

date	12/12/2024	index	S&P 500	FDA rating	13
stock price	USD 511.73	country	US	FDA valuation	+
market cap.	USD 78.5 bn	freefloat	99 %	FDA sustainability	75%

Investment Summary

Synopsys is the leading vendor of Electronic Design Automation (EDA) software which is critical to the design and manufacturing of electronic chips. Fabless chip design companies, like NVIDIA, use EDA software to generate chip blueprints that are subsequently sent to contract manufacturers ('foundries'), such as TSMC, for manufacturing. Entry barriers are high because the market leaders benefit from strong expertise built up through accumulated research and development investments as well as close collaboration with design clients and chip manufacturing companies.

Chips are increasingly co-designed with the broader system in which the chip functions for additional performance gains and to better control heat generation and improve energy efficiency. To capitalise on this trend, Synopsys aims to acquire engineering simulation software firm Ansys for an enterprise value of USD 35 bn. This will allow the company to offer an integrated suite of software tools that cover not only companies' chip design challenges but also their broader product design processes.

Synopsys has a leading global market share of around 35 per cent in the chip design software market, as a result of internal innovation and a string of acquisitions over the past two decades. Together with US rival Cadence and Mentor Graphics (part of Siemens), these three firms account for around 80 per cent of the market. The engineering simulation market is more fragmented, but Ansys is considered a leading provider with a market share of around 20 per cent. Synopsys will encounter strong competition from larger computer-aided design and engineering firms such as Autodesk, Siemens and Dassault Systèmes, but it should have the scale and R&D capabilities to effectively compete in this market, building upon Ansys's strong market position.

If the deal is successfully completed, Synopsys will be active in three structurally fast-growing markets: EDA, semiconductor intellectual property (IP) and engineering simulation. Although macroeconomic headwinds and US export restrictions will weigh on revenue growth in 2025, all of these markets are expected to grow in the low double-digits in coming years. The EDA industry is fuelled by the growing complexity of chips, which requires further automation to prevent design time and costs from escalating. This also drives demand for semiconductor IP, as pre-designed chips and chip elements lower design costs and speed up the design process. The engineering simulation market is still relatively small. However, advancements in GPUs and the availability of cloud computing are widening accessibility to these compute-intensive processes and are likely to accelerate market growth.

The Ansys deal is expected to close in the first half of 2025, although some remedial actions will likely be required for antitrust approval, such as the already announced sale of its optical simulation business. Chinese authorities are also looking into the acquisition and the ongoing geopolitical tensions may lead them to adopt a tough stance towards the deal, creating uncertainty about the approval process. Despite taking on significant debt and issuing new shares, the deal would meaningfully lift the earnings-per-share of the combination compared to a standalone scenario for Synopsys. Ansys received multiple competing bids and will have to pay Synopsys a break-up fee of USD 950 mln if it accepts a higher bid while Synopsys will have to pay a USD 1.5 bn fee if the deal falls through.

Synopsys is well-positioned to benefit from the rising complexity of chip design and the growing number of companies that design task-specific chips. By acquiring Ansys, it also gains a strong position in the fast-growing engineering simulation market while it will be able to offer system companies a broad suite of design and simulation software. The firm's competitive advantage is supported by the significant accumulated and ongoing R&D investments and the extent to which its software is embedded in design processes. Sales to Chinese clients may be curtailed by additional US export restrictions, but the growth opportunities outside of China remain substantial. The shares of Synopsys are among FDA's preferred investment choices.



The FDA Blue Chips index consists of around 400 stocks. Included are the largest EU and US companies by market capitalisation supplemented by relevant peers provided they meet certain market capitalisation and information thresholds. The FDA Blue Chips index is a market-capitalisation weighted price-index measured in EUR. FDA sector indices are constructed from the stocks included in the FDA Blue Chips index.

Valuation Recommendation

The pending acquisition of Ansys would raise revenues by around USD 2 bn and lift operating margins. Synopsys will pay USD 19 bn in cash and 0.3450 Synopsys shares for each Ansys share. The cash part will be funded with new debt and USD 3 bn in cash. The firm had earlier announced its intention to divest the Software Integrity business and in early May it agreed to sell the unit to two private equity firms for USD 2.1 bn. Estimates in FDA Consultancy do not include any impact of the Ansys deal, but include only three months of the Software Integrity business in 2024. The divestment explains the revenue growth deceleration in 2024 and to a lesser extent in 2025.

Revenue growth will nonetheless be relatively low in 2025. Weaker demand from clients in end markets such as industrial, automotive and consumer electronics, which are facing a more challenging macro-economic environment, are weighing on growth in addition to more stringent US export restrictions on sales of chip design software to China. Moreover, the management has indicated that it is focused on the acquisition of Ansys, which will affect the other operational developments in 2025 somewhat. Excluding the impact of the divestiture and the effect of an accounting change that leads to fewer days in 2025, underlying revenue growth in 2025 is expected to be 12 per cent.

