

ODLUM BROWN REPORT

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ODLUM BROWN
Investing for Generations®

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OdiumBrown



The Most Important Tech Company You've Never Heard Of

Electronics permeate our everyday lives, from mobile phones and computing devices to automobiles and washing machines. Our dependence on electronics is fully entrenched, and our expectation that these machines become faster, more powerful and more energy-efficient relies heavily on microchips, otherwise known as semiconductors. These teeny tiny chips made of silicon materials manage the flow of electric current in digital equipment. Without chips, advancements in high technology areas such as cloud computing and artificial intelligence would not be possible.

Semiconductor manufacturing is vitally important to the flowing of goods in the global economy. Even for less advanced chips, manufacturing interruptions like the ones we experienced during COVID can result in devastating losses. According to the American Automotive Policy Council, there are over a thousand chips used in the production of a single car. If chips are unavailable, the production process grinds to a halt. Anyone who wanted to buy a new car in 2021 knows this all too well.

In the early days of COVID, auto manufacturers misjudged demand and cancelled chip orders, expecting sales to sink. At the same time, computer demand sky-rocketed due to lockdowns and a shift to remote work. By the time automakers realized the pandemic was actually stimulating demand, it was too late, and chip manufacturers were already at capacity. Consequently, experts estimate the auto industry produced 7.7 million fewer cars in 2021, implying a whopping \$210 billion hit to overall revenues.¹ Over time, chip content in electric vehicles will increase, possibly double, compared to internal combustion vehicles, making access to semiconductor supplies crucial to the wellness of the industry.

There are only two companies in the world with the skills and scalability sophisticated enough to accommodate the production of advanced semiconductors: Taiwan Semiconductor Manufacturing Company (TSMC) and Samsung Electronics.

Taiwan Semiconductor is the only "independent" chip fabricator in the world, meaning it only manufactures chips — no other products — using designs developed by clients like behemoths Apple and NVIDIA. This is a notable differentiator to Samsung who not only makes chips for others but also for its own branded cell phones and laptops that compete with companies like Apple. This creates a meaningful conflict of interest that simply does not apply to TSMC.

Taiwan Semiconductor was founded in 1987 as a joint venture between the Taiwanese government and private investors. At the time, the decision to focus only on manufacturing chips was far from obvious. Most businesses were vertically integrated, meaning they designed and fabricated chips in house. But, as the industry matured and chips became smaller, faster and more efficient, production became increasingly complicated and expensive, pushing many to outsource fabrication entirely. This trend toward "fabless" flung the door wide open for TSMC thanks to its neutral position with respect to competing with customers.

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MAKING A DIFFERENCE FOR CLIENTS FOR 100 YEARS

Share your Odium Brown story!

Whether you are a client, or perhaps familiar with us through our community involvement, we invite you to help us celebrate our 100th anniversary!

Scan the QR code below for an opportunity to share your Odium Brown story. Tell us how we've been part of your journey, about a time we made an extra impact — or even just who you think would play Odium Brown in a movie!

We would be honoured to hear from you.



Today, TSMC enjoys a 55% share of the chip manufacturing market compared to Samsung at 9%. It has been said that data is the new oil, and if that is the case, then TSMC is the world's largest and most important data refinery.

This leadership position results in a positive feedback loop, as customers seek out the most advanced innovations. A high market share supports stable and strong cash generation, and the company's margins are at least twice those of its closest peers. To stay at the forefront of technological developments, Taiwan Semiconductor leverages its scale and high-margin advantage to invest heavily in research and development. This makes it possible for the company to adopt new and more sophisticated techniques, and create more potent and effective semiconductors, such as radio frequency and 3D intelligent sensors targeting 5G and smart applications.

The company's continued growth is greatly enabled by its impressive financial performance. TSMC has produced an average return on equity of over 25% over the previous decade, which is exceptional compared to the general market. With a low leverage ratio and robust cash on hand, TSMC's solid balance sheet allows it to take advantage of opportunities and changes in the market.

Of course, no company is without risk, and the main threat facing TSMC is cyclical. Companies like TSMC and Samsung sell chips to manufacturers like Dell, who ship products to retailers like London Drugs. When demand is rising, retailers and distributors stock up. Manufacturers also stock up on raw materials. When demand is strong, semiconductor companies tend to sell more than is being consumed. When demand is weak, the cycle reverses, and profits can fall significantly. Investors need to be aware of how swings in product inventory may affect stock prices.

Geopolitical risk is also a consideration. The U.S. recently introduced restrictions on the sale of certain chips and semiconductor equipment to China. The goal is to slow China's domestic semiconductor advancement, including efforts to modernize its military. These rules should make it harder for China to develop artificial intelligence and super-computing capabilities. A concern is whether, and to what degree, China will retaliate. We are not geopolitical experts, but we are optimistic that American and Chinese self-interests will result in a relationship that resembles the status quo.

