



Melville Douglas

Quarterly Commentary

Global Equity Fund

/ Q1 2024

Blowing bubbles – are we there yet?

What is a stock market bubble?

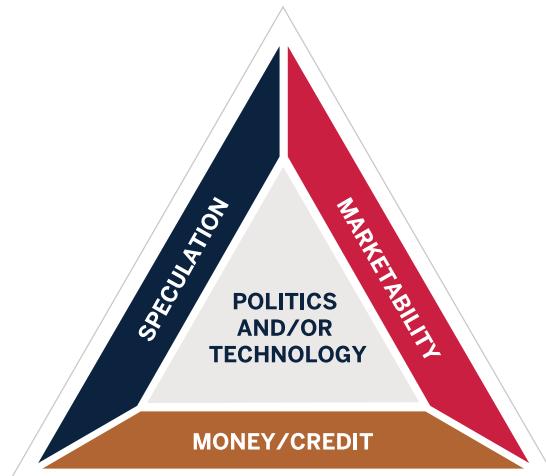
The stock market is a dynamic and complex mechanism for reflecting both the health of companies and economies and the psychology of investors. Most of the time it provides a true and fair view of what a shareholding in a company is worth. However, occasionally it can give rise to phenomena known as 'bubbles'. During a bubble, investors bid up asset prices, often to irrational levels, on the belief that they can sell for a higher price in the future. Greed takes over from fundamentals. It all ends in tears – the bubble bursts and markets crash back to earth as reality eventually hits home.

Some observers have questioned whether the current stock market rally, fueled by AI hype, is another bubble. We explore this issue and conclude that, although some stocks look overpriced, the broader market does not look excessively frothy.

What causes bubbles?

In their book "Boom and Bust: A global history of financial bubbles", William Quinn and John D Turner view a bubble like a fire which burns hot, is destructive and is difficult to control. They refer to a "bubble triangle" to illustrate the three conditions necessary for one to occur, namely marketability, money/credit and speculation.

THE BUBBLE TRIANGLE



Source: Boom and Bust: A Global History of Financial bubbles

Marketability, which is how easily an asset can be bought or sold, is viewed as the oxygen necessary for a fire. Divisibility, ease of transfer and the ability to find a buyer or seller are characteristics of marketability. Too much marketability can be dangerous because some trading friction can act as a useful fire break (i.e. allowing investors time to stop and think rationally) during speculative frenzies or market panics.

Abundance of money and credit is viewed as the fuel for the fire. Low interest rates and loose credit conditions result in more funds available to be invested (the fuel) in the bubble asset and push up its price.

The final side of the triangle is speculation which provides the heat to the fire. Speculation is buying an asset in the hope of short-term gains regardless of a substantial risk of losing money. During bubbles, speculation by retail investors goes up. These novice investors trade purely on momentum.

Quinn and Turner propose that once the conditions necessary for a bubble are in play, a spark is then needed to set the bubble ablaze. This can come in the form of technological innovation or government policy. Firms that are able to utilise technological innovation to generate excess profits can see their share prices surge, attracting the attention of speculators. At the early stages of a technological breakthrough it is uncertain who will be the long term beneficiaries. Often it is not the early beneficiaries that are the ultimate winners – e.g. for every Apple there is a Blackberry in smartphones, Google rather than Yahoo! in search, Facebook rather than MySpace in social media, and so on. Hence, it is difficult to precisely value such outcomes, which can be used as justification to assign a high valuation to the supposed next Apple. Given the sense of excitement there also tends to be significant media attention on the new technology and its potential benefits, which draws in more investors. Government policies (e.g. deregulating the banking system or incentivizing a property boom) can also be the spark that sets a bubble ablaze by creating the conditions for speculative growth.

Why do bubbles end?

Simply put, they run out of steam when reality catches up with market expectations. This may be due to lack of incremental new funds for speculation or forced selling as credit standards tighten or new information emerges which changes the future growth profile of the bubble asset.

Are we in a bubble now?

Given the recent AI boom and spectacular performance of the Magnificent 7, there are an increasing number of market participants asking whether we are once again partying like its 1999. Comparisons are being drawn between the current strength in the tech sector and the dot.com bubble in the 1990s.