Beyond 2025, however, growth is expected to accelerate again. Revenues from Electronic Design Automation (EDA) software are expected to increase annually by low double-digits, mainly driven by clients adopting more of Synopsys's EDA tools, the growing importance of EDA software in the design process (due to more automation) and by the growth in the number of clients. The rising productivity gains provided by the firm's software allow it to gradually but consistently raise prices as well.

The rising number of companies that design chips as well as the trend to more task-specific chips are leading to more demand for Design IP as well. This consists of pre-designed and pre-verified chip building blocks for specific production processes, such as interfaces (e.g. USB but also UCIe that is used to connect chiplets), and increasingly more complex sub-elements that help to accelerate companies' time to market. There is also a strong demand for foundation IP, which contains the building blocks for chip designs. As they are specific to individual contract manufacturers (such as TSMC), the launch of new leading-edge foundries outside of Taiwan is a potential tailwind. Design IP sales account for around one-third of revenues, but can fluctuate strongly from quarter to quarter, as revenues are recognised when customers use the IP and when they sell products that include Synopsys's IP or when production is started.

Synopsys has been able to consistently expand its operating margin in recent years and further margin expansion is expected, mainly because increasing economies of scale will help spread the high research and development costs over a larger base. The restated operating margin in FDA Consultancy aligns with the firm's non-GAAP metrics and mainly excludes the effect of stock-based compensation from the reported figures as well as several non-recurring items. The firm has been increasing the use of stock-based compensation, explaining the growing gap between the reported and restated operating margin. There is a particularly strong jump in stock-based compensation in 2025, but this is expected to come down again in the following years, explaining the decline in the restated operating margin in 2026.

Synopsys generates strong free cash flows. The firm had been using the largest part of free cash flow for share buybacks, but these have been suspended due to the Ansys acquisition. The management intends to bring down the net-debt-to-EBITDA ratio from 3.9x at the closing of the deal to 2x in two years when it will also resume share buybacks.

Company ratios

USD per share	2023	2024	2025e	2026e	2027e
EPS reported	8.09	9.44	10.07	11.56	13.30
EPS restated	11.22	13.37	14.73	16.23	18.47
Gross CF	13.60	6.46	15.95	17.75	19.98
Revenues	38.45	40.71	43.86	49.63	55.84
Book value	40.45	58.41	68.85	80.73	94.39
Net dividend	0.00	0.00	0.00	0.00	0.00
P/E reported	63.23	54.19	50.80	44.28	38.47
P/E restated	45.62	38.27	34.74	31.54	27.70
P/Gross CF	37.63	79.26	32.09	28.82	25.61
P/Sales	13.31	12.57	11.67	10.31	9.16
P/Book value	12.65	8.76	7.43	6.34	5.42
Dividend yield (%)	0.00	0.00	0.00	0.00	0.00
ROE (%)	28.25	23.20	21.68	20.37	19.83
ROCE (%)	27.87	22.98	20.35	18.20	17.13

Price target

USD mln	2025	2026	2027
Revenues	6,768	7,675	8,656
Operating margin	26.9%	27.3%	27.9%
Total operating result	1,819	2,093	2,416
Operating result after tax	1,528	1,758	2,030
Change in working capital	-300	-232	-240
Correction Cashflow	836	884	957
Depreciation & Amortization	70	74	79
Capital expenditures	-203	-230	-260
Free cashflow	1,931	2,255	2,565
Growth rate 2028 - 2032	12.0%		
Growth rate after 2032	4.9%		

Relative performance against peers

Company	SNPS	ASML	AMAT	CDNS
Country	US	NL	US	US
Price	511.73	683.30	169.08	308.22
Rel perf 1 yr (%)	2.4	15.2	19.7	24.6
PE 2025	34.7	27.7	17.5	44.5
PE 2026	31.5	23.3	14.9	38.4
Rel PE '25	1.1	0.9	0.6	1.4
Rel PE '26	1.2	0.9	0.6	1.4
EV/EBITDA '25	39.5	24.3	14.5	43.6
EV/EBITDA '26	34.4	20.8	12.6	37.4
Yield '25 (%)	0.00	1.01	0.59	0.00
Yield '26 (%)	0.00	1.07	0.59	0.00

Synopsys Inc (SNPS), ASML Holding NV (ASML), Applied Materials Inc (AMAT), Cadence (CDNS)

WACC	Equity	Debt	
Risk free	4.8%		
Equity premium	5.5%		
Beta	0.69		
Cost	8.5%	4.0%	
Weight	90.0%	10.0%	
Result	7.7%	0.4%	8.1%
Present Value of Future CFs (USD mln)		97,346	
Cash (USD mln)		6,304	
Debt (USD mln)		-16	
Equity value (USD mln)		103,634	
Number of shares (mln)		153	
Price target (USD)		675.00	
Price (12-12-2024, USD)		511.73	
Expected price return		31.9%	

Risk Assessment

Synopsys was founded in 1986 by Aart de Geus. The firm spun out of General Electric, which together with two venture capital firms provided most of the equity capital. De Geus only has an equity stake of less than 1 per cent. He continued to lead the firm until the end of 2023 when he transitioned to the role of Executive Chairman and was succeeded as CEO by Sassine Ghazi, a Synopsys veteran. There are no other major individual or strategic shareholders.

