PART FIVE

The Poster Child

We have said in this book that prior to the 1997/98 Asian Crisis, fundamental investing was a challenge in Asia. Economies were developing so rapidly that corporate Asia pursued growth without regard to global best practices. Debt levels rose unsustainably, capital management became haphazard, and conflicts of interest dominated corporate governance. The painful lessons of the Asian Crisis triggered a watershed moment that enabled Asia's best companies to mature into disciplined, high-return businesses. These were Asia's New Winners; the superior companies that Overlook had always wanted to own.

It was at this time that Overlook first encountered Taiwan Semiconductor Manufacturing Company. TSMC ticked all the boxes as a Superior Business. Its business model was profitable and cash flow positive, and management was disciplined and talented. However, our enthusiasm was dampened because TSMC had a blind spot: its business practices did not deliver value to shareholders. Overlook's Modern Finance Technology helped TSMC unlock that missing piece.

It is a core theme of this book that investment firms and corporations must have profitable business models and effective business practices to achieve excellent performance and deliver that performance to investors and shareholders. This culminating chapter of *The Model* tells the story of Overlook's two-decade relationship with TSMC. It tells how the market cap of TSMC starts at a fraction of Intel's and ends at a multiple of Intel's. The success of the TSMC Model, in many ways, parallels the success of The Overlook Model. We grew and prospered together.

TSMC: Asia's Finest Public Company

As the world is no longer peaceful, TSMC is gaining vital importance in geostrategic terms.

— MORRIS CHANG,
Founder and Chairman of TSMC

It is inevitable that a successful fund management company becomes closely associated with a company that has a superior business model. For my dad it was Automatic Data Processing; for Jon Bush it was Rite Aid. At Overlook, we can only dream of finding another company to rival our association with Taiwan Semiconductor Manufacturing Company (TSMC). When we talk at Overlook about companies that embrace the highest values of The Overlook Model, TSMC is our poster child.

Taiwan Semiconductor Manufacturing Company

In 1987, at the invitation of the Government of Taiwan, Dr. Morris Chang led the establishment of the world's first semiconductor foundry business model. For the past three decades, TSMC's business has accelerated the deployment of leading-edge technology throughout the world and has become the world's largest semiconductor foundry.

Fast-forward from the time of Overlook's first investment in TSMC in 2000. Who would have expected TSMC's market capitalization to be 2.5 times that of Intel's when it was only 14% of Intel's 20 years ago? Further, who would have conceived of the notion that TSMC's strategic role today in global chipmaking could either spark a war between the U.S. and China over Taiwan, or be the precise reason why Taiwan will avert a war?

This chapter is the story of TSMC: Asia's finest public company from the perspective of Overlook Investments, a 20-year shareholder.

The TSMC Model

Overlook's investors know that we first invested in TSMC over two decades ago. We have watched it grow from a US$ 28 billion market cap company in 2000, when we bought our first shares, into one of the top 11 public companies in the world today. The ride often felt breathtaking and jaw dropping.

The past 20 years have given us the time to recognize that TSMC's fundamental strengths emanate from the TSMC Model, described in detail below. This description of the five components of TSMC's Model could have been written in 2002 or last month. In fact, we struggle to find individual words, let alone sentences, in Overlook's 2012 description of the TSMC Model that we would change today. This highlights the power of TSMC's Model. It anchors and directs the corporation that operates in one of the fastest changing industries in the world.

Here is a revised summary of the components of the TSMC Model from our September 2012 report:

"WE DON'T COMPETE WITH OUR CUSTOMERS"

The first time I walked into TSMC's offices in 2001 in Hsinchu, Taiwan, I was told, "We don't compete with our customers." If I walk into TSMC's office today, I am still told, "We don't compete with our customers." Not competing with customers, which Intel and Samsung do, has allowed fabless integrated circuit (IC) design houses to disclose their intellectual property in confidence to TSMC.

This is a simple concept but central to the TSMC Model. It allows customers to have the confidence to expose their intellectual property (IP) and product designs to TSMC, so as to work in partnership with TSMC's own library of IP and manufacturing services to improve quality, timeliness, cost effectiveness of their product introductions, and the speed of migration to higher technology nodes. At a fundamental level, TSMC's Model helped customers lower the cost of innovation and become more successful.

SPREADING COST OF FAB OVER MANY CUSTOMERS

Morris Chang, TSMC's founder and CEO [he has since retired], developed a simple but revolutionary idea 25 years ago when he created the dedicated IC foundry business model. The goal was to offer cutting-edge semiconductor manufacturing capacity to fabless IC design houses that could not afford to load a semiconductor facility at a rate that would earn an economic return. By spreading the capital and R&D costs across multiple customers, TSMC achieves high utilization, high profitability, and more than an economic return. Since the founding of TSMC, the cost and size of semiconductor fabs have done nothing but rise. This, in turn, has driven larger and larger customers to TSMC's door. These trends have accelerated. Overlook is hard pressed to find a business with such a formidable barrier to entry.

