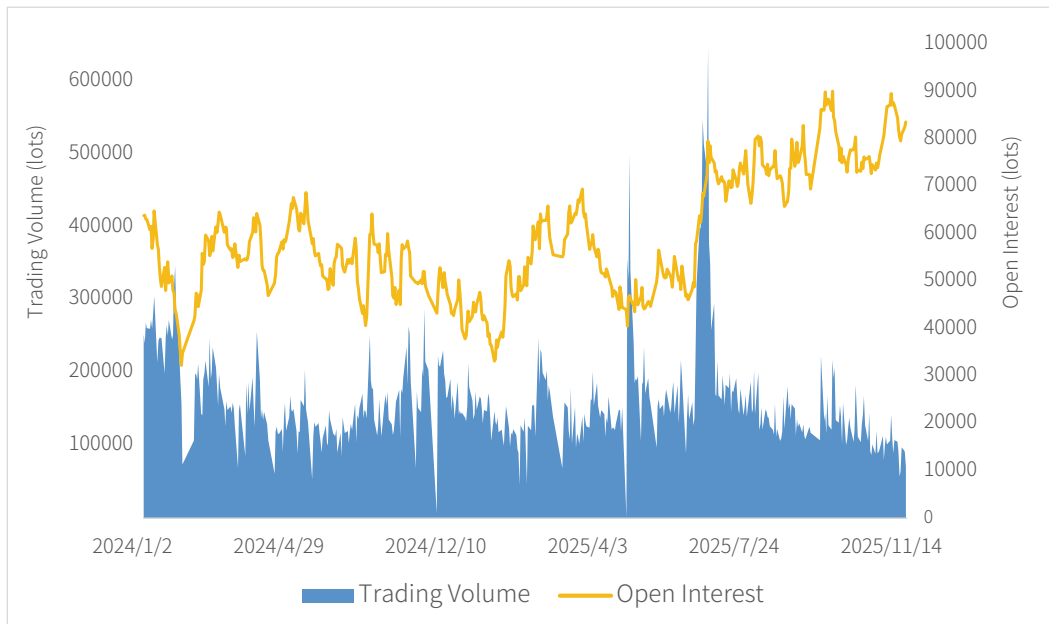
(I) SC Trading Volume and Open Interest Grew Steadily

In 2025, SC demonstrated strong growth momentum, successfully withstanding the market shocks from geopolitical events, with both trading volume and open interest higher than in 2024(Figure 5).

The average daily trading volume in 2025 rose 0.41% to 160,009 lots (single-counted here and hereinafter). On June 24, the trading volume hit a record single-day high of 645,345 lots. As the most liquid crude oil futures product in the Asia-Pacific region, SC maintained its solid leading position in 2025.

The average daily open interest in 2025 was 66,364 lots, up 27.26% YoY. The peak open interest reached 90,128 lots, the highest level since March 2023. Market depth continued to improve, with open interest of the first six contracts all exceeding 1,000 lots, helping to build a more comprehensive forward curve with a longer term.

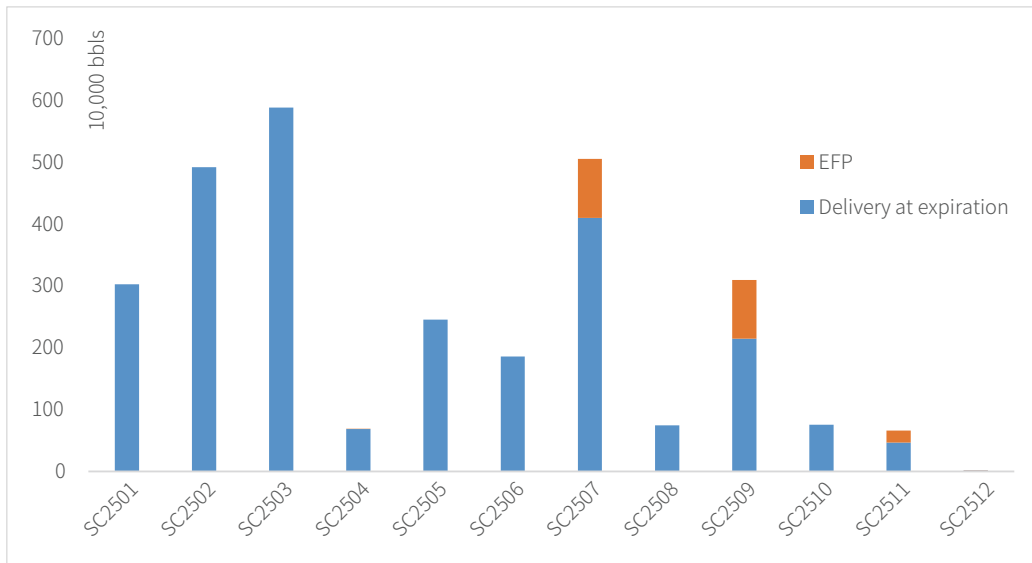
Figure 5: SC Trading Volume and Open Interest, 2024-2025