Synopsys sells software to design electronic circuitry for all sorts of devices - from servers to smartphones to Bluetooth speakers - and most importantly the chips within those electronic systems. The growing complexity of chips and chip manufacturing techniques is driving demand for ever more sophisticated Electronic Design Automation (EDA) software. Chips have historically been developed by chip manufacturers - such as Intel - or by chip designers that outsource manufacturing. However, more and more non-semiconductor companies are designing their own custom chips. The growing demand for EDA software from these 'system' companies, such as smartphone makers, automotive companies and cloud service providers, adds to the growth of the EDA industry and system companies already account for around half of Synopsys's revenues.

Synopsys also sells pre-designed building blocks that clients can use to accelerate their design process, improve results and lower overall development costs. Synopsys's revenues from so-called semiconductor intellectual property (IP) have increased faster than revenues from core EDA software in recent years. Semiconductor IP is becoming more complex, which leads to more outsourcing while system companies tend to buy relatively more IP as they have less overall chip design capacity.

The growing demand from system companies coincides with the trend towards more integrated design processes. System companies combine the design of task-specific chips with the broader product design and even their own software. At the same time, it is becoming more difficult to improve chip performance by just increasing the number of transistors, leading to new design approaches, including combining multiple chips in a larger design (so-called multi-die designs). This introduces new design and physics challenges.

To capitalise on these trends, Synopsys intends to acquire US-based Ansys for an enterprise value of USD 35 bn. This will expand Synopsys's engineering simulation capabilities that will help to address the new physics challenges for chip designs and will provide the firm with an entry into the broader engineering simulation market to better serve system companies. The deal is being evaluated by competition authorities in multiple countries, but the management still expects the transaction to close in the first half of 2025.

DEMAND FOR EDA SOFTWARE DRIVEN BY GROWING COMPLEXITY AND SYSTEM COMPANIES

Electronic Design Automation (EDA) software accounts for around two-thirds of Synopsys's revenues. The chip design software is used in every step of the design process of electronic systems (mainly microchips), from the initial functional design to the final blueprints that are sent to chip manufacturers such as TSMC. The software helps a designer to construct a design and subsequently simulate and test the behaviour of the chip. These so-called verification steps occur both on the functional designs as well as on the physical layouts. The software essentially ensures that the actual physical chip is manufactured in such a way that it performs exactly as intended by the chip designer before costly manufacturing starts.

In the early days of chip design, the physical layout of a chip could be designed by hand. However, today's chips have billions of transistors and can only be designed with the help of software. Not only the number of transistors has greatly increased, but new transistor architectures and manufacturing techniques are constantly introduced. EDA firms such as Synopsys work closely with chip manufacturers such as TSMC to incorporate their manufacturing techniques in the EDA software. This allows chip designers to focus on the functional design and not worry about the manufacturing process. Because of the lengthy development times, both for designing a new chip and for introducing a new manufacturing technology, Synopsys is involved in manufacturers' technology roadmaps very early on. EDA firms are, therefore, a critical link between chip designers and manufacturers. The latest advancement in the automation of chip design is the use of machine learning algorithms to optimise an initial design within certain boundary conditions.

The software is typically sold as a three-year license for a certain number of users. EDA revenue growth is driven by existing customers using more EDA tools, license expansion due to growing design teams, and new customers, mainly system companies. The firm also believes that further automating the chip design process with the help of AI algorithms will allow it to accelerate its revenue growth, partly through price increases. Chip designers such as NVIDIA are key clients while Intel is Synopsys's largest client, accounting for more than 10 per cent of revenues. The large cloud service providers, Microsoft, Alphabet and Amazon, are likely large clients as well, as their cloud services have significant computing needs for which they increasingly use in-house designed custom chips. Synopsys expects the EDA industry to increase by around 12 per cent annually from 2023 to 2028.

It is unlikely that these clients will develop EDA software themselves, as this would require very significant research and development expenses for only a relatively small addressable market. Intel has historically relied on internal EDA software but has been gradually transitioning to external EDA software over the past two decades. However, some of these firms have recently developed their own algorithms for some specific parts of the design process. Intensified competition among cloud providers, most notably in the field of AI, may push these companies to come up with additional tools to accelerate their time-to-market or differentiate their chips, and thereby their services, from competitors.