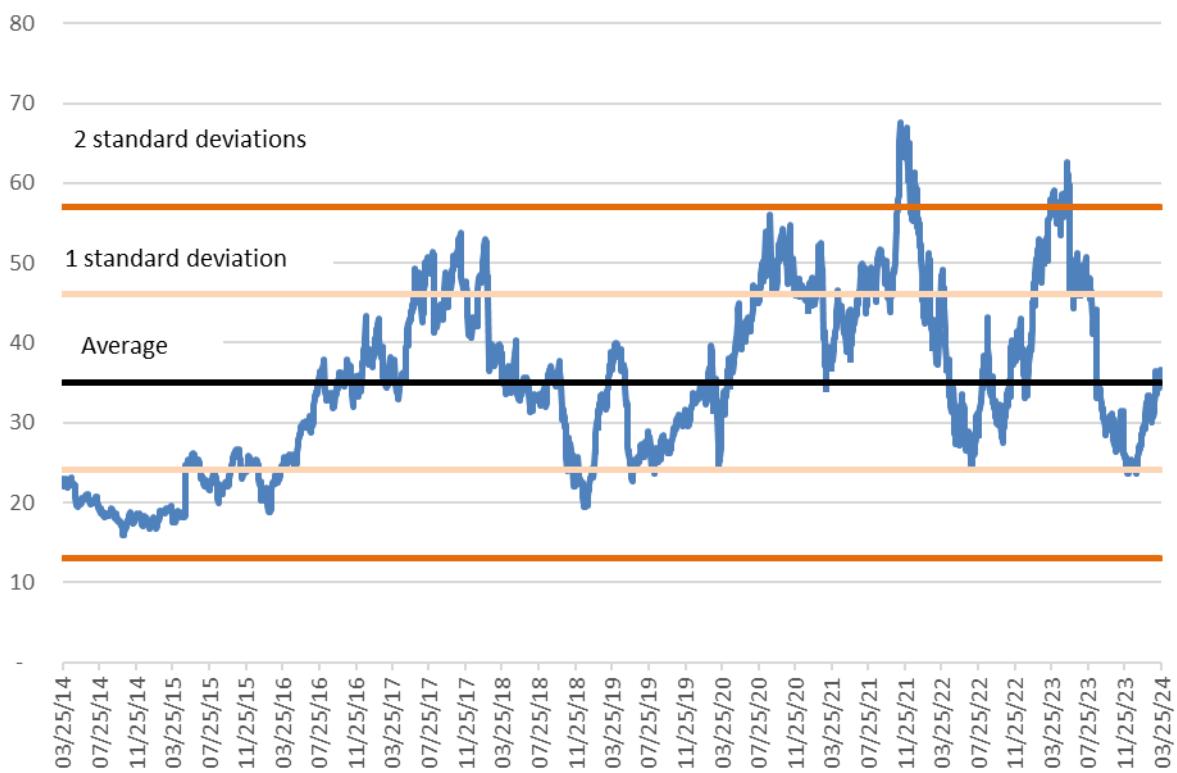
Throughout history bubbles have been driven by significant innovation whose future growth and value has been difficult to quantify. Generally, there is a lot of excitement around the new technology, and a wall of money chasing it. We saw that with railroads, automobiles, the internet and today we are seeing great excitement around artificial intelligence.

In 2000, at the peak of the dot.com bubble we saw eyewatering valuations. 65x price to earnings ratios for the Nasdaq. Cisco Systems which was seen as the poster child of the dot.com boom was growing revenues at 59% in 2000 and traded at a forward PE of 138x.

Fast forward to today the NASDAQ is trading at 27x price-to-earnings. The darling of AI, Nvidia has seen its share price increase a dramatic +240% in 12 months. But, so has its profits and future expectations of profit growth. The stock is trading on a next 12-month price-to-earnings ratio of 36x. While it certainly doesn't look cheap, it's not excessive. As shown in the chart below, this valuation ratio is around the 10-years historic average.