Source: INE

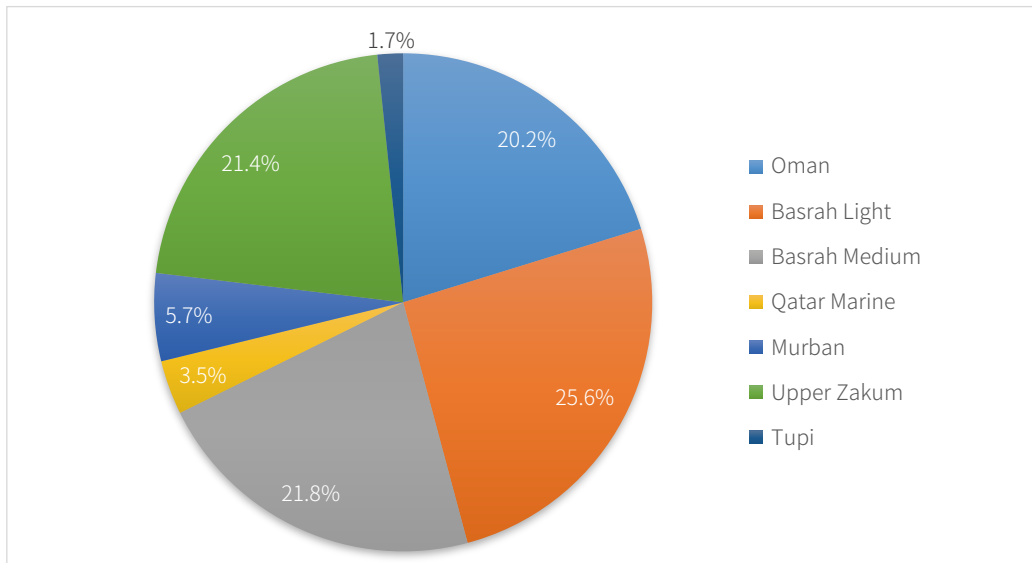
The arrangement of SC designated delivery storage facilities continued to improve to better meet market needs. In October 2025, INE approved an increase in the active storage capacity of Dalian North Oil Petroleum Logistics Co., Ltd. for SC from 100,000 cubic meters to 200,000 cubic meters. On December 29, the exchange approved the application of Yangshan Shenggang International Oil Logistics Co., Ltd. to cancel its status as a designated delivery storage facility. By the end of 2025, SC had a total of 18 depots managed by 9 storage facilities. In particular, there were 6 depots in Shandong Province, 3 in Zhejiang Province, 3 in Liaoning Province, 2 in Guangdong Province, 2 in Hainan Province, 1 in Hebei Province, and 1 in Guangxi Province. The approved storage capacity totaled 18.89 million cubic meters, with 13.22 million cubic meters available for active use. Over the year, 27,056 lots of SC (equaling 27.056 million barrels) were delivered at a value of RMB 14.794 billion. SC2503 was the most delivered contract at 5,886 lots and RMB 3.309 billion in delivery value. Basrah Light crude was the most-delivered crude stream, making up 6,928 lots or 25.6% of the market's total delivery volume. The delivery of SC futures has promoted the development of the bonded crude oil market. In 2025, a total of 22.423 million barrels of crude oil were deregistered and loaded out, with approximately 90% continuing to be traded as bonded spot products. The remainder was either declared for import or re-export, including 1.848 million barrels shipped to neighboring countries(Figures 6 and 7).