Synopsys is the market leader in digital chip design while close rival Cadence is the leader in analogue and mixed-signal chip design. Analogue chips deal with continuous signals, such as power, sound or thermal signals as opposed to binary - 1 or 0 - signals of digital chips. Mixed-signal chips deal with both analogue and digital signals, such as a modem in a smartphone or a digital-to-analogue converter in a wireless speaker. Synopsys lags behind Cadence in analogue and mixed-signal chip design, but it is the market leader in analogue and mixed-signal verification and simulation.

LEADING PLAYER IN SEMICONDUCTOR INTELLECTUAL PROPERTY MARKET

Synopsys's second-largest activity is semiconductor intellectual property. Synopsys has built the largest IP portfolio among the leading EDA firms and has been able to steadily increase its market share to more than 20 per cent in semiconductor IP, behind market leader ARM. Design IP revenues have been growing faster than the EDA software revenues and now account for around one-third of total

FDA rating	SNPS	ASML	AMAT	CDNS
Market leadership (0 to 2)	1	2	1	1
Quality of management (0 to 3)	2	2	2	2
Competitive advantage (0 to 3)	2	3	2	2
Market growth (0 to 1)	1	1	1	1
Market cyclicality (0 to 1)	0	0	0	0
Financial strength (0 to 5)	3	3	3	3
Consistency of earnings (0 to 2)	1	1	1	1
Sustainability (0 to 3)	3	3	3	3
FDA rating (0 to 20)	13	15	13	13

Synopsys Inc (SNPS), ASML Holding NV (ASML), Applied Materials Inc (AMAT), Cadence (CDNS)

revenues. IPs are pre-designed building blocks that customers can use in their chip designs and electronic systems.

ARM is well-known for its CPU designs that are, for instance, widely used in mobile devices. Synopsys is, however, the leader in interface and foundation IP. Interface IP concerns those parts of chips that deal with communication and connection with peripheral devices (e.g. USB), memory chips and, increasingly, other chips. The strong growth of AI chips is boosting demand for interface IP, among others because AI chips are increasingly made of multiple chips that are packaged together and therefore need fast interfaces for signal and data transfer. Foundation IP includes the core building blocks for chip design (so-called standard cells that represent a logic function) that are also specific to semiconductor foundries' manufacturing processes. The regionalisation and proliferation of semiconductor foundries may, therefore, boost demand for foundation IP.

More generally, the growing complexity of chip and electronic system design is driving demand for IP, as buying pre-designed subcomponents helps companies to accelerate their time to market and focus on parts where their chips or systems differentiate from competitors. The trend of system companies increasingly developing their own chips also boosts demand for IP. In line with the general increase in chip complexity, IP blocks are also becoming more complex, which supports pricing. Moreover, demand is growing for large IP blocks, or IP subsystems, which help to further accelerate time to market and lower development costs. Synopsys expects the semiconductor IP market to grow by 15 per cent annually from 2023 to 2028.

CONSISTENT MANAGEMENT AND STRATEGY HAVE LED TO MARKET-LEADING POSITION

The need to better integrate the different design steps to unlock additional chip performance and the greater capacity for research and development investments stemming from increased scale have led to strong consolidation in the chip design software industry over the past two decades and Synopsys has emerged as the market leader. The firm has increased its market share from around 10 per cent in the early 2000s to around 35 per cent (EDA software only), followed by rival Cadence with a market share of close to 30 per cent. The third-largest player is Mentor Graphics, which was acquired by Siemens in 2017, with a market share of less than 20 per cent. Siemens bought Mentor to strengthen its overall design software offering by combining it with its existing mechanical design and engineering software. Cadence is following a similar strategy and has been acquiring smaller engineering simulation software providers. With the acquisition of Ansys, Synopsys will adopt a very similar strategy as well.

The market share gap between Synopsys and Cadence has been relatively stable while there are no signs that Mentor is gaining market share, although the integration into Siemens limits the visibility of Mentor's performance. More generally, the industry trends benefit the market leaders. The consolidation of the client base may have impacted EDA firms' pricing power, but any negative impact appears to have been offset by advantages from increased scale. Only the largest players have been able to sustain the high research and development spending needed to keep up with the fast-rising complexity of chip designs. At the same time, the steep learning curves of these software packages - and the pressure on firms to quickly design new chips - reduce the likelihood of clients quickly switching. With these industry trends, it has become increasingly difficult for smaller firms to disrupt the incumbents.

