CIO View
Americas CIO View
May 14, 2024
Marketing material

DWS

Surging AI capex: Macro implications of its size and return on investment?

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IN A NUTSHELL

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S&P 500 equity wealth and now its surging AI capex have become macro forces

Three topics dominating investor deliberations are outlooks for: 1) inflation and interest rates, 2) how the elections will steer fiscal and other government policies, and 3) the potential of artificial intelligence (AI). This note quantifies surging S&P 500 capital expenditure (Capex) on AI relative to other US investment spending categories and compares this capex to the federal deficit. We consider the implications for interest rates and the capacity for other private investment alongside heightened fiscal spending while AI capex booms. We contemplate how the return on this AI capex might affect the broader cost of capital and perhaps real interest rates. Much has been said about how AI might lower inflation by boosting worker productivity, but it might first require a notable draw on the US savings pool to fund this investment. This could crowd out other private investment like new housing and it might contribute to raising the interest cost of deficits, pushing against the grander plans for social, climate and industrial related policy spending.

AI or butter? If the private call on capital reawakes, the public call should rest

High expected return on investment (ROI) opportunities on AI (observe capex trends and valuations at tech), in our view could sustain elevated real interest rates over the intermediate term. If high ROI materializes, it should lower real interest rates over time by accelerating the growth of the saving pool from high returns earned. This reasoning takes a Solow model approach to contemplating how high ROI available on large scale private investments can affect the general interest rate. A higher intermediate-term interest rate from a higher risk adjusted opportunity cost of capital present and a lower long-term interest rate from a saving pool boosted by high returns. However, if this ROI is poor, it will leak the savings pool and raise risk aversion. When private enterprise capex climbs with promising but uncertain returns, public spending should slow; or it risks higher real interest rates crimping household investment and essential government spending.

Big tech companies commit to more AI capex and more dividends and buybacks

Tech titans have the cash and cash flow to boost the share of earnings spent on investment capex and raise shareholder payout ratios, but their cash balances will likely shrink from these actions unless returns are high. Corporate cash is generally invested in

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money markets and short-term securities. S&P 500 capex was $1trn the last 4 quarters with 1Q24 up 10% from last year. We expect $2T in S&P profits in 2024 and capex at least $1.1T, $0.3T over depreciation & amortization (D&A), for a 15% organic reinvestment ratio. We expect $200bn in capex, up $50bn, from just four S&P firms pursuing AI. Some see this as just the beginning of the AI related capex upturn with 10-20% growth through 2026. Data centers could add 1.5% to US electricity demand annually through '28, from 200 now to 600TWh or from about 5% to 15% of total generation. This compares to flat total demand from 2000 to 2020.

US investment spending: Slow outside of AI and electrification related segments

Total private investment spending of US gross domestic product (GDP) is about $4.5T in 2023, $1T residential construction. Non-residential: $1.25T on structures, $1.75T on equipment & software, $0.5T intellectual property. About $300bn is capex on computers & communications equipment. Oil, gas and other mining capex about $100bn. Private data center and AI related investment could be $225-250bn in 2024, up from $150bn in 2023, growing 20% annually to $350bn in 2026. Raising data center and AI from 4% to 10% of total non-residential.

US deficit spending: high deficits risk crowding out private investment, but not AI

The deficit remains near $2T and while it's unlikely to crowd out AI capex given high expected ROIs, high deficits and high AI capex might crowd out growth in other investment spending segments. Construction and equipment spending outside of data center equipment, power generation and distribution could be sluggish for years to come especially if real interest rates stay high. That said, these segments of investment are big parts of S&P Tech Equipment and Industrial Capital Goods. US residential and commercial real estate investment will likely be crowded out (should support values), by the call on capital, materials and labor by big brother AI and Uncle Sam. Beware defense spending.

Our S&P 500 and Tech valuation models assume strong economic profit growth

As we continue to deliberate just how high of a growth premium to assign above a steady-state price-to-earnings (P/E) ratio for the high return on reinvestment and economic profit growth potential at what are already giant tech firms, we think it important to contemplate how the gravity of this pulls on the broad opportunity cost of capital. Returns above the risk adjusted cost of capital on new investment by segments of the economy as large as the S&P 500 and its digital titans has many macro consequences, including likely an upward push on the broad opportunity cost of capital itself. At the macroeconomic aggregate level, the incremental return available on capital and the cost of capital for a given level of risk are tethered.

2024E S&P EPS fine-tuned at $245, slightly higher at digital and lower elsewhere

We raise our 2024 estimate of S&P earnings per share (EPS) to $245 from $243 and put 2025E at $265. We trimmed 2024E Energy earnings slightly and boosted Consumer Discretionary, but the main changes are fine-tuning industry estimates and raising estimates at the biggest companies pursuing AI and related semiconductors.

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Glossary

Artificial intelligence is the theory and development of computer systems able to perform tasks normally requiring human intelligence

A budget deficit is created whenever the spending in a public budget exceeds the income within a given time period

Capital expenditure (Capex) are funds used by a company to acquire or upgrade physical assets such as property, industrial buildings or equipment.

Consumer discretionary is a sector of the economy that sells non-essential goods and services.

In business administration, the cost of capital is the cost incurred by a company in using equity capital for investments or in obtaining debt capital for them.

A dividend is a distribution of a portion of a company's earnings to its shareholders.

Earnings per share (EPS) is calculated as a company's net income minus dividends of preferred stock, all divided by the total number of shares outstanding.

The gross domestic product (GDP) is the monetary value of all the finished goods and services produced within a country's borders in a specific time period.

Inflation is the rate at which the general level of prices for goods and services is rising and, subsequently, purchasing power is falling.

The payout ratio is the proportion of earnings paid our as dividends to shareholders, typically expressed as a percentage.

The price-to-earnings (P/E) ratio compares a company's current share price to its earnings per share.

Productivity measures how much economic output is produced for a given level of inputs (such as capital and labor).

The real interest rate is the nominal interest rate adjusted for inflation as measured by the GDP deflator.

Risk aversion is a characteristic of investors to prefer the asset with lower risk and thus accept a lower potential yield.

The S&P 500 is an index that includes 500 leading U.S. companies capturing approximately 80% coverage of available U.S. market capitalization.

A share buyback involves a company buying back its own shares.

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as of 5/14/24; 096935_10 (5/2024)

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as of 5/14/24; 101163_1 (5/2024)