Nvidia - extraordinary performance, but ordinary valuation

NVIDIA PRICE TO EARNINGS (NEXT 12 MONTHS)



Source: Factset

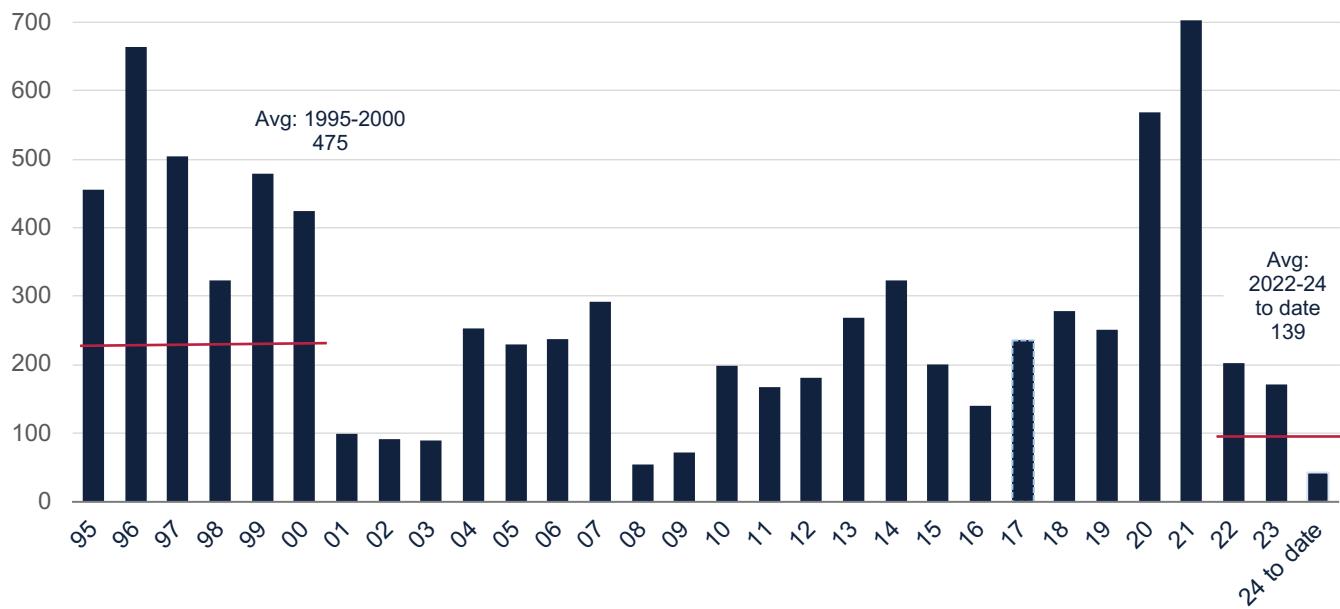
In the dot.com boom in the late 90s, many of the companies that came to the market were not profitable. The large and established companies held in the fund at the forefront of AI today (e.g. Microsoft, Meta and Nvidia) are in fact very profitable. The current equity market rally has been underpinned by robust earnings growth and strong free cash flow production.

Today's monetary policy trajectory is very different to 1999. Since March 2022 the Fed has increased rates from close to zero to near a 23 year high of 5.25%-5.5%. By contrast, most prior bubbles were preceded by easy monetary conditions. Interest rates are expected to be cut, rather than hiked, later this year.

The excitement in the 1990s around the internet resulted in a number of initial public offerings (IPOs) coming to market. We are not seeing the same exuberance typical of a bubble in the IPO market. On average, between 1995 and 2000, there were 475 IPOs annually in the US. By contrast between 2022 and 2024 we have seen an average of 139 transactions a year.