Figure 6: Delivery of SC Contracts in 2025



Source: INE

Figure 7: Delivery Breakdown by Crude Streams in 2025



Source: INE

Table 1: INE SC Delivery Storage Facility and Capacity

No.	Storage Facilities	Depot	Approved Storage Capacity	Active Storage Capacity
1	Sinopec Petroleum Reserve Co., Ltd.	SPRC Caofeidian	100	40
2		SPRC Rizhao	120	100
3		SPRC Zhoushan	80	70
4		SPRC Zhanjiang	90	60
5		SPRC Hainan	100	60
6	PetroChina Fuel Oil Co., Ltd.	PetroChina Zhanjiang	70	50
7	Sinochem-Xingzhong Oil Staging (Zhoushan) Co., Ltd.	Sinochem-Xingzhong	100	35
8	Dalian PetroChina International Warehousing & Transportation Co., Ltd.	PetroChina Dalian Bonded	145	145
9		PetroChina Dalian Intl	180	180
10		PetroChina Guangxi Intl	20	20
11	Shandong Port Group Co., Ltd.	Qingdao Port Shihua	40	40
12		Qingdao Port Haiye	100	40
13	Dalian North Oil Petroleum Logistics Co., Ltd.	North Petroleum	40	20
14	Hongrun Oil Storage & Transportation (Weifang) Co., Ltd.	Hongrun Oil Storage	500	300
15	Dading Petroleum Logistics Co., Ltd.	Dading Petroleum	44	22
16	SDIC Oil & Gas Terminal Yangpu Co., Ltd.	SOGTY	40	20
17	Shandong Port Group Co., Ltd. (group delivery)	Shandong Port Rizhao	40	40
18		Shandong Port ZhenHua	80	80

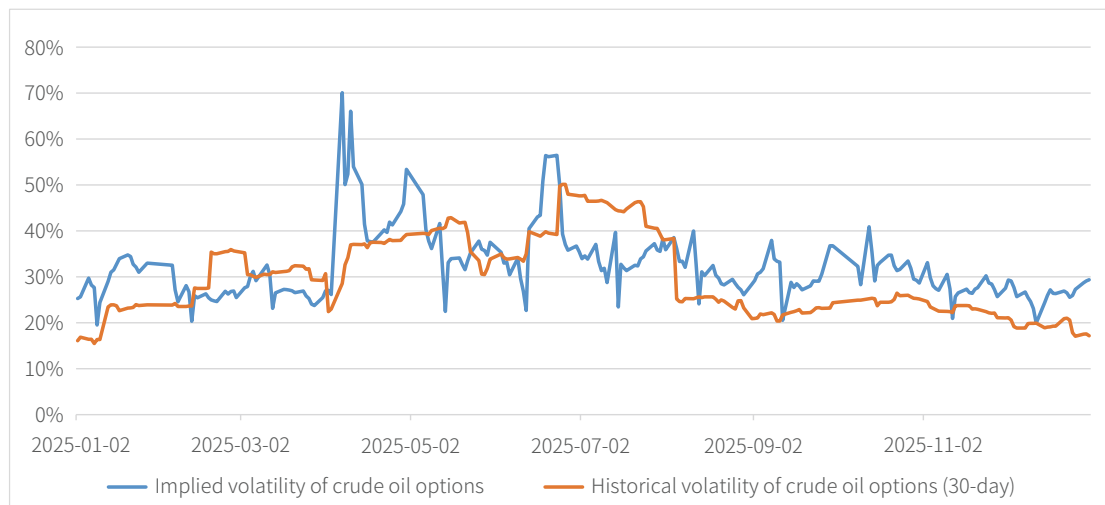
Source: INE, Unit: 10,000 cubic meters

The INE SC market has an increasingly healthy participant structure with strong engagement by overseas traders. The market is now primarily composed of institutional investors. Corporate clients contribute over 40% of the average daily trading volume and more than 70% of the average daily open interest. SC is also a leading Chinese futures product in terms of the trading volume, open interest volume, and hedging ratio of institutional investors. Participation by overseas traders continues to rise—in 2025, they accounted for about 20% of the daily trading volume and more than 30% of the daily open interest. Leading multinational oil companies, trading houses, investment banks, and fund and asset management companies all trade in the SC market. By the end of 2025, these overseas traders represented over 30 countries and regions across 6 continents; among them were 1 Overseas Special Participant and 88 Overseas Intermediaries.

(II) Crude Oil Options: Stable Performance, Reasonable and Effective Pricing

The year 2025 saw a smoothly performing crude oil options market. Pricing was generally reasonable, with the implied volatility of the most active option contracts mostly staying within a 20-50% band and generally shadowing the historical volatility of the underlying futures. This showed that the volatility expected by investors of crude oil options was largely in line with the actual volatility (Figure 8).

