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# 20479 – PERFORMANCE MEASUREMENT

## Analysis of Toyota's performance & strategy and development of an integrated measurement system

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# Toyota has a rich and long history and established four well-known brands

Toyota is a Japanese car manufacturer founded in 1937 by Kiichiro Toyoda. The headquarter is situated in Toyota, Japan. Today, its business operations are automotive, financial services, and “all other operations”. Automotive operations (the design, manufacturing, assembly, and selling of vehicles) however make up approximately 90% of total yearly revenues. The company’s primary markets are Japan, North America, Asia and Europe. In 2021 it held a 7.6% market share in the EU, 15.5% in North America and 51.4% in Japan. In total Toyota sold 8.23 million vehicles in FY2022.*

These sales are split between four brands, which operate is different segments:

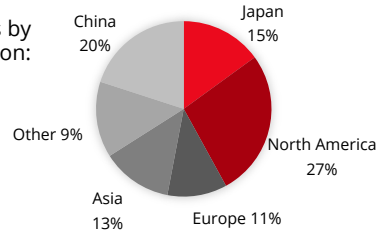
**Toyota** (mid-range vehicles and other diversified products)

**Hino** (heavy-duty trucks and buses, diesel engines for industrial application and other industrial vehicles)

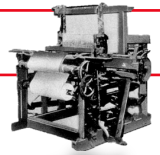
**Daihatsu** (Japanese microcars and small trucks)

**Lexus** (premium/ luxury vehicles)

Sales by region:




Sakichi Toyoda invented the world first automated loom and founded the Toyoda Spinning and Weaving Company.



The loom’s patent is sold for 100,000 yen, which Kiichiro (the son) invested in a new car manufacture

The first passenger car is presented, the Model AA

Official establishment of the Toyota Motor Company (TMC)

First production plant established abroad, in Brazil. It also enters the US market

TMC acquires Hino Motors Ltd. and Daihatsu Ltd.

Listing on both LSE and NYSE

*(SEC, 2022)

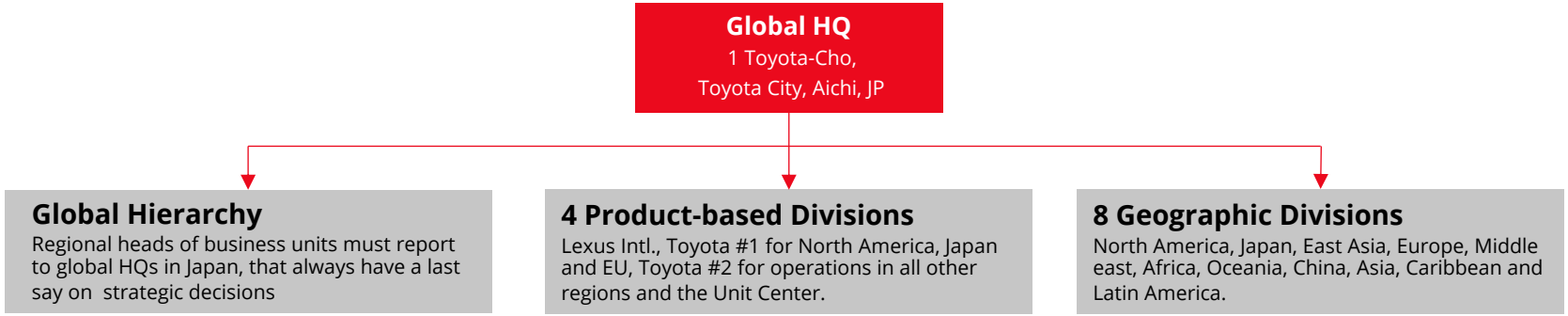
# The 4 Strategy Ps

| | |
|---|---|
| **Perspective** | **Mission:** "We make the happiness of others our first priority. We make better products more affordable. We value every second and every cent. We give all our effort and offer all our ingenuity. We look forward, not backward. We believe the impossible is possible" *(Toyota, 2022).*<br><br>**Vision:** "In a diverse and uncertain world, Toyota strives to raise the quality and availability of mobility. We wish to create new possibilities for all humankind and support a sustainable relationship with our planet" *(Toyota, 2022).* |
| **Positioning** | Toyota is following a **volume strategy** with the exception of the Lexus brand, which is following a value strategy. One can come to this conclusion when looking at the mission *('make better products more affordable', 'value every second and every cent')* and vision *('raise […] availability of mobility')* statements. Moreover, Toyota is the biggest vehicle manufacturer in the world, another clear indication towards a volume strategy. |
| **Planning** | **Three pillars:**<br><br>**Technology Leadership (R&D)**<br>– Fully automated driving through Big Data and AI<br>– Investments in Start-ups in AI and robotics<br>– Investments in start-ups in autonomous mobility & cloud Tech<br><br>**Sustainability**<br>– Eliminate $CO_2$ emissions from vehicle life cycle and new vehicles<br>– Support a recycling-based and environmentally-friendly society<br>– Ensure Toyota facilities protect and conserve water resources<br>– Achieve zero $CO_2$ emissions at all plants<br><br>**Creation of Customer Value**<br>– Cost and Asset efficiency during green transition<br>– Improve transportation efficiency<br>– Kaizen (continuous improvement) |
| **Patterns of Action** | **The Toyota Way**: a set of principles inspired by the founder's vision, based on two pillars: respect for people and continuous improvement. The system is summarized in 5 principles: Challenge, Kaizen (continuous improvement), Genchi Genbutsu (going to the source), Respect and Teamwork *(ToyotaUK, 2022)*.<br><br>**The Toyota production system** is an integrated socio-production system that aims at the complete elimination of waste, in pursuit of efficiency and sustainability. TPS is based on two main concepts: Jidoka (automation with a human touch) and just in time (making only what is needed, when it is needed) *(ToyotaUK, 2022).* |

# Toyota operates a widespread internal (organisational) network as well as it runs an external network of suppliers and distributors around the globe

**Organisation – Structure, Decision-Making & Network:**

Toyota nowadays operates a divisional organizational structure that is divided according to different markets, products and geographic areas (Gregory, 2018). The whole system is based on the 3 pillars described below.




**Network of Suppliers and Distributors:**

The company typically gets much of its components from suppliers at the local level, preferring long-term contracts to assure a steady supply. It maintains a broad network of more than 200 suppliers worldwide, from which it sources around 2 billion components yearly, spending ¥917.223 billion during FY2021 (~6.6 billion USD) (Annual FR, 2021).