Where's the frenzy? IPOs boomed in the late 1990s, not the case today

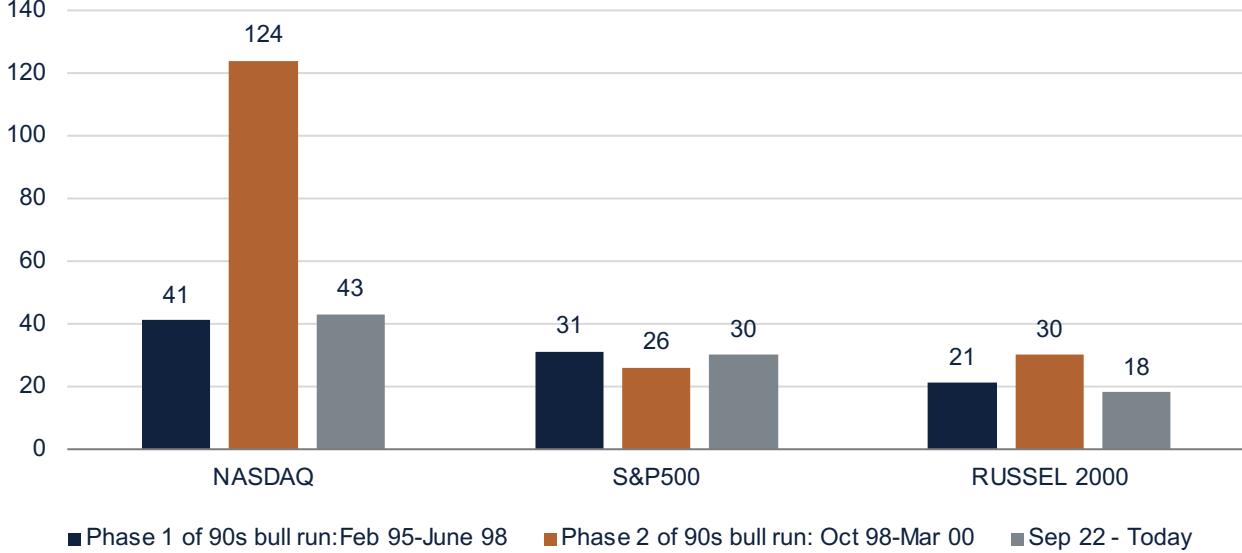
IPOS ON US EXCHANGES (# OF TRANSACTIONS)



Another sign of the dot.com elation was a significant outperformance of small caps particularly towards the end of the rally. When investors are feeling optimistic, they tend to have more appetite for small companies. The gainers in the current rally have been the Magnificent 7, which comprise seven of the ten largest companies in the world.

Bullishness hasn't yet bled into small caps

ANNUALISED TOTAL RETURN IN %



While there are some similarities to the dot.com party in the 1990s, drawing direct comparisons can be shortsighted. So long as profits also rise, markets can enjoy a significant run without inflating a bubble. The stock market's resilience in the face of rising rates points to the better quality of those returns that are not just driven by speculation fueled by cheap money. The companies at the forefront of today's rally have delivered superior earnings growth, strong free cash flow generation and have been rewarded for doing so. Considering these factors, it appears the broader market does not meet the criteria for a bubble.

This conclusion, however, comes with the caveat that market conditions are dynamic, and vigilance is necessary to navigate the ever-shifting landscape. As always, we remain focused on identifying those companies that have competitive advantages, sustainable earnings growth and strong free cash flow generation. In short, our attention is focused on profits and valuations, rather than attempting to trade in and out of the next bubble.



From our **Fund Manager's Desk**

Author: Chris Willis / Senior Global Equity Analyst

We regularly explore an investment theme that we see playing out in the Melville Douglas Global Equity Fund. This quarter Chris Willis, senior global equity analyst, highlights Taiwan Semiconductor Manufacturing Company and its place in the Global Equity Fund.

Taiwan Semiconductor Manufacturing Company (TSMC) is one of the most important companies in the world. Despite this, many of us have either never heard of it or don't fully understand just what it is that they do. Semiconductors are the critical hardware behind almost all technology. Without these tiny microchips we wouldn't have most of the conveniences and luxuries that make up our increasingly digitised lives.

Chris explores this and why we believe TSMC is poised to not only benefit from the coming computing revolution but be a key driving force of it.

The Most Important Company in the World



Source: Taiwan Semiconductor Manufacturing Co., Ltd.

Founded in 1987, TSMC pioneered the fabless foundry model. This means they don't design their own chips but focus solely on perfecting the complex manufacturing process. This singular pursuit has allowed them to become the world's leading contract chipmaker. In producing the most advanced chips, known as leading edge, TSMC holds more than 90% market share and manufacturers for customers around the world. Over the past two decades they have surpassed industry giants like Intel and today hold a significant technological lead over them.

