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Does PetroChina Worth: A Comparative Study Using Multiples Methods in the Post-Pandemic Petrol Industry

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Abstract: This paper analyzes the valuation of PetroChina by comparing it with competitors Sinopec, CNOOC, and ExxonMobil, using multiples valuation methods including Price-to-Earnings (P/E) and Enterprise Value-to-EBITDA (EV/EBITDA). Focusing on the financial performance from 2019 to 2023, it highlights PetroChina's post-pandemic recovery, marked by growing revenues, improved profitability, higher efficiency, and stronger financial stability. Despite these positive financial indicators, the valuation analysis shows that PetroChina remains undervalued compared to its domestic and global peers. This undervaluation likely stems from investor concerns regarding state ownership, regulatory factors, and geopolitical uncertainties. The research identifies a gap between PetroChina's fundamental strengths and market valuation, suggesting its stock is an appealing investment opportunity. The paper further recommends that PetroChina enhance investor trust through improved transparency and governance. Finally, future research could examine broader qualitative factors such as ESG considerations and technological advancements, providing deeper insights into company valuations within the oil and gas industry.

Keywords: PetroChina, Stock Price, Multiples Valuation

1. Introduction

Oil has been a crucial commodity in the global financial market in decades, serving both energy sources and economic drivers. Oil fuels transportation, powers industries, and serves as a key raw material in productions ranging from plastics to medicines. Economically, oil reserves have driven national development, advanced industrialization and urban growth. Countries with huge oil resources made this asset to become influential players on the world stage. In addition, oil's price movements affect the financial markets. The oil market is deeply connected with a range of financial products, including futures, options, and swaps. Financial institutions, governments, and corporations use these tools to manage the fluctuation of oil prices, which affect inflation rates, exchange rates, and market performance. However, a unprecedented market crashes the oil price and drops it below \$0 per barrel during the COVID-19 pandemic. As nations lockdown and restrict travels, the demand for oil declined. This caused one of the most dramatic oil market crashes in history. The essay will analyse the financial performance of chosen firms in the petrol industry by using multiple valuation methods and discuss the stock price of PetroChina whether it is overvalued, undervalued, or fair.

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2. Overview of PetroChina

PetroChina Company Limited was formed in 1999 during a restructuring of CNPC and has grown into the largest oil and gas producer and distributor in China. Its huge scale and backing by CNPC have made it a leading player in China's domestic energy market and in the global oil and gas industry. PetroChina operates across the whole energy value chain which includes upstream exploration and production, midstream transportation, storage, refining and petrochemicals, and downstream marketing and sales of fuel products [1]. Except traditional oil industry, PetroChina is expanding into renewable energy and new materials, it has invested in cutting-edge technologies like carbon capture, utilization, and storage (CCUS) to both improve oil recovery and reduce emissions [2].

PetroChina' s financial performance over 2019 to 2023 reflects the recovery and growth, following a pandemic-induced down in 2020. Operating revenue grew from approximately CNY 2.3 trillion in 2019 to CNY 3.011 trillion in 2023, with a strong rebound after 2020. In 2020, global oil demand collapse and low prices caused PetroChina' s revenue to drop globally, but the company's top-line began recovering in 2021 as energy markets improved. By 2022 and 2023, revenues reached record levels by increasing in post-pandemic demand and commodity prices. The 2023 revenue was 7.6% higher than 2022, as the rise in sale volumes and oil prices which boost global energy demand recovery. Notably, the company kept a tight control over costs even as business expanded. The operating cost in 2023 was CNY 2.964 trillion, rising with activity but closely following the revenue growth. PetroChina also benefited from positive contributions of other financial items, such as investment income, which is about CNY 21.6 billion in 2023, partially offsetting its financial expenses of CNY 24.6 billion.

Financial efficiency and profitability indicators from 2019 to 2023 further highlight PetroChina' s improving performance. The table above shows five important metrics. Return on Assets (ROA) rose from 2.6% in 2019 to 6.6% in 2023, indicating that the company is now generating higher earnings relative to its asset base. This jump in ROA indicates enhanced profitability and asset utilization. Similarly, the net profit margin climbed from 2.7% in 2019 to 6.0% in 2023, after dipping to a low of 1.7% in 2020 [3]. The nearly 6% net margin in 2023 that roughly double the pre-pandemic level reflects improved cost management and a stronger pricing environment for oil and gas. The gross profit margin also expanded to 23.5% in 2023 from 20% in 2019, showing that the company's core operations became more cost-effective in production. Meanwhile, PetroChina strengthened its balance sheet: the asset-liability ratio declined from about 47% in 2019 to 40.8% in 2023, as the company reduced its relative debt and accumulated equity through retained earnings. Another efficiency metric, asset turnover, improved from 0.97 times in 2019 to 1.11 times in 2023, meaning PetroChina generated more revenue per unit of assets than before. The slight pullback of asset turnover in 2023 suggests the company increased its asset base, tempering the ratio despite higher sales. Taken together, these trends indicate that PetroChina became more profitable and efficient over the five-year period. The surge in margins and ROA point improved performance and profitability in 2023, while the declining debt ratio and solid asset turnover showed better financial stability and asset utilization. In summary, PetroChina was in a strong financial position before and after the pandemic: revenues at all-time highs, healthy profits, and efficiency metrics that surpassed pre-2020 levels. This financial strength provides a solid foundation for the PetroChina' s investments and strategic initiatives.