TREATING EVERYONE THE SAME

We have a saying at Overlook that has been central to our Model: "One fund, no side accounts, no special deals, largest and smallest investors are always treated the same." So it is with TSMC in the sense that large customers do not get an unfair advantage over small start-ups. I imagine Morris Chang learned years ago that today's small companies might be tomorrow's behemoths, and those entrepreneurs will have long memories and genuine loyalty toward partners who help them achieve their early success.

INVESTMENT IN CUTTING-EDGE TECHNOLOGY

It is an absolute necessity for large fabless design houses to have access to leading-edge manufacturing technology. TMSC knows this, but the challenge is double-edged. The good news is that if a foundry can provide leading-edge technology and manufacturing scale, its business will grow quickly and with high profitability. The bad news is that bringing online the latest technology at large scale is extremely expensive, both in terms of hardware to build the fabs and R&D expenses to develop the tools and manufacturing services. This combination of hardware and software is essential for the fab owner to migrate customers to the more advanced technology nodes that offer high manufacturing yields and profits. Just the R&D for perfecting the most advanced node costs approximately US$ 1.5 billion before any revenue is generated. [That figure has doubled to over US$ 3 billion today.] This R&D cost is fully expensed by TSMC. TSMC's record of bringing online leading-edge technology is unparalleled.

ADHERING TO A DISCIPLINED FINANCIAL MODEL

TSMC has four main financial goals targeted for achievement across the full cycle, not just each year [bracketed figures are as of 2021]:

1. 20% return on equity [more than 25% today].
2. 10% E.P.S. growth [10–15% today].
3. NT$ 3.00 per share cash dividend [> NT$ 11.00 dividend].
4. Discipline in pricing its products to achieve self-financed growth.

These simple financial targets massively understate the sophistication of TSMC's financial model, which incorporates and integrates a large, but publicly undefined, number of indicators that have proven over the years to deliver the goals. From 2007 to 2020, the return on average equity has averaged 23.9%, E.P.S. has grown at a compound rate of 15.7%, and the company has been consistently cash flow positive despite spending US$ 149 billion in capex and paying just short of US$ 70 billion in dividends over these 14 years. Not bad for a company that in 2007 had an average market capitalization of US$ 53 billion.

TSMC: A McCoy Becomes The Real McCoy

We first invested in TSMC over 20 years ago and it was not all rosy from the start. Intel had a seemingly insurmountable technology lead and a market capitalization seven times that of TSMC; United Microelectronics Corporation (UMC) was a formidable competitor in Taiwan; and TSMC followed corporate governance and capital management policies that disadvantaged minority shareholders and limited the return on equity to 11% in 2003. In short, TSMC had a blind spot in their Model.

In 2004, as I readied to sell our shares, I sent a personal letter to Dr.

Morris Chang, then Chairman and CEO of TSMC, the father of the Asian electronics industry and one of the greatest executives Overlook has known in Asia. This is the story, from our December 2004 report, when Morris was not yet Morris:

> In July 2004 I wrote to Dr. Morris Chang about my concerns over the corporate governance of TSMC. I set out four actions that I felt TSMC needed to embrace to reverse this situation. I expected little more than a pat reply as so often comes when I write to CEOs to challenge the status quo. To my surprise, however, Dr. Chang circulated the letter to senior management, members of the board of directors, and representatives of the Government of Taiwan, who he told me were not happy with the criticism.
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> And then he called me directly – not the CFO, not the head of Investor Relations, not his secretary, but Morris personally. Over the past five months, I have engaged in active debate with Dr. Chang and senior management over TSMC's corporate governance policies, or more specifically: their cash dividend policy; their history of favoring share buybacks over cash dividends; their policy of giving free shares to employees; and their history of giving preference to major shareholders in the sale of ADRs in New York at a premium.
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> I am delighted to report that in early November 2004, TSMC called an extraordinary general meeting of shareholders and subsequently removed a restrictive clause limiting cash dividends from their articles of association. At the same time TSMC also announced that cash dividends would be given priority over share buybacks.
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> While I suspect Overlook was not the only voice calling for change at TSMC, my interactions with Dr. Chang and the senior management, and TSMC's announcements, leave me in little doubt that tiny Overlook, with $ 285 million of assets under management, did have an impact on accelerating important change at TSMC, which had a market capitalization of US$ 37 billion at that time. I believe that Overlook's persistence and clear stand made the directors and management realize that maintaining the status quo was not a viable option.

> What gives us the edge in such situations is Overlook's unique position of being an informed, engaged, and long-term shareholder. This provides us with opportunities to alter the direction of corporations, especially ones with honest and insightful management such as that of Dr. Chang and his colleagues at TSMC.