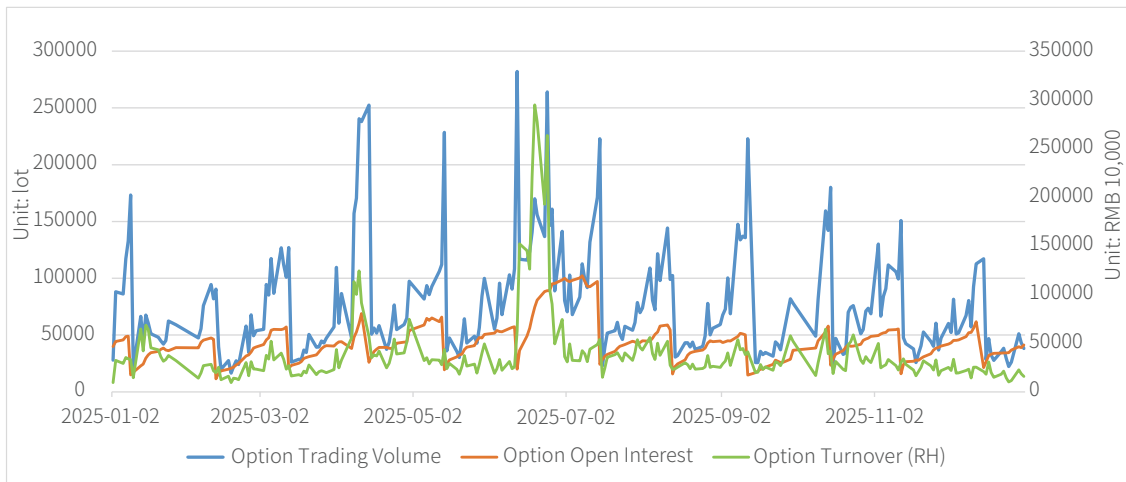
Figure 8: Implied Volatility of Crude Oil Options in 2025 vs. Historical Volatility



Source: INE and Reuters

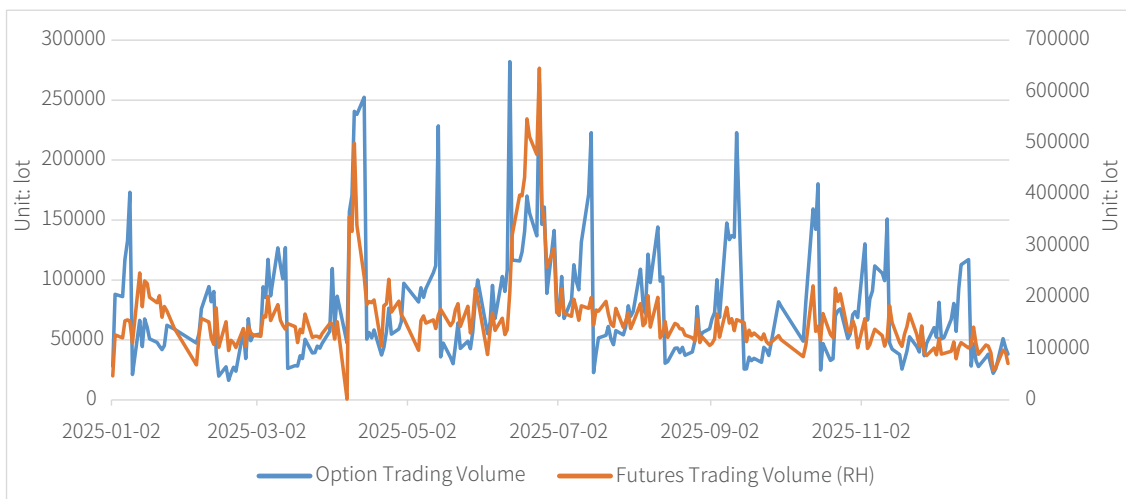
The options market continues to grow in trading volume and shows close interaction with the futures market. In 2025, the daily average trading volume of Shanghai crude oil options went up 23.61% YoY to 76,173 lots; the daily average turnover rose 22.74% to RMB 389 million; and the daily average open interest increased by 32.71% YoY to 43,366 lots (Figure 9). There was a notable increase in the relative size of the options market to the futures market in 2025, with the daily trading volume ratio and daily open interest ratio reaching 47.61% and 65.35%, respectively, a gain of close to 9 percentage points and 4 percentage points compared with the year before. This indicates increased use of options by traders in China to manage the risks of crude oil futures (Figure 10). Crude oil options also closely interact with the underlying futures: a rise in the volatility or a surge in the trading volume of futures will trigger a commensurate change to the options trading volume, underscoring their combined use for managing the price risk.

