**Apple Inc. Ratio Analysis**

**1. Liquidity**

* **Current Ratio**: Declined from 1.4x in 2020 to 0.9x in 2022, indicating a decrease in short-term liquidity.
* **Quick Ratio**: Also decreased from 1.3x to 0.8x over the same period, reflecting a tighter liquidity position.
* **Cash Ratio**: Reduced significantly from 0.9x in 2020 to 0.3x in 2022, showing a sharp decline in cash reserves relative to short-term liabilities.
* **Defensive Interval**: Decreased from 246.2 days in 2020 to 156.5 days in 2022, suggesting a reduced period the company can cover its expenses without additional cash inflows.
* **Inventory Days**: Slightly increased from 8.8 days to 9.4 days, indicating a minor slowdown in inventory turnover.
* **Payable Days**: Increased from 83.2 days to 97.1 days, showing the company is taking longer to pay its suppliers.
* **Receivable Days**: Improved from 26.0 days to 25.2 days, reflecting slightly better collection efficiency.
* **Net Trading Cycle**: Became more negative (shorter cycle) from -60.5 days to -62.4 days, indicating quicker turnover of receivables and payables.
* **Working Capital as a % of Sales**: Dropped from 14.0% in 2020 to -4.7% in 2022, showing a negative working capital position relative to sales.
* **Working Capital**: Turned negative in 2022, declining from $38,321 to -$18,577, which might signal potential liquidity issues.

**2. Profitability**

* **Gross Margin**: Improved from 38.2% in 2020 to 43.3% in 2022, reflecting better cost control or higher sales prices.
* **EBITDA Margin**: Increased from 28.2% to 33.1%, indicating stronger operational profitability.
* **EBIT Margin**: Increased from 24.1% to 30.3%, showing improved earnings before interest and taxes as a percentage of sales.
* **Net Margin**: Slightly decreased from 25.9% to 25.3%, but remains high, demonstrating strong overall profitability.

**3. Solvency/Debt Management**

* **Debt to Equity (D/E)**: Increased from 1.7 to 2.4, indicating higher leverage and greater reliance on debt financing.
* **Debt to Total Assets**: Relatively stable at around 0.3, reflecting consistent proportion of debt in relation to total assets.
* **Long-term Debt to Capital**: Remained stable at around 0.6 to 0.7, showing a consistent long-term debt structure.
* **Times Interest Earned**: Improved significantly from 23.1 to 40.7, indicating much better ability to cover interest expenses with earnings.
* **Debt Coverage**: Increased from 4.1 to 4.6, suggesting improved ability to cover debt obligations.
* **Free Cash Flow per Share**: Increased from $4.71 to $7.29, showing strong growth in free cash flow on a per-share basis.

**4. Asset Utilization**

* **Total Asset Turnover**: Improved from 0.8 to 1.1, indicating more efficient use of assets to generate sales.
* **Fixed Asset Turnover**: Improved from 7.4 to 9.7, showing better efficiency in utilizing fixed assets.
* **Inventory Turnover**: Slightly decreased from 41.5 to 38.8, indicating a slower turnover rate.
* **Return on Assets (ROA)**: Increased from 17.3% to 28.4%, reflecting higher efficiency in generating profits from assets.

**5. Investor/Market Ratios**

* **Price to Earnings (P/E)**: Decreased from 33.9x to 24.5x, indicating a lower valuation multiple relative to earnings.
* **Earnings per Share (EPS)**: Increased from $3.31 to $6.15, reflecting strong growth in earnings.
* **Price to Book Value (PBV)**: Increased from 29.8x to 48.1x, showing a higher valuation relative to book value.
* **Book Value per Share (BV)**: Decreased slightly from $3.77 to $3.12, indicating a decrease in the book value of equity.
* **Dividend Payout Ratio**: Decreased from 24.5% to 14.9%, indicating a lower proportion of earnings paid out as dividends.
* **Dividend Yield**: Stable around 0.6% to 0.7%, reflecting stable dividend payments relative to stock price.
* **Return on Equity (ROE)**: Increased significantly from 73.7% to 175.5%, showing exceptional return on shareholders’ equity.
* **Return on Capital Employed (ROCE)**: Improved from 29.4% to 56.3%, indicating higher returns on capital employed.
* **Enterprise Value to EBITDA (EV/EBITDA)**: Decreased from 25.5x to 19.2x, reflecting a lower valuation multiple relative to EBITDA.
* **Enterprise Value (EV)**: Increased from $1,969,789 to $2,511,132, reflecting an overall increase in company valuation.

**6. Growth Rate**

* **Sales Growth**: Total net sales grew by 7.8% in 2022, compared to 33.3% in 2021, indicating a slowdown in sales growth.
* **Gross Profits Growth**: Grew by 11.7% in 2022, slower than 45.6% in 2021 but still strong.
* **Operating Expenses Growth**: Research and development expense increased by 19.8%, while selling, general, and administrative expenses grew by 14.2%.
* **Balance Sheet Items**:
  + Cash and cash equivalents declined by 22.9%.
  + Accounts receivable increased by 7.3%.
  + Inventories decreased by 24.8%.
  + Property, plant, and equipment increased by 6.8%.
  + Accounts payable increased by 17.1%.
  + Short-term debt increased by 15.8%.
  + Long-term debt decreased by 9.3%.
  + Total shareholders’ equity decreased by 19.7%.

**7. Income Tax Rate**

* **Income Tax Rate**: Increased from 13.3% in 2021 to 16.2% in 2022.

**8. Capex as a Percentage of Sales**

* **Capex/Sales**: Stable at around 2.7% to 3.0%, indicating consistent capital expenditure relative to sales.

**9. Capex as a Percentage of Fixed Assets**

* **Capex/Fixed Assets**: Decreased from 28.1% to 25.4%, reflecting a lower proportion of capital expenditure relative to fixed assets.