Our efforts to help TSMC remove a blind spot in their business practices showed Overlook that MFT's time had arrived. When the increase in returns and duration justify our work on MFT, Overlook feels more confident than ever that we can remove blind spots from superior companies and help build better companies.

Overlook Welcomes Dr. Chang and Dr. Sun to the Overlook Hall of Fame

In 2006 it gave us particular satisfaction to name Morris to the Overlook Hall of Fame. Belatedly, we named Dr. Elizabeth Sun, one of Overlook's all-time favorite corporate executives, to the Hall of Fame in 2019. Elizabeth was instrumental in implementing the new business practices at TSMC in 2004/05.

Dr. Morris Chang's 2006 induction to the Overlook Hall of Fame:

> I am pleased to name Dr. Morris Chang as the 12th member of the Overlook Hall of Fame. Dr. Chang is Chairman and Founder of Taiwan Semiconductor Manufacturing Company (TSMC) and an executive whom I consider to be the father of the electronics industry in Asia. Nearly every technology company we visit in Taiwan or China owes its success at some level to TSMC and Morris Chang. Dr. Chang was among the first executives to embrace the core components of Overlook's Modern Finance Technology. He listened to us. His commitment to high corporate governance standards

> resulted in the payment of the largest cash dividend in the history of Taiwan in 2005.
>
> I feel privileged that Overlook has worked with Dr. Chang in helping TSMC become a better corporation and am honored to name him a member of the Overlook Hall of Fame.

Dr. Elizabeth Sun's 2019 induction to the Overlook Hall of Fame:

> Overlook's holding of TSMC has nearly perfectly overlapped with Elizabeth's 17-year tenure at TSMC, and her retirement is a bittersweet moment as we have appreciated our successful relationship for so many years. Throughout her career Elizabeth has been a vigorous and influential voice among the senior leadership at TSMC on the critical issues of corporate governance, capital management, and creating a true partnership between management and shareholders. Elizabeth has a unique ability to toggle seamlessly between answering complex technical questions about the manufacture of advanced semiconductor chips and reviewing the components of TSMC's sophisticated pricing and capital management models. Over the last two decades it has been our honor to watch TSMC develop into the highest quality company in Asia. Overlook owes Elizabeth an enormous debt of gratitude for her contribution to TSMC and Overlook.

Warren Buffett

As TSMC implemented the changes in corporate governance and capital management, we wrote to update Overlook's investors:

In Q3 2007, TSMC's share price was sold off from NT$ 69.4 to NT$ 36.8 under pressure from investors discounting a recession in the U.S. At the lows of late November, TSMC was an exceptional buy in the great tradition of value investing. On November 27, 2007, I took the opportunity to fulfill a personal ambition of mine by recommending TSMC to Warren Buffett of Berkshire Hathaway. I had no expectation that Mr. Buffett would buy the stock, for a host of reasons, but the process of writing the letter reaffirmed Overlook's conviction that TSMC was a great stock for us to own. Rather than paraphrase our letter, I have copied excerpts from it below. I think these comments serve to outline why Overlook still owns TSMC.

EXCERPTS FROM LETTER TO WARREN BUFFETT FROM RICHARD LAWRENCE, DATED NOVEMBER 27, 2007.

Dear Mr. Buffett,

I recommend that you consider an investment in Taiwan Semiconductor Manufacturing Company (TSMC).

After 23 years of following the investment philosophies of Berkshire Hathaway, it gives me great pleasure that I have an investment idea that may be of interest to you. I hope that this idea will at least partly repay you for your contribution to my development as an investor.

As background, I am a 51-year-old American who moved to Hong Kong in 1985. For the last 22 years I have been investing in the public stock markets of Asia and for the past 16 years I have run a modestly sized, value-oriented partnership that has generated returns of 14.3% per year. Much of what I do is founded on the business and investment philosophies of Berkshire Hathaway and the value investing community.

TSMC has the following attributes that may be worthy of your attention:

- Dominant market share
- Strong pricing power indicated by high and steady profit margins
- Substantial amounts of free cash flow
- Rising capital efficiency and returns on investment

- Bargain valuation
- Ethical management

VALUE PROPOSITION OFFERED BY TSMC

DOMINANT MARKET SHARE

Over the past five years TSMC has generated 60% of the foundry industry's revenue, 64% of the industry's operating cash flow, and 103% of the industry's operating profits adjusted for full employee costs, while spending just 49% of the industry's R&D. As a result, TSMC's lead over competitors is even wider in the most sophisticated products that naturally carry higher growth, wider margins and higher barrier to entry. This commanding position underpins a virtuous cycle for TSMC and a vicious cycle for competitors who are falling further and further behind TSMC's productivity and advanced manufacturing techniques.