Figure 9: Trading Volume and Open Interest in Crude Oil Options in 2025



Source: INE

Figure 10: Trading Volume of Crude Oil Options and Underlying Futures in 2025



Source: INE

Most of the options exercised were in-the-money upon expiration and converted into positions in the underlying futures, and no deep out-of-the-money options were exercised.

III. SC Market Offers Higher-Quality Price Discovery and Risk Management Services for Domestic and Overseas Oil Markets

(I) Shaping a More Stable and Dynamic Market Ecosystem

INE continued to refine the rules on crude oil futures. We revised Article 66, Paragraph 2 of the risk management rules, aligning the regulations with spot trade practices. This helped increase deliverable crude as the delivery month approached, maintaining a stable market and fair prices. Moreover, in line with global regulatory trends in commodity derivatives markets, we optimized the approval mechanism for hedging quotas in prompt-month contracts. This focused on compliance, enhanced fairness, met the needs of a stable market environment amidst low futures inventory levels, and promoted the price discovery function of crude oil futures. Additionally, we reduced the open interest threshold of underlying futures contracts required for listing crude oil option contracts from 10,000 to 5,000 lots, thereby increasing the number of tradable crude oil option contracts.

(II) Increasing Participation from Domestic and International Petrochemical Industries

The level of participation from upstream and downstream enterprises in the domestic and international petrochemical industries rose consistently. For trading houses, by optimizing procurement strategies, they aligned oil grades and shipping schedules with the SC delivery mechanism, thereby enhancing their ability to engage in physical delivery and trade arbitrage. Regarding refineries, those in the Asia-Pacific region were paying increasing attention to SC prices and inventory levels. They leveraged the pool of standard warrants for crude oil futures to optimize procurement costs and expand procurement channels. On the oil-consumer side, a broader array of entities, such as fuel sales companies and logistics firms, utilized SC contracts to hedge against refined oil price risks and innovate floating-price sales models, thereby stabilizing their operating profits.

(III) Linking China with Global Oil Market

As crude oil prices experienced a downward oscillation and the international landscape grew increasingly complex, factors such as freight and exchange rates had a more pronounced impact on oil prices. In 2025, the freight cost from the Middle East to China peaked at over 7% of the crude oil price. As an RMB-denominated price at the hub of consumption and distribution, INE SC price inherently incorporates freight and exchange rates, amplifying its advantage in reflecting the comprehensive procurement cost of crude oil in Northeast Asia. Through the SC market, domestic and international market participants can gain a more direct insight into China's supply and demand, while hedging against fluctuations in oil prices, freight, and exchange rates.

Eight years after their inception, the Shanghai crude oil futures and options markets have performed smoothly and demonstrated increasingly stronger cross market linkages, with significantly enhanced market depth. Their prices capture the supply-demand fundamentals in China and the Asia-Pacific region, making them as an integral part of the international crude oil market. Looking forward, INE will keep pace with the evolving global market, reduce transaction costs, introduce new trading mechanisms, and strive to enhance the liquidity of medium-and far-month contracts. By continuously improving the efficiency and effectiveness of our crude oil futures, we aim to provide global traders with a wider range of products and better services, as well as information on the supply and demand of the world's largest crude oil importing country.

Domestic and Overseas Studies on INE Crude Oil Futures

Yang and Lepone (2025) examined the price discovery ability of crude oil futures (SC) and options listed on the Shanghai International Energy Exchange (INE) by using the information share (IS), component share (CS) and information leadership share (ILS) on 5-second frequency price sequences from high-frequency data from the first eight months post-listing. Results reveal that while the futures market dominates price discovery thanks to its higher liquidity, the options market still contributes significantly, particularly emerging as the primary price discovery channel during night trading sessions. Moreover, the study shows an inverse relationship between speculative activity in futures and the options market's price discovery efficiency, indicating that heightened futures speculation diminishes the options market's informational role. Stronger market expectations about call option price volatility further attenuated the options market's ability to reflect true prices and convey market information. Notably, the bid-ask spread ratio between options and futures positively influenced the options market's price discovery performance.