Synopsys's management team appears to have recognised these industry trends early on. In 2001, the firm acquired Avant!, the fourth-largest EDA firm at that time with a market share of around 10 per cent. It took a couple of years to properly integrate the two organisations as well as the acquired tools but it laid the foundation for Synopsys's current market leadership. For most of its history, Synopsys has been led by founder Aart de Geus and the firm has a sound track record under his leadership. Since the start of 2024, Synopsys has been led by company veteran Sassine Ghazi. Given Ghazi's long tenure at the firm and because de Geus has transitioned to the position of Executive Chairman the CEO transition is unlikely to lead to significant strategic changes. The CEO transition coincided with the announcement of acquiring Ansys, but the decision to increase the focus on the engineering simulation market was likely made well before Ghazi assumed the top job.

The management has also positioned Synopsys early on to benefit from the fast-growing demand for semiconductor IP. Whether EDA companies should offer IP was initially intensely debated within the industry, as this can also be seen as EDA companies competing with their customers. Moreover, designing IP is labour-intensive. One-third of Synopsys's employees are focused on designing IP. Nevertheless, demand for IP is growing fast and the operating margin of this business is only slightly below those generated by the EDA software unit. Moreover, a large IP portfolio supports Synopsys's one-stop-shop strategy while it helps the firm's overall brand image. The tolerance for faults in outsourced chip components is very low and clients are therefore likely to choose and stick with trusted IP providers such as Synopsys. In addition, it helps Synopsys to deepen its relationship with clients - with the firm becoming more and more involved in helping clients during the design process with its own expertise - which may ultimately support its competitive advantage.

In 2014, the firm started to build a position in the software security market. However, this is a very fragmented market and the synergies with chip design software are relatively limited. Towards the end of 2023, the management thus announced its intention to divest the software security business, shortly followed by the announcement of the bid for engineering simulation firm Ansys. This is likely a much better strategic fit. Ansys's clients are increasingly designing their own chips, allowing Synopsys to offer them a more integrated design and simulation software package. The simulation market is poised to grow because increasing computing power allows for more frequent simulation during the design process. Moreover, there is much more overlap between the research and development areas of chip design and engineering simulation compared to chip design and software security.

SALES TO CHINA VULNERABLE TO GEOPOLITICAL TENSIONS

China has been among the fastest-growing sales regions for Synopsys, accounting for 16 per cent of sales in 2023. China has been heavily investing in its domestic semiconductor industry but has strongly relied on Western EDA software and IP, given Western firms' dominant market positions. However, China is actively stimulating the development of a domestic EDA industry.

Moreover, Western countries, and particularly the US, have introduced sanctions on certain Chinese technology firms in recent years, which have already affected Synopsys. The 2019 sanctions against Huawei have curtailed the firm's sales to the Chinese smartphone maker while it also had to stop sales to certain Chinese firms that became subject to US export restrictions in 2021. The additional export restrictions that were announced at the end of 2024 further curtail the sale of EDA software to Chinese firms. The firm has also stated that it has become more conservative with regard to its sales approach in China, in light of the evolving trade restrictions. Against this background, the share of China in Synopsys's sales is likely to decline in the coming years.

In the long run, the further development of the Chinese domestic EDA industry is a threat. The three main Western EDA companies also currently dominate the Chinese market, but there are numerous small Chinese EDA firms that often receive direct or indirect state support while the growing domestic semiconductor industry presents a large end market that can help them to gain scale. There have also been media reports about former employees of Western EDA firms starting new EDA firms in China in recent years. Although it will likely take many years for Chinese firms to catch up to Western EDA firms in terms of sophistication of software, competition from domestic Chinese EDA firms is clearly intensifying. However, it appears unlikely that many Western firms would switch to Chinese software in an environment with heightened geopolitical tensions.

FDA Research Methodology is based on a peer group analysis and uses the lowest risk alternative (the high quality government) as a reference point. In order to assess the risk, each company is evaluated on a number of criteria and a rating on a 20 points scale is assigned. The valuation recommendation is based upon the expected return on a twelve-month basis that is calculated using discounted cash flow or sum of the parts models.

Corporate Sustainability Assessment

Governance

Synopsys has no major strategic shareholders and founder Aart J. de Geus has an equity stake of less than 1 per cent. At the end of 2023, he transitioned from CEO to Executive Chair, having led the firm for more than 30 years, and was succeeded by Sassine Ghazi. Despite De Geus's long tenure as CEO and likely significant influence at Synopsys, the CEO succession appears to have led to no major issues. Ghazi is a company insider who rose to the position of COO in 2020, indicating that his eventual promotion to CEO was well-planned.

Under De Geus's lead, Synopsys gradually became the market leader in the Electronic Design Automation (EDA) industry. Its market-leading position is predicated on enabling new technological innovations in the semiconductor industry. This makes Synopsys an inherently very technology-driven company, which is also reflected in the composition of the Board of directors.

Most of the directors have extensive experience in the IT industry, either at software development companies or at chip manufacturers. Many of them also have Board seats at firms that are likely clients of Synopsys or even potential competitors. Although such Board positions could lead to conflicts of interest, they also help Board members gain better insights into industry trends. CEO De Geus has been on the Board since 1998 and three other Board members also have tenures of more than 10 years. However, this is counterbalanced by solid Board refreshment in recent years, with primarily somewhat younger directors joining.