TMC operates a solid global network of about 200 overseas independent distributors. They are given freedom and are controlled with a franchise business model. In 2020, there were operating >2400 retailers in the EU, 1500 in the US and >5000 in JP (Hsu, 2020).

## POLITICAL

- UE-Japan Economic Partnership Agreement, removal of tariffs and trade barriers (EC, 2020)
- USA-Japan FTA, but still 2.5% tariffs on import of Japanese vehicles (Congressional Research Service, 2022)
- In 2021, Japan ranked in the 86.32% percentile for political stability and absence of violence and terrorism (WGI, 2021)

## ECONOMICAL

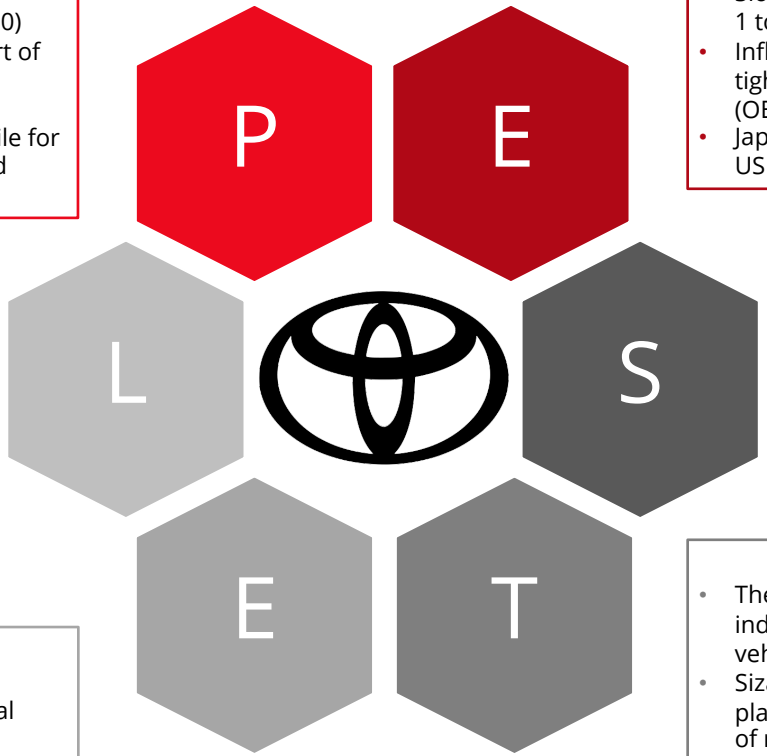
- Slowing global economic growth from 6.1% in 2021 to 3.2% in 2022 (IMF, 2022)
- Inflation peaking in major economies and tightening of monetary policies to combat it (OECD, 2022)
- Japanese currency devaluating against the US dollar (CNBC, 2022)

## LEGAL

- Under Japan's road vehicles law vehicle manufacturers must recall and fix safety-deficient automobiles with design flaws or manufacturing issues. (Japan Times, 2014)
- Japan is aiming to reach carbon neutrality by 2050 (The New York Times, 2020)
- EU with package 55 is aiming at zero-emission mobility by 2035 (European Commission 2022)

## SOCIAL

- Decreasing inequality between countries with the rise of emerging economies (WIR, 2022)
- Urbanization megatrend, by 2050 65% of the world population is estimated to live in a city (WorldBank 2021)
- In the future, possible shift from private car ownership to car sharing (PWC, 2019)




## ENVIRONMENTAL

- Rising concerns on climate change and the consequential increasing frequency of natural disasters
- Fossil fuels cause more than 75% of greenhouse gases (United Nations, 2022)

## TECHNOLOGICAL

- The most relevant trend in the car manufacturing industry has been a shift towards electric vehicles (McKinsey & Company, 2022)
- Sizable interest in autonomous vehicles whose plan for launch has been delayed mainly because of regulations (McKinsey, 2020)
- Growing importance of integration of software and data engineering (McKinsey, 2022)

# SWOT Analysis

## STRENGTHS

+ Toyota Way: Toyota Production System ("TPS")
+ The most valuable automotive brand (Forbes, 2022)
+ Fuel cell patents: from 2021 Toyota has registered intangible assets related to "capitalized development costs" (AR2022)
+ Attractive investment for its risk management policy (AR2022): credit risk, liquidity risk and market risk are minimized
+ KINTO: Car sharing brand (launched in Japan in 2019) (il Sole 24 Ore 2022)
+ Global presence: 67 manufacturing companies worldwide with approximately 168 distributors in 204
+ Strategic partnerships for internal batteries production: joint ventures with Panasonic (Tesla supplier) (Financial Times 2022)
+ High investment in R&D
+ Toyota AI ventures recently invested in Carbice, an Atlanta-based nanotech developer

## WEAKNESSES

– For some strategic inputs, Toyota relies on a single supplier or few suppliers, whose replacement with another supplier may be difficult (AR2022)
– Not full controllability on time and cost-effectiveness of supplies and thus delivery (AR2022)
– Recalls (700,000 vehicles because of a faulty fuel pump) in 2019-2020 caused lower customer trust (CNN 2020 & Financial Times 2022)
– Technology Gap in the EVs market (Financial Times 2022)
– Focus on hybrid vehicles is not sustainable in the long run

## OPPORTUNITIES

+ Use of Nanomaterials in the automotive market to improve the product quality
+ Smart Cars and AI Technology to improve customer experience
+ Big Data and Cloud to improve data management, generating usage insights
+ Increase in electric vehicles demand
+ Underdevelopment of the US EV market of 5% (compared to 15%-20% in the EU and China) (McKinsey Podcast, 2022)

## THREATS

– High degree of rivalry in the sector
– Natural disasters could disrupt global supply chains
– COVID-19 lockdowns can still be a threat able to shrink the demand
– Uncertainty in global scenario: economic crises and conflicts
– Toyota's operations and vehicles rely on information security: cyber security risk
– The worldwide financial services industry is highly competitive
– Toyota's operations are subject to currency and interest rate fluctuations
– Car sharing development and other alternative mobility forms