Reference: Yang, Z., & Lepone, A. (2025). Price Discovery in China's Crude Oil Derivatives Market. *Journal of Futures Markets*, <https://doi.org/10.1002/fut.22578>

Zou, Han, and Yang (2024) analyzed the price of intraday trades and quotations of SC futures and options at 1-, 5-, and 30-second sampling frequencies to study the price discovery function of the INE crude oil futures and options market. Results show that the futures lead the options in price discovery function. It is also found that the intraday distribution of options information share has a "W" shape, consistent with the intraday volume trend in the futures market. This suggests the two markets are consistent in intraday activities. Regarding the factors that affect the price discovery process, a crucial one is the seasonality pattern in intraday volume exhibited by INE SC. Furthermore, the researchers infer that international investors have a higher degree of influence on INE SC than on the options market.

Reference: Zou, M., Han, L., & Yang, Z. (2024). Price discovery of the Chinese crude oil options and futures markets. *Finance Research Letters*, 60, 104809. <https://doi.org/10.1016/j.frl.2023.104809>

Through a difference-in-differences (DID) approach, He et al. (2024) find that INE crude oil futures significantly reduces the idiosyncratic risk of energy-dependent firms. Two major factors contribute to this effect. First, INE SC works as a hedging tool that helps smooth out corporate cash flows as well as mitigate oil price shocks on firms. Second, the price discovery function offered by the INE SC market enables firms to obtain timely and accurate information on the commodity and, therefore, anticipate risks. In addition, heterogeneity test reveals that this reduction is more pronounced among large firms and firms with higher competitive pressures. In particular, large firms are better at managing resources and risks and hence can more effectively use INE SC as a risk mitigator, while firms with higher competitive pressures are more motivated to reduce risks with SC to stand out from the competition.

Reference: He, F., Chen, L., Hao, J., & Wu, J. (2024). Financial market development and corporate risk management: Evidence from Shanghai crude oil futures launched in China. *Energy Economics*, 129, 107250.

<https://www.sciencedirect.com/science/article/abs/pii/S014098832300748X>

Yang et al. (2023) compared the price discovery, market liquidity, and other indicators among Shanghai crude oil futures (SC), WTI, and Brent, with intraday-day data consolidated into 1-second intervals (using 5-second and 30-second intervals for stability test) and three measures of price discovery. They found that SC has obtained a dominant role in price discovery relative to WTI and Brent during its day trading hours and has almost caught up with Brent in terms of market liquidity. During the COVID-19 pandemic, SC also showed great resilience.

Reference: Yang, Z., & Zou, M. (2023). Price leadership in China's oil futures market: take two. *Applied Economics Letters*, 1-9. <https://doi.org/10.1080/13504851.2023.2208821>

Naqvi, Mirza, et al. (2023) analyzed the daily data spanning from April 2021 to March 2023, using various GARCH models and News impact curves. The results reveal that the returns structure of INE SC is somewhat independent from global market movements, exhibiting greater stability and resilience to negative shocks than other crude oil futures.

Reference: Naqvi, B., Mirza, N., Umar, M., & Abbas Rizvi, S. (2023). Shanghai crude oil futures: Returns Independence, volatility asymmetry, and hedging potential. *Energy Economics*, 128, 107110.

<https://www.sciencedirect.com/science/article/abs/pii/S0140988323006084#preview-section-snippets>

Shao et al. (2023) studied the short-term influence of COVID-19 pandemic on SC via multi-fractal analysis. They found that market efficiency of SC and its cross-correlations with other assets increase significantly after the outbreak of COVID-19. These results may have important implications for assets allocation, investment strategies, and risk monitoring.

Reference: Shao, Y. H., Liu, Y. L., & Yang, Y. H. (2023). The short-term effect of COVID-19 pandemic on China's crude oil futures market: A study based on multifractal analysis. *Fluctuation and Noise Letters*, 22(04), 2340001.

https://xueshu.baidu.com/usercenter/paper/show?paperid=1j500pw04r5d0tb0y50c0t30bw786193&site=xueshu_se

Ling et al. (2023) conducted a series of model-based analyses to explore the volatility spillover effect and the asymmetric cross-correlation between three crude oil markets (INE, WTI, and Brent) and five financial markets (the Chinese futures, bond, fund, stock, and foreign exchange markets). In particular, the impact of the INE SC market on the stock market is greatest, especially with respect to the Brent and WTI. Except for the bond market, when the SC and Brent markets are increasing, the risk exposure to financial markets is more significant. Among financial markets, SC-Bond market asymmetry is stronger than WTI-bond market asymmetry, but weaker than that of the Brent-Bond market when there are large fluctuations.