The Board also has a strong track record. Synopsys's market share gains over the past two decades, appear to have benefited from a strategy that emphasises early investments in upcoming technologies. The firm's 2014 decision to expand into the software security industry was a strategic misstep, but it has divested this business and the firm will pivot towards engineering simulation by acquiring Ansys. The strategic rationale for this deal is strong, providing the firm access to an additional fast-growing market and further boosting its research and development capacity.

Social

Synopsys has more than 20,000 employees, with around 80 per cent of them in technical roles and around half having a master's or PhD degree. This reduces the risk of labour standard violations and human rights issues, even though the firm also has a significant presence in countries where labour standards are typically less well-developed, such as Armenia, China and India. Involuntary turnover rates have been very low, indicating strong employee retention.

Likely related to the rather small scale of the business, Synopsys and the EDA industry have so far been quite immune to the trend of growing regulatory scrutiny of US tech firms. Nonetheless, the critical role of the EDA industry is increasingly recognised while the potential acquisition of Ansys will further expand Synopsys's clout. This will give Synopsys more influence but may also lead to additional regulatory scrutiny and increase its vulnerability to geopolitical tensions.

Synopsys has a market share of around 35 per cent in the EDA industry. By acquiring Ansys it would enter the broader engineering simulation industry. This is a more fragmented market than the EDA industry, with Ansys generally considered the market leader with a market share of around 20 per cent. Nonetheless, competition authorities may focus on the risk that Synopsys could foreclose rivals' access to Ansys's simulation tools, as the firm has partnerships with many other design software firms.

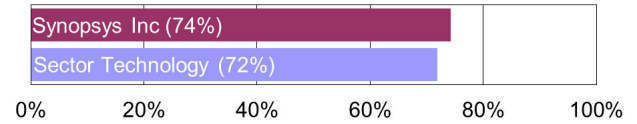
In recent years, rising geopolitical tensions have led to export restrictions for the sale of semiconductor components and related software to China. US export restrictions have already hampered Synopsys's sales of EDA software and IP to several Chinese firms, such as smartphone maker Huawei. Additional restrictions may very well curtail the firm's growth opportunities in China further. Synopsys and its rivals are also subject to an investigation by US authorities with regard to compliance with export restrictions. China is also actively supporting the development of a domestic EDA industry, potentially increasing competition for Synopsys and its US peers.

Environmental

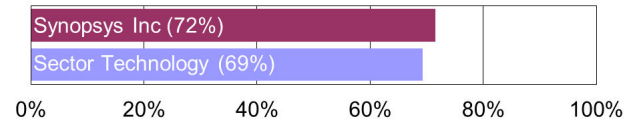
Synopsys has a modest environmental footprint. The firm is primarily a software developer, although it also sells hardware systems to emulate chip designs. Nonetheless, the firm has targets and policies to reduce its greenhouse gas emissions in coming years, which have also been validated by the Science-Based Targets initiative. Synopsys aims to reduce its own carbon emissions (scope 1 and 2) by 55 per cent in 2032 compared to 2019. As the majority of its own emissions are generated by its IT infrastructure, the firm's plans to consolidate its data centre footprint and move from on-premise servers to colocation data centres play a key role in achieving these goals.

Still, its emissions may rise in the short term due to the fast growth of the company and the fact that, unlike several other multinationals, Synopsys excludes the impact of 'unbundled' carbon offsets from its targets. This means that the firm aims to achieve its carbon reduction targets by directly purchasing renewable energy, instead of relying only on purchases of renewable energy credits, which do not necessarily contribute to emission reduction or investments in additional renewable energy capacity. Instead, the firm

