



## **BYD Company Limited (USD: 48.09)**

Undervalued Electric Vehicle and battery giant with unmatched vertical integration and global scalability.

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**Price Target: \$72.94 (52% upside)**

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### **Economy**

The global economy in the first quarter of 2025 is marked by heightened uncertainty and increasing fear. With escalating risks of a trade war, businesses and investors alike are bracing for volatility. The Trump administration's decision to impose reciprocal tariffs on all countries in the world has reignited tensions reminiscent of the early 2010s trade disputes, but with potentially more severe consequences.

Global markets have responded with sharp corrections. Equity indices in the U.S., Europe, and Asia have all posted significant losses. The S&P 500 has fallen more than 13% year-to-date, entering correction territory and recording its worst quarterly performance since 2020. This decline wiped out over \$5 trillion in market value in just two days. The tech-heavy Nasdaq has been hit even harder, plunging nearly 18% from its December peak, as investors reassess the growth prospects of the “Magnificent Seven” tech giants amid supply chain disruptions and rising costs.

These tariffs, ranging from a baseline 10% on all imports to as high as 54% on specific nations like China, represent the most aggressive trade barriers in over a century. The immediate fallout has been a surge in market volatility, with the VIX reaching its highest level since August 2024. Investors have fled to safe-haven assets, driving gold to a record \$3,150 per ounce and pushing U.S. Treasury yields lower as recession fears mount. Oil prices, conversely, have cratered to their lowest levels in over three years, with Brent crude settling at \$65.58 per barrel, reflecting concerns over weakening global demand.

The ripple effects are profound and far-reaching. Retaliatory measures from key trading partners, including China’s 34% levy on American goods and the European Union’s signaled countermeasures, threaten to escalate this into a full-blown global trade war. For U.S. businesses, the impact is already tangible.

Automakers like Tesla report significant declines in sales amidst the Elon Musk political fallout, while companies reliant on global supply chains, such as Apple and Nike, have seen their stock prices plummet 9% and 14%, respectively, in a single day. The consensus among economists is shifting rapidly; JP Morgan now estimates a 60% chance of a global recession by year-end, up from 40% before the tariff rollout, while Goldman Sachs has revised its S&P 500 year-end target downward to 5,700, reflecting a more pessimistic outlook. With the domestic market in turmoil, we suggest diversifying assets into the global markets.

### **Company Overview**

BYD is a Chinese multinational manufacturing conglomerate focused on producing automobiles, electronic parts, and assembly, and electric vehicle parts. BYD produces critical parts and components—especially in EV automobiles and battery systems—that are central to its mission of clean energy and efficient transportation ecosystems. The company’s vertically integrated model allows it to develop customized solutions for OEMs and governments, often leading to long-term supply agreements. BYD’s extensive research and development capabilities and its full-stack manufacturing—creating chips, batteries, and vehicles—give the company a high barrier to entry, shielding it from

competition by other, more traditional automakers or EV manufacturers. BYD also operates within multiple countries, managing a global manufacturing network, allowing it to adapt to local market conditions, giving it a competitive advantage over other global suppliers. The company currently operates under 3 main subsidiaries:

### **BYD Auto**

The Automotive section of BYD is its largest subsidiary, being the company's most visible business line. This section of BYD focuses on automotive vehicles, including passenger vehicles (BEVs & PHEVs), commercial vehicles (electric buses, trucks, forklifts), and

### **Rail solutions (SkyRail & Sky Shuttle)**

- **Passenger Cars:** BYD is the biggest global EV auto vehicle manufacturer, producing both BEVs and PHEVs, such as the Qin, Han, Dolphin, Atto 3, and the Yangwang U8. While the majority of sales are driven within China, BYD is rapidly expanding globally to countries in Europe, Southeast Asia, and Latin America. BYD's use of its proprietary Blade Battery and in-house designed e-platforms allows it to compete with other EV manufacturers both in terms of cost and performance.
- **Commercial Vehicles:** BYD is one of the top global manufacturers of electric buses, operating and selling in over 70 countries.
- **Rail Transit:** The SkyRail monorail and SkyShuttle automated systems are designed to reduce urban congestion in mid-sized cities and serve as first/last-mile solutions.