To prevent future supply bottlenecks, the U.S. and Europe are taking steps to support domestic semiconductor manufacturing. In August 2022, President Joe Biden signed the CHIPS and Science Act into law. The Act provides roughly \$280 billion dollars in funding for domestic semiconductor research and manufacturing. TSMC will certainly be part of this effort, despite some cost challenges. TSMC founder Morris Chang noted that producing chips in the United States will cost 50% more than doing so in Taiwan. Still, the company is moving forward and actively constructing two cutting-edge factories in Arizona. TSMC is also looking at establishing a specialized facility in Europe with an emphasis on automotive technologies.

This geographic diversification of semiconductor manufacturing represents a shift away from where we are today. According to *Chip War: The Fight for the World's Most Critical Technology*, by Chris Miller, "[The country of] Taiwan produces 11 percent of the world's memory chips. More important, it fabricates 37 percent of the world's logic chips. Computers, phones, data centers, and most other electronic devices simply can't work without them, so if Taiwan's fabs (fabrication plants) were knocked offline, we'd produce 37 percent less computing power the following year."

Numerous industries, including automotive, computing and telecommunications, depend on semiconductors. The viability of these sectors and the overall health of the global economy depend on companies like TSMC to produce high-performing semiconductors at scale. We expect TSMC's role as a technology enabler will continue to increase as demand for semiconductors rises.

Contact your Odium Brown Investment Advisor or Portfolio Manager for our Investment Case and latest research reports on TSMC.



STEVEN ZICHERMAN, MBA, CFA
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¹ Chris Miller, *Chip War: The Fight for the World's Most Critical Technology*, (New York: Scribner, 2022), Page 328

How Are Care Costs Determined in BC?

Many individuals prefer to live independently in their own homes for as long as possible. This brief overview of common care options in British Columbia and how costs are determined can help you and your loved ones plan ahead in case life changes eventually mean that you will need help with day-to-day activities or to move into a care facility.

In BC, you must be approved for publicly subsidized care services such as in-home support, adult day care, assisted living or long-term care facilities. Your needs will be assessed by a case manager from your regional health authority, and costs will be determined based on the type of care selected and your eligibility for temporary or yearly fee reductions or waivers.



Five Common Types of Care in BC

1. Home Care – Home care can help you maintain independence while living in your own home. Services may be limited in scope and frequency, and prioritized for people who need them the most. Generally, services can include personal assistance with activities of daily living such as mobility, nutrition, bathing and dressing, grooming and toileting, lifts and transfers, or cueing (providing prompts to assist with the completion of tasks). Specific nursing and rehabilitation directed by health care professionals may also be provided. Clients with high physical care needs may have an option for self-directed home care called Choice in Supports for Independent Living (CSIL). While most subsidized home care is long-term in nature, short-term care may be available if you are discharged from hospital or need end-of-life care.

2. Adult Day Services – If you cannot function independently because of chronic, health-related problems and require health care services or respite for your caregiver, you can consider attending an adult day program. Services can include health care and/or rehabilitation, therapeutic social and recreational activities, clinics, caregiver support and possibly transportation. The number of days you can attend will depend upon your personal needs and services available, and you can receive home care while enrolled.

3. Assisted Living (Retirement Home) – These residences can range from one-room units in a high-rise facility to self-contained apartments in a private home. By combining housing with hospitality (two nutritious meals a day) and personal care services (such as help with bathing, grooming, dressing and mobility), plus weekly housekeeping, linen laundry, activity programming and 24-hour emergency response, they help you to continue living independently. Your eligibility can depend on whether you are at significant risk by remaining in your own home, can make your own decisions, and require a supportive environment due to physical and functional health challenges.

4. Long-Term Care (Nursing Home) – If you require 24-hour professional nursing supervision that can no longer be met in your own home or in an assisted living residence, long-term care services can be approved. You are generally expected to indicate up to three preferred choices when applying for this care, and will be placed on a waitlist and expected to take the first available spot (within 48 to 72 hours of it becoming available). After initial placement, you can request a transfer to a preferred care home, based on your original position on the waitlist.

5. Respite Care – Respite care provides your primary caregiver with relief (respite) from the emotional and physical requirements of caregiving. Your respite care could range from home care or an adult day program, to temporary stays in an assisted living or nursing home. Publicly subsidized respite care can be arranged through your local health authority as part of your care plan, or private-pay options may be arranged directly with private facilities.

Care Costs and Public Subsidies

Costs can vary tremendously based on factors such as the type of care that you require, where you live, your income and eligibility for fee reductions or waivers. You must be approved for public subsidies through your regional health authority. The table below summarizes approximate fees and eligibility factors for subsidies or waivers.