3. Analysis of the competitors

The document margins must be the following: To analyze the whole petrol and gas industry, three companies are chosen to compare with PetroChina.

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China Petroleum & Chemical Corporation (Sinopec) was Founded in 1983. it is an integrated energy and chemical company with strength in downstream operations. Sinopec is the world's largest oil refiner by capacity which is about 5.5 million barrels per day, and China's largest fuel supplier with sprawling refining, petrochemical, and distribution networks. Sinopec' s scale and government-owned status make it a strong domestic competitor to PetroChina, especially in refining and marketing.

China National Offshore Oil Corporation (CNOOC) is China's third major state-owned oil company, focused on upstream exploration and production in offshore areas. It has grown internationally with operations in more than 20 countries. CNOOC's core is oil and natural gas production, and it has smaller segments in refining, LNG importation, power generation, and marketing. Within China, CNOOC contributes around 20% of domestic crude output and is a key driver of production growth, thanks to new offshore finds. Unlike PetroChina and Sinopec, CNOOC has a minimal downstream presence; it relies on selling crude and gas to others, but its low-cost production makes it highly profitable.

ExxonMobil Corporation (ExxonMobil) is a fully integrated international oil supermajor, involved in global oil and gas exploration, production, refining, chemicals, and more. It is the largest non-governmental oil company, with 2024 revenues about $350 billion. ExxonMobil as an investor-owned firm contrasts with the state-owned company such as PetroChina, Sinopec, and CNOOC, highlighting different competitive dynamics in and outside China.

In China's domestic petroleum market, PetroChina and Sinopec share a duopoly. Sinopec holds the largest share in refining and fuel retail, while PetroChina leads in crude oil output and natural gas. Together they account for the bulk of China' s refining capacity and oil product supply. CNOOC only contributes about 20% of domestic oil production and expands gas supply. ExxonMobil has no direct share of China' s domestic market, but internationally it competes for market share in oil supply and products. Notably, PetroChina and Sinopec are so large that they exceed ExxonMobil in revenue in recent years. Within China, PetroChina faces strong domestic competition from Sinopec to CNOOC for refining and upstream opportunities, while globally it stands alongside ExxonMobil as one of the world's leading oil companies [4].

Sinopec's financial results have been more volatile. Revenue climbed from ¥2.74 trillion in 2021 to ¥3.32 trillion in 2022 (boosted by high oil prices), then fell about 7% to ¥3.07 trillion in 2023 as oil prices eased. Sinopec's net profit in 2022 was ¥66.3 billion, the third highest in a decade despite a 6.9% drop from 2021 due to COVID impacts. In 2023, net income declined 9.9% to ¥60.5 billion under a complicated operating environment and intense competition. Thus, Sinopec's growth has trailed PetroChina's; its downstream-centric portfolio yields lower profit margins. However, Sinopec remains financially stable with large operating cash flows and manageable debt, supported by its dominant domestic market position.

CNOOC's performance is in high profitability in boom years. Revenue is smaller, but net profit reached the highest levels. In 2022, CNOOC's net profit doubled to ¥141.7 billion because of the surge in global oil prices post-Ukraine conflict. This was more than doubled 2021 profit, reflecting CNOOC's leverage to commodity prices. In 2023, with prices cooling, profits fell 12.6% to ¥123.8 billion. Financially, CNOOC has matched or exceeded PetroChina in profitability at times, despite being smaller in revenue, due to its pure-upstream focus during high price environments.

As a global peer, ExxonMobil has highest earnings in 2022. Revenue spiked to $413.7 billion in 2022 as crude prices soared, then declined 17% to $344.6 billion in 2023 and its profit far exceeded any Chinese oil firms in USD terms. Exxon's profitability is high: in 2022 it generated high returns, and in 2024 its net margin remained above PetroChina' s. ExxonMobil also maintained a strong balance sheet and returned capital to shareholders as it had $15 billion in dividends and $17.5 billion buybacks in 2023.