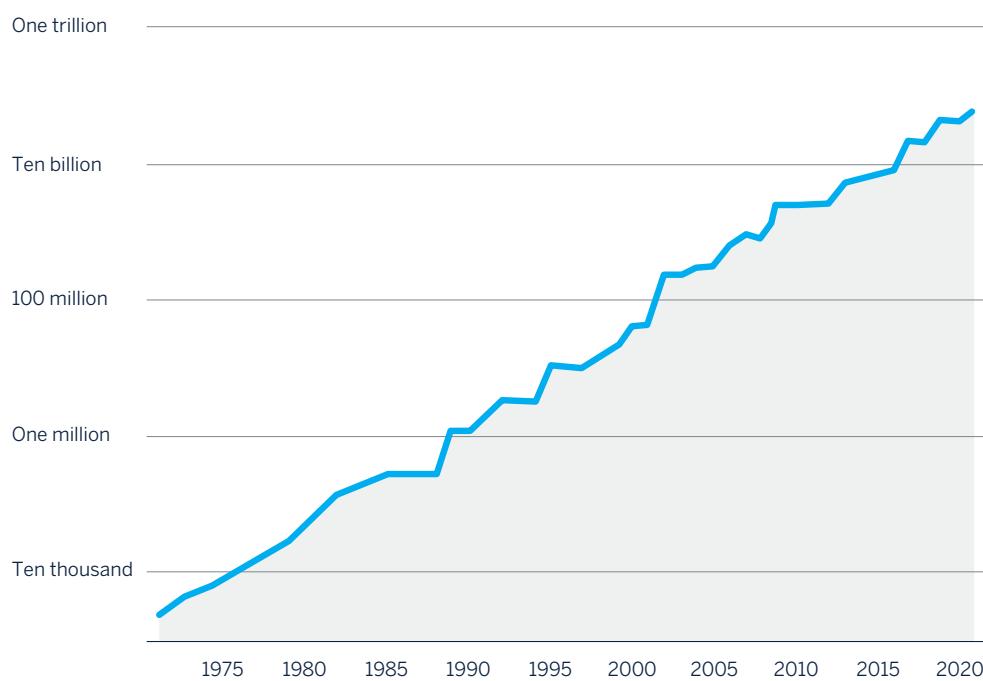
The company has grown to become such a major role player in the global semiconductor industry, that it's often thought of as the most important company in the world. One that sits at the centre of a global supply chain producing microchips for everything from iPhones and autonomous vehicles to data centres and fighter jets. The importance of this supply chain came to light during COVID when disruptions to it resulted in production lines being shut down, and shortages of appliances and electronic devices being felt across the world. Increasingly, access to semiconductor supply has become a matter of national security and TSMC has found itself to be at the centre of all the interest.

Semiconductors exist mostly out of sight, quietly powering our increasingly digitised lives. Without these engineering marvels much of today's technology wouldn't be possible. The development of semiconductors has come a long way from 1979 when Gordon Moore, the co-founder of Intel, described what was to become known as Moore's Law:



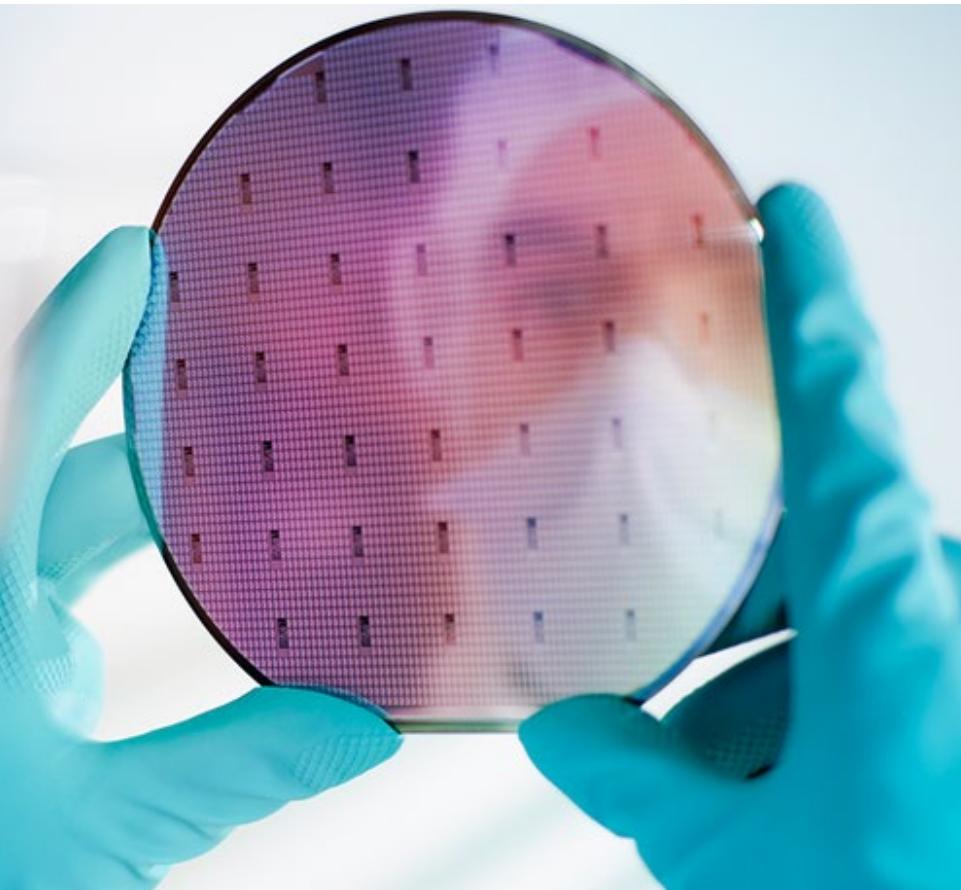
The number of transistors incorporated in a chip will exponentially double every 24 months.