Reference: Ling, M., & Cao, G. (2023). Analysis of Risk Spillover and Asymmetry Between Three Crude Oil Markets and Chinese Financial Markets. *Fluctuation and Noise Letters*, 2350017.

https://xueshu.baidu.com/usercenter/paper/show?paperid=166w0r00mf4w0m80fh1h0td0mp755195&site=xueshu_se

Yu, Yang, and Webb (2022) examined the price discovery performance of INE SC for the spot prices of 19 types of Asian crude oil from March 2018 to March 2022 using a quantitative approach. The study showed evidence of the price discovery function of INE SC for deliverable and some non-deliverable crudes. INE SC performs price discovery function for Saudi Arabian Medium crude, Kuwait crude, and Iran's Forozan crude in the way similar to other deliverable crudes.

Reference: Yu, Z., Yang, J., & Webb, R. (2022). Price Discovery in China's Crude Oil Futures Markets: An Emerging Asian Benchmark? *Journal of Futures Markets*.

<https://onlinelibrary.wiley.com/doi/full/10.1002/fut.22384>

Yang et al. (2021) built several GARCH models to obtain the value at risk (VaR) connectedness networks. They found that, between March 2018 and April 2020, the international oil markets were highly connected, with the INE SC persistently acting as a net receiver of the risks from Brent and WTI, especially following the Covid-19 outbreak.

Reference: Yang, Y., Ma, Y.-R., Hu, M., Zhang, D., & Ji, Q. (2021). Extreme risk spillover between Chinese and global crude oil futures. *Finance Research Letters*, 40, 101743-101743.

<https://doi.org/10.1016/j.frl.2020.101743>

Li, Huang, and Li (2021) investigated the price correlations between the INE SC and the spot prices of Oman and the OPEC Basket, as well as the hedging effectiveness of the INE SC. They analyzed the intraday prices from March 2018 to June 2019 with a GO-GARCH model and found that compared with WTI and Brent crude futures, INE SC showed higher price correlation with the spot markets and was a more effective hedging tool.

Reference: Li, J., Huang, L., & Li, P. (2021). Are Chinese crude oil futures good hedging tools? *Finance Research Letters*, 38, 101514-. <https://doi.org/10.1016/j.frl.2020.101514>

Yi, Yang, and Li (2021) investigated whether the macroeconomic uncertainty factors can explain and forecast the INE SC's volatility for the period from March 2018 to June 2020. The authors used the GARCH-MIDAS model to address the differences in data frequency and found that among the major oil consumers (the United States, China, and Japan) and the major oil exporters (the United Kingdom, Canada, and Russia), geopolitical risk, economic policy uncertainty, and pandemics situation in the United Kingdom and Japan had greater predictive power for the volatility of the INE SC.

Reference: Yi, A., Yang, M., & Li, Y. (2021). Macroeconomic Uncertainty and Crude Oil Futures Volatility-Evidence from China Crude Oil Futures Market. *Frontiers in Environmental Science*, 9. <https://doi.org/10.3389/fenvs.2021.636903>

Lv, Yang, and Fang (2020) looked into whether investors can better hedge against the risks of Chinese petrochemical stocks with the INE SC compared with the Brent and WTI crude futures. By constructing the DCC, DECO, and Block DECO models based on the data from 2018 to 2019, they found that the INE SC provided superior hedging and portfolio diversification results versus WTI, but inferior results versus Brent.

Reference: Lv, F., Yang, C., & Fang, L. (2020). Do the crude oil futures of the Shanghai International Energy Exchange improve asset allocation of Chinese petrochemical-related stocks? *International Review of Financial Analysis*, 71, 101537-.
<https://doi.org/10.1016/j.irfa.2020.101537>

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Shanghai Crude Oil Futures in Numbers (2025)

Table 1: Price Performance (Active Contracts)							
Opening Price	Highest Price	Lowest Price	Closing Price	30-day Average Volatility (%)	Basis (¥/barrel)		
					Highest	Lowest	Average
563.0	639.5	419.6	432.2	2.03	36.17	-54.72	-20.11

Note: The "active contract" refers to the contract with the largest open interest.