### **BYD Electronics**

BYD Electronics produces high-precision components while providing assembly services for smartphones, laptops, and other consumer electronics. They are a top parts supplier for brands such as Apple, Samsung, and Huawei. BYD's design and manufacturing flexibility allow it to be a good choice for many companies with frequent product changes and tight integration needs. Characterized by its high-quality, high-volume capabilities combined with its global supply chain position, BYD Electronics is a stable and positive contributor to BYD.

### **FinDreams (Automotive Supplier)**

FinDreams is a collective of smaller subsidiaries that encompass BYD's specialization in the development and manufacturing of automotive components and technologies.

- **FinDreams Battery:** The Production of lithium iron phosphate batteries, notably the Blade Battery, which is known for its enhanced safety and efficiency
- **FinDreams Powertrain:** Development and production of engines and powertrain-related components, including transmissions, axles, electric vehicle platforms, and plug-in hybrid systems. FinDreams Technology: automotive electronics and EV chassis-related parts for passenger vehicles, commercial vehicles, and rail transit.

### **Industry Overview**

Both the Electric Vehicle and self-driving car industries have experienced tremendous growth and transformation over the past few years, driven by changing consumer preferences, technological advancements, and regulatory changes.

### **Electric Vehicle (EV) Industry Overview**

In the fiscal year of 2024, global sales of electric vehicles reached approximately 17.1 million units, marking an almost 25% increase in sales when compared to the previous year. This surge in sales was noticed particularly in the United States, where the sales of electric vehicles increased by nearly 21%, reaching a number of around 1.7 million units.

Despite this tremendous growth in the industry, the market for electric vehicles has faced challenges due to the shifting of trade policies. 2024 Tariff adjustments in the United States have raised the costs of producing electric vehicles, increasing costs of production throughout the supply chain, resulting in the rise of electric vehicles, which has the consequence of potentially discouraging manufacturers and consumers from producing and purchasing.

Within the United Kingdom, the UK government has implemented measures to bolster the homegrown industry, amid rising international tariffs supporting domestic production. Among these measures were the EV mandate to make the transition to electric vehicles more accessible and investing £2.3 billion in tax breaks and charging infrastructure.

### **Self-Driving Car Industry Overview**

The autonomous vehicle industry, like the EV industry, has also seen substantial growth and advancements. During the 2024 fiscal year, the global autonomous vehicle market was valued at approximately \$41 billion and is projected to grow even further, reaching nearly a \$115 billion valuation by the year 2029. This projected growth sees the autonomous vehicle market as a growing bubble, showing a recent expansion of revenue, employment, and market share.

Many autonomous vehicle manufacturers, such as Waymo—a subsidiary of Alphabet focusing on self-driving automobiles—have reported significant growth and advancements. Noting weekly paid trips amounting to almost 150,000 and a total of over 4 million rides by the end of 2024, Waymo is a perfect example of a growing company within this expanding industry. Additionally, as of this year, major automobile corporations such as Honda and Mercedes-Benz have made strides in the industry, introducing Level 3 autonomous vehicles in select markets, a sign that indicates progress toward more advanced self-driving capabilities.

Despite the increase in the widespread adoption of autonomous vehicles, the industry continues to face challenges, those of which include regulatory hurdles, technological limitations, and safety concerns. The continued and ongoing research and development of autonomous vehicles aims to address these issues, paving the way for the broader deployment of self-driving technologies.

### **Growth Driver**

#### **China's EV Market**

BYD dominates the Chinese EV market, benefiting from government subsidies and strong consumer demand. The vertical integration of manufactured parts allows it to get cheap components, not paying markups. BYD's tight grip on their supply chain is why they were able to ramp up production so rapidly and cheaply. The fact that they manufacture their parts in China allows them to make many parts a lot cheaper than in the US or Germany. The company's ability to scale production and its aggressive pricing have solidified its leadership position.