NUMBER OF TRANSISTORS PER MICROPROCESSOR



Source: Karl Rupp, Microprocessor Trend Data (2022); Our World in Data, FT.com

This observation implies that the density of chips will double every two years, in effect doubling the computing power. This consistent improvement in semiconductor economics over the last 50 years has meant that computing costs have dramatically fallen. This has allowed us to cram more power into devices and at a cost that would have been difficult to imagine in the past. Consider the smartphone which weighs only a few hundred grams but is handily capable of replacing your desktop PC for most uses.



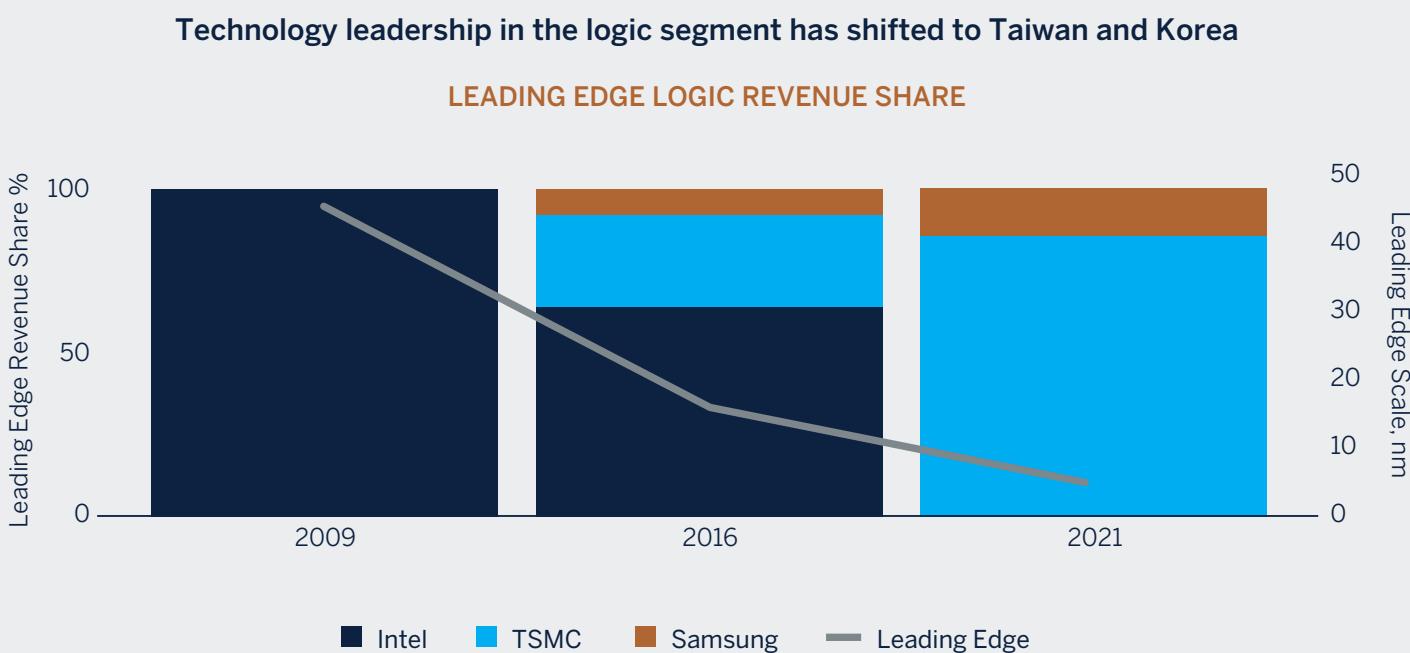
When Science and Industry Collide

A microchip that is about as big as your thumb will consist of tens of billions of transistors. The most advanced chips now have up to 100 billion transistors. These nanoscale conductors, acting as electrical switches, are layered onto a semiconductive material like silicon, hence the name semiconductor. TSMC has mastered the art of manufacturing these chips. Doing so requires pushing the boundaries of science and advances take years of experimentation and require staggering levels of research and development spending.