Table 2: Trading							
Trading						Open Interest	
Cumulative trading volume (10,000 lots)	Cumulative turnover (RMB trillion)	Average daily volume (10,000 lots)	Average daily turnover (RMB 100 million)	Highest daily trading volume (10,000 lots)	Proportion of daytime trading volume (%)	Average daily open interest (10,000 lots)	Highest daily open interest (10,000 lots)
3888.22	19.60	16.00	806.41	64.53	33.07	6.64	9.01

Table 3: Delivery								
Cumulative delivery quantity (10,000 bbl, including EFPs)	Cumulative delivery amount (RMB 100 million)	Contract with the highest delivery quantity	Highest monthly delivery quantity (10,000 bbl)	Most delivered Crude Stream	Delivery volume of the most delivered crude stream (10,000 bbl)	Storage facility with the highest delivery quantity	Highest delivery quantity by storage facility (10,000 bbl)	EFP volume (10,000 bbl)
2705.6	147.94	SC2503	588.6	Basrah Light	692.8	PetroChina Dalian Bonded	660.1	210.5

03

Rankings of Crude Oil Futures
Trading Volume

原油期货成交排名

2025年原油期货 交易量排名前二十会员名单

国泰君安有限公司	五矿期货有限公司
中信期货有限公司	徽商期货有限公司
东证期货有限公司	华闻期货有限公司
华泰期货有限公司	中信建投期货有限公司
中泰期货股份有限公司	申银万国期货有限公司
海通期货股份有限公司	方正中期期货有限公司
国信期货有限责任公司	广发期货有限公司
银河期货有限公司	东吴期货有限公司
新湖期货股份有限公司	光大期货有限公司
南华期货股份有限公司	瑞达期货股份有限公司

Top 20 Members by Crude Oil Futures Trading Volume (2025)

Guotai Junan Futures Co., Ltd.	Minmetals Futures Co., Ltd.
CITIC Futures Co., Ltd.	Huishang Futures Co., Ltd.
Orient Futures Co., Ltd.	Huawen Futures Co., Ltd.
Huatai Futures Co., Ltd.	China Futures Co., Ltd.
Zhongtai Futures Co., Ltd.	Shenyin & Wanguo Futures Co., Ltd.
Haitong Futures Co., Ltd.	Founder CIFCO Futures Co., Ltd.
Guosen Futures Co., Ltd.	GF Futures Co., Ltd.
Galaxy Futures Co., Ltd.	Soochow Futures Co., Ltd.
Xinhu Futures Co., Ltd.	Everbright Futures Co., Ltd.
Nanhua Futures Co., Ltd.	Ruida Futures Co., Ltd.

2025年原油期货 交易量排名前二十境外中介机构名单

横华国际期货有限公司

J.P. Morgan Securities plc

Straits Financial Services Pte. Ltd.

Goldman Sachs International

Bright Point International Financial (SG) Pte. Ltd.

Guotai Junan Futures (Singapore) Pte. Ltd

Orient Futures International (Singapore) Pte. Ltd.

亮点国际期货有限公司

ABN AMRO Clearing Bank N.V.

群益期货(香港)有限公司

Phillip Nova Pte. Ltd.

BNP Paribas

UBS AG

华泰（香港）期货有限公司

Deutsche Bank AG

Societe Generale

Nanhua Singapore Pte. Ltd.

中国新永安期货有限公司

StoneX Financial Pte. Ltd.

Morgan Stanley & Co. International Plc

Top 20 Overseas Intermediaries by Crude Oil Futures Trading Volume (2025)

HGNH International Futures Co., Ltd.

J.P. Morgan Securities plc

Straits Financial Services Pte. Ltd.

Goldman Sachs International

Bright Point International Financial (SG) Pte. Ltd.

Guotai Junan Futures (Singapore) Pte. Ltd

Orient Futures International (Singapore) Pte. Ltd.

Bright Point International Futures Ltd.

ABN AMRO Clearing Bank N.V.

CSC Futures (HK) Ltd.

Phillip Nova Pte. Ltd.

BNP Paribas

UBS AG

Huatai (Hong Kong) Futures Ltd.

Deutsche Bank AG

Societe Generale

Nanhua Singapore Pte. Ltd.

China Xin Yongan Futures Co., Ltd.

StoneX Financial Pte. Ltd.

Morgan Stanley & Co. International Plc

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