#### **International Expansion**

BYD has set its sights on the European market, targeting key markets like Germany and the UK, where EV adoption is accelerating. Additionally, BYD's low-cost EVs (such as models priced under \$10,000) are well-suited for price-sensitive markets in Southeast Asia, Latin America, and Africa, targeting emerging markets in the EV industry. Their growing presence in South East Asia with substantial market shares in rapidly developing nations like Singapore and Thailand.

## **Technological Innovations**

BYD's advancements in battery technology, such as their Blade Battery, enhance safety, longevity, and cost efficiency, with even major competitors such as Tesla using the Blade Battery technology within their vehicles. In the past few weeks, they have recently introduced the new Super e-Platform charger, a revolutionary new charger allowing charging in under 5 minutes. The company's focus on software and autonomous driving capabilities, like their newly developed God's Eye, aims to offer features like navigation on autopilot, automatic lane changes, and remote parking, positioning it as a leader in EV technology.

## **Investment Thesis**

**BYD competes on price, technology, and safety, leveraging its vertical integration to produce affordable, good-quality EVs, setting it up to grow its market share:**

**Pricing:** Over the past few years, the price of BYD's vehicles has gone down significantly. In April 2025, BYD announced a significant price cut for its Seagull EV, bringing it down from \$9,500 to \$7,800. BYD can sell at such a low cost relative to their competitors due to its vertical integration. Currently, BYD owns and controls a significant portion of the components and materials needed for its cars, including batteries, motors, and some semiconductor chips, and it even holds lithium mining rights. BYD does, however, require some components to be provided by suppliers, and most recently, the company has asked suppliers to reduce their prices by 10% to remain competitive, indicating that BYD is looking for ways to cut costs to continue growing at a rapid rate. With its low-cost strategy, both in producing and pricing the cars, BYD has been able to flood the market with affordable EVs, particularly in China, Europe, South America, Southeast Asia, the Middle East, and Australia. Having already passed Tesla in sales, BYD is predicted to surpass Tesla in terms of market share by the end of 2025.

**Technology:** A core pillar of BYD's competitive edge lies in its technological innovation, particularly in battery development and hybrid powertrain systems. The company's proprietary "Blade Battery" is a lithium iron phosphate (LFP) battery, which sets a new standard for safety, durability, and cost-efficiency. While LFP batteries traditionally lag in energy density, with BYD batteries having a lower energy density of 160 Wh/kg and Tesla batteries having an energy density of 241 Wh/kg, BYD is already close to closing that gap as their next generation of "Blade Batteries" is expected to have an energy density of 190 Wh/kg. It is also important to note that BYD's primary markets, such as Europe and China, on average require less commute/travel distances and times by car, making it less likely for driving time or distance to be an issue in BYD's cars for consumers. Additionally, LFP batteries are also far less reliant on scarce and expensive materials like nickel and cobalt, and while Lithium itself is expensive, due to BYD's vertical integration and control over Lithium mines, BYD can secure Lithium and manufacture the batteries at a far lower cost with some researches stating it costs \$11 less per kW/h to produce a BYD battery compared to a Tesla battery.

BYD has also pioneered dual-mode plug-in hybrid technologies (DM-i and DM-p), expanding its addressable market. These systems are optimized for efficiency, enabling some models to achieve fuel consumption rates as low as 2.9L/100km (81 MPGe) relative to their cost and sufficient for daily urban use. The performance-oriented DM-p line caters to higher-end consumers by blending electric torque with extended range, some models like the Qin L DM-i and Seal 06 DM-i delivering a driving range of around 2,100 kilometers (1,305 miles).

**Safety:** In terms of safety, the "Blade Battery" boasts superior thermal stability and passed the rigorous nail penetration test without combusting, an outcome that very few of its competitors' batteries can replicate. It has also received high safety ratings from the Euro NCAP in recent years:

- **BYD Seal:** Achieved a 5-star Euro NCAP rating in 2023, scoring 87% for child occupant protection and 82% for vulnerable road user protection. The Seal is equipped with a direct 'child presence detection' system and advanced autonomous emergency braking (AEB) features.
- **BYD Dolphin:** Also secured a 5-star Euro NCAP rating in 2023, with an 89% score for adult occupant protection and 87% for child occupant protection. Euro NCAP praised its stable passenger compartment and effective AEB system that recognizes pedestrians and cyclists.
- **BYD Tang and Seal U:** Both models received 5-star ratings in Euro NCAP safety tests, reflecting BYD's consistent emphasis on vehicle safety across its lineup.