The fabless foundry model that TSMC operates has allowed them to focus their R&D on perfecting the manufacturing process and scaling it to industrial levels. This is markedly different from

the traditional business model of integrated design and manufacture (IDM), one pioneered by Intel and which served them well for more than 50 years.

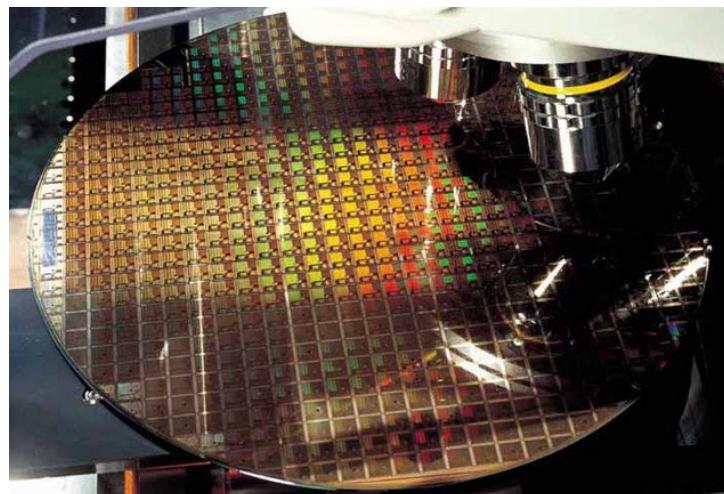
By being independent and not competing directly with its chip design customers, TSMC has been able to partner with them to advance manufacturing at a faster rate. TSMC has used its neutral but indispensable position to streamline the industry supply chain by collaborating more and bringing it to act as if it were a single entity. This partnership model has ensured a steady pace of progress in developing new nodes and allowed TSMC to become the dominant leading edge manufacturer that it is today.



Source: TSMC, Samsung, Intel

To continue to innovate and move Moore's Law forward requires legions of people. In order to do this well, experience matters most. TSMC is among a handful of dedicated foundries that possess the scientific and engineering knowhow to develop advanced manufacturing techniques and which today no other company has achieved at scale.

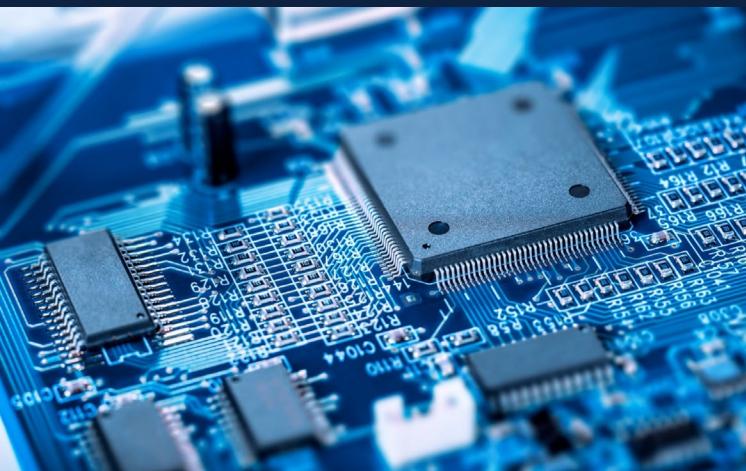
A modern fab costs between \$10bn to \$20bn to construct, an amount that grows proportionately with the complexity of the chips it produces. As this capital intensity has grown the table stakes to enter the industry have put chip manufacturing out of reach to new entrants. The smallest deficiencies in production can result in poor manufacturing yields and massive losses to customers and the foundry. TSMC has demonstrated that it is able to advance in chip manufacturing, moving into nanoscale and producing hundreds of millions of chips a year at industry leading yields.



Source: Taiwan Semiconductor Manufacturing Co., Ltd.