SUBSIDIZED CARE COSTS IN BC (2022)		
TYPE OF CARE	COST BASIS	NOTES
Home Care	Daily rate	<ul style="list-style-type: none">The daily rate is based on your “remaining annual income,” up to the actual cost of care.Capped at \$300 per month if you or your spouse receive “earned income,” which includes employment and self-employment but not rental income, for example.Waived if you receive certain types of government income assistance, such as the Guaranteed Income Supplement (GIS); are eligible for BC Palliative Care Benefits; or within 2 weeks of hospital discharge.
Choice in Supports for Independent Living (CSIL)	Hourly rate	<ul style="list-style-type: none">Self-directed home support for high physical care needs, funded by your local health authority.Your monthly contribution is calculated using the same criteria as for Home Care, above.
Day Services	Maximum \$10 per day	<ul style="list-style-type: none">A nominal daily rate may be charged, or it may be waived in the case of serious financial hardship.
Assisted Living	70% of after-tax income, subject to other minimums and maximums	<ul style="list-style-type: none">The monthly charge (co-payment) for long-term residential care is 70% of after-tax income, subject to a minimum monthly charge of \$1,071 for single clients or \$1,631 for couples living together (2022 rates) or maximum monthly charge based on market rates.The minimum may be reduced for lower-income individuals or to alleviate serious financial hardship.Other charges, such as for heat/hydro, telecommunications, transportation or parking, guest meals and accommodation, personal grooming services, etc., may also be permitted.
Long-Term Care	80% of after-tax income, subject to other minimums and maximums	<ul style="list-style-type: none">The 2022 monthly charge (co-payment) for long-term residential care is 80% of after-tax income for an individual client with more than \$19,500 per year of net annual after tax income, subject to a minimum monthly charge of \$1,237 and maximum monthly charge of \$3,575.This minimum rate may be reduced for lower income individuals or couples sharing a room.
Respite Care	Based on type of care	<ul style="list-style-type: none">Rates depend on the type of care received, such as home support or short-stay services.

Private Care Options in BC

1. Home Care – “Pay as you go” private home care can be independently arranged for tasks such as meal preparation, laundry, skilled nursing, occupational therapy, housecleaning or even basic personal care, but the hourly cost of services can quickly become a substantial monthly expense. Minimum costs range from

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approximately \$20 per hour for in-home meal preparation, personal or live-in care to \$45 per hour for skilled nursing (2021), but hourly costs could be much higher.

2. Adult Day Services – Some programs accept private-pay clients.

3. Assisted Living (Retirement Home) – These private-pay facilities may offer a greater choice of hospitality and personal care services to help you continue to live independently. Costs range from \$1,387 to \$9,180 monthly for a private room (2021).¹

4. Long-Term Care (Nursing Home) – Some private-pay facilities offer a “campus of care” which allows clients to remain in the same general facility area if their care needs progress beyond the parameters of assisted living. Costs could range from \$2,400 to \$12,500 monthly for a private room (2021).¹

5. Respite Care – Private-pay options for respite care could range from home or adult day care to a temporary stay in an assisted living or nursing home facility. Contact the facility or program directly.

If you would like more information on how Odium Brown Financial Services Limited can assist you with planning for retirement and potential care costs, contact us through your Odium Brown Investment Advisor or Portfolio Manager.



HEATHER RIVERS, BA, CFP®, FMA
Communications and Education Specialist
Odium Brown Financial Services Limited

¹ <https://www.sunnet.sunlife.com/files/advisor/english/PDF/bc-ltci-summary-en.pdf>

Other resources:

gov.bc.ca/gov/content/health/accessing-health-care/home-community-care

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Odium Brown's Annual Address

We are pleased to invite you and your guests to attend our signature investment presentation and celebrate our 100th anniversary together. Join **Debra Doucette**, President and Chief Executive Officer, and **Murray Leith**, Executive Vice President, Director, Investment Research, as they share our independent approach to helping generations of clients achieve their financial goals.

COURTENAY

Monday, February 6, 2 PM
Crown Isle Resort, Ballroom
399 Clubhouse Drive

SOUTH SURREY

Tuesday, February 7, 7 PM
Morgan Creek Golf Course
3500 Morgan Creek Way

VICTORIA

Wednesday, February 8, 2 PM
Delta Victoria Ocean Pointe Resort, Ballroom
100 Harbour Road

KELOWNA

Thursday, February 9, 2 PM
Coast Capri Hotel, Ballroom
1171 Harvey Avenue

CHILLIWACK

Monday, February 13, 2 PM
Coast Chilliwack Hotel, Rosedale Room
45920 First Avenue

VANCOUVER

Tuesday, February 14, 2 PM
The Fairmont Waterfront, Waterfront Ballroom
900 Canada Place Way

WEST VANCOUVER

Wednesday, February 15, 7 PM
Kay Meek Centre, Main Stage Theatre
1700 Mathers Avenue

LANGLEY

Thursday, February 16, 2 PM
Langley Events Centre, Banquet Hall
7888 200 Street

As space is limited, register at odlumbrown.com/rsvp.

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