### **Sustained Growth**

- BYD's revenue has grown at a CAGR of 47.7%, driven by strong EV demand and market share expansion.
- Despite trading at peak multiples, BYD's growth trajectory and market leadership justify its valuation.

### **Risk**

#### **Tariffs and Geopolitical Challenges**

- Short-term risks from tariffs and trade restrictions may impact profitability in certain markets.
- Mitigation: BYD's focus on localizing production in non-US markets (e.g., Europe, Southeast Asia, Latin America, and Africa) reduces exposure to new tariffs. They have decided to build factories in Europe and the Middle East.

#### **Intensifying Competition**

- The global EV market is becoming increasingly crowded, with new entrants and traditional automakers ramping up production.
- Mitigation: BYD's aggressive pricing and vertical integration provide a durable competitive advantage. BYD plays the long game, cutting prices and grabbing market share, pressuring other automakers to also cut prices.

#### **Supply Chain Vulnerabilities**

- Global supply chain disruptions could impact production and costs.
- Mitigation: BYD's in-house battery production and diversified supply chain, including factories across the world, reduce dependency on external suppliers

### **Limitation of Growth Globally Amid Trade War Exposure and Tariff Pressures**

BYD's heavy reliance on China's domestic market, where it commands a 32% share of new energy vehicles, offers some insulation from U.S. tariffs. However, the company's aggressive global expansion plans, including new manufacturing facilities in Mexico, Brazil, Hungary, and Thailand, expose it to retaliatory trade measures. The Trump administration's 54% tariff on Chinese imports directly impacts BYD's ability to penetrate the U.S. market, where it has yet to establish a significant foothold for passenger vehicles.

### **Financial Analysis**

#### **Revenue and Profitability Trends**

- Revenue growth: From **\$22.7 billion in FY2020 to \$85.1 billion in FY2023**, with projections reaching **\$160.2 billion by FY2025**.

- EBIT margins: Improved from **4.52% in FY2020 to 6.33% in FY2023**, with further expansion expected as economies of scale improve.

## DCF Analysis

- Terminal value: **\$185.5 billion**.
- Enterprise value: **\$133.4 billion**.
- Unlevered free cash flow: Projected to rebound strongly after FY2025, driven by operational efficiencies and reduced CapEx intensity.

## Comparison to Street Projections

- Street estimates for BYD's revenue and EBITDA growth are conservative compared to our projections, which account for faster international expansion and margin improvements.