# TOWS Analysis

| Internal Factors / External Factors | **Strengths (S)**<br>+ S1. Toyota Production System<br>+ S2. Most valuable automotive brand<br>+ S3. Fuel cell patents<br>+ S4. Kinto (car-sharing brand)<br>+ S5. Risk management policy<br>+ S6. Strategic partnership with Panasonic<br>+ S7. High investment in R&D<br>+ S8. Carbice investment (nanotech developer) | **Weakness (W)**<br>– W1. High supply concentration for some strategic inputs<br>– W2. High number of recalls<br>– W3. Technology gap in EV<br>– W4. Hybrid vehicles not sustainable |
|---|---|---|
| **Opportunities (O)**<br>+ O1. Nanomaterials potential usage<br>+ O2. Smart cars and AI technology<br>+ O3. Big data and cloud<br>+ O4. High potential growth of EV segment<br>+ O5. Underdevelopment of the US EV market | **S-O strategies**<br>• S1,O1) Combine the high efficiency of TPS with the nanomaterials usage;<br>• S6,O4) Consolidate/start new partnerships to get a competitive advantage in the EV segment;<br>• S7.O3) Increase R&D investment share in big data and cloud:<br>• S8,O2) Leverage the investment to get a competitive advantage in AI. | **W-O strategies**<br>• W2,O1) Introduce nanomaterials usage in operations to improve the product quality, security and reliability;<br>• W4,O4) Increase efforts and investment in the EV segment, switching the focus from hybrid to EV. |
| **Threats (T)**<br>– T1. Ipercompetitive sector<br>– T2. Supply chain disruption<br>– T3. Shrink of car demand (Covid-19)<br>– T4. Uncertainty in the global scenario<br>– T5. Crber security risk<br>– T6. Competitive financial services industry<br>– T7. Car sharing/alternative mobility | **S-T strategies**<br>• S2/7,T1) Leverage the high R&D investment and the brand value to overcome hypercompetition;<br>• S4, T7) Increase investment in Kinto to transform car sharing into a growth opportunity;<br>• S3.T1) Increase the number of patents to preserve Toyota's competitive advantage against competitors;<br>• S7,T5) Invest in IT security to reduce risks of successful cyber attacks and leaks of strategic data | **W-T strategies**<br>• W1,T2) Increase partnership for strategic input, diversify supply geographically and increase the n. of suppliers in Japan;<br>• W3, T3) Invest in EV technologies to increase Toyota's MS in the growing EV market, reducing the negative impact of car demand shrinking |

# Porter's 5-Forces

**Threat of New Entrants**

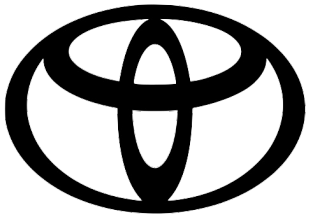
Moderate

- **Capital-intensive** sector
- **High cost** of **brand** development
- Strong supply chains are needed
- **Many new players**, start-ups and tech giants
- **Domestic subsidies** (such as China) to push new domestic players

**Bargaining Power of Suppliers**

Moderate

- The industry **relies on** suppliers for the provision of parts, components and raw materials
- **Increases in prices** of raw materials
- Companies sign **long-term contracts** to assure a steady supply



**Rivalry amongst existing Competitors**

High

- The **market** is forecasted to **decrease** in the next decade
- **Multiple** competitors in every segment Toyota is active
- Due to the similarity in structure, brands, and size, General Motors and Volkswagen stand out as Toyotas' main competitors

**Threat of Substitute Products**

Moderate

- Increasing importance of **public transport** (especially in big cities) due to climate change & government subsidies
- **Shared mobility** will increase greatly by 2030

**Bargaining Power of Buyers**

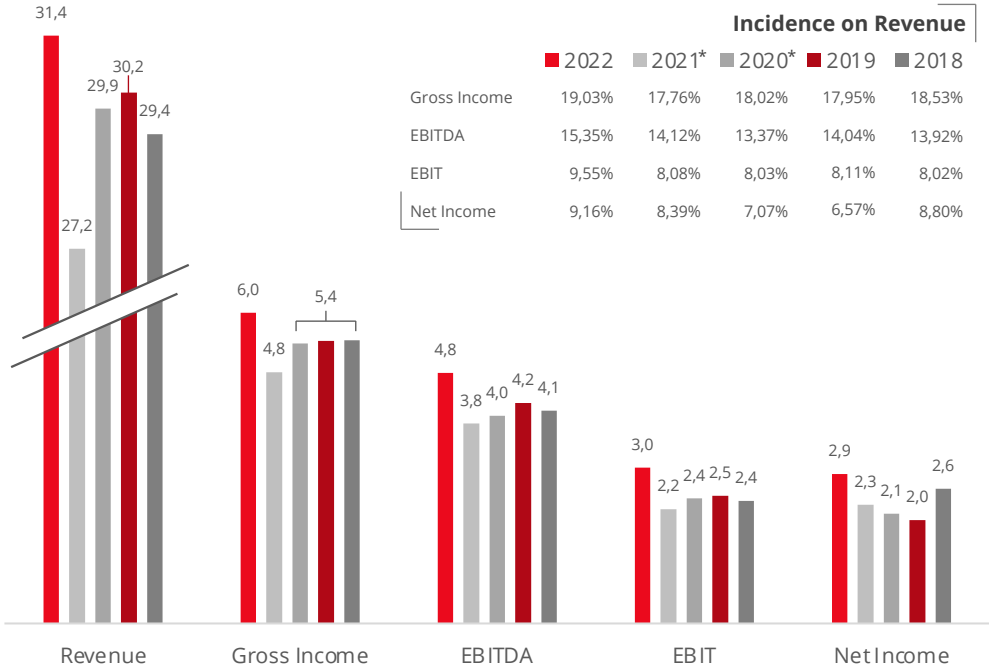
High

- **Low switching costs**
- High quality of information
- **Segmented market**
- The worldwide financial services industry has become highly competitive

# *Revenues* were hit hard by the Covid pandemic | 2022 *Net Income* is the most profitable in 5 years driven by a 23,6% YoY growth in *Gross Income*

## Net Income is growing constantly since 2019

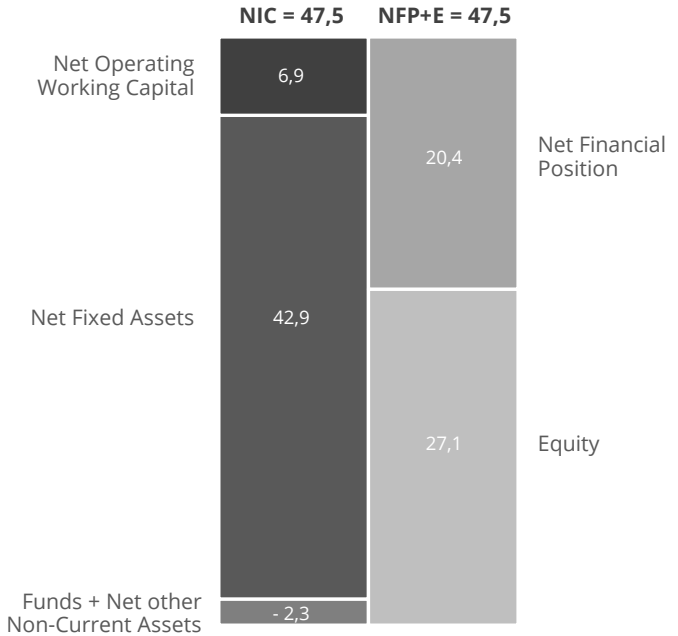
**Toyota Margins in absolutes 5-year comparison** – in Yen Trillion