The Future of Semiconductors

The density of chips is constantly increasing. McKinsey expects the global semiconductor industry to grow by 7% per year until 2030 with cloud computing, wireless communication and automotive electronics being responsible for 70% of the growth.



Source: ASML

Demand for automotive chips is expected to triple by 2030, rising by about \$29bn per year. Motor vehicle IT systems are becoming more complex through the introduction of autonomous driving, connected cars, electric vehicles, and shared mobility. These technologies turn modern cars into rolling computers with an increasing density of chips and the need for high performance computing. At 80mph, the tolerance for chip failure or a system malfunction is near zero.

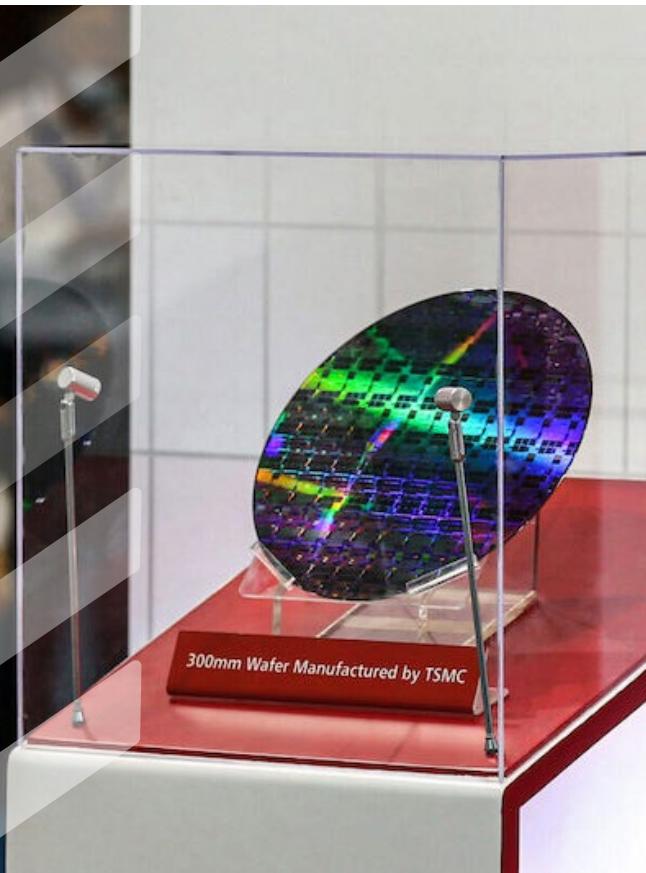
As the world moves into an era of Artificial Intelligence (AI), the demand for computing resources to train and run AI applications is expected to explode. AI and automation will touch every industry and TSMC will be the primary manufacturer of chips for the fourth industrial revolution.

In the developed world, where smartphone penetration is almost universal, these devices have become indispensable to us. As we do even more with our mobiles the need for faster and more power efficient chips will grow. In developing markets, mobile connectivity remains a growth opportunity and the adoption of smartphones an even greater one. Many of the people in these low-income countries will never own a

personal computer and so a smartphone will be their primary connection to the internet and the world. The ongoing roll out 5G and ultimately the adoption 6G will require hundreds of billions of dollars of new investment. TSMC will play a major role in producing the next generation of chips to connect the world and its citizens.

A Geopolitical Force

The shortages of chips in 2021 and 2022, brought to the fore the complicated and concentrated nature of the semiconductor supply chain. At the same time, geopolitical tensions have been rising and the strategic importance of semiconductor supply has been made clear by governments the world over. TSMC, being a neutral player and the key to security of supply, has been at the centre of a global expansion of production capacity. The company is undertaking a steady but meaningful diversification of production to new territories including the United States, Japan and the European Union. At the same time it continues to partner with Chinese semiconductor manufacturers.



Source: techwireasia.com

The Accelerated Computing Era

Better performing chips power new technologies which in turn enable growth. The demand for advanced chips will not cool for the foreseeable future as they drive productivity in their applications. By achieving industry leading production yields and maintaining their plants at optimal utilisation rates, TSMC earns a superior return on its large investments. Their manufacturing prowess and constant reinvestment in R&D shields them from would be competitors. As we enter an era of accelerated computing, TSMC will lead in producing the tools for it. The potential to benefit from this tectonic shift is why we hold it in the Melville Douglas Global Equity Fund.

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