Rarely have I seen an industry where the leading player captures so much of the value.

STRONG PRICING POWER INDICATED BY HIGH AND STEADY PROFIT MARGINS

Mr. Buffett, you have taught me that most high-quality companies have strong pricing power. I understand this to be reflected in high absolute profit margins matched with low volatility.

Over the past ten years, TSMC has generated the highest cash gross profit margins (71.4%) and the lowest annual volatility of cash gross profit margin of any company in our portfolio. To put these numbers in a wider perspective, TSMC's pricing power (as calculated by Overlook) compares favorably with 10-year figures from Coca-Cola, Johnson & Johnson, The Washington Post Company and Gillette (until its merger). I think these figures confirm that TSMC has substantial pricing power and that the Company's fabs generate high value-added for its customers.

Certainly, these results are not what we might expect from a typical manufacturing company.

SUBSTANTIAL AMOUNTS OF FREE CASH FLOW

For the past 10 years, cash flow before capex has averaged 59.25% of TSMC's revenue. In the early days of TSMC, when revenue compounded at 25% per annum, the company used its cash flow to pay for multi-billion-dollar manufacturing facilities. However, since 2002 there has been a clearly visible trend towards declining capital intensity of the business. Capex as a percentage of cash flow has averaged only 46.2% over the past five years against an average of 125.9% in the preceding five years. The drop in capital intensity is supported by slower industry growth and maintenance capex that equals only 10–15% of annual capex.

As a result of this high-quality cash flow, TSMC's cash, dividends and stock buybacks have ballooned and should stay very healthy.

RISING CAPITAL EFFICIENCY AND RETURNS ON INVESTMENT

On the back of falling capital intensity and higher asset turnover ratios, TSMC has initiated a process of implementing an efficient capital structure. In 2004 the company declared its first cash dividend and in 2005 increased the dividend payout ratio to 67%. In November 2007 TSMC announced an immediate US$ 1.5 billion share buyback to be completed by February 2008 and its intention to initiate three further buybacks of US$ 1.0 billion per year in 2008, 2009 and 2010.

These steps will raise the return on average equity from 11.1% in 2003 to above 30% by 2009. TSMC's return on average operating net assets should top 50% by 2009, leaving room for TSMC's return on equity to rise further. However, despite efforts to improve the capital structure, net cash has still risen from 16% of shareholders' equity in 2002 to an estimated 23% in December 2007.

BARGAIN VALUATION

I believe TSMC's share is a bargain in the best tradition of value investing, especially for a US$ 50 billion company. TSMC is currently trading at between 8.5x and 9.0x owners' earnings. From my estimate of between US$ 5.0 and US$ 5.5 billion of owners' earnings, TSMC is able to reinvest US$ 2.0 billion in the business at an unlevered rate of return of between 15% and 20%. I expect the rest will be distributed to shareholders generating a 5–6% dividend yield. Furthermore, investment returns for shareholders will be enhanced by share buybacks that will lower excess cash reserves and enhance E.P.S. growth rates.

ETHICAL MANAGEMENT

I consider Dr. Morris Chang, Chairman and Founder of TSMC, to be an ethical and honest business leader. In 1987 he resigned from Texas Instruments, returned to Taiwan to set up TSMC and, in doing so, became the "father" of the Asian electronics industry.

[We described for Mr. Buffett our interactions with Morris Chang earlier in this chapter.]

TSMC's Model vs. TSMC's Results

In retrospect, my letter to Warren Buffett was deficient. The letter describes in comprehensive detail the results of TSMC. It does not define the components of the TSMC Model, nor does it explain that TSMC's results occurred due to the execution of their Model. It is TSMC's Model that drives the results, not vice versa. Our letter to Mr. Buffett neglected to explain the source of TSMC's enduring strengths and therefore, we are partly responsible for Berkshire missing out on a 24.8% IRR over nearly 14 years.

Don't compete with customers, treat all customers the same, spread the cost of the fabs over many customers… The components of the TSMC Model are the drivers of TSMC's success. The TSMC story is, in many ways, similar to other companies we have highlighted in this book that had superior businesses and aligned business practices. It is also similar to Overlook's story. Our Investment Philosophy has generated outperformance over the universe and our commitment to the Overlook Business Practices has enabled us to deliver outperformance to the investors. The 14.3% return and the 6.5 percentage points of outperformance are the results that arise from the execution of The Overlook Model, not vice versa. There is no other logical explanation.

For 20 years Overlook's investment in TSMC generated capital-weighted returns of 18.1%. We consider ourselves fortunate that Morris Chang picked up the phone 17 years ago in reply to Overlook's letter and asked us to work with TSMC to resolve our differences. At that moment Overlook understood that TSMC was the finest public company in Asia.