**Incidence on Revenue**

| | 2022 | 2021* | 2020* | 2019 | 2018 |
|---|---|---|---|---|---|
| Gross Income | 19,03% | 17,76% | 18,02% | 17,95% | 18,53% |
| EBITDA | 15,35% | 14,12% | 13,37% | 14,04% | 13,92% |
| EBIT | 9,55% | 8,08% | 8,03% | 8,11% | 8,02% |
| Net Income | 9,16% | 8,39% | 7,07% | 6,57% | 8,80% |

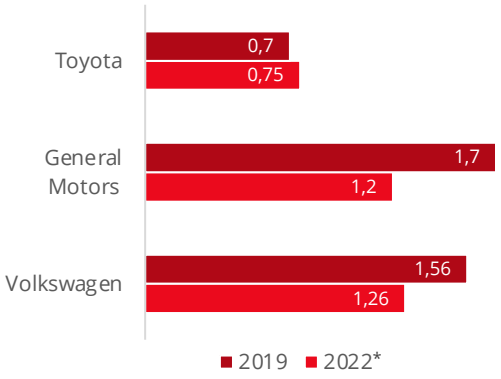
**Toyota 2022 Activity-related Balance Sheet** – in Yen Trillion



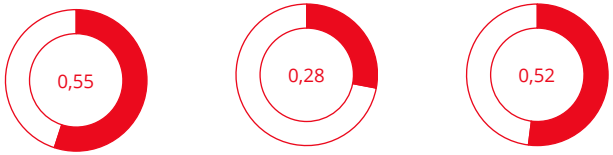

*Due to the disruption caused by the Covid pandemic, from this point onwards only 2022 and 2019 results will be used to benchmark Toyota with its major competitors (i.e., VW & GM)

# Toyota's *solvency* allows raising the required capital to deal with the EV transformation; Liquidity requires optimisation

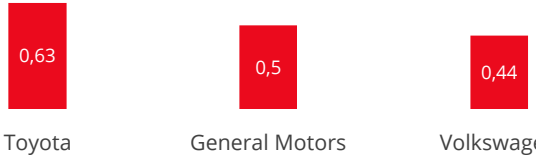
**Gearing-Ratio** – Competitive Benchmark



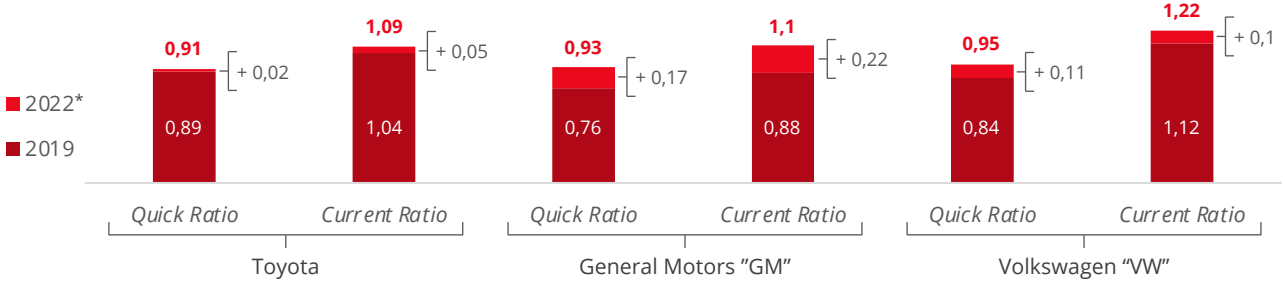

**Ageing of Fixed Assets 2022*** – Competitive Benchmark




**Fixed Assets Coverage Index 2022*** – Competitive Benchmark




**Liquidity Analysis –** Competitive Benchmark




*Data taken into consideration: Toyota's 2022 reported numbers; General Motors & Volkswagen 2021 reported numbers due to different reporting periods
**General Motors 2021 Annual Report
*** (Sugiura & Campbell, 2022)

**Toyota is solvent** and enforcing a strategy to mitigate the negative impact of exogenous events after the Japanese financial crisis and natural disasters

- Compared to GM & VW the gearing ratio and the fixed assets coverage index is superior
- → Allows Toyota to take on debt with more favourable conditions
  → competitive advantage
  Highly important to finance the capital required to manage the EV transformation
- → But especially GM is more advanced in the transformation process
  'youngest' fixed assets, thanks to recent investments in new EV production facilities**
  & most EVs sold in 2021 (504.000 vs. 456.000 VW vs. 11.000 Toyota)***

**Toyota's liquidity situation is worse than the competitors'**

- GM & VW significantly enhanced their liquidity situation during the pandemic
- Toyota is not in danger of illiquidity
- → However, optimisation is needed to cope as well as the competition with a possible future crisis

### Return on Equity – ROE

- Market-wide decrease during the Covid pandemic with a strong return in 2022 (2021 respectively*)
- Toyota compares badly to its major competitors (lowest ROE for most of the years considered)
- → Toyota's ROE is still not on the level of 2018; however, this is not a major concern as equity is growing faster than revenue

| | '22 – '21 | '21 - '20 | '20 – '19 | '19 – '18 |
|---|---|---|---|---|
| Revenue Growth | 15,30% | -8,88% | -1,18% | 2,86% |
| Equity Growth | 11,80% | 13,82% | 3,76% | 3,23% |

- → Shareholder believe in Toyota and its leadership

### Return on Net Assets – RONA

- Higher market-wide RONA in 2022 is mostly driven by increased ROS
- → Overall Toyota is using its assets efficiently

### Return on Sales – ROS

- Positive market-wide trend throughout the pandemic
- → Toyota significantly outperforms its competitors, leveraging its operations efficiency and strong brand