## Valuation

| Income Statement                  |             |             |             |             |              |              |              |              |              |              |              |  |
|-----------------------------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
| USD (\$M)                         | FY2020      | FY2021      | FY2022      | FY2023      | FY2024       | FY2025E      | FY2026E      | FY2027E      | FY2028E      | FY2029E      | FY2030E      |  |
| Revenues                          | \$22,695.00 | \$33,500.00 | \$63,010.00 | \$85,133.00 | \$108,096.00 | \$160,223.00 | \$189,354.45 | \$212,659.62 | \$230,138.49 | \$241,791.07 | \$247,617.36 |  |
| % growth                          |             | 47.60%      | 88.10%      | 35.10%      | 27.00%       | 32.53%       | 15.38%       | 10.96%       | 7.59%        | 4.82%        | 2.35%        |  |
| Operating Costs                   | \$18,415.10 | \$29,328.32 | \$53,243.61 | \$69,314.34 | \$87,083.96  | \$122,570.59 | \$142,015.64 | \$156,304.82 | \$165,699.71 | \$170,462.71 | \$173,332.15 |  |
| % of revenue                      | 81.14%      | 87.55%      | 84.50%      | 81.42%      | 80.56%       | 76.50%       | 75.00%       | 73.50%       | 72.00%       | 70.50%       | 70.00%       |  |
| Other Expenses (admin, sales, et) | \$3,252.98  | \$3,453.77  | \$6,565.52  | \$10,433.07 | \$13,989.36  | \$21,630.10  | \$25,184.14  | \$27,645.75  | \$29,227.59  | \$29,982.09  | \$29,714.08  |  |
| % of revenue                      | 14.33%      | 10.31%      | 10.42%      | 12.26%      | 12.94%       | 13.50%       | 13.30%       | 13.00%       | 12.70%       | 12.40%       | 12.00%       |  |
| EBIT                              | \$1,026.92  | \$717.92    | \$3,200.86  | \$5,385.60  | \$7,022.68   | \$11,215.61  | \$14,012.23  | \$16,374.79  | \$18,411.08  | \$19,826.87  | \$20,799.86  |  |
| % of revenue                      | 4.52%       | 2.14%       | 5.08%       | 6.33%       | 6.50%        | 7.00%        | 7.40%        | 7.70%        | 8.00%        | 8.20%        | 8.40%        |  |
| Non-Op Income/Expense (Net)       | -\$29.01    | -\$2.94     | -\$68.66    | -\$117.94   | -\$112.03    | -\$160.22    | -\$189.35    | -\$212.66    | -\$230.14    | -\$241.79    | -\$247.62    |  |
| EBT                               | \$997.48    | \$700.25    | \$3,132.20  | \$5,267.65  | \$6,910.65   | \$11,055.48  | \$13,822.95  | \$16,162.21  | \$18,181.02  | \$19,585.16  | \$20,552.33  |  |
| % of revenue                      | 4.40%       | 2.09%       | 4.97%       | 6.19%       | 6.39%        | 6.90%        | 7.30%        | 7.60%        | 7.90%        | 8.10%        | 8.30%        |  |
| Income tax expenses               | \$125.89    | \$85.38     | \$500.24    | \$837.39    | \$1,125.71   | \$1,902.64   | \$2,506.10   | \$3,078.90   | \$3,630.75   | \$4,091.34   | \$4,482.46   |  |
| % of EBT                          | 12.62%      | 12.19%      | 15.97%      | 15.90%      | 16.29%       | 17.21%       | 18.13%       | 19.05%       | 19.97%       | 20.89%       | 21.81%       |  |
| Net Profit                        | \$871.59    | \$614.89    | \$2,631.96  | \$4,430.26  | \$5,784.94   | \$9,152.81   | \$11,316.85  | \$13,083.31  | \$14,550.27  | \$15,493.82  | \$16,069.86  |  |
| % of revenue                      | 3.84%       | 1.84%       | 4.18%       | 5.20%       | 5.35%        | 5.71%        | 5.98%        | 6.15%        | 6.32%        | 6.41%        | 6.49%        |  |

| Assumptions          |             |
|----------------------|-------------|
| Ticker               | BYD Co Ltd. |
| WACC                 | 6.36%       |
| Terminal Growth Rate | 4%          |

| WACC                |        |
|---------------------|--------|
| Tax Rate            | 19.50% |
| Risk Free Rate      | 4.40%  |
| Beta                | 0.46   |
| Market Risk Premium | 4.50%  |
| Cost of Equity      | 6.47%  |
| % Equity            | 96.40% |
| Cost of Debt        | 4.24%  |
| % Debt              | 3.63%  |
| WACC                | 6.36%  |