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These trends illustrate how upstream strength like PetroChina and CNOOC versus Sinopec can lead to different financial outcomes under changing oil price cycles. ExxonMobil, not bound by Chinese price controls and with global diversification, managed its downturn with only a modest profit drop, aided by cost cuts and trading gains. In terms of assets and liabilities, all companies maintain large asset bases and moderate leverage. Crucially, government backing such as state banks support their funding gives the Chinese firm's financial stability, whereas ExxonMobil' s financial discipline is market-driven.

PetroChina is similar in scale to Sinopec and ExxonMobil in revenue, and to CNOOC in production growth focus. Sinopec and PetroChina together dominate China's oil industry; PetroChina's upstream oil output is appropriately 3.4 times of Sinopec's, but Sinopec's refining throughput is higher. Thus, PetroChina is upstream-weighted whereas Sinopec is downstream-weighted. In net income, PetroChina has exceeded Sinopec, showing PetroChina' s advantage in production. ExxonMobil' s market cap and international assets are larger, PetroChina remains mostly a domestic giant with some overseas assets held by CNPC. CNOOC is smaller in revenues, which is roughly one-eighth of PetroChina's but surprisingly close in profits during high oil price years. All Chinese firms benefit from state ownership: PetroChina, like Sinopec and CNOOC, can rely on policy support, while Exxon operates purely on commercial terms. This means PetroChina, Sinopec, and CNOOC sometimes pursue national goals even at the expense of short-term profits which is a key difference from Exxon's shareholder-driven mandate.

PetroChina has strong technical capabilities in onshore drilling, including complex geology like Daqing's aging oilfield and Sichuan's tight gas [5]. However, in frontier innovation, ExxonMobil is often seen as a leader, for instance, Exxon's proprietary technologies in LNG and deepwater development set industry criteria. Chinese companies are closing the gap: CNPC and Sinopec have developed advanced unconventional gas techniques as Sinopec's Fuling shale gas field was Asia's first large shale development. All Chinese majors including PetroChina have significantly ramped up R&D budgets, often in partnership with service companies. Sinopec is innovating in refining and in fuel retail digitalization. CNOOC brought China to deepwater production for the first time and is improving subsea and LNG tech. PetroChina vs Exxon in innovation: PetroChina tends to license or adopt technology rather than pioneer it internationally. For example, for CCS and shale, PetroChina often partners or follows Western firms' lead. Exxon's long history of research gives it an innovative culture PetroChina is still cultivating. However, PetroChina benefits from government research institutes and has made strides in enhanced oil recovery and ultra-deep drilling in Xinjiang [6]. In summary, ExxonMobil has an edge in cutting-edge oil & gas tech and project execution know-how, whereas PetroChina and peers leverage a combination of imported tech and incremental innovation suited to China's resource conditions. As the industry shifts to new energy, PetroChina might follow Sinopec's hydrogen lead or CNOOC's offshore wind expertise rather than develop its own from scratch.

Within China, PetroChina and Sinopec don't really have competitors besides each other—they're both essential. On the other hand, Sinopec's strength lies in refining, giving it influence over fuel pricing and imports. CNOOC, although smaller, plays a key role by handling offshore oil fields and driving new production—without it, China's oil output could decline. These three companies often coordinate closely because they're all controlled by the state—for example, they jointly carry out share buybacks or communicate similar messages about oil markets. This means competition among them is more regulated. In contrast, ExxonMobil competes freely in a global market against Chevron, Shell, BP, and increasingly against national oil companies like PetroChina and Saudi Aramco for projects and market share [7]. Globally, PetroChina is growing but isn't yet a leader—its international production is much smaller than Exxon's, and it doesn't set global market trends. Another important difference is profitability and efficiency. Generally, PetroChina's return on equity is lower than

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Exxon’s, partly because it must sell gas domestically at regulated prices, serving broader public interests. Exxon’s focus on profitability allows it to outbid PetroChina on key global projects—such as Exxon’s aggressive investment in Guyana compared to PetroChina’s more cautious approach. However, Chinese companies like PetroChina have government support to pursue strategic deals with lower short-term profits, valuing long-term energy security or political influence over immediate returns. This means PetroChina sometimes makes strategic choices Exxon would reject as unprofitable.