### Net Invested Capital Turnover – NIC Turnover

- The market-wide decrease in NIC Turnover is explained by supply chain shocks due to the Covid pandemic
- → Toyota's significantly worse performance highlights lower efficiency in deploying assets

# Toyota's profitability performance is average; GM outperforms competition

**Profitability KPI Overview** - Competitive Benchmark

| Toyota | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| ROE | 10,59% | 9,40% | 9,89% | 9,66% | 12,98% |
| RONA | 6,30% | 4,90% | 6,22% | 7,02% | 7,02% |
| ROS | 9,55% | 8,08% | 8,03% | 8,11% | 8,02% |
| NIC TURNOVER | 0,66 | 0,61 | 0,77 | 0,87 | 0,88 |

| General Motors* | 2021 | 2020 | 2019 | 2018 | 2017 |
|---|---|---|---|---|---|
| ROE | 15,22% | 12,94% | 14,65% | 18,90% | 0,96% |
| RONA | 6,44% | 5,68% | 4,78% | 4,11% | – |
| ROS | 7,34% | 5,99% | 4,31% | 3,32% | – |
| NIC TURNOVER | 0,88 | 0,95 | 1,11 | 1,24 | 1,39 |

| Volkswagen* | 2021 | 2020 | 2019 | 2018 | 2017 |
|---|---|---|---|---|---|
| ROE | 10,56% | 6,85% | 11,35% | 10,36% | 10,51% |
| RONA | 5,82% | 3,12% | 5,36% | – | – |
| ROS | 7,70% | 4,34% | 6,71% | 5,90% | 6,02% |
| NIC TURNOVER | 0,76 | 0,72 | 0,80 | – | – |

*Due to different reporting periods, General Motors and Volkswagen did not report the 2022 numbers yet, thus, Toyota's financials for 2022 will be compared to the competition's 2021 financials

# GM records a favourable variance for every KPI → Toyota needs to improve | Toyota outperforms VW due to a higher business strategy efficiency

**Profitability Variance Analysis** - Competitive Benchmark Toyota "TM" vs. General Motors "GM"

| ROE | 2022 TM | Intermediate | 2021* GM |
|---|---|---|---|
| Gross ROE | 14,70% | 14,70% | 19,32% |
| Income Tax | 72,04% | 78,79% | 78,79% |
| ROE | 10,59% | 11,58% | 15,22% |
| | -0,99% | | -3,64% |

- The variance in the ROE is mainly driven by GM's lower income tax (3,64%)
- Additionally, GM's higher Gross ROE is widening the gap

| Gross ROE | 2022 TM | Intermediate | 2021* GM |
|---|---|---|---|
| RONA | 6,30% | 6,30% | 6,44% |
| RONA – i | 11,18% | 10,60% | 10,73% |
| Gearing Ratio | 0,75 | 0,75 | 1,20 |
| Gross ROE | 14,70% | 13,86% | 19,32% |
| | | -4,32% | -0,30% |

- GM's favourable results is mainly driven by the higher Gearing Ratio
- → TM loses 4,32% in Gross ROE

| RONA | 2022 TM | Intermediate | 2021* GM |
|---|---|---|---|
| ROS | 9,55% | 7,34% | 7,34% |
| NIC Turnover | 0,66 | 0,66 | 0,88 |
| RONA | 6,30% | 4,85% | 6,44% |
| | 1,46% | | -1,59% |

- Toyota's higher ROS is offset by GM's higher NIC Turnover
- Similar operating business performance

**Profitability Variance Analysis** - Competitive Benchmark Toyota "TM" vs. Volkswagen "VW"

| ROE | 2022 TM | Intermediate | 2021* VW |
|---|---|---|---|
| Gross ROE | 14,70% | 13,77% | 13,77% |
| Income Tax | 72,04% | 72,04% | 76,66% |
| ROE | 10,59% | 9,92% | 10,56% |
| | 0,67% | | -0,64% |

- Toyota's higher Gross ROE absorbs the negative effect of having a higher tax burden
- → resulting in an almost equal ROE

| Gross ROE | 2022 TM | Intermediate | 2021* VW |
|---|---|---|---|
| RONA | 6,30% | 5,82% | 5,82% |
| RONA – i | 11,18% | 10,70% | 6,28% |
| d | 0,75 | 0,75 | 1,26 |
| Gross ROE | 14,70% | 13,86% | 13,77% |
| | | 0,84% | 0,09% |

- Toyota records a higher value than VW for Gross ROE mainly because of a higher business efficiency (RONA)
- Toyota's lower financial leverage is offset by its strong financial result

| RONA | 2022 TM | Intermediate | 2021* VW |
|---|---|---|---|
| ROS | 9,55% | 7,70% | 7,70% |
| NIC Turnover | 0,66 | 0,66 | 0,76 |
| RONA | 6,30% | 5,09% | 5,82% |
| | 1,22% | | -0,74% |

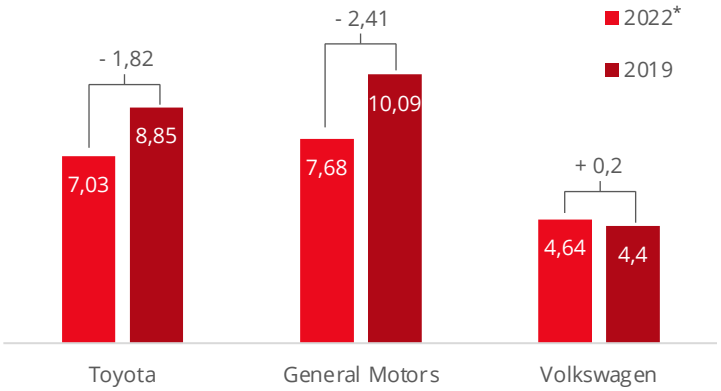
- Toyota's ROS absorbs the negative impact of the lower NIC Turnover

*Due to different reporting periods, General Motors and Volkswagen did not report the 2022 numbers yet, thus, Toyota's financials for 2022 will be compared to the competition's 2021 financials

# Toyota's Revenue goal of ¥33 tril. for 2023 is an ambitious → 5,17% sustainable growth rate needed, which is 2%. above the sustainable growth rate

## Toyota falls behind GM on Inventory Turnover, indicating its loss of efficiency supremacy *(Toyota Production System)*

**Inventory Turnover Analysis** - Competitive Benchmark




- Toyota & General Motors inventory efficiency hit hard by the Covid Pandemic the subsequent supply chain shock
- Toyota's relatively high values underline the focus on business efficiency and the just-in-time production
- → However, also in this metric General Motors is superior to Toyota and Volkswagen