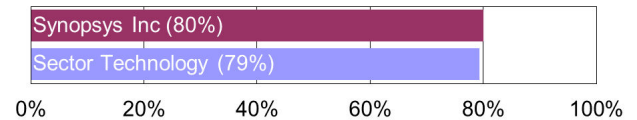
Governance dimension



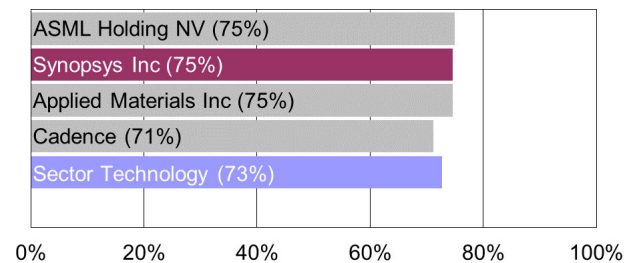
Social dimension



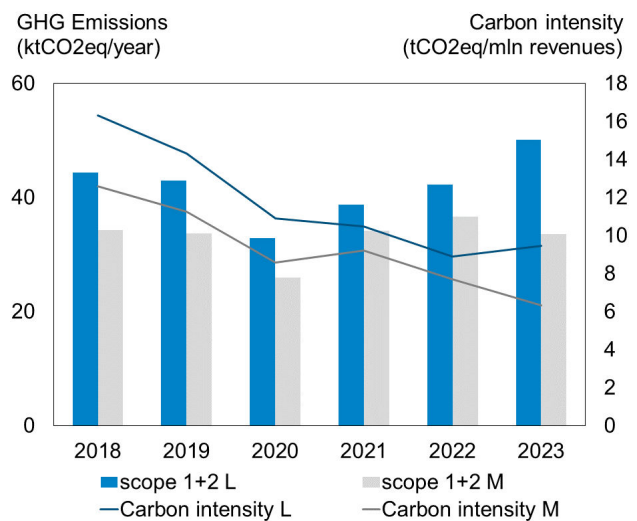
Environmental dimension



Total score - peer comparison



Carbon footprint



focuses on power purchase agreements (PPA) with actual renewable energy projects while it claims to focus on signing PPAs with power providers as close to its operations as possible. While the purchase of renewable energy credits has a direct impact on reported emissions, the impact of PPAs depends on when these projects come online and start delivering electricity.

The majority of the firm's emissions are outside of its direct control, the so-called scope 3 emissions. Synopsys does not have a large or complex supply chain. It purchases office supplies and procures hardware to support its software development process and its own hardware business. The company's scope 3 emissions are around five times as large as scope 1 and 2 combined. Synopsys has targets for reducing some of its scope 3 emissions and for the share of suppliers that adopt their own emission reduction targets. The environmental risks associated with its procurement policy and supply chain appear low.

Corporate sustainability is essential to investment decisions, as shareholder value can only endure if companies have sufficient attention for the interests of various stakeholders. FDA's Corporate Sustainability Assessment is an in-depth review of how companies handle this responsibility. FDA reviews a company's performance by assigning points on 20 different sustainability aspects. The approach results in detailed, regularly updated, sustainability reports. A higher sustainability score reflects a stronger performance and a perceived lower level of investment risk.

Three sub-scores reflect a firm's performance in the governance, social and environmental dimension. Governance-related issues determine 35% of the aggregated score, social issues 40% and environmental aspects 25%. The graph shows a comparison with peers and the performance of the broader sector.

FDA uses an investment rating system, with the perceived level of risk reflected in a score that weighs important aspects, including quality of management, competitive advantage and financial position. The in-depth sustainability analyses are an integral part of the overall assessment with the sustainability rating contributing to the total investment rating. The maximum FDA investment rating for a company is 20 points, with a higher score reflecting lower investment risks.

For more information about sustainability and full access to FDA's corporate sustainability reviews, please contact us.

Financiële Diensten Amsterdam

Financiële Diensten Amsterdam (FDA) provides investment advice based on a combination of independent equity research and macroeconomic analysis. FDA was founded in 1986 and currently has a staff of about 20 full-time analysts, with vastly different backgrounds, working together in an interdisciplinary fashion to translate the interaction between the real, financial, and monetary spheres into risk/return opportunities for various investment management styles. Our main customers are institutional investors, banks and asset management firms.

As we do not have a brokerage arm or derive any revenue from the transactions of our clients, our advice is not influenced by trade-related pressure. Moreover, our policy prohibits staff members from holding a personal equity portfolio, creating a research environment that is free of potential conflict of interest.

FDA Consultancy

The online subscription-based service 'FDA Consultancy' provides direct access to the daily research output of an independent research team that is working for a company with a track record of more than 30 years in product development, investment research, portfolio advice and consultancy.

FDA Consultancy covers investment research on around 150 companies and over 30 countries. The company research universe is focused on international blue chip companies. In addition, macroeconomic developments that matter to world financial markets are explained. FDA Consultancy includes full access to several model portfolios. This completely integrated decision support system is only available through www.fdaconsultancy.nl while components are distributed through selected third parties.