The competitive environment is therefore quite complex. PetroChina competes gently with Sinopec and CNOOC domestically under state oversight, but internationally it faces tougher, indirect competition from ExxonMobil [8]. PetroChina is often seen as Asia’s biggest oil and gas company and represents China’s energy health. Sinopec and CNOOC also represent Chinese interests in their own ways, while ExxonMobil remains the global benchmark for success among Western oil companies. In many ways, PetroChina combines aspects of these competitors, it’s integrated like Exxon but mainly domestic, state-owned like Sinopec but more focused on production, and growth-oriented like CNOOC but mostly on land-based fields. PetroChina’s main challenge is balancing these qualities, matching Exxon’s efficiency and innovation, Sinopec’s refining expertise and customer orientation, and CNOOC’s agility and cost control. PetroChina is large and financially stable but can learn from Exxon’s disciplined approach to capital and technology, Sinopec’s renewable energy investments, and CNOOC’s efficiency in exploration and operations [9].

4. Stock price analysis

Understanding the fluctuations in PetroChina's stock price requires placing its performance within a broader market context. PetroChina, one of China's leading state-owned energy giants, gained global attention following its record-breaking IPO in 2007, briefly becoming the most valuable company worldwide. However, its subsequent performances show a contrasting picture characterized by significant volatility and underperformance relative to initial investor expectations. Various factors have influenced this pattern: from global shifts in oil prices and evolving governmental environmental regulations, to market uncertainties driven by geopolitical tensions [10]. Comparing PetroChina’s stock performance by using Multiples Valuation to its competitors [11]. By examining these divergences, this analysis seeks to highlight how external economic pressures and internal corporate governance have uniquely impacted PetroChina’s stock value.

The Price-to-Earnings (P/E) ratio serves as a fundamental valuation metric, indicating the relationship between a company’s current market price per share and its earnings per share (EPS). This ratio reflects the price investors are willing to pay per unit of earnings, thus providing insights into market expectations regarding a company's profitability and future growth potential. PetroChina currently has a P/E ratio of 5.92, indicating an exceptionally low valuation in absolute terms. This figure places PetroChina significantly below both global and domestic industry peers, including China Petroleum & Chemical Corporation (Sinopec) with a notably higher P/E ratio of 9.24. Similarly, CNOOC exhibits a low P/E of 5.28, comparable to PetroChina's valuation, possibly due to strong earnings performance and potential net cash positions. By contrast, Exxon Mobil, representing Western oil majors, trades at a much higher P/E of 13.91, more than double PetroChina’s ratio, highlighting a valuation gap influenced by regional market differences and investor sentiment.

In evaluating the valuation of PetroChina relative to its competitors, including Sinopec, CNOOC, Exxon Mobil, and industry averages, several approaches were adopted. First, the average current P/E ratio was determined by aggregating the individual P/E ratios of these four companies and subsequently dividing the sum by the total number of entities. This calculation is represented as follows:

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$$\text{Average Current P/E Ratio}=(5.92+9.24+5.28+13.91)/4=8.59 \quad (1)$$

the industry-based valuation was performed by multiplying the industry-average P/E ratio (8.59) with PetroChina's EPS (0.98), resulting in:

$$\text{Industrv P/E: P(PetroChina)}=8.59\times0.98=8.42 \quad (2)$$

Furthermore, a comparative companies (Comps) valuation approach was employed by averaging the P/E ratios of PetroChina's direct competitors—Sinopec, CNOOC, and Exxon Mobil—and applying this average ratio to PetroChina's EPS (0.98). This yielded the following valuation result:

$$\text{Comps P/E: P(PetroChina)}=[9.24+5.28+13.91)/3]\times0.98=9.29 \quad (3)$$

Based on the above analytical computations of the Price-to-Earnings (P/E) ratio, it can be concluded that PetroChina's stock price is undervalued relative to both its competitors and industry standards. Specifically, when applying the Comparable Companies (Comps) valuation method—where the average competitor P/E ratio is multiplied by PetroChina's EPS—the implied fair price for PetroChina is 9.29, significantly higher than its actual market price of 5.80. Similarly, utilizing the industry-average P/E ratio yields an estimated fair price of 8.42, also surpassing PetroChina's actual price. Thus, both valuation benchmarks strongly indicate market undervaluation of PetroChina's stock, suggesting potential investor skepticism or conservative market sentiment regarding its future profitability and growth prospects.

Table 1: Price-to-earnings (P/E) Ratio

Company	Current P/E	EPS	Price (9^{th} Mar.)	Mkt. Cap (HKD)
PetroChina	5.92	0.98	5.80	1.46T
Sinopec	9.24	0.45	4.190	699.38B
CNOOC	5.28	3.32	17.54	861.22B
ExxonMobil	13.91	7.84	109.02	3.69T
Industry	8.59	3.125	-	1.68T

The Enterprise Value-to-EBITDA (EV/EBITDA) multiple shows the measure of a company's valuation relative to its operating cash flow, as can be seen in table 1. PetroChina currently holds an EV/EBITDA multiple of 2.96, signaling that the company generates substantial operating earnings in relation to its total enterprise value, a characteristic typically associated with undervaluation. Compared with its domestic peer Sinopec, whose EV/EBITDA multiple stands slightly lower at 2.52, PetroChina's multiple suggests a similarly conservative market valuation. Sinopec's lower EV/EBITDA may reflect its distinct business model with a heavier downstream presence and higher debt levels. Meanwhile, CNOOC maintains the lowest multiple among the group at 2.36, consistent with its stronger earnings profile and significant net cash position, as evidenced by its enterprise value being notably lower than its market capitalization. In contrast, Exxon Mobil's EV/EBITDA multiple is substantially higher at 7.75, reflecting valuation dynamics typically observed among Western oil majors, which tend to trade at premiums compared to their Chinese counterparts.

Initially, the average EV/EBITDA multiple was calculated by summing the individual EV/EBITDA ratios of the four selected companies and dividing this sum by the number of firms included. Mathematically, the computation is represented as follows:

$$\text{Average}\cdot\text{Current}\cdot\text{EV/EBITDA}=(2.96+2.52+2.36+7.75)/4=3.90 \quad (4)$$

The industry-average EV/EBITDA multiple was applied to PetroChina's EBITDA to obtain another benchmark valuation:

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$$\text{Industry EV/EBITDA: EV (PetroChina)}=3.90\times 549.51\text{B HKD}=2.14\text{T HKD} \tag{5}$$

Further valuation was conducted by applying the comparative companies' EV/EBITDA multiples to PetroChina’s EBITDA. This provided an implied enterprise valuation of PetroChina as follows:

$$\text{CompsEV/EBITDA:EV (PetroChina)}=4.21\times 549.51\text{B HKD}=2.31\text{T HKD} \tag{6}$$

Based on the EV/EBITDA analysis presented above, PetroChina’s implied enterprise value using both competitor and industry multiples significantly exceeds its current enterprise value. Based on the valuation derived from competitor multiples and industry multiples which are both higher than PetroChina’s actual enterprise value of 1.74 trillion HKD, as can be seen in table 2. Therefore, it can be concluded that PetroChina’s stock is undervalued relative to its peers and industry benchmarks.

Table 2: Enterprise value/EBITDA (EV/EBITDA) multiple

Company	Current EV/EBITDA	EV (HKD)	EBITDA (HKD)	Mkt. Cap (HKD)
PetroChina	2.96	1.74T	549.51B	1.46T
Sinopec	2.52	1.22T	190.61B	699.38B
CNOOC	2.36	705.82B	294.33B	861.22B
ExxonMobil	7.75	3.89T	0.5T	3.69T
Industry	3.90	1.91T	-	1.68T

5. Conclusion

In conclusion, the analysis strongly suggests that PetroChina's stock is undervalued based on multiple valuation methods. PetroChina consistently trades at lower multiples compared to both its domestic peers, Sinopec and CNOOC, and global competitors such as ExxonMobil. Despite PetroChina's substantial scale, dominant position in China’s upstream oil and gas production, and its improving profitability and operational efficiency in recent years, the market continues to assign it relatively conservative valuations. This cautious market sentiment might reflect investor uncertainty due to state-controlled operations, regulatory price constraints, or geopolitical considerations. Nevertheless, given PetroChina's solid financial fundamentals, strategic importance to China's energy security, and attractive dividend yields, there appears to be a clear disconnect between its underlying value and current market perception. From a valuation standpoint, PetroChina represents an appealing investment opportunity, significantly undervalued compared to peers and its own historical standards.

Given the identified undervaluation of PetroChina relative to its peers and industry standards, investors may consider reassessing market potential mispricing factors such as political influences, state ownership dynamics, and regulatory constraints. From a strategic perspective, PetroChina could enhance investor confidence through increased transparency, improved corporate governance, and clearer communication of strategic goals related to sustainability and innovation.

Future research may focus on deeper analyses of qualitative factors influencing market valuation, such as the impact of governmental policy shifts, Environmental, Social, and Governance practices, and the role of technological advancements in shaping long-term investor expectations. Additionally, comparative studies by broader industry data or using alternative valuation models, such as discounted cash flow analysis or real options valuation, could further validate the findings of this study and provide additional insights into PetroChina’s valuation dynamics.

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