**Toyota Sustainable Growth for 2023**

- According to Toyota's 2022 annual report, the goal for 2023 is ¥33 tril. In Revenues
- → However, our analysis shows that this goal cannot be achieved by sustainable growth, taking into consideration the 2022 financials:

| | Retention Rate | RONA | Interest rate | Gearing Ratio | 1 – tax incidence | |
|---|---|---|---|---|---|---|
| g(S) = | 74,70% | 6,30% | -4,88% | 0,75 | 27,96% | **= 3,07%** |

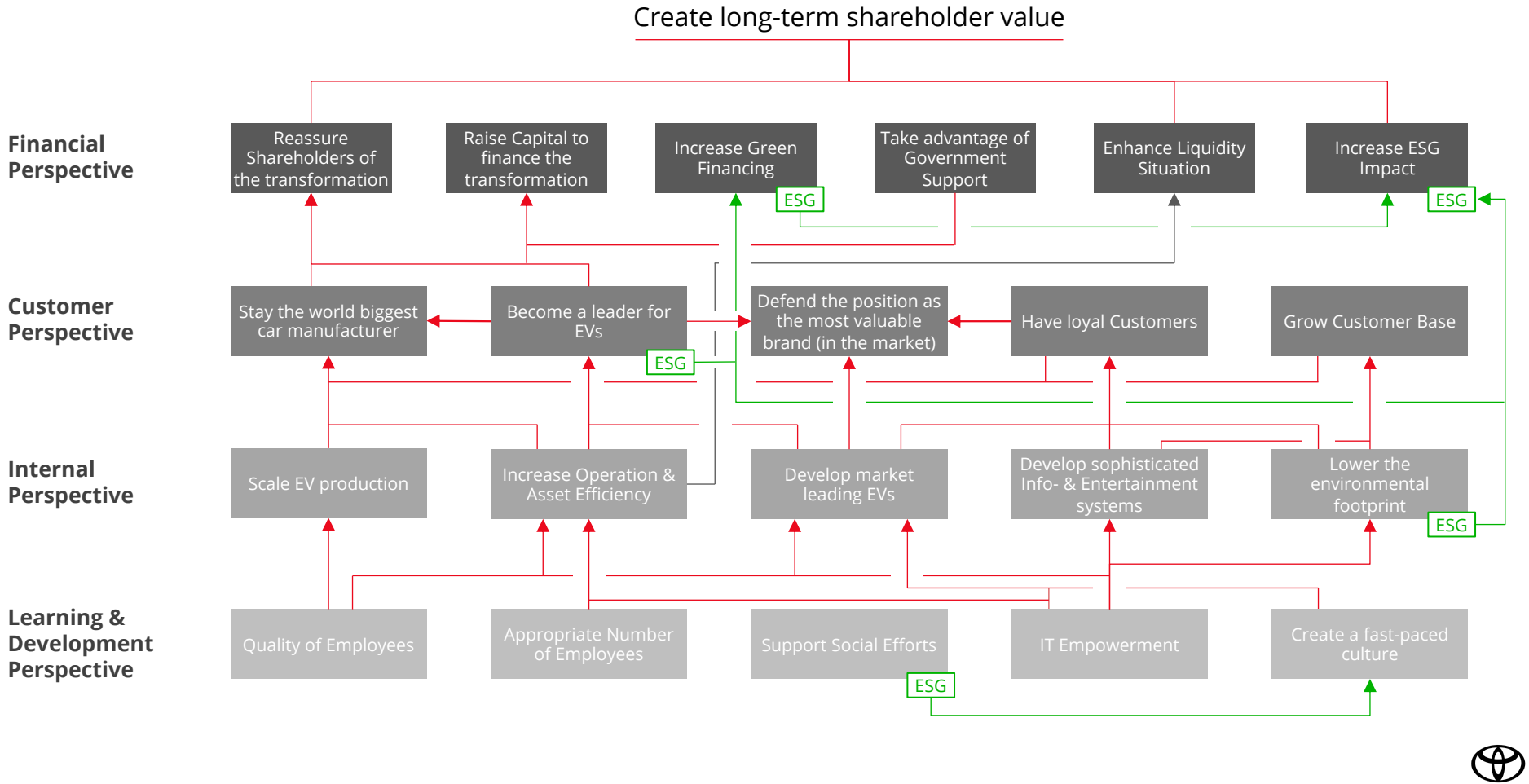
**Sustainable growth rate**
= ¥32,343 tril. in Revenues

- To reach the goal a growth rate of 5,17% is required – changing only one factor while keeping the others constant, the following shows how to achieve the rate:

| | Retention Rate | RONA | Interest rate | Gearing Ratio | 1 – tax incidence | |
|---|---|---|---|---|---|---|
| g(S) = | 74,70% | 12,03% (+5,73%) | -4,88% | 1,65% (+0,90) | 27,96% | **= 5,17%** (+2,1%) |

ROS 18,22% (+8,68%)
NIC Turnover 1,26 (+0,60)

*Due to different reporting periods, General Motors and Volkswagen did not report the 2022 numbers yet, thus, Toyota's financials for 2022 will be compared to the competition's 2021 financials


Create long-term shareholder value
Financial Perspective
Reassure Shareholders of the transformation
Raise Capital to finance the transformation
Increase Green Financing
ESG
Take advantage of Government Support
Enhance Liquidity Situation
Increase ESG Impact
ESG
Customer Perspective
Stay the world biggest car manufacturer
Become a leader for EVs
ESG
Defend the position as the most valuable brand (in the market)
Have loyal Customers
Grow Customer Base
Internal Perspective
Scale EV production
Increase Operation & Asset Efficiency
Develop market leading EVs
Develop sophisticated Info- & Entertainment systems
Lower the environmental footprint
ESG
Learning & Development Perspective
Quality of Employees
Appropriate Number of Employees
Support Social Efforts
ESG
IT Empowerment
Create a fast-paced culture