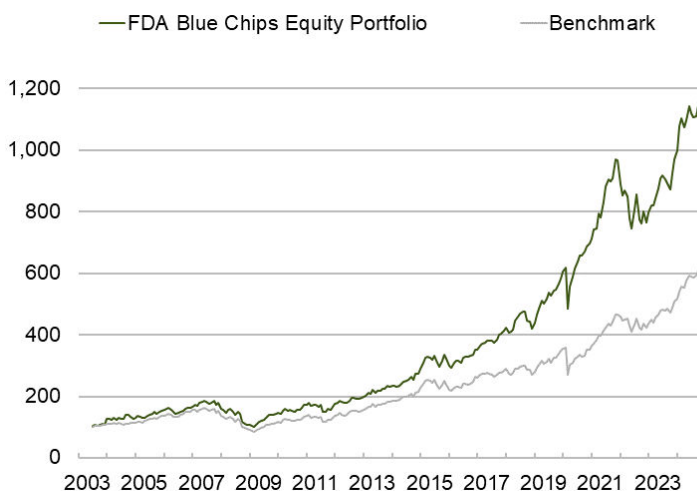
FDA Blue Chips Equity Portfolio

The added value of FDA research is best reflected in a disciplined investment process and consistent outperformance, as reflected in the FDA Blue Chips Equity model portfolio. The portfolio is a selection of international blue chips from the FDA Research Universe. Only companies that meet minimum sustainability criteria, based on FDA's proprietary corporate sustainability framework, can be included in the portfolio. Consisting of around 65 individual stocks, the portfolio serves as a model for a relatively concentrated institutional investor equity portfolio up to EUR 1 bn in size.

No restrictions are applied to the portfolio, as far as its time horizon or allocation of stocks between various sectors. The goal of the portfolio is to translate the daily output of 20 analysts into a combination of a positive total return and superior performance vs. the relevant benchmark*.

return % 12-12-2024	ytd	12mth	inc.**	inc.***
portfolio	25.7	26.7	1122.7	12.4
benchmark*	25.2	26.0	537.2	9.0
outperformance	0.6	0.7	585.5	3.4
turnover %	ytd	12mth	inc.***	
turnover	8.5	8.5	8.7	
months outperformance	12mth		inc.***	
outperformance / total	6 / 12		156 / 257	

* The composite benchmark consists of 50% 'MSCI Pan-Euro Net Total Return Index' and 50% 'Standard & Poor's 100 Net Total Return Index' (converted to Euro), which is rebalanced monthly.
 ** Portfolio inception date 30-6-2003
 *** Annualised



For a one-week free trial on FDA Consultancy, including access to all FDA research and model portfolios, please contact us at informatie@fda.nl.

Appendix - FDA Research Universe - Company and FDA Rating

Accenture plc	13	FedEx	11	Pernod Ricard	13
Adobe Systems Inc	15	FMC Corp	10	Procter & Gamble	15
Adyen NV	10	Geberit	12	RELX plc	14
Ahold Delhaize	13	Gilead	10	Richemont	12
Air Liquide	14	Givaudan	12	Roche	12
Alibaba Group	9	Hermès International SCA	13	S&P Global	13
Alphabet	13	Home Depot	12	Salesforce.com	13
Amazon.com	12	Illumina	10	SAP SE	13
Apple	13	Intel Corporation	13	Schindler Holding	12
Applied Materials Inc	13	Intuitive Surgical Inc	14	ServiceNow Inc	12
Ashtead Group plc	12	JPMorgan Chase & Co	10	Shell plc (Dutch listing)	8
ASM International NV	11	Kering	12	Sherwin-Williams	13
ASML Holding NV	15	KLA Corp	13	Shopify Inc	9
Assa Abloy B	13	Kone Corp	13	Sika AG	11
Atlas Copco A	13	Linde	13	Sonova Holding AG	13
Biogen	11	London Stock Exchange Group	11	Straumann Holding AG	13
Block Inc	9	Lowe's	11	Stryker	13
Booking Holdings	11	LVMH	13	Synopsys Inc	13
Cadence	13	Marsh McLennan	10	Tesla Inc	8
Cisco Systems Inc	15	Mastercard	14	Thermo Fisher Scientific Inc	12
CME Group	10	McDonald's Corp.	12	TotalEnergies	8
Coca-Cola Company	12	Merck & Co Inc	11	Umicore Group	10
Coloplast	12	Meta	10	Unilever (Dutch listing)	13
Crown Holdings	11	Microsoft Corporation	14	Union Pacific Corp	14
Danaher Corp	12	MSCI Inc	13	United Rentals Inc	10
DexCom Inc	11	Nestlé	16	UPS (United Parcel Service)	12
Diageo	14	Netflix Inc	12	VAT Group AG	12
DSM-Firmenich AG	13	Nike	12	Visa	14
Edwards Lifesciences Corp	14	Novartis	10	Walmart	12
Electronic Arts	10	Novo Nordisk	11	Walt Disney	13
Eli Lilly and Company	11	Novonesis	14	Wolters Kluwer NV	13
Equinix Inc	13	NVIDIA Corp	13	Yum! Brands Inc	9
EssilorLuxottica	14	Oréal L'	17	Zalando	9
Estée Lauder	15	PayPal Holdings Inc	12		
Fastenal	11	PepsiCo Inc	15		

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Contact Info

Hogehilweg 4
 P.O. Box 12720
 1100 AS Amsterdam
 The Netherlands

Tel. +31 (0)20-5677233
 Fax. +31 (0)20-6911599

Email. informatie@fda.nl
 Web. www.fda.nl