| DCF                              |             |             |              |             |              |              |              |              |              |              |              |  |
|----------------------------------|-------------|-------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
| USD (\$M)                        | FY2020      | FY2021      | FY2022       | FY2023      | FY2024       | FY2025E      | FY2026E      | FY2027E      | FY2028E      | FY2029E      | FY2030E      |  |
| Revenue                          | \$22,695.00 | \$33,500.00 | \$63,010.00  | \$85,133.00 | \$108,096.00 | \$160,223.00 | \$189,354.45 | \$212,659.62 | \$230,138.49 | \$241,791.07 | \$247,617.36 |  |
| % growth                         |             | 47.60%      | 88.10%       | 35.10%      | 27.00%       | 32.53%       | 15.38%       | 10.96%       | 7.59%        | 4.82%        | 2.35%        |  |
| EBIT                             | \$1,026.92  | \$717.92    | \$3,200.86   | \$5,385.60  | \$7,022.68   | \$11,215.61  | \$14,012.23  | \$16,374.79  | \$18,411.08  | \$19,826.87  | \$20,799.86  |  |
| % of revenue                     | 4.52%       | 2.14%       | 5.08%        | 6.33%       | 6.50%        | 7.00%        | 7.40%        | 7.70%        | 8.00%        | 8.20%        | 8.40%        |  |
| (-) Taxes                        | \$312.23    | \$470.38    | \$1,079.81   | \$1,462.84  | \$2,052.08   | \$3,310.85   | \$4,178.45   | \$4,932.09   | \$5,600.65   | \$6,090.81   | \$6,452.12   |  |
| % of EBIT                        | 30.40%      | 65.52%      | 33.73%       | 27.16%      | 29.22%       | 29.52%       | 29.82%       | 30.12%       | 30.42%       | 30.72%       | 31.02%       |  |
| EBIAT                            | \$714.69    | \$247.54    | \$2,121.06   | \$3,922.75  | \$4,970.60   | \$7,904.76   | \$9,833.78   | \$11,442.70  | \$12,810.43  | \$13,736.05  | \$14,347.74  |  |
| (+)D&A                           | \$1,814.30  | \$2,186.67  | \$3,026.75   | \$6,155.86  | \$8,939.09   | \$10,574.72  | \$11,323.40  | \$11,696.28  | \$11,598.98  | \$11,122.39  | \$11,142.78  |  |
| % of CapEx                       | 99.63%      | 27.47%      | 15.63%       | 30.94%      | 69.45%       | 55.00%       | 52.00%       | 50.00%       | 48.00%       | 46.00%       | 45.00%       |  |
| (-) CapEx                        | \$1,821.10  | \$7,959.38  | \$19,358.98  | \$19,892.98 | \$12,871.63  | \$19,226.76  | \$21,775.76  | \$23,392.56  | \$24,164.54  | \$24,179.11  | \$24,761.74  |  |
| % of revenue                     | 8.02%       | 23.76%      | 30.72%       | 23.37%      | 11.91%       | 12.00%       | 11.50%       | 11.00%       | 10.50%       | 10.00%       | 10.00%       |  |
| (-) Change in Net Wor            | -\$476.47   | -\$1,606.97 | -\$12,978.80 | -\$8,339.81 | \$3,635.04   | \$4,165.80   | \$3,029.67   | -\$2,551.92  | -\$3,221.94  | -\$4,835.82  | -\$5,695.20  |  |
| % of revenue                     | -2.10%      | -4.80%      | -20.60%      | -9.80%      | 3.36%        | 2.60%        | 1.60%        | -1.20%       | -1.40%       | -2.00%       | -2.30%       |  |
| Unlevered FCF                    | \$1,184.36  | -\$3,918.20 | -\$1,232.38  | -\$1,474.55 | -\$2,596.97  | -\$4,913.08  | -\$3,648.25  | \$2,298.34   | \$3,466.81   | \$5,515.16   | \$6,423.99   |  |
| PV of FCF                        |             |             |              |             |              | -\$4,619.29  | -\$3,224.99  | \$1,910.20   | \$2,709.05   | \$4,051.97   | \$4,437.46   |  |
| Terminal Value                   |             |             |              |             |              |              |              |              |              |              | \$283,090.94 |  |
| PV of Terminal Value             |             |             |              |             |              |              |              |              |              |              | \$195,549.18 |  |
| Enterprise Value                 |             |             |              |             |              |              |              |              |              |              | \$200,813.58 |  |
| (+) Cash                         |             |             |              |             |              |              |              |              |              |              | \$14,224.03  |  |
| (-) Debt                         |             |             |              |             |              |              |              |              |              |              | \$2,832.25   |  |
| Equity Value                     |             |             |              |             |              |              |              |              |              |              | \$212,205.36 |  |
| Shares Outstanding (in Millions) |             |             |              |             |              |              |              |              |              |              | 2,909        |  |
| Share Price                      |             |             |              |             |              |              |              |              |              |              | \$72.94      |  |