| | Goal | Measurement | Target | Reasoning |
|---|---|---|---|---|
| **Human Capital** | Employee Quality<br>→ Employee the right talent | – Number of successfully retrained employees<br>– Employee hours spend on development activities | – Meet HR planning requirements<br>– Maximum threshold: 1/5 of weekly working hours | Meeting the internal demand with internal supply via retraining is important as the labour market is tight at the moment. Simultaneously, development costs & hours must not reach excessive levels. |
| | Have an appropriate number of employees<br>→ Have a productive workforce | $\frac{EBIT}{Employee}$ | ⇧ Steady Increase | For the manufacturing of EVs less human capital is required compared to the manufacturing of combustion engines<br>→ lowering the headcount is valid to reach the target |
| | Support Employees' Social Efforts | – Days took off by Employees<br>– Number Toyota owned social initiatives | – Days took off by Employees<br>– Number Toyota owned social initiatives | Allow employees to take one day off each month to contribute to social causes and support others.<br>Set a budget for employees to start initiatives leveraging the Toyota brand and network. |
| **Information Capital** | IT Empowerment<br>→ Build up new capabilities an advance existing ones | – Amount of data to use productively<br>– $\frac{Cyber\ Security\ Breaches}{Total\ Attempts}$ | ⇧ Increase<br>⇩ Decrease<br>(Try to get down to 0%) | Implement more efficient software and leverage existing employees to manage the higher quantity of data.<br>Reduce the cyber security risk by increasing internal control and analysis of potential entries. |
| **Organisational Capital** | Create a more fast-paced culture<br>→ Make the right decision quickly | – Time until final decision | – Collect data on the decision-making process and then set a target accordingly | In Toyota's current EV transformation position, it is important to close the gap with competitors as quickly as possible. |

| | Goal | Measurement | Target | Reasoning |
|---|---|---|---|---|
| **Operations Management** | Scale Electric Vehicle production | – Number of EVs produced | – Close the gap to the competitors (mainly GM & VW) as fast as possible | After developing leading EVs it is a crucial next step to scale the production of the vehicles quickly and get these to the customers. |
| | Increase efficiency of operations and asset deployment | – RONA<br>– NIC Turnover | ⇧ beat GM (10,5)<br>⇧ 0,88 ('18 value) | Even though it is difficult to increase efficiency while transforming a major part of production, it will be important to strengthen and leverage one of Toyota's cores, the *Toyota Production System*, again. |
| **Innovation Management** | Develop market leading Electric Vehicles | – $\frac{R\&D\ expenses}{Revenue}$<br>– Time to market<br>– $\frac{Intangible\ Assets}{Total\ Assets}$ | = Match the competitors' incidence on Revenue<br>⇩ Decrease<br>⇧ Increase significantly | Due to the fact that Toyota is a late mover, it is important to offer high-value-for-money EVs from the beginning to reach the required volume threshold to exploit economies of scale. |
| | Develop a state-of-the-art car info- & entertainment systems | – $\frac{R\&D\ expenses}{Revenue}$<br>– Time to market<br>– $\frac{Intangible\ Assets}{Total\ Assets}$ | = Match the competitors' incidence on Revenue<br>⇩ Decrease<br>⇧ Increase significantly | The EV transformation in the automobile industry shifts the focus to the software and infotainment systems of a car as producing an EV is less complicated compared to a traditional vehicle. |
| **Sustainability** | Lower the environmental footprint<br>*(Scope 1/2/3 emissions)** | – Emissions:<br>CO2 from operations *(S. 1)*;<br>Indirect of purchased energy;<br>Life cycle CO2 *(both S. 2)*;<br>– Amount of Waste produced & incidence of recycled Waste<br>– Water usage<br>– Renewable energy share | - 30% in '25 compared to '13**<br>- 25% in '25**<br>- 18% in '25 compared to '13**<br>⇩ Decrease<br>⇧ Increase<br>⇩ Decrease<br>⇧ Increase | More efficient operations will lead to a reduction in Toyota's environmental footprint, taking into consideration both the emissions of Scopes 1 and 2. Furthermore, it is eminent to improve waste, water and energy management. |

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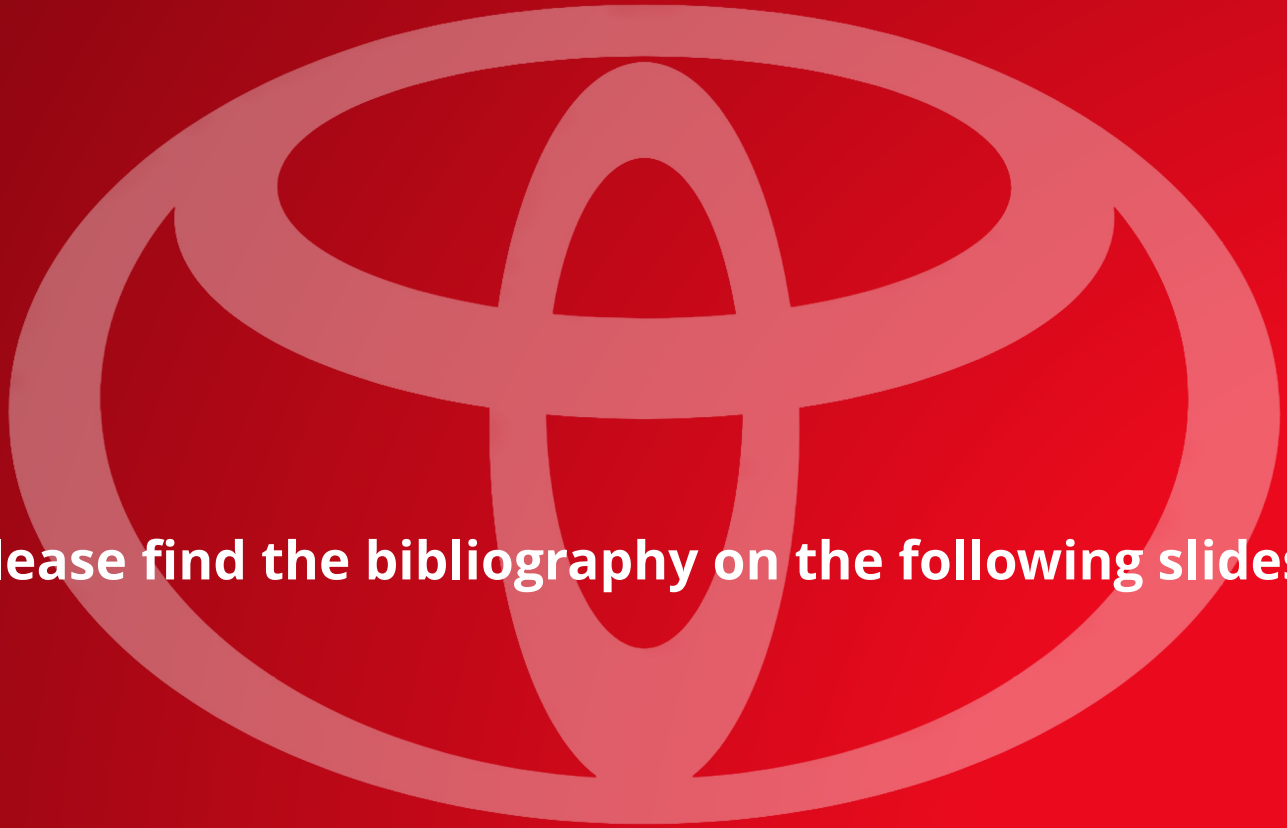
| | Goal | Measurement | Target | Reasoning |
|---|---|---|---|---|
| **Market** | Stay the world's biggest automobile manufacturer | – Absolute Number of cars sold<br>– Market Share | – Sell the most cars in the world<br>– Maintain current market share during the transformation process → increase afterwards | Firstly, it is important to keep the advantage of the economies of scale for Toyota with its volume strategy.<br>Secondly, maintaining the current market share is important to not put even more downward pressure on margins, which will likely already be hit by the transformation costs. |
| | Become a leader for EVs | – Market Share in EV segment<br>– $\frac{Electric\ Vehicles}{total\ Vehicles\ sold}$ → EV Mix incidence | – Higher market share than GM & VW<br>⇧ Increase | The increase in R&D on EVs must materialise in sales of EVs. The sales growth in this segment must outperform the market growth significantly to compete with better-positioned competitors.<br>The EV Mix should become more favorable over time as EV production increases and combustion engines are phased out. |
| **Brand** | Defend the Top-Spot as the world's most valuable car brand | – Brand Value<br>– Customer Satisfaction | – Highest value compared to all other Vehicle manufacturers<br>⇧ Increase | The Toyota brand is one of the biggest strengths and levers of the company. Thus, it is crucial to stay at the top of the brand rankings throughout the transformation and even enhance the value afterwards.<br>If the customers are satisfied brand value increases. Constantly measuring Customer satisfaction can warn of misalignments and highlight potential. |
| **Existing Customers** | Have loyal customers | – Customer Lifetime Value<br>– EV conversion rate = $\frac{\#\ of\ existing\ Customers\ buying\ a\ Toyota\ EV}{\#\ of\ existing\ Customer}$ | ⇧ Increase<br>⇧ Increase | In order to maximise the Customer Lifetime Value of existing customers, it is important to convince these of Toyota's new electric vehicles and provide at least the same level of quality and service. |
| **New Customers** | Grow customer base | – Number of New Customers<br>– Win Rate (Lead-Conversion-Rate)<br>– Customer Acquisition Costs | ⇧ Increase<br>⇧ Increase<br>⇩ Decrease | The transformation poses a unique opportunity for Toyota to grow the existing customer base by catering to the needs of currently unserved segments. |

| | Goal | Measurement | Target | Reasoning |
|---|---|---|---|---|
| **Funding Investment for Transformation** | Raise capital to finance the transformation without diluting equity | – $\frac{Debt}{Equity}$<br>– Ageing of Fixed Assets | ⇧ Increase<br>⇩ Decrease | Toyota must leverage its stand-out Gearing Ratio and take on debt to finance the EV transformation. This will have a positive impact on the ROE.<br>A decrease in the Ageing of Fixed Assets will confirm the ongoing transformation. |
| | Increase Toyota's green financing proportion compared to the overall stock of debt | – Successful issuance of a Green Bond<br>– $\frac{Green\ Debt}{Total\ Debt}$ | – A significant amount of the required investment volume & a noticeable change in $\frac{Green\ Debt}{Total\ Debt}$ | Through the issuance of a Green Bond Toyota can showcase its efforts to reach its sustainability goals and open up to creditors, who will observe Toyota and act as a governance body on sustainability topics. |
| | Take Advantage of Government support | $\frac{Amount\ of\ Government\ Support}{Total\ Investment}$ | ⇪ Maximise | Toyota should exploit government support schemes for EVs as much as possible. Especially in the US (the most important market for Toyota), the inflation act incentivises manufacturers to build plants in the United States of America. |
| **Liquidity** | Enhance Liquidity situation | – Current Ratio | ⇧ Increase | Toyota is not in danger of illiquidity but to be able to cope with a future crisis as well as the competition, it is crucial to decrease short-term debt and increase the amount of short-term assets. |
| **Profitability** | Reassure shareholders of Toyota's capabilities to manage the transformation | – Return on Equity | – Minimum threshold: Keep constant during transformation | While transforming the production as well as the company and pivoting towards EVs it is essential to reassure the shareholders that the chosen way is the right one. Therefore, in the short-term ROE should be kept constant. ROE will naturally increase in the mid-term if the transformation was managed well. |
| **Impact Investments** | Increase ESG impact | $\frac{ESG\ related\ investments}{total\ investments}$ | ⇧ Increase | Openly disclose Toyota's investments and the proportion of its investments that have been ESG-related. |

# Conclusion & Recommendations

- Toyota has to play catch-up in the upcoming years, facing a hypercompetitive market, which is becoming more and more competitive both to new entrants and to substitute products. In order to remain a leader in its segment, Toyota has to focus on new trends and on its strengths;
- Huge investments in EV production facilities and R&D are required to compete in a market where sustainability is becoming more and more important. Toyota has to leverage its valuable partnerships with strategic suppliers to get a competitive advantage in the EV segment, increasing its market share. At the same time, it is important to target other new trends like digitalization and the development of AI in the automotive sector to provide the customer with the best experience possible.
- Toyota should focus to on entering the US market as the EV penetration is only at 5%, whereas Europe and China are already at 15-20%. This can be a huge advantage for Toyota as it already has a well-established distribution and production network on the country.
- From a financial perspective, Toyota can leverage its high solvency (low gearing ratio) to increase its financial exposure, increasing the amount of money borrowed from external parties. This will allow the company to boost its profitability, leading to a significant increase in ROE if the right investment is put into action.
- Furthermore, even if Toyota has had a good level of ROS for the considered years, according to the company's strategy, the low level of NIC Turnover and inventory turnover analysis underline a lack of efficiency in the operations. The increase of NIC Turnover (improvement of RONA) is crucial to achieving the ambitious number of revenues (¥33 tril.) targeted by the company for 2023 and to remain competitive in an environment where the competitors outperform.
- Toyota, according to its values, has made sustainability one of its main focuses, adopting ambitious ESG and a sound system of company policies to reduce its environmental footprint. More investment and efforts are required to achieve the targets ($CO_2$ emissions reduction